Situating everyday water realities: low-income access, informal provision and domestic strategies in urban Ethiopia

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Declaration of authorship

I, George Frederick Alexander Neville, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

Signed: 

Date: 8th February 2017

Abstract

This thesis critically analyses the significance of the local unregulated water market as an underground component of the wider urban waterscape in Ethiopia, specifically a peripheral and low-income sub-city of Addis Ababa called Akaki Kality. Of particular concern are the business strategies employed by informal (and illegal) water providers, and inherently linked to this the everyday procurement and prioritisation of water within the domestic environment. The study therefore focuses on 'everyday life' in order to localise the prevailing meta-narrative of water and instead consider the quotidian activities and relations associated with this resource at the community- and household-levels. It will thus add substance to global access statistics, improve understanding of the complex practices and challenges of water in low-income contexts, and subsequently establish if and how everyday realities can be changed for the better.

The thesis argues that water indeed represents an arena of pervasive social injustice. Technical and political obstacles either prevent or inhibit many from accessing sustainable formal water sources in the region, and the significantly more expensive informal providers have become a fundamental supply modality as a result. Embedded within this finding are three key implications. Firstly, low-income consumers depend on and actually appreciate the services of informal water providers, contrary to their alternative and exploitative stereotypes. Secondly, informal households are both able and willing to pay for water, and spend considerably more on this indispensable resource than wealthier urban districts. Thirdly, access to water is a far more fluid concept than its dualistic portrayal suggests, as the everyday reality sees informal providers conduct complex redistribution operations while households oversee calculated and flexible sourcing and consumption strategies. Water informality is ultimately engrained within Ethiopian society, and harnessing its potential could unlock an alternative urban future bereft of water injustice.

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I have been overwhelmed by the help I received throughout this PhD studentship from a wealth of individuals, without whom the research would not have been possible. While there are too many to name here, I would briefly like to show my gratitude to some of those who have offered their time and dedication in abundance.

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interpreters. This level of support throughout the fieldwork process was indispensable and thus greatly appreciated.

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Glossary of terms

Acronyms and abbreviations

AAWSA	Addis Ababa Water and Sewerage Authority
AIDS	acquired immune deficiency syndrome
AKWSA	Akaki Kality Water and Sewerage Authority
AMCOW	African Ministers' Council on Water
CASE	Collaborative Award in Science and Engineering
CBO	community-based organisation
CSP	Charities and Societies Proclamation
DFID	Department for International Development (UK)
EDA	Emmanuel Development Association
EDRI	Ethiopian Development Research Institute
EPRDF	Ethiopian People's Revolutionary Demographic Front
ESRC	Economic and Social Research Council
ETB	Ethiopian Birr
FDRE	The Federal Democratic Republic of Ethiopia
FGM	female genital mutilation
GDP	Gross Domestic Product
GGGI	Global Green Growth Institute
GTP	Growth and Transformation Plan
GWP	Global Water Partnership
HIV	human immunodeficiency virus
ICNL	International Center for Not-for-Profit Law
IIED	International Institute for Environment and Development
IMF	International Monetary Fund
JMP	Joint Monitoring Programme
MDG	Millennium Development Goal
MMIP	Mass Mobilization Igniting Program
MoFED	Ministry of Finance and Economic Development
MoH	Ministry of Health

MOU	Memorandum of Understanding
MoWE	Ministry of Water and Energy
MoWR	Ministry of Water Resources
MPI	Multidimensional Poverty Index
NGO	non-governmental organisation
NPC	National Planning Commission
NRW	non-revenue water
OECD	Organisation for Economic Co-operation and Development
OPHI	Oxford Poverty and Human Development Initiative
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PhD	doctorate in philosophy
PIMS	Post Implementation Monitoring Survey
PPP	public-private partnership
SDG	Sustainable Development Goal
SDPRP	Sustainable Development and Poverty Reduction Program
SNNPR	Southern Nations, Nationalities and Peoples' Region
UAP	Universal Access Plan
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UN Habitat	United Nations Human Settlements Programme
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USD	US Dollars
WASH	water, sanitation and hygiene
WHO	World Health Organization
WIF	WASH Implementation Framework
WSDP	Water Sector Development Program
WSP	Water and Sanitation Program
WUA	Water Users Association

Ethiopian terminology

Bajaj	Common term for an auto rickshaw
Derg	Short name for the *Coordinating Committee of the Armed Forces, Police and Territorial Army* that ruled Ethiopia from 1974 to 1987.
Fidel	A letter or character from the Amharic script.
Injera	Sourdough flatbread, national dish of Ethiopia.
Kebele	Smallest administrative unit of Ethiopia, equivalent to a neighbourhood.
Teff	Important food grain used to make *injera.*
Woreda	Third-level administrative division of Ethiopia, equivalent to a district.

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Chapter One – Introduction

1.1. The global meta-narrative of water

Towards the end of the twentieth century, it was despondently remarked by Frederiksen (1996; 79) that:

> "Perhaps the most important constraint on solving the water resources crisis is time. There is very little time to do all that needs to be done to accommodate the 1 billion new people to be born in the next 10 years. Very few actions of the magnitude needed can be completed in this period."

The temporality of population growth presented a considerable challenge to the global water sector prior to the turn of the millennium, a concern further compounded by the rate at which urbanisation was simultaneously taking place throughout the developing world. The United Nations (UN) projected back in 1994 that 80% of population growth up until 2025 was likely to take place in urban areas and the creation of new – or the extension of existing – water infrastructure networks would struggle to keep pace (UN DESA, 1994). The need for urgent and effective action to address the deepening global water access crisis was evident, and it appeared that the international development community had heeded these warnings through the inclusion of water and slums as part of the Millennium Development Goals (MDGs).

The seventh MDG was designed to improve issues within four key thematic areas under the broad domain of environmental sustainability. The constituent targets of particular interest and relevance to this thesis are 'part C' and 'part D'. Firstly, the former aimed to:

> "Halve, by 2015, the proportion of the population without sustainable

access[1] to safe drinking water and basic sanitation."

(UN, 2013)

In 2012, it was pronounced with acclaim that the water component to this objective had been achieved in 2010, five years in advance of the 2015 deadline established for many MDGs upon their inception. It has also been opined that 'part D' of the seventh MDG was similarly met well in advance of its 2020 deadline. This target, which like 'part C' used access to improved water sources as one of its measurement proxies, had the objective to:

> "Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers."
>
> (ibid.)

However, the situation across the globe appears to be somewhat bleaker in actuality than these purported attainments suggest. Access to potable and affordable water remains highly inequitable and approximately 663 million people worldwide are officially recognised as currently being without access to an improved water source (WHO/UNICEF JMP, 2015). This is an alarming statistic in itself, but it has also been conjectured that official non-access figures could perhaps be doubled or even trebled based on the premise that the criteria for defining access fails to foster a realistic portrayal of water outlet non-functionality that persists across much of the developing world (Rouse, 2013).

In addition to this, "Africa's collective population will become 50 per cent urban" by around 2030 (UN Habitat, 2010; 1). Yet the current capacities of many urban water infrastructure networks across the continent, as well as the financial and technical resources available to municipal authorities and utility providers, are often inadequate to cope with *existing* demographic structures let alone significant shifts such as this.

[1] An *improved water source* was the agreed proxy for 'sustainable access' as referred to in the MDG target, denoting a source "that, through technological intervention, increases the likelihood that it provides safe water" (WHO/UNICEF JMP, 2012; 5).

Achieving universal, sustainable access to potable water is thus intensifying as one of the principal contemporary humanitarian challenges.

Clearly a multitude of questions remain unanswered within the WASH (water, sanitation and hygiene) sector in pursuit of this overarching goal of inclusivity. Two such domains concern the urban poor and the informal[2] channels they commonly utilise in order to acquire sufficient water and ultimately survive. Using the case of urban Ethiopia, this research[3] – which is a collaborative project in partnership with the international non-governmental organisation (NGO) WaterAid – therefore seeks to understand these unregulated water modalities as well as the domestic water strategies employed by low-income households. Either side of these main empirical foci, it considers the role of the formal enabling environment and the interconnected creation of informal water spaces, before later challenging four dominant 'received wisdoms' pertaining to the importance of informal water providers; the 'ability' and 'willingness' of low-income consumers to pay for water; the rigidity of the term 'access'; and the limits of the term 'citizenship'.

Following on from the analysis of empirical evidence, I conclude by highlighting the need for the formal water arena to collaborate or legally coexist with informal supply systems. This stance reflects the significance of commercial informal water provision, and concomitantly the detrimental impact on urban residents if municipal authorities continue to adopt an approach that criminalises it. I also advocate the importance for water access to be reconceptualised away from its traditionally binary image in order to help reflect its everyday fluidity in practice, and subsequently improve sector monitoring and understanding. As such, I scale up the findings of this research and contextualise the wider implications against issues such as health, wealth, gender and the attainment of the post-2015 Sustainable Development Goals (SDGs[4]).

[2] The modalities of water supply that take place outside the confines of state regulation.
[3] This research was funded by the Economic and Social Research Council [ESRC].
[4] Current global development targets, recently implemented to follow and expand on the MDGs.

For now, though, the rest of this introductory chapter seeks to: situate informal water provision and water at the local level against wider urban water politics; briefly introduce the national and institutional contextual relevance of Ethiopia and WaterAid to this research; outline the study's overarching research questions and themes; and discuss the general structure of this thesis.

1.2. Linking local water dynamics to wider urban politics

Water access is actually far from a recent consideration and has instead been one of the foremost concerns in developing countries for at least the last four decades (Gulyani *et al.*, 2005). White *et al.*'s (1972) publication, for example, served as a timely 'nudge' for the international development community to act on the increasing rate at which population growth was outstripping water supply even then. Yet, while we find ourselves in an era in which improving access to potable water has become an established development goal, the broader and often global meta-narrative of water access still seems to dominate and remain far removed from that of the underreported local. Through addressing the subsequent knowledge deficiencies on informal water supply and domestic water strategies, I demonstrate how this meta-narrative is sometimes in need of theoretical downscaling or at least greater scale interconnectivity. Only then is it possible to gain a detailed, holistic understanding of the complex political realities and the extent of social injustice that are manifested at the household and community levels.

The empirical element of this study will therefore consider the entire water provision domain of the WASH sector in one of Ethiopia's urban settings, in line with this call for a multiple scale approach. At the community level, the focus will be on local water dynamics in the *kebeles*[5] of two different *woredas*[6] within the newest and burgeoning sub-city of Addis Ababa called Akaki Kality. Indeed, informal water providers and the

[5] *Kebeles*, or communities, are the smallest administrative divisions in Ethiopia.
[6] *Woredas*, or districts, are the third-level administrative divisions in Ethiopia.

consumers of informally sourced water will feature as the primary focal points of this research. It is, after all, the role and activities of these commercial providers – ranging from household resellers and those that deliver water by the individual jerrycan to large-scale operations involving tanker trucks and multiple employees – and their customers that are the seldom-understood components of the water sector in the global South. While it is generally accepted that informal water providers and traditional water sources can act as important alternative modalities in low-income regions, particularly where rapid urbanisation is taking place and the supply-demand water deficit is growing, the extent of the dependence on these channels remains unknown.

The discussion on these currently underexplored subjects operating or residing in Akaki Kality must also be situated against the wider contexts of national and municipal politics and water governance arrangements, in order to delineate a thorough and accurate representation of the urban waterscape. Such an approach will facilitate an understanding of how and why informal water activity unfolds in society; the reasons behind the marginalisation of some households from the formal service infrastructure; the subsequent importance of these alternative water means in low-income contexts, where marginal cost decision-making is crucial; and the overall water situation moving forward. Water, after all, is central to all human activity and the overarching water management practices within a given context can significantly influence the level and extent of its availability (Swatuk, 2008; Budds and Loftus, 2014).

In helping to situate local water issues against the wider enabling environment, this study will draw on tenets from critical urbanism and everyday life. Critical urbanism asserts that a range of socio-natural relationships exist within the produced urban environment, which in turn create processes of struggle and subordination along lines of power (Loftus, 2007). With the resulting incidence of injustice in mind, critical urbanism ultimately contends that an alternative urban direction is conceivable. Everyday life can act as the principal source of knowledge to facilitate this, by focusing on the localised experiences of those either immersed or involved in these sites of inequity. It will help to highlight the rudimentary but nevertheless complex water practices, strategies and rhythms that play out in low-income communities. After all, the

travails of navigating this basic resource both within the domestic environment and in the public space of the street or community are a pervasive reality in developing urban areas, yet nonetheless remain ill-understood.

1.3. Water and WaterAid in the context of Ethiopia

Ethiopia is a highly apposite context in which to conduct this research, in part due to the paradox that the nation has an abundance of natural water resources but experiences an inequitable and unfortunate geographical distribution of its population compared with supply. The country not only remains among those with the least access to potable water supply for the population (UN Habitat, n.d.), but was in fact recently ranked second to last out of all sub-Saharan African nations (FDRE, 2013). Ethiopia has also experienced a relatively unstable social, political and economic history despite maintaining autonomy from colonisation. Devastating phases of autocracy, civil war and famine have shaped the nation throughout the last fifty years, of which all have contributed at least in part to the widespread water challenges experienced there today. Many of these issues will be discussed in detail in Chapter Four, but this section aims to briefly outline the contextual relevance of conducting this study in Ethiopia, as well as the pertinence of collaborating with WaterAid as the main non-academic research partner.

Although Ethiopia shifted to operate under a democratic and federal government structure in 1991, a host of social, political and economic challenges remain for the nation's water sector. Figure 1 displays the urban and rural water coverage rates in Ethiopia since 1990, calculated up to 2008 and projected thereafter. The estimated 57% coverage value for rural areas in 2015 remains alarmingly low despite the significant progress that has been made. Of particular note to this study, however, is urban water coverage in Ethiopia, which Figure 1 appears to highlight as being notably higher and rather impressive for one of the world's least developed nations.

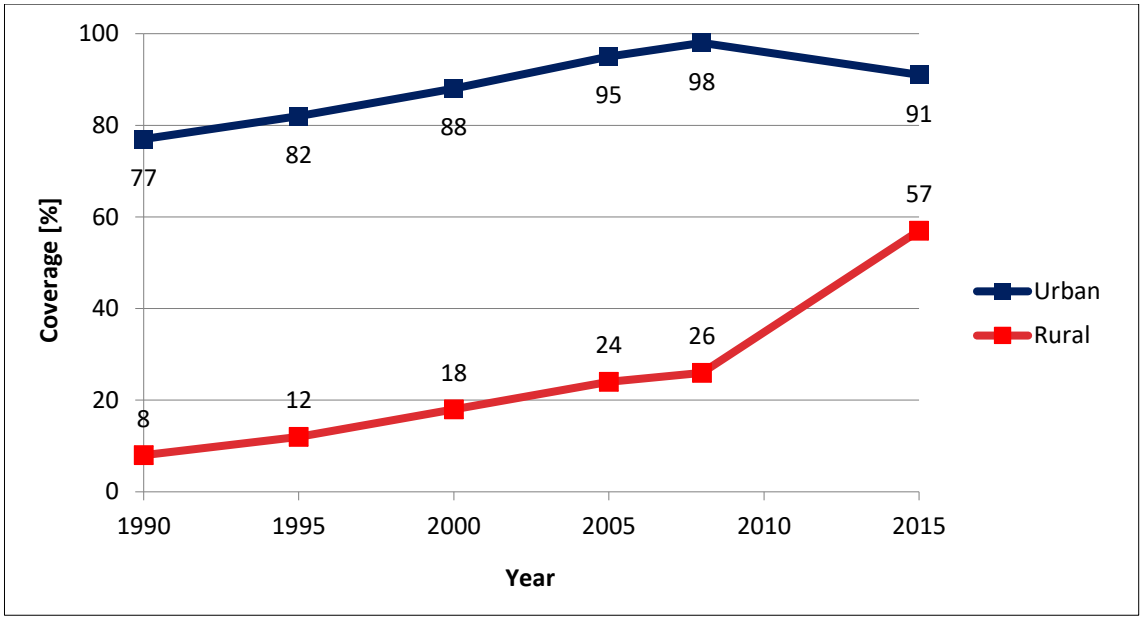

Figure 1: Urban and rural water supply coverage in Ethiopia

[Source: WaterAid, 2010a; WHO/UNICEF JMP, 2010]

Unfortunately, these urban coverage rates are somewhat questionable based on the problematic and varying proxy guidelines that are employed to measure coverage and access. The Ethiopian Ministry of Water Resources (MoWR) recently employed different (and perhaps more representative) proxies and definitions than the internationally accepted Joint Monitoring Programme (JMP) administered by the WHO and UNICEF, for example. The MoWR performance report in 2009 therefore cited significantly lower access rates for – and acknowledged the variation between – urban areas ranging from 68.5% to 81.5% (cited in WaterAid, 2010b). These sizable discrepancies in the reporting by different bodies firstly make it challenging to ascertain an accurate nationwide picture of the water access situation in Ethiopia, and secondly reveal how seemingly objective statistics can be manipulated through the subjective employment of measurement criteria.

It must also be noted that the 2008 urban coverage figure displayed in Figure 1 was projected to decline fairly considerably thereafter. This is due to the fact that Ethiopia's urban water infrastructure networks are struggling to satisfy the increasing demand that is accompanying rapid urbanisation and the outward expansion of urban centres (UN Habitat, n.d.). Thus, access to water is undoubtedly becoming an increasingly visible

problem in the country's urban areas, as in the case of Akaki Kality where the research for this study predominantly takes place.

In terms of institutional context, WaterAid has had a considerable presence in Ethiopia to help address these deep-rooted water and wider WASH issues. Although the country programme office opened in 1991, the organisation had been funding projects across the nation since 1983 (WaterAid, 2010b). WaterAid in Ethiopia (or WaterAid Ethiopia[7]) now has six key focus areas or objectives that essentially shaped all operations throughout the 2011 – 2016 strategic period (see Figure 2), the latter two-thirds of which happened to coincide with the period this study was undertaken. Three of the organisation's six target themes outlined below are highly pertinent to this research (highlighted yellow), thereby enhancing its temporal and contextual relevance.

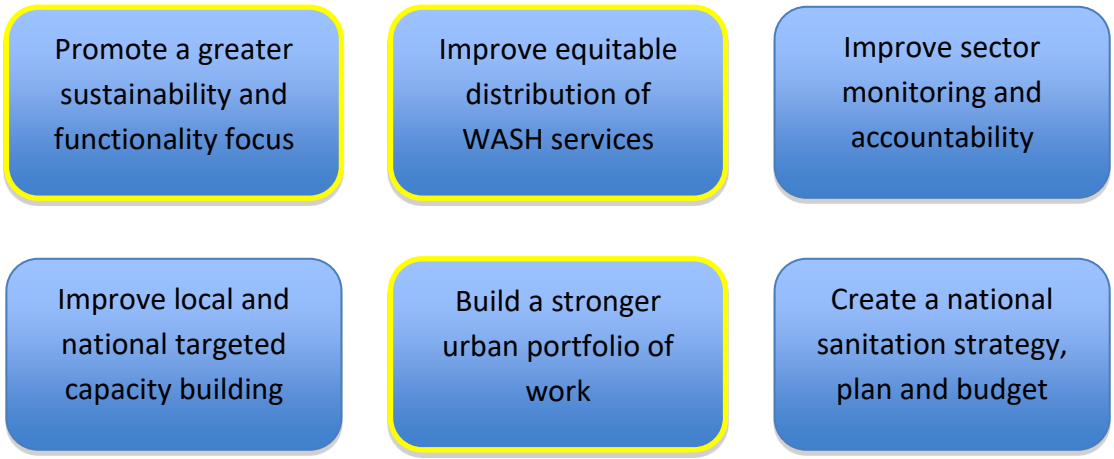

Figure 2: Overarching themes that guide WaterAid Ethiopia's current work

[Source: WaterAid, 2010b]

Firstly, WaterAid Ethiopia seeks to deepen sector understanding of the widespread reality that is non-functionality. Informal water activity is, in part, a symptom of the non-functionality of formal water channels meaning that this study will help to inform the organisation, other national water stakeholders, and the wider water sector across sub-Saharan Africa in this regard. Secondly, WaterAid Ethiopia aims to improve service

[7] While WaterAid and WaterAid Ethiopia are essentially the same organisation, WaterAid Ethiopia refers to specific activities undertaken by the in-country body. The terms 'WaterAid Ethiopia' and 'WaterAid in Ethiopia' will be used interchangeably.

delivery to marginalised communities and advocate for a more equitable distribution of formal water supply. By highlighting the extent of inequitable access to water currently experienced within informal communities; the subsequently inflated prices that residents are forced to pay; or the otherwise unsafe and distant sources from which they are forced to collect water, this research will inform the organisation on the extent of the situation and provide a strong platform for its advocacy efforts. Finally, the focus of this research on a burgeoning region in the capital city of Ethiopia is clearly in line with the desire of WaterAid (both in-country and globally) to build upon the relatively recent addition of urban-based work to its traditionally rural outlook.

Figure 3, meanwhile, reveals the four regions that comprise the main geographical focus of WaterAid Ethiopia's work in its 2011-2016 strategic period. These are Oromia, Amhara, Benishangul-Gumuz, and Southern Nations, Nationalities and Peoples' Region (SNNPR), in which the organisation aims to be active in 20 *woredas* and 7 towns. However, it also shows that WaterAid's main office in Ethiopia is situated in Addis Ababa. This centrality presented me with ease of access for the predominance of fieldwork in one of the capital's sub-cities, and the study itself in turn offered WaterAid a new geographical dimension to its projects in Ethiopia.

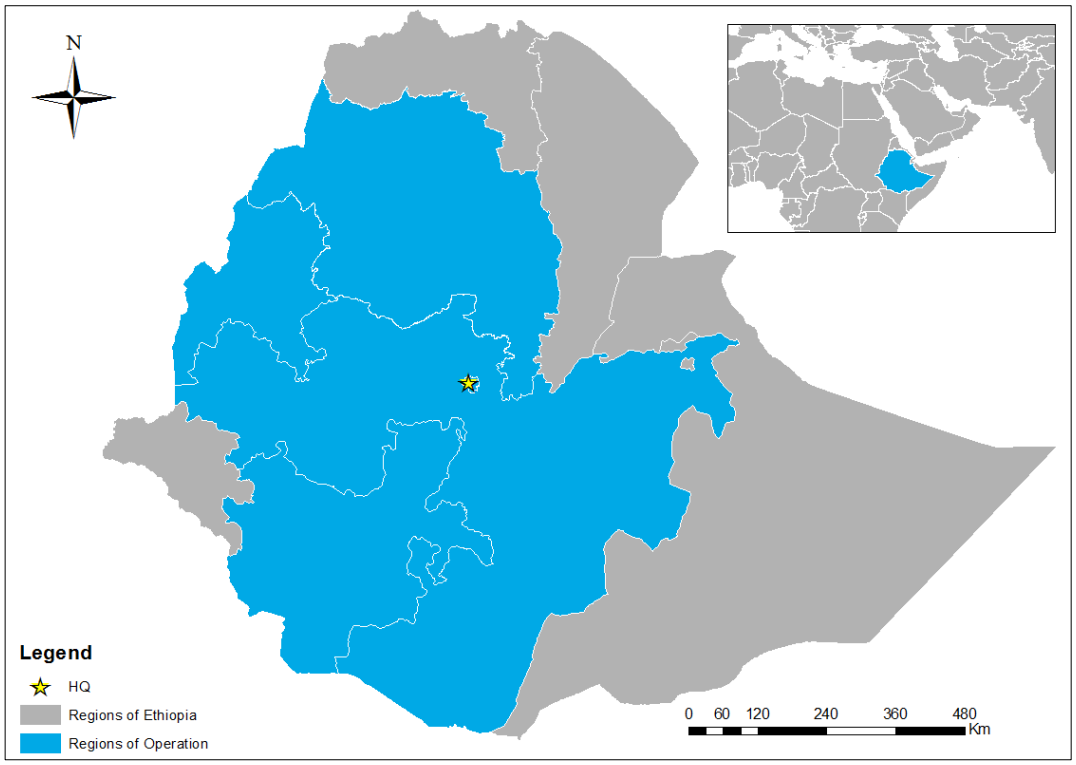

Figure 3: WaterAid Ethiopia's geographical scope

The research conducted here with WaterAid as the collaborative non-academic partner essentially aims to help redress Ethiopian, and wider sub-Saharan African, water sector issues in accordance with the principles of existing and future national policies and action plans on water. It is anticipated that the knowledge generated in this study on informal water provision and the important role it plays in communities with intermittent, partial, or no formal coverage can act as a platform for change. It therefore supports action research and will allow WaterAid and other influential water sector actors to challenge the negative or misconceived perceptions towards informality and access that commonly prevail in order to better support low-income consumers.

1.4. Research questions and themes

The three overarching research questions for this study are:

1. Is the ‘access to water’ concept a representative indicator in the measurement of global water injustice?
2. What is the significance of informal providers in the supply of water to low-income communities?
3. How do low-income consumers utilise, prioritise and strategise water within the domestic environment?

However, this thesis also addresses a plethora of research themes embedded within these umbrella questions, highlighting the significant breadth of issues considered throughout. These research themes can be broadly arranged into three categories, which in turn predominantly form the three empirical chapters. The first of these themes seeks to understand exactly how and why informal spaces emerge in the context of the Ethiopian water sector. The second empirical chapter localises the discussion to focus solely on the informal water sector in Akaki Kality. The third overarching theme explores water strategies at the household level in Akaki Kality, before using all the empirical material to challenge four received wisdoms that seem to persist in the international development arena.

The specific research themes addressed within these three empirical chapters are outlined below:

The creation of informal spaces:

- The coverage and cost of formal water services in Akaki Kality.
- The functionality levels and quality of service associated with these formal modes of supply.
- The main obstacles faced by Akaki Kality residents in accessing water through formal channels.
- Whether a market space exists for informal providers in the urban water sector.

The role and position of informal water providers in the waterscape:

- The different types of informal water providers, how they emerge and the different functions they perform in the service delivery cycle.
- The operational strategies of different informal providers, including the pricing structures, investment profiles, and cost recovery strategies they adopt.
- The nature of the relationship between informal providers and their customers, and how this relationship influences service provision.
- How informal water providers are embedded in the wider socio-political landscape.
- How the policy environment impacts these operators and the development of the sector.
- The prospects and obstacles facing informal providers.

Water access and consumption at the household level:

- The percentage of monthly household income residents spend on water in Akaki Kality.
- How Akaki Kality residents use water in the household and their priorities, particularly in times of scarcity.
- The different modes of water supply used by households in Akaki Kality.
- The opinion of the quality of service from these sources, including price, reliability, available quantity, opening hours and queuing times.
- The opinion of the quality of water from these sources, and whether water from certain sources is used for particular household tasks.

In concluding the empirical work, these research themes will be collectively drawn upon to fashion a critical discussion based around four received wisdoms. This will cover:

1. How consumers perceive informal water providers.

2. Whether residents of low-income communities are able or willing to pay for water, and thus understanding 'affordable' water in the context of Akaki Kality.
3. The extent to which the term 'access', as alluded to in the MDGs, is appropriately defined and utilised.
4. How informal water unlocks the concept of 'citizenship' to encompass more than just the formal domain.

This thesis therefore represents a novel shift towards detailed local level water dynamics. Its key contribution is to highlight the alarming divergence between the meta-narratives surrounding informality, low-income access and domestic consumption and how such processes actually play out in practice. Harnessing such knowledge will be key in helping to tackle the urban water uncertainty that persists across much of the developing world.

1.5. Thesis structure

This final section of Chapter One outlines how the thesis is structured in its entirety. Chapter One has introduced the context, key narratives, and research themes that will underpin this study. Chapters Two and Three build on these initial discussions in the form of a literature review and a research methodology respectively. Chapter Four also provides further contextual material by considering the social, political and economic situation of Ethiopia, and the relevance of the partners with which this research is in collaboration. Chapters Five, Six and Seven present the results to emerge from the fieldwork by theme, discussing and analysing them in connection with the issues raised in the preceding chapters. Chapter Eight concludes the study by summarising the key findings and highlighting their wider implications, as well as contributing policy advice and suggestions for further or future research. I will now briefly outline the content and role of each chapter.

Chapter Two reflects some of the key contemporary water debates and reviews the existing literature appropriate to the study's research themes. It discusses the issues and

narratives that underpin the global water situation; the role of the state and aspects associated with the so-called 'enabling environment' in the context of water; informality firstly in general, and then with a specific focus on water provision; as well as everyday life. An in-depth discussion of these key thematic areas provides the necessary backdrop upon which the originality of this study can be positioned.

Chapter Three maps the development of the research methodology formulated for this study. It covers every fieldwork-related aspect including the research site selection process, which research methods and sampling strategies were employed and why, and the timeline of events. It also considers the challenges and limitations that were encountered throughout the study, as well as reflecting on the partnership with WaterAid and in-country NGO partners throughout. This latter component to Chapter Three is particularly important given one of the study's primary objectives to disseminate the extensive knowledge acquired and eventually influence policy.

Following on from this, Chapter Four further consolidates the background information built up in the thesis thus far by contributing a thorough insight into the national context and WaterAid's work. The chapter commences with the Ethiopian context and encompasses a history of the political milieu, the level of poverty and inequality in the country, and finally the nation's water and water policy situation. It then moves on to explore the global scope of WaterAid – particularly its position on urban issues – as well as the in-country influence of WaterAid Ethiopia. Chapter Four therefore aims to add depth and provide a bridge between some of the water issues from across the globe that were discussed in the literature review and what has actually emerged in the specific context of Ethiopia.

Chapters Five, Six and Seven encompass the analysis of the empirical material from the study. Chapter Five gauges the official perspective on the urban waterscape, and initially explores the condition of the existing formal water network across Addis Ababa and specifically Akaki Kality. It considers the efforts to improve the urban water situation, but ultimately concludes with a section on the resulting market space and development of the informal market in the region.

Using data predominantly acquired from informal water providers themselves, Chapter Six initially considers the importance and complexity of informal water activity in the two research sites. From here, it subsequently situates the role of informal water providers in the wider waterscape, and discusses the policies of the wider sector towards them. The focus of Chapter Seven, meanwhile, remains at the local level to analyse the diversified and flexible strategies Akaki Kality residents employ to source water, as well as their water consumption priorities within the household. Chapters Six and Seven therefore both offer a direct comparison to some of the material covered in Chapter Five, showing the extent to which perception and stereotypes of both formal and informal water networks relates to the reality. Engaging with all of the empirical material acquired at the community and enabling-environment scales, the final component of Chapter Seven then resumes a broader scope to challenge four development myths.

Concluding the thesis, Chapter Eight is structured around the three key research questions pertaining to water access, the significance of informal providers, and water strategies in the low-income domestic environment. Indeed, it encapsulates the findings from the empirical evidence but also extends beyond a simple summary. It critically draws out and contextualises the wider implications of the findings, which can be drawn upon to inform and give future direction to the global urban waterscape.

Chapter Two – Literature review

2.1. Introduction

In this chapter I provide an extensive review of the existing literature pertinent to the research themes outlined in Chapter One. Although the provision of informal water and household water strategies in Ethiopia's urban areas are the primary areas of interest for this study, it is fundamental for this chapter to consider a much wider body of relevant development literature from contexts across the globe. I will nevertheless aim to link the discussions back to this particular research in Ethiopia throughout, outlining the contextual relevance of each topic and how the country can act as a useful case study from which existing debates can be advanced. Here, I provide a brief synopsis of the material that follows.

Section 2.2. initially considers some of the issues and background surrounding water in a more general and global context. The first part of this section briefly reflects on the history of water policy. It covers some of the influential conferences and resulting sector shifts, as well as the main challenges experienced by the water sector in the developing world from the 1960s to the present day. The subsequent elements of Section 2.2. have a more contemporary focus, beginning with a basic overview of water-related socio-politics. Here, I cover issues such as the channels through which water can be accessed; the significance of water at the household level, in the functioning of society, and in overcoming poverty; and the pervasive nature of water inequity. This is followed by a rather critical discussion of three narratives that underpin contemporary water debates: the water-as-a-human-right campaign; the 'water' and 'slum' MDGs; and briefly the 'clean water and sanitation' and 'sustainable cities and communities' SDGs. The final aspect of this section adopts a nomenclatural angle and uses water to define and discuss the significant overlap between small towns and peri-urban areas. This spatial engagement is necessary to help ground the study, as it is based in a newly urbanising region of Addis Ababa.

Section 2.3. considers the current debates on the relevant aspects of the so-called enabling environment. The section commences with a background discussion of the discourse on governance (and water governance), the state and power, all the while relating it back to the context of this study and the agency of actors in the informal water market. Here, the narrative advocates the decentralisation of political power and multiple-scale, institutional, and formal-informal collaboration as necessary routes for achieving effective governance in the developing world. The section then leads on to discuss the ideas of citizenship and access, followed by the directly related issues of the affordability and pricing of water.

Section 2.4. considers the literature surrounding informality and specifically informal water provision. The opening sub-section provides the theoretical background to the concept of informality in general, including its inception, the associated schools of thought that have emerged, and the subsequent lack of accord regarding a mainstream definition. The focus then shifts towards the creation of informal spaces, covering both how and why they develop. The concept of inverse governmentality is at the core of the discussion, which in the context of water denotes how residents take the initiative to act in the absence of formal supply. The section subsequently discusses all aspects of informal water provision, including both the non-commercial forms, as well as the diversity and abundance of commercial forms that this study principally focuses on. It concludes with a debate on whether informal water providers can thus be considered survivalists or entrepreneurs.

Finally, Section 2.5. draws on critical urbanism and everyday life literature to discuss how local lived experiences can be situated against, and inform, the wider waterscape in order to achieve a better everyday urban. It initially sets up the idea of the local by elevating its importance as a source of knowledge, before engaging with some of the more tangible spaces, materials and relationships of everyday life in the context of water.

Considering Akaki Kality is situated on the periphery of Addis Ababa, it is important to elucidate here that the literature review (and thesis in general) will have a

predominantly urban focus. Urban water access is a highly pertinent issue, as many of the world's demographers anticipate that urban areas in the global South will play host to almost all of the world's future population growth (UN DESA, 2007). It is therefore important for the international WASH sector to redress current inadequacies before hoping to manage these forthcoming demographic shifts and increases in demand.

2.2. Global water context

A fluid recent history

Although water management challenges and incidences of water scarcity have persisted for millennia (Langford, 2005), the focus in this opening sub-section will centre on some of the overarching shifts and features associated with urban water policy and practice in the developing world during the more recent era. This decision derives from the significant political shifts and changes in narrative that have taken place since the 1960s, a decade characterised by the drive towards independence from colonial rule for many sub-Saharan African nations. After all, it perhaps was not until around the 1970s that the issue of inequitable water access emerged onto the immediate agenda of the international development community. Meanwhile, demographic shifts have intensified more recently to the extent that the 20th century has seen the tripling of the total global population alongside a six-fold increase in the demand for water (UNFPA, 2013). Commencing this review around the time these key shifts started to take hold thus seems logical.

As was generally the case with many facets of society during the colonial era, perhaps the principal feature of urban water arrangements at the time was its exclusivity or partisanship in favour of European settlers. Formal water systems were routinely designed to meet the needs and address the public health concerns of the colonisers, while communities predominantly comprised of local inhabitants experienced a relatively limited or non-existent water supply (Bakker *et al.*, 2008). Assuming control of the water was also perceived as being key for industrial power in some regions, thereby

furthering European domination and exploitation of the indigenous population (Adams, 1992). The immediate post-independence era, meanwhile, saw many urban water systems fall under the administration of municipal authorities and the wider purview of national governments. There was also a shift in focus towards developing piped water infrastructures and extending existing networks (Jones, 2013), depending on the financial and technical resources available. It must be stated, however, that colonial water legacies still persist in some of the developing world's urban areas, particularly in nations where independence came comparatively late (Bhatt, 2006; Musemwa, 2008).

This brief allusion to the urban water situation during the colonial era and the early stages following independence brings us roughly up to the 1970s, the decade during which water issues began to gain international prominence. This shift derived in part from an increasing "focus on basic needs from international development organizations and a growing interest in environmental issues" (Mirosa and Harris, 2011; 4). It was clear to a "handful of visionaries in international public health engineering" that innovative and low-cost approaches were required to revamp the water-related mandates of the time and extend provision of this basic resource beyond just the elite or wealthy (Black, 1998; 5). The 1977 World Water Conference in Mar del Plata, Argentina, therefore adopted a declaration to initiate a coordinated international effort for improved water supplies and sanitation in the developing world (ibid.). Following this, 1978 became the inaugural year of the UNDP-World Bank Water and Sanitation Program (WSP). The initial phase of the WSP consisted of implementing extempore and technology-based projects according to need across five main domains. Community water supply was one of these, which for example involved "the provision of wells and boreholes with handpumps in poor communities" (ibid.; 13).

These two events effectively laid the foundations for the 1980s and what was designated the *International Drinking Water Supply and Sanitation Decade*; a decade that also carried the slogan 'Water and Sanitation for All'. It was hoped that a heightened awareness of the water-related injustice experienced across the globe would help the international development community to achieve the goal of universal coverage by 1990 (Nicol *et al.*, 2012). Unfortunately, functionality became just one of many impediments

and, at least in part inhibited by the infamous debt crisis of the 1980s, the 'Water and Sanitation for All' objective of the so-called 'water decade' had not been not achieved by 1990. In fact, it was perhaps evident by the mid-to-late 1980s that this objective would not be achieved purely on an awareness-raising basis.

A change in approach was therefore necessary to stem the tide of insufficiency that had encapsulated the 1980s, and this recognition culminated in the 1990 New Delhi Statement. Under the slogan, 'Some for All Rather than More for Some', the New Delhi Statement adopted four guiding principles:

- Protection of the environment and safeguarding of health through the integrated management of water resources and liquid and solid wastes.
- Institutional reforms promoting an integrated approach and including changes in procedures, attitudes and behaviour, and the full participation of women at all levels in sector institutions.
- Community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes.
- Sound financial practices, achieved through better management of existing assets, and widespread use of appropriate technologies.

(UN, 1990; 3)

The New Delhi Statement essentially announced the need for indigenous knowledge and local communities to help shape policies and programmes under an integrated water resources management approach. It also detailed the need to establish strong local public, private and community bodies to assume responsibility for providing services "amidst an enabling environment of appropriate policies, legislation and incentives" (Nicol *et al.*, 2012; 2). After all, it was around this time that government-led approaches, and the role of the state in general, were beginning to be called into question. Effective and inclusive nationwide action plans were expected to stem from the New Delhi consultation, however the Dublin Statement (or Dublin Principles) that followed just two years later in 1992 effectively superseded this agenda.

As Nicol *et al.* (2012) suggested, there were many similarities between the New Delhi Statement and the Dublin Statement presented at the 1992 World Summit in Rio de Janeiro. However, perhaps the primary difference between them was the allusion to water as a commodity under the latter. The last of the four Dublin principles stated "water has an economic value in all its competing uses and should be recognized as an economic good" (Solanes and Gonzalez-Villarreal, 1999; 6). This dominant 'commodity' approach was championed by many of the world's leading multilateral organisations and clearly conveyed a number of messages, including the idea that water should be priced and the costs of providing water should be recovered irrespective of whether it is used for drinking, agriculture, or industry (Langford, 2005). A shift in water governance ensued, from the provision and subsidisation of water through public sector means that was so widespread throughout the global South, to the neoliberal opening up of the market and promoting private sector involvement (ibid.). It was surmised that the financial resources behind private water providers would lead to increased sector efficiency and the extension of existing water service coverage (ibid.).

Agenda 21 was a further sustainable development blueprint outlined in 1992, within which water featured as a central component. Agenda 21 sought to raise the profile of water, protect existing sources in a climate of increasing scarcity, as well as develop new ones. Integrated water resources management was once again championed as a means of achieving progress along these lines, as was the role of the private sector (UNEP, n.d.). In truth, the privatisation debate has continued to this day as some have suggested that declaring water an economic good has merely legitimised "the 'commodification' of a life-giving resource ... and resource capture" (Nicol *et al.*, 2012; 4), rather than serving the purpose of promoting financial sustainability through cost recovery (Savenije and van der Zaag, 2002), or addressing how to sustainably deal with meeting human water needs (Gaffney, 1997). What is known is the notable rate at which water privatisation took hold. It was scarcely alluded to during the 1992 World Summit yet it had effectively become the foremost topic just a decade later at the 2002 Sustainable Development World Summit in Johannesburg (Goldman, 2007).

The turn of the millennium was accompanied by an increasing desire for action within the sector, largely based upon the conferences that promoted reflection and knowledge consolidation throughout the 1990s. Indeed, the aforementioned water MDG represented a key directive to help steer efforts towards target-based progress. Similarly, 2005-2015 became the UN 'Water for Life' decade, or in other words another decade to mobilise international water action. The defining successes from this commitment include greater cooperation and communication between actors at multiple scales, the boosting of international civil society, and a more pronounced spotlight on water issues and those who work towards addressing them (UN, 2015a). The work conducted during this decade has thus helped to precipitate the stand-alone water and sanitation goal that exists as part of the post-2015 SDG agenda, which will serve to help shape policy moving forwards.

Liquid socio-politics

Contemporary water issues are widely portrayed as being dualistic in nature, whether this is in terms of the unjust access experienced by the poor compared to the wealthy; the efficacy of the public versus the private sector; water as a right versus water as a commodity; or the physical availability of resources compared with their socio-political management (Bakker, 2007; Agnew, 2011). The geography of water provision is similarly binary, as fresh water availability is often mapped against generalised consumption rates at the international scale, while less expansive studies consider consumption in relation to population, proximity to particular water sources, or source replenishment (Agnew, 2011).

Although such discussions are invaluable for providing context and highlighting water deficits, dualistic debates can sometimes either engender a sense of intractability or detract attention from the more pressing need to find swift solutions in assisting households. Indeed, this assertion may appear slightly hypocritical given that this research seeks to understand the mechanisms behind informally provided water and low-income household water strategies against a backdrop of formal network

insufficiency. However, this is a holistic study that seeks to situate the fluidity of informal water transactions within wider urban water governance arrangements. It will ultimately help inform policy-makers as to how the social injustice surrounding water accessibility and pricing experienced by poorer communities, and incidentally many of those inhabiting middle- and high-income areas of Addis Ababa, can be addressed.

In most urban areas of the global South, there are three main channels through which consumers access water. There are large-scale formal providers – either public or private – with varying degrees of power and influence often determined by the state; small-scale private suppliers – formal or informal – ranging from expansive businesses to household micro-enterprises; as well as natural resources and community-managed operations founded upon self-help initiatives and voluntary involvement (Mitlin, 2002). The ability of the urban poor to acquire sufficient water through formal, regulated modalities is understood to depend on source functionality and affordability, as well as physical access that can be determined by either distance or public policy. Currently, the socio-spatial distribution of the provision and use of 'formal' water is highly "textured and uneven" across the globe (Gerlak and Wilder, 2012; 5).

The principal concern, therefore, is for those without sustainable access to potable water and the impact this has on their health, everyday rhythms and quality of life. The minimum drinking water requirement will indeed vary between humans depending on lifestyle and contextual circumstances, but it essentially denotes the amount needed to replace lost bodily fluids necessary for survival (Gleick, 1996). However, clean water is also needed to sustain life in other, perhaps less immediately obvious, regards (UNDP, 2006a). At the local level, water is essential to fulfil the four basic human needs of drinking, sanitation, hygiene and food preparation (Gleick, 1996), aspects that are all key to supporting healthy domestic environments.

In addition to human needs, Swyngedouw (2004; 1) identified water as the most basic fulcrum of a functioning "wider social fabric". This is based upon the idea that "the very sustainability of cities and the practices of everyday life that constitute 'the urban' are predicated upon and conditioned by the supply, circulation, and elimination of water" (ibid.). Industry and agriculture have accordingly been identified as major sources of

stress on global water supplies, with the latter consuming over two-thirds of the world's extracted water (Gilbert, 2012). Defining the minimum drinking water requirement and assigning an amount is therefore extremely complex. What is agreed upon is the indispensability of water, yet worryingly it has been estimated that the number of people residing in water-stressed or water-scarce regions by 2025 will reach three billion (Hanjra and Qureshi, 2010).

It is consequently unsurprising that water is integral to overcoming all forms of poverty and facilitating socio-economic development (Young *et al.*, 1994; Grey and Sadoff, 2007; The Guardian, 2013). This was true for many of today's major urban centres, including New York, London and Paris, but is a fact that is too often forgotten by inhabitants of wealthier nations (UNDP, 2006a). However, the inadequate, inequitable and unsustainable nature of many urban water systems across the developing world represents an increasingly problematic issue to resolve. This is particularly the case in urban settings with burgeoning population growth rates, where the increasing demand for water and rising affluence levels are exerting significant pressure on already insufficient resources (Young *et al.*, 1994).

Writing in the context of Mumbai, Gandy (2006; 16) encapsulates the extent and depth of these urban water issues found across the globe whereby "the inequalities and injustices that mark everyday life ... are exemplified by problems of access to water". Those deprived of access to piped connections or nearby potable water supplies are seemingly entrapped in a perennial cycle of poverty and hardship, where the daily challenge for household members can become one characterised by arduous journeys to collect this resource, rather than spending time on other important reproductive or productive tasks (Allen *et al.*, 2006). In addition, this inequity is further compounded by the fact that these residents are invariably required to pay comparatively exorbitant sums of money to access water through informal channels. The extent of this alternative market remains largely unknown, and it is often the case that such activities are actively omitted from statistics even where they are visibly ubiquitous (Kjellén and McGranahan, 2006). It thus appears entirely reasonable that access to this essential resource has

already been labelled as the defining world crisis of the twenty-first century (Agnew, 2011).

Indeed, it would be inaccurate to state that exclusion from formal water services is solely an injustice experienced by the poor. Households from higher income bands can suffer similar ostracism, but Allen *et al.* (2006; 30) identify the general concomitance between poverty and an absence of the "political means" necessary for residents to induce positive change. Interviewees from a multitude of participatory studies on the causes of poverty have recurrently identified a lack of access to potable water as a principal contributing factor; consistently ranking it ahead of food security and health while ranking it second only behind income (World Bank, 2000). The famous Benjamin Franklin quote, 'when the well is dry, we know the worth of water', is extremely pertinent to encapsulate the injustices discussed in this sub-section.

Fashionable narratives

This sub-section proceeds to consider the literature relating to three of the dominant narratives that have shaped international water policy and thinking. These are the human right to water movement, the water and slum MDGs, and the relevant SDGs in the post-2015 agenda.

Water as a human right

Commentators had long advocated the importance of upgrading water from a basic need to a human right. The notion was eventually incorporated into historic conferences and blueprints such as the Stockholm Declaration in 1972, as well as the aforementioned Dublin Statement on Water and Sustainable Development and Agenda 21 both in 1992 (Scanlon *et al.*, 2004). Clearly gaining prominence in the latter stages of the 20th century, this suggested upgrade was justified on the basis that potable drinking water is indispensable for life and central to the achievement of many other established human

rights (Bakker, 2007). It was also believed that such a shift would stimulate a renewal in international efforts towards universal water provision and ultimately provide influential actors in the sector with the necessary platform from which to address "one of the most fundamental failures of 20th century development" (Gleick, 1998; 487).

The proposed amendment was eventually realised in 2010, and water became a human right as recognised by international law. This essentially means that access to fresh and potable water is now accepted as "a legal entitlement, rather than a commodity or service provided on a charitable basis" (WHO, 2003; 9). It has therefore become the duty of every state to protect and promote the right to water for individuals. Yet, while this upgrade ostensibly appeared to be a monumental development in the pursuit of universal access to safe drinking water, many obstacles continue to prevent the human right to water from being exercised in reality or translating into meaningful and sustainable change around the world (Gerlak and Wilder, 2012).

Although the 'human right to water' model does not aim to promote the idea of free water, at the converse end of the spectrum the commodification of water still remains a global problem. Anti-privatisation campaigners claim that the human right to water will never be realised if private companies, built around profit and with shareholders to report back to, continue to play a prominent role in global water governance arrangements (Bakker, 2007). However, it cannot be ignored that there will always be a gap in the market for private entities to operate so long as governments fail to protect the resource, provide sufficient coverage, or offer subsidies to ensure it is affordable for all (Bakker, 2012). This market gap of course extends to the small-scale, unregulated private sector – informal water providers – that this research seeks to shed more light on.

In addition, the actual meaning of water as a human right also remains largely indeterminate, thereby raising a host of questions that are open to subjective interpretation. For example, how much water is required to fulfil this right? Should it be based on the amount sufficient to sustain life, to grow enough food to survive, or to promote a certain economic standard of living (Gleick, 1998)? Who is responsible, and

therefore held accountable, in the enforcement of this human right (Mehta, 2000)? Harsha (2011; 1778) effectively summarises these concerns by describing the water-as-a-human-right resolution as impetuous and suggesting "that conflicts are inevitable when [the model] is adopted … without a plan-of-action" to support it. Even though such concerns had been expressed over a decade prior to the upgrade of water to a human right, conceptual obscurity ultimately remains a hurdle.

With these issues in mind, a further discussion point must be raised here that is seldom referred to in the existing literature. I mentioned towards the beginning of this sub-section that water is now a human right as recognised by international law, and it is the duty of whichever bodies are deemed responsible for providing water to do exactly that. So, for example, if water is not provided to all residents in a locality where utilities have a monopolistic command over water provision, it raises the question as to whether those excluded from formal access should be entitled to take legal action. Meanwhile, although informal water providers are largely unknown entities and indeed have limitations, they are thought to fill these widespread service voids to some extent and help satisfy unfulfilled water demand. Yet these actors are often immediately disregarded or criminalised by authorities rather than explored as a potential service delivery solution. The human right to water model thus possesses some fundamental inconsistencies and confines, and unfortunately, access to water still remains highly inequitable.

The human right to water narrative has made some headway notwithstanding these shortcomings and the critical tone adopted here. Despite its infrequent appearance in the media until relatively recently – at least in comparison to food insecurity, fuel shortages and economic crashes that have long been widely reported – the international reverberations of inequitable access to safe drinking water have indeed now become a global concern (Chartres and Varma, 2010). The campaign to upgrade water to a human right has undoubtedly contributed to this greater publicity and is therefore deserving of great credit in this regard (Langford, 2005). However, the extent of the challenges that remain is vast. So long as public utilities lack coverage, private sector companies focus on financial gain, and water sources continue to be appropriated by powerful local

groups or individuals (Bakker, 2003), issues of exclusion or unaffordability will persist and millions of households will be prevented from exercising their human right to water. The issue of access also continues to be portrayed as an absolute or physical scarcity (c.f. Hanjra and Qureshi, 2010), rather than the relative scarcity with underlying economic inequalities that exists in actuality (Cudjoe and Okonski, 2007). For the 'human right to water' movement to make progress along these lines, the entire narrative requires a drastic shift from being a strong promotional regime to a strong implementation regime (Sangameswaran, 2007).

Millennium Development Goals

Following the UN Millennium Summit in 2000, eight MDGs were formed as a blueprint to guide development efforts towards eradicating global poverty. Many of the MDGs essentially concluded in 2015, but their continued relevance is undeniable. After all, most international agencies and many governments publicly committed themselves to these goals, making widespread structural changes to increase their effectiveness both in helping to meet these goals and thereafter (Satterthwaite, 2003). It is clear that achieving progress in many of the target areas had been directly related to – and in some cases dependent on – progress made towards the water MDG target since their inception (Hutton and Bartram, 2008). Similarly, the impoverished nature of many informal settlements throughout the developing world means the MDG relating to slums is also highly interconnected. These two particular components of the MDGs will feature as the central discussion points here.

Before proceeding to discuss my concerns with the two MDGs in detail, the ostensibly disapproving stance assumed towards these global targets in this sub-section must initially be clarified. It is not the purpose of this thesis to condemn or disparage such objectives, as they undoubtedly have progressive intentions and have helped to bring direction and harmony to the development sector on the whole. Chibba (2011) discussed how the MDGs have been used as a key advocacy tool in political, economic, operational, and ideological contexts, which has led to the active pursuit of the goals

through national planning, programming and implementation. This widespread resolve to instigate change must be regarded as a positive movement.

Rather, goals and figures derived from these sources need to be analysed in a more critical manner, taking into account the drawbacks and the potential for statistical discrepancies. They need to be realistically acknowledged for what they represent; useful benchmarks "against which local reforms ... can be [roughly] assessed" as opposed to mechanisms for pro-poor reform themselves (McGranahan and Satterthwaite, 2006; 3). Attempting to delineate an accurate portrayal of the global water context therefore requires at least a brief critique of the two MDG targets pertinent to this thesis, which have featured so implicitly in international water policy and thinking.

As mentioned, it has been claimed that the water-related target to the seventh MDG – to halve the proportion of the population without sustainable access – had been met approximately five years ahead of schedule back in 2010 (WHO/UNICEF JMP, 2012). This seemingly encouraging achievement may indeed be correct under official guidelines, but millions of households worldwide are still left to negotiate their survival with irregular, unsustainable, or no access to potable water (IIED, 2013). It is currently estimated that 663 million individuals fall into at least one of these categories worldwide (WHO/UNICEF JMP, 2015), while over the two decades since 1990 there was actually an increase of 65 million in the absolute number of people without access to safe water across Africa (AMCOW and WHO/UNICEF JMP, 2012). Figures do vary between sources, but it is evident from the general numerical region often quoted that dwelling on this recent MDG attainment would be both superficial and injudicious.

The wording of the water MDG itself is perhaps the main shortcoming, which has led to a host of spin-off issues in turn. I mentioned in the preceding paragraph that the water MDG had allegedly been met *under official guidelines.* However, it is somewhat challenging to accurately measure or estimate the extent to which a total population, or even an individual household, has 'access to safe drinking water'. Access to safe drinking water has been defined as the proportion of population using improved drinking-water

sources, which, as long as they protect the water from outside contamination and faecal matter, encompasses the presence of a household connection; public standpipe; borehole; protected dug well; protected spring; and rainwater (WHO/UNICEF JMP, 2013a). Households are identified as having access if they are located within one kilometre from the water source (Dar and Khan, 2011), while the necessary volume of water from one of these sources that qualifies as "reasonable access" has been specified at 20 litres per capita per day (WHO/UNICEF JMP, 2000). These guidelines surrounding the term 'access' have attracted considerable criticism, as they fail to reflect the reality or true extent of the numbers without access to potable water.

The IIED (2013) is one actor to have questioned the rigour of these criteria in relation to several concerns. These include issues surrounding unreliable or irregular infrastructure functionality; unaffordable pricing systems; the inability of monitoring systems to reach inaccessible or informal populations; and the overlooked presence of inequitable power relations, potentially even leading to the appropriation of water sources by those with local power either for profit or personal use (ibid.). Cudjoe and Okonski's (2007) Ghana study revealed how access statistics fail to consider the existence of exploitative public utility providers and their limited coverage, service inadequacy or unpredictability, as well as the subsequent need for 'connected' urban residents to sometimes purchase water informally alongside their existing bills. Similarly, Reddy *et al.* (2010) discussed the issue of slippage at length (albeit in a rural context), a term "often used to reflect unsustainable service delivery of water" through the malfunctioning, or 'slipping', of infrastructure after implementation. High incidences of slippage in an urban setting can be further compounded by rapid urbanisation rates, meaning that the percentage of the population without access to potable water will surge. A further issue also materialised in South Africa whereby there is little protection for households against disconnection, meaning that progress is often significantly negated yet goes unreported (Langford, 2005; 278).

Rouse (2013) concurs with many of these postulations, paying particular attention to what he describes as the intensifying "time bomb of maintenance neglect" in the developing world. Meanwhile, Satterthwaite (2003) contributes the ideas of water

quality and water volume to these concerns, indicating that the definition of access does not include any quantitative quality guidelines or consider the possibility that increased demand at a borehole or public standpipe may result in a reduced and perhaps insufficient allocation of water available to each customer. Such factors are ill-considered in the publication of statistics and progress updates, and the resulting everyday impacts they may engender on the ground remain largely unknown.

A further limitation with the phrasing of the water MDG, particularly in the context of this thesis, is the fact that it can belittle progress made by operations that are not officially recognised as contributing towards the attainment of objectives (McGranahan and Satterthwaite, 2006). This, of course, encompasses not only what McGranahan and Satterthwaite (2006) refer to as itinerant vendors, but also all types of unregulated informal water providers (see Section 2.4.). In this respect, focusing solely on the MDG target can be counter-productive in neglecting to recognise the indubitable importance of alternative water channels. Thus while 'part C' of the seventh MDG was designed to promote global unity and progression within the water sector in achieving a broad objective, the phrasing essentially allows influential actors and organisations to gloss their progress with superficially promising figures.

The final part of the seventh, environmental sustainability MDG is the target to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020 (UN, 2013). It must be clarified that Ethiopia did not formally adopt this MDG target (NPC and UN, 2015), which in itself dents the rigour of the MDGs in general. It nevertheless remains pertinent to this thesis as consumers of informal water are invariably inhabitants of impoverished and unauthorised settlements.

Despite an estimated increase of 213 million in the absolute number of people living in slums between 1990 and 2012, it has been reported that this target – like the water MDG – was also achieved far in advance of the proposed deadline (UN, 2013). This was justified on the basis that in excess of 200 million people have acquired improved access to drinking water, improved sanitation facilities, or durable and less crowded housing (ibid.). Many of the concerns relating to the 'access to drinking water' proxy have already

been raised in this sub-section and so will not be covered again here as part of the discussion about the MDG on slums. It is just important to emphasise once again that shortcomings in the measurement criteria of water access render any progress statistics, such as the 200 million figure above, highly questionable. Instead, I will consider some of the other dimensions associated with this target, specifically issues surrounding other definition parameters and its comparative lack of ambition.

Picking up on the former of these two points, the problems associated with MDG definitions and guidelines come into play once again in relation to the slum target. Aiming to achieve 'significant improvement in the lives of at least 100 million slum dwellers' first of all requires a significant degree of subjectivity, rather like the 'access to sustainable water' notion. Cohen (2013; 4) concluded that "the target is neither precise, nor evidence-based, nor framed to allow rigorous confirmation of achievement or not". Of principal concern, therefore, is the extent to which reported 'significant improvements' actually represent improvement in the recipient communities.

Díaz *et al.* (2001a) made reference to this idea in that one-off, externally managed poverty reduction projects with little to no input or influence from the inhabitants of target communities can be thought of as merely 'putting a temporary roof over the head of poverty'. Even in their model example study of El Mezquital in Guatemala City, where community involvement did help to promote widespread development, "fundamental problems associated with education, housing, employment and violence still remain to be resolved, either partially or in full" (Díaz *et al*., 2001b; 106). The variables and benchmarks as to what constitutes 'significant improvement' have thus remained vague and subjective, and statistics relating to the attainment of this target have been somewhat open to manipulation as a result (Saith, 2006). Household poverty and the related issue of water purchasing ability therefore remain similarly ambiguous.

The secondary criticism of the slum MDG concerns its comparative modesty. UN Habitat (2012; 5) stated that although the proportion of the urban population living in slums in the developing world "declined from 39 per cent in 2000 to an estimated 32 per cent in 2010", it is anticipated that slums will grow "by 6 million [people] every year, to reach a

total of 889 million by 2020". Indeed, this figure would therefore have been slightly less at the time the MDGs were formulated, but the goal to improve the lives of 100 million slum dwellers still represented a relatively minor percentage of the total number of slum dwellers in the developing world (Satterthwaite, 2003). Coupling this with the rapid rate at which slums were growing back when the MDGs were conceived meant that even achieving the target to improve the lives of 100 million slum dwellers would have been "to manage a retreat rather than achieve significant progress" (Payne, 2005; 135).

Saith (2006; 1194) also questioned whether the relevant bureaucracies would "focus on slum communities that can be shown to have improved, while leaving the vast majority of slums to their own devices, struggling on, or deteriorating further". There is essentially the feeling that this MDG to improve the lives of slum dwellers is technically deficient and perhaps tackles a symptom – though an extremely profound one – rather than addressing the wider urban development issues that are fostering the continuous sprouting of unauthorised settlements throughout the global South in the meanwhile (Payne, 2005). Considering that some of the other MDGs were remarkably overambitious – such as those detailing universal access to HIV/AIDs treatment, reproductive health, and productive employment by 2015 to name just a few – it must be questioned why the international development community were not galvanised to reach similarly exacting targets for the slum MDG.

This element of the sub-section has highlighted the inadequacies and limitations of the two MDGs pertinent to this thesis. It has shown how target-driven policy agendas are perhaps creating an environment that can mask the true extent of the situation on the ground. Concurrently, "developments whose impacts are not easily measured, such as more accountable local governance, protection of poorer groups' civil and political rights", and the priorities of those suffering from deprivation can be overlooked in the narrow drive towards objective fulfilment (Satterthwaite, 2003; 182). In-depth progress may thus be inhibited in favour of attaining a predefined, often subjective goal.

Post-2015 agenda

This study straddles an important transition phase between the conclusion of the MDGs, with the recent passing of their prevailing 2015 deadline, and the implementation of the post-2015 SDGs. It is therefore important to consider the early stages of the relevant SDGs in the context of this thesis that will, at least in part, underpin future development WASH policy. Given their recent inception and the subsequent lack of progress or achievements to analyse to date, however, this will represent just a brief introduction.

Target 6 of the SDGs is exclusively committed to clean water and sanitation, which have gained increasing prominence in recent times. The key sub-target in the context of this thesis outlines the need to "achieve universal and equitable access to safe and affordable drinking water for all" by 2030 (UN, 2015b). This can be seen as an umbrella goal, as its attainment will require progress to be made on all other WASH fronts such as infrastructure investment, source protection and creation, greater sector efficiency and coordination, and improving sanitation and hygiene. The breakdown of this sub-target is interpreted in Table 1, below:

Language used	Normative interpretation
Universal	Implies all exposures and settings including households, schools, health facilities, workplaces, etc.
and *equitable*	Implies progressive reduction and elimination of inequalities between population sub-groups
access	Implies sufficient water to meet domestic needs is reliably available close to home
to *safe*	Safe drinking water is free from pathogens and elevated levels of toxic chemicals at all times
and *affordable*	Payment for services does not present a barrier to access or prevent people meeting other basic human needs
drinking water	Water used for drinking, cooking, food preparation and personal hygiene

for all.	Suitable for use by men, women, girls and boys of all ages including people living with disabilities

Table 1: Interpretation of the language used in SDG Target 6.1.
[Source: WHO/UNICEF JMP, n.d.; 2]

Target 11, meanwhile, has an explicitly urban focus and seeks to "make cities and human settlements inclusive, safe, resilient and sustainable" (UN, 2015b). The first component of target 11 details the goal to "ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" by 2030 (ibid.). Again this is perhaps the umbrella goal to be achieved through the attainment of the other constituents within target 11. The other sub-targets of particular note within the 'sustainable cities and communities' domain in the context of this thesis concern the promotion of inclusive and sustainable urbanisation, as well as strengthening links between urban, peri-urban and rural areas. The mere acknowledgement of peri-urban areas represents a significant stepping-stone towards progress.

The indicators used to monitor and measure the progress of these two SDGs are purportedly designed to align with the normative interpretations and ideals covered. Indeed, subjectivity will again play a part in the reporting but the key is to ensure it better reflects the everyday realities on the ground than throughout the MDG period. It is worth stating that both the water and housing SDGs are highly interconnected with the other fifteen SDGs, particularly the poverty, health, gender and inequality targets. Collectively, the SDGs continue the narratives of human well-being and prosperity from the MDGs, but seemingly appear less porous.

Bridging spatial divides

Much of the literature covered thus far has reviewed matters relating to water in a more general urban context. This sub-section instead considers some of the main water issues and challenges to arise in the developing world's small towns and peri-urban areas – the particular dimension of 'urban' that is directly relevant to the research site for this study.

I group small towns and peri-urban areas under a single 'dimension' intentionally here, as it reflects the significant overlap between these sites both in general but also particularly in the case of Akaki Kality. It is therefore firstly important to discuss this somewhat convoluted, and often regionally heterogeneous, nomenclature that relates to such spaces.

As WaterAid (2010c; 8) suggests, "whilst we generally recognise a small town when we see one, commonly accepted definitions are not readily available". Indeed, it is generally agreed that small towns lie on a continuum somewhere between urban and rural. However, the reality is rather more fluid than a simple categorisation process, or grouping small towns together somewhere along an integer scale. After all, the threshold criteria and therefore the characteristics of small towns vary significantly between countries, and even between regions, throughout the developing world (see Table 2).

Country	Existing classification of small towns	Population range	Other considerations
Bangladesh	Range of different classifications – more based on administrative determinations than local population or other characteristics	5,000 – 50,000	Urban (as opposed to specifically small town) criteria: (i) Majority of male working population engage in non-agricultural pursuits (75%); (ii) An identifiable central place where amenities and infrastructure services are provided; (iii) Density of population
Madagascar	Different classifications are observed. The National Institute of Statistics considers an urban centre as any commune in which the population exceeds 5,000. The law on urbanisation requires all communes with minimum population of 10,000 to develop a strategic document for managing their district	District capitals and urban communities are those of between 10,000 and 80,000	National, regional or secondary urban centres are labels allocated after analysing the socio-economic administrative category of a given town (administrative function, population size, size of urbanised area, economic function, interdependence of the town, potential for the town to develop in the future)

Nepal	Government administrative classification	5,000 – 40,000	Density greater than 10 people per hectare; less than 50% of adult population involved in agriculture; connected to strategic road networks; basic infrastructure
Nigeria	May not be enshrined in policy	Widely defined as 5,000 – 20,000	Enugu State defines as between 8,000 and 20,000, as settlements of fewer than 8,000 still exhibit 'rural' characteristics
Tanzania	Defined by Local Government Act of 1982 based on population size	5,000 – 50,000	
Uganda	Based on population size	5,000 – 50,000	Urban centres of between 1,000 and 5,000 are defined as rural growth centres

Table 2: Small town classification from six countries

[Source: WaterAid, 2010c; 10]

Some of the example indicators outlined in Table 2, such as basic service infrastructure provision and an economy's relative dependence on agriculture, are not necessarily specific to small towns. They may instead just provide an insight into the level of development and investment within a particular area, or whether it possesses predominantly urban or rural characteristics. Using the size of a population as a criterion is also problematic in that the characteristics – and therefore the required policy approaches – will vary considerably between a 5,000 person small town in Nepal compared with a 200,000 person small town in Bangladesh (ibid.). To add further confusion, "rural areas in India are [also] more densely populated than small towns in Ghana" (Slaymaker and Fonseca, 2012; 13), while the terms 'peri-urban', 'large rural villages' and 'auxiliary centres' are sometimes used interchangeably with 'small towns' in practice "to describe settlements of between 5,000 and 20,000 inhabitants" (WSP, 2002; 2).

Picking up on the former of these three aforementioned alternative expressions, the term 'peri-urban' has long been the subject of various interpretations and meanings but has come to denote a place, a concept, or a process (Narain and Nischal, 2007). Firstly, the idea of peri-urban as a place is widely perceived to refer to fringe areas surrounding cities (ibid.). 'Peri-urban' as a concept can be seen as "an interface of rural and urban activities and institutions" (ibid.; 261) while 'peri-urban' as a process can be thought of as a transitional phase during which predominantly rural localities acquire urban features, as well as a reciprocal flow of goods or services between rural and urban areas (Allen *et al.*, 2006; Narain and Nischal, 2007). The existence of multiple perspectives ostensibly appears irresolute, but there is a consensus that "rural and urban features tend to increasingly coexist within cities and beyond their limits" (Allen *et al.*, 2006; 20).

The research site chosen for this study is particularly interesting and perhaps further corroborates the blurred lines between taxonomical terms. Discussed in detail in Chapter Three, Akaki Kality is essentially an area where rapid urbanisation has carried it from being a series of villages located outside of Addis Ababa, to a burgeoning small town, to its current state as a sub-city of Addis Ababa since the turn of the millennium. The time of transition between the first and second phase appears to be entirely

subjective and quoted dates vary in line with one's preconceived stereotypical appearance of a town. The formal upgrade of Akaki Kality from a small town to a sub-city of Addis Ababa was principally administrative in nature and little else was distinguishable between its immediate 'before' and 'after' situations. The outward expansion, and subsequent convergence, of Addis Ababa and Akaki Kality meant that the inclusion of the latter as part of the major city made geographical sense. The point here is to emphasise the overlap between terms such as 'small towns' and 'peri-urban areas', and that the defining criteria are not so concrete or delimiting. Akaki Kality, therefore, can essentially be considered a small town located in the peri-urban fringe of Addis Ababa.

Akaki Kality is just one of a multitude of rapidly urbanising small towns and peri-urban areas throughout the developing world, and this has significant implications for the water sector. Such areas often already exhibit elements from both urban and rural environments and therefore have a set of "unique characteristics that make it difficult to apply either urban or rural strategies to them" (Pilgrim *et al*., 2007; 77). In other words, small towns and peri-urban areas are incompatible with the binary urban-or-rural characterisation that has often been utilised for water policy (Slaymaker and Fonseca, 2012). Investment and water infrastructure networks are thus struggling to keep pace with the unique, increasing demand (Keener *et al.*, 2010), and service delivery expansion both to and within informal settlements has completely ceased in some cases (Jimenez-Redal *et al.*, 2014).

A major obstacle to authorities providing sufficient piped networks in many burgeoning small towns and peri-urban areas is the unplanned nature of the growth. Households can be densely packed together without government intervention or planning, and the subsequent lack of access or space can inhibit the potential to establish this necessary infrastructure (Dagdeviren and Robertson, 2011). Further constraints for formal water providers entering small towns and peri-urban areas include challenging geological or other geographical conditions, the lack of strong local political structures in place, as well as the premise that consumers are either unable or unwilling to pay (Jimenez-Redal

et al., 2014; 22). Ferguson and Naverette (2003) asserted that authorities have therefore become selective over which regions or communities to supply with water services.

There is also a general lack of political will to extend services to peri-urban areas, which as Davis (2004) suggested, will only be enhanced by these existing problematics. This selectiveness and lack of resolve is inherently linked to the bureaucratic issue of land tenure. Narain (2014) alludes to the interconnectedness between land tenure, water rights, equity and justice in peri-urban areas, referring primarily to the appropriation of land (and with it the water sources on or connected to the plots) by elites as an Indian city expanded outwards. However, in most other cases it is simply a case of security of tenure being a pre-condition for network utilities to consider supplying water to an area (Dagdeviren and Robertson, 2009).

The problem is that informal settlements are characterised by households with dubious tenure and illicit occupation, meaning the responsibility for delivering a service can be ambiguous as well as there likely being a lack of the necessary information in order for formal providers to be able to act (ibid.). The incentive for formal water providers is thus reduced further still in this regard, while a paradox also emerges in that secure tenure can increase house and land prices. This can potentially lead to the displacement of those who are priced out the market and an emergence of further spin-off informal settlements as a result (ibid.).

Such strained dynamics can therefore trigger a vicious cycle. The debate on how to improve access to water in peri-urban areas, specifically slum settlements, "has evolved from one favouring state-led urban development planning to others emphasising a minimal role for the state and increasing role for the private sector and markets" (Dagdeviren and Robertson, 2011; 490-491). In truth, both approaches have failed to tackle the widespread unavailability of formal access to safe water in such areas. However, perhaps the most important fact I wish to conclude this section on is that "100 per cent of urban (city, peri-urban and small town) dwellers already have access to water" in some form, as it is the fundamental resource upon which survival depends (UN Habitat, 2003a; xviii). It is therefore imperative to generate a greater pool of knowledge

surrounding the alternative initiatives that must be providing access to the hundreds of millions excluded from formal utility coverage and widely identified as being without potable water (Satterthwaite *et al.*, 2005). Before proceeding to discuss the literature surrounding informal water provision, it is initially important to consider the enabling environment within which these unregulated activities unfold.

2.3. The enabling environment

Deconstructing the establishment

Rather than adopting the Malthusian notion that unchecked population increase will continue to result in the degradation and shortage of natural resources (c.f. Letamo and Totolo, 2003), this study advocates the pivotal role of governance in either averting or contributing to so-called water crises. Global water problems are undoubtedly intensifying and many are "essentially caused by the ways in which we mismanage water" (UN, 2003a; 4). It is therefore important for this study primarily focused on the localised waterscape to consider the dynamic and contested nature of existing theories pertaining to the establishment, under which the role of the state and relations of power are key in shaping how water governance unfolds. The debate surrounding these ideas will comprise this initial sub-section.

The concept of governance emerged in the 1990s and has been defined as the way in which "society orders its affairs, encompassing the range of relationships between the different stakeholders (government, the public and private sectors, NGOs and community groups, and individual citizens)" (Franks and Cleaver, 2007; 303). Water governance, meanwhile, denotes "the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society" (Rogers and Hall, 2003; 7). The effectiveness of governance and therefore water governance within a given society is central to the fortunes of its residents (GWP, 2000; Rogers, 2006) – particularly so in

urban contexts – which is in turn dependent on the role of the state and subsequent nature of power relations.

The debate pervading all of these terms is largely polarised between two principal ideological strands, namely centralised and dispersed modes of practice. The first strand centres on the idea that states possess outright authority and that the act of exercising power is inherently political, centralised and controlled by an exclusive group of government institutions. An alternative ideology instead advocates the notion that the state and society are inherently related or intertwined in the act of decentralised governing within a given territorial boundary (Faguet, 2011). There has perhaps been a somewhat recent shift in proclivity from the first theory to the second (Agnew, 1994; Ndulu and O'Connell, 1999), as is ostensibly the case in the Ethiopian example. In other words, the role of the state has largely progressed from being a solitary, inaccessible body that directly delivers a service, to occupying more of a facilitative position from which a wider, partnered operation is encouraged (Batley, 2002; Lindell, 2008).

An urban governance arrangement under a decentralised national political system is comprised of a multiplicity of actors and institutions (see Figure 4). Governance in this sense encompasses much more than just the activities of government bodies (Devas, 2001) and instead serves as a facilitative arena for relationships between government and civil society to be harnessed. Decentralised governance represents "the institutional framework within which the civic public realm is managed" (Halfani, 1997; 147), an elaborate and dynamic matrix that recognises the diversity, interconnectivity and influence of all actors (Lindell, 2008).

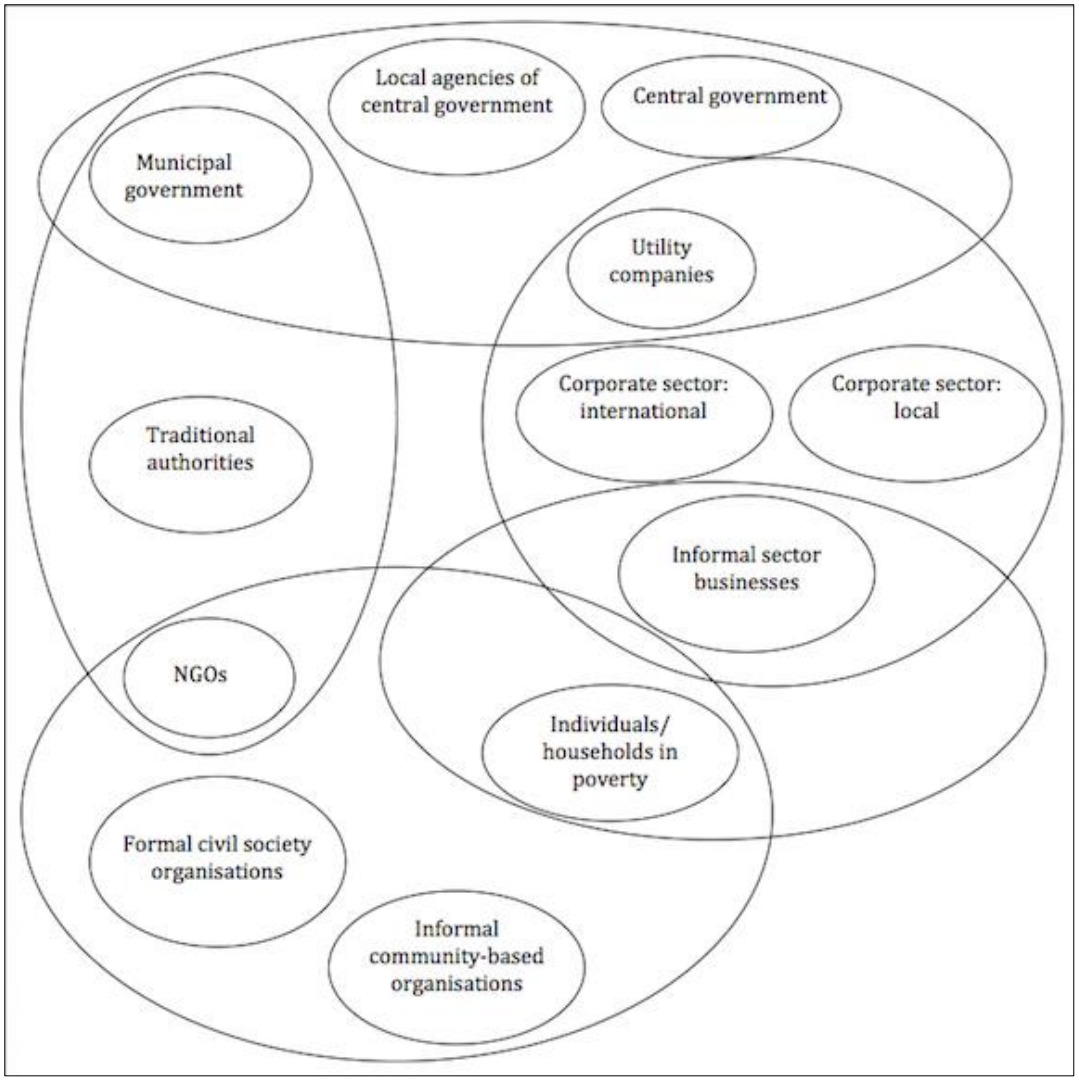

Figure 4: The elaborate nature of urban governance

[Source: Devas, 2001; 394]

Linked to these ideas is the notion of good governance. Although often referred to in the context of international aid distribution (Nanda, 2006), good governance is a principle that refers "to any mode of public decision-making that helps to advance human welfare" (Jenkins, 2002; 485). Jenkins (2002) stipulated that efforts to operationalise this concept have come through processes of enhancing accountability, strengthening civil society and the restructuring of bureaucratic and legal systems. Promoting 'good' or effective urban governance ultimately requires the decentralisation of political power and policy-making, alongside multiple-scale collaboration between the state, institutions and individuals, particularly in highly informalised settings (Simone, 2005; Leck and Simon, 2013). It can be effectively applied to water, climate

change and all other disciplines in which multiple interests exist and identities are constantly evolving, in order to cater for the diversity and address the political barriers that prevent effective stakeholder collaboration and inclusive benefits (Agnew, 2011). Seemingly complex political environments can thus be effectively managed if states adopt a mediating or guidance role along these lines rather than a position of exclusive authority (Lindell, 2008).

However, voicelessness can persist even in ostensibly decentralised systems (UN Habitat, 2003a; World Bank, 2003), which in turn relates back to power, specifically the void between potential and realised power. On the one hand, Foucault (1988) postulated the conception that power is ubiquitous, diffused through society and possessed by all. This stance aligns with decentralised and inclusive governance, where the idea of power as a solely jurisdictional concept or a form of domination possessed exclusively by central governments and corporate organisations is challenged. Instead, an inhabitant of any given region is idealised to have a degree of power potential upon which they can act. On the other hand, "power is perhaps rather unthinkingly portrayed as something which radiates from an identifiable central point" (Allen, 2004; 2). As such, there is a difficulty in overcoming one's preconceived ideas or the stereotype of power existing in a deeply hierarchical structure skewed profoundly towards those at the top (ibid.). Realising potential power can therefore prove to be deeply problematic in reality.

This study maintains the view that power should be perceived as "the ability of a person or group of persons … to affect outcomes that their preferences take precedence over the preferences of others" (Strange, 1996; 17). This middle-ground ideology reflects the ability of individuals and organisations alike to exert their influence or pursue their interests within a complex 'entanglement' of power arrangements (Sharp *et al.*, 2000), such as informal water providers and NGOs. However, it does also accept the notion that power will perhaps always be underpinned by an element of spatial concentration – even if this is manifested in small pockets – or hierarchy in the form of public policy. Transforming potential into realised power may therefore be inhibited even in the most seemingly inclusive political structures.

Satterthwaite *et al.* (2005) drew on these ideas to situate the challenges of improving urban WASH service delivery in a series of developing world cases. They highlighted how obstacles commonly encompassed "inadequate levels of support and commitment from international agencies and national governments" as well as "a lack of power and influence within local governments and water ... utilities on the part of the unserved and ill-served" (ibid.; 2). In other words, authorities in the developing world often lack the capacity to deliver inclusive policies and universal service provision, as they are themselves restricted by resource and funding shortages, inadequate information, corruption, and the danger of overstepping legal boundaries (Devas, 2001). The struggle of trying to keep pace with population growth compounds water issues further still for urban authorities (Tostensen *et al.*, 2001; Stren, 2012). It is therefore unsurprising that the role, capacity and relevance of the contemporary state in developing contexts have been called into question from a WASH perspective (Cox and Negi, 2010).

Considering the involvement of numerous, diverse and multi-scale water provision modalities in the sector (see Figure 5), as well as the complex networks and webs of power between them (Lindell, 2008), it is evident in most contexts that state-centric or macro-scale studies cannot hope to offer more than just a partial insight into modern urban water governance arrangements. It has been suggested that informal institutions and operations "need to be recognised as important vehicles for action" and in general, "widely adhered social values and action ... [should be acknowledged] as legitimate" (Jenkins and Andersen, 2011; 4). Mitlin (2004; 3) even includes the notion of informality into her definition of governance, highlighting the importance of the "institutions and processes, both formal and informal, which provide for the interaction of the state with a range of other agents or stakeholders affected by the activities of government".

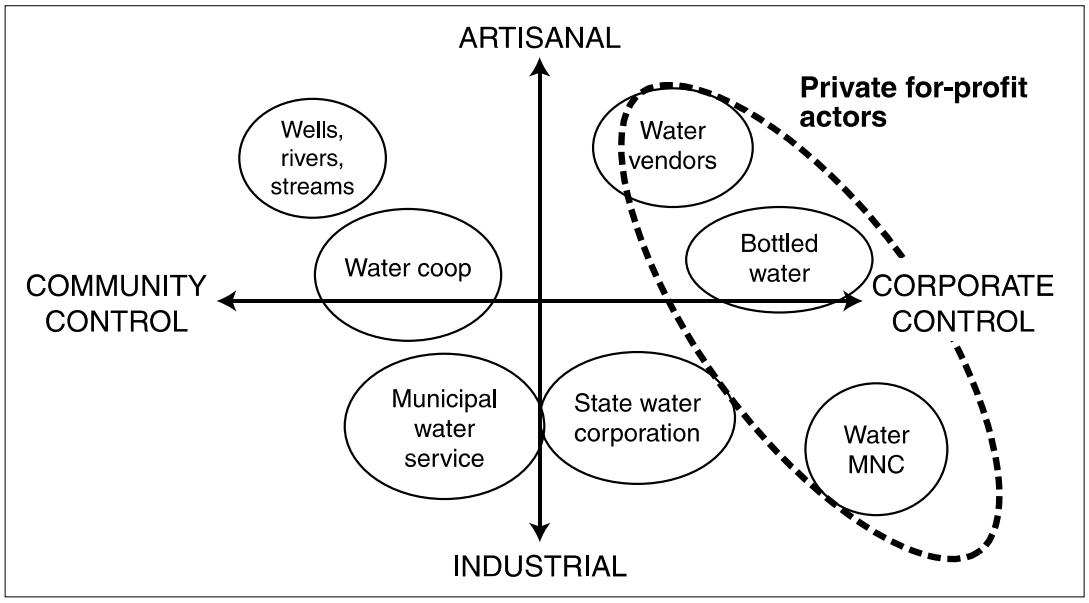

Figure 5: Modes of urban water provision

[Source: Bakker, 2003; 337]

After all, as Allen *et al.* (2006; 45) suggest, the definition of governance "refers to the capacity of a political system to govern efficiently and to provide the necessary political conditions for the public good". Thought to fill the voids left by patchy formal service modalities, informal water providers may offer an important service and therefore perhaps need to be acknowledged as part of the broader system of governance. Rogers (2006; 17) neatly encapsulates these points:

> "Given the complexities of water use within society, developing, allocating and managing it *equitably* and *efficiently* and ensuring *environmental sustainability* requires that the disparate voices are heard and respected in decisions over common waters and use of scarce financial and human resources".

Using the recently decentralised context of Ethiopia, this research therefore seeks to shift some of the spotlight away from the activities of the larger scale, more visible players in the act of governing to produce a more holistic study. Instead, the principal focus will concern the often-disregarded, informal components of the urban water provision milieu against this wider governance backdrop. It will seek to understand

localised water provision modalities in Ethiopia, the related practices of low-income households and thus the complicated distribution and networked relations of power, which will in turn provide a true insight into the politically decentralised approach and its effectiveness. As, while a multiplicity of non-state actors can possess agency in theory, persisting relations of inequitable power and complex socio-political backdrops may limit this potential in reality.

Citizenship and access

This sub-section will initially consider some of the literature surrounding citizenship, entitlement and access, before proceeding to discuss them in the context of water.

Defined in its most basic form as "a person's membership in a particular state", Hordijk (2005; 220) emphasises the centrality of citizenship in achieving a democratic system of governance. The contemporary conceptual interpretation identifies this membership to be multi-dimensional – contrary to the more exclusive traditional focus on political rights (c.f. Janoski, 1998) – and can be understood to exist on three main levels:

- Citizenship as a social-political right;
- Citizenship as an act of agency and practice;
- Citizenship as a relationship of co-governance between citizens and authorities.

(Hordijk, 2005; 221)

In reference to the first of these domains, Jones and Gaventa (2002) discussed how a societal 'right' is now believed to encompass social elements such as entitlement to education and health, welfare and resources. This is in addition to the political aspects such as electoral voting and freedom of speech that were once conceived as the key rights within classical liberalism. Citizenship as a form of agency – the second dimension – is a dynamic concept. Lister (2002; 39) stated that "to act as a citizen requires first a sense of agency, the belief that one *can* act; acting as a citizen, especially collectively, in turn fosters that sense of agency". Citizenship, in this respect, can therefore be

considered an idea that constantly evolves or develops in practice, and can be exercised through "consultation processes, city fora, [and] community development initiatives" to name just a few (Hordijk, 2005; 220). Finally, the idea of citizenship as a relationship of co-governance represents the most advanced stage of citizen engagement, where citizens have the potential to play an integral role in the decision-making process alongside authorities. Citizens should also be able to "monitor government's performance, demand transparency and hold their officials to account" as part of this co-governance relationship (ibid.).

Implicit in all of these points on citizenship is the idea that citizens are free to participate in public affairs. However, Sen (2005) articulated that freedom is comprised of both 'opportunity' and 'process', and the two need to be differentiated. Firstly, the idea of opportunity can be seen in terms of capability, which:

> "allows us to distinguish appropriately between (i) whether a person is actually able to do things [he or] she would *value* doing, and (ii) whether [he or] she possesses the *means or instruments or permissions* to pursue what ... [they] would like to do".
>
> (ibid.; 153)

For Sen (2005), it is important to shift more attention towards the former, as actual opportunities can vary between two people even when means – essentially income and primary goods – are either similar or equivalent. While capability is indeed a useful lens through which to view 'opportunity', the same perhaps cannot be said for the 'process' dimension to freedom. According to Sen (2005; 156),

> "capabilities are characteristics of individual advantages, and they fall short of telling us enough about the fairness or equity of the processes involved, or about the freedom of citizens to invoke and utilise procedures that are equitable."

So while basic human rights can be viewed as the entitlement to "certain specific freedoms" (ibid.; 152), the enabling environment within a particular region can determine the process (or perhaps lack thereof) through which entitlements can be pursued. Such entitlements can of course refer to access to employment, education, healthcare and other services, which in turn are often seen as an indicator of – or a right that should accompany – citizenship (Saunders, 1993; Castro, 2007).

Inherently linked to this discussion on citizenship and entitlements is the idea of access, and specifically water access in the context of this study. The literature suggests that one requires citizenship to receive access to services such as water, or to play a role in their management and allocation. It is therefore logical to infer that those who do not have access to regulated water supply are simultaneously without citizenship. Banerjee *et al.* (2008) contended that while access to basic services in general has either remained steady or even increased across the African continent since 2000, access to piped water has declined. This trend is largely an outcome of the burgeoning demographic growth rates and the issue of shrinking household sizes in urban areas (Banerjee and Morella, 2011). By these guidelines, citizenship rates are dwindling in line with declining processes of entitlement to water.

However, is it not also logical to infer that informal water providers may be prevalent society activists, potentially delivering water to unserved consumers who, by definition, are bound together in a matter of common concern? Are we being somewhat ignorant as academics to suggest that consumers of informal water, or those involved in any form of informal activity for that matter, do not have citizenship? Are informal water providers not effectively creating citizenship for themselves and for others, albeit through informal means?

What leads me to raise these questions is the ambiguity surrounding the concept of 'access', and the dualistic tendency of much of the existing literature to portray it as either 'all or nothing', 'this or that', and that a resource is either obtained 'from here or there'. In the context of water, for example, this dualistic portrayal of access perhaps may not reflect the reality for many households residing in low-income communities.

Instead, such households may have *some* or *varying* access to partial, intermittent, irregular, or diversified supply for example. Unlike affluent areas where there is perceived to be an 'unlimited' supply from a tap at relatively low cost in proportion to disposable income, households in the developing world often have to make a marginal cost decision where every sachet, jerrycan, or bottle of water can be crucial. Low-income families are therefore likely to have a diversified water use and supply strategy, where different sources and quantities of water may be used for different purposes depending on the water quality, which will in turn affect price. Seasonality may also exert an influence on such strategies, as rainwater harvesting may be employed in the wet season thereby reducing expenditure, while prices issued by informal providers may be higher than normal in the dry season to reflect the higher demand and reduced supply. In essence, why do access and therefore citizenship have to be binary, rigid or formalised?

The secondary issue associated with access leads us back to the actual daily volume of water that should constitute 'access', and specifically whether it should be enough simply for survival or to promote a certain economic standard of living. I use the case of South Africa to discuss this tension further. Water was high up on the list of inequities that needed addressing as part of South Africa's desired shift from an authoritarian apartheid to a 'rainbow nation' democracy in 1994 (Movik, 2011). The nation recognised the need to implement a free or subsidised basic needs water allocation (ibid.). As such, the 1998 National Water Act introduced:

> "a novel concept, that of the reserve, which refers to both an ecological reserve in terms of retaining a minimum level of in-stream flow to ensure ecosystem sustainability and that of a human reserve, which refers to the quantities of water necessary to meet basic human needs".
>
> (ibid.; 165)

Essentially, water is reserved for basic human needs such as water for drinking, food preparation, and personal hygiene before it can be allocated for other uses (de la Harpe, n.d.). South African president Thabo Mbeki later announced that all households

would receive 6,000 litres of free water per month, based on an extrapolation of the basic amount of 25 litres per person per day and therefore just over the amount considered by the WHO to constitute 'basic access' (Earle *et al*., 2005). Residents are then required to pay for water over and above this 'first block' base quantity according to a 'second block' metering system.

However, it has been suggested that this base figure is far below the actual quantity used by South African residents (McDonald, 2002), and was allegedly only marginally over half the amount advocacy groups had originally campaigned for (Bond, 2003). Meanwhile, others have highlighted that the steep increase to the per unit charges in the so-called second block of water use somewhat depreciated the value of the free first block (Saul and Bond, 2014). Clearly, there have been implementation challenges, and progress made towards redistributing water rights in South Africa has been slow (Movik, 2011). It highlights the difficulty of attempting to quantify the water-as-a-human-right concept, a movement that has often lacked meaning, substance and accountability. The result is that pervasive water inequality does still persist across the nation (c.f. Cullis and van Koppen, 2007), and once again elevates the importance of understanding alternative water sources and domestic strategies that are central to this study.

Affordability and pricing

The previous sub-section discussed how the literature often understands access to formal social services as being indicative of possessing citizenship. Directly linked to these concepts is the affordability of water and the various ways it can be priced. I touched upon one dimension of pricing briefly with the South Africa example regarding the free basic needs allocation initiated by the government, but the cost of water can differ considerably from region to region, particularly between formal and informal markets.

Affordability is a relatively straightforward concept to comprehend in general, but somewhat challenging to assign a precise definition (Fankhauser and Tepic, 2007). As a starting point, it is important to understand that affordability has close links with the ideas of pricing, access and poverty. The pricing policies created by both formal and informal providers are integral to either facilitating or inhibiting water access for prospective consumers, and if prices are not affordable, then the reduced access to this basic resource can deepen one's poverty. Mitlin (2002) also stipulated that water affordability encompasses a host of issues including connection charges and methods of payment, in addition to the unit cost. Again, these are common considerations for lower income or vulnerable groups particularly in developing countries and so, as Estache *et al*. (2002) conjectured, water affordability can be seen to comprise the affordability of initial access and the affordability of consumption thereafter.

The OECD (2003) conducted one of the most extensive studies on water affordability worldwide to date, identifying it as the social aspect of water service provision and one that is seldom distributed equally between communities or across income groups. Water affordability can essentially be conceptualised "in terms of the level of prevailing charges for water services in relation to the disposable income of consumers" (ibid.; 22). Although there appears to be little work conducted on establishing scientifically and quantitatively sound affordability thresholds, current expenditure patterns in developing countries suggest "that households spend 2 to 5 percent [of total household expenditure] on water services" (Banerjee and Morella, 2011; 173). It is therefore this ratio between the share of household water payments against total household expenditure that is central to the definition of affordability, which in turn means it is a dynamic and subjective concept. Water that is affordable to one household may not necessarily be affordable to their neighbour, even if the costs are the same. It is also important to consider seasonality, as households may be more inclined to harvest rainwater in the wet season and therefore have a greater disposable income, but the cost of water in the dry season may increase in line with limited available supply thereby reducing its affordability.

It has also been suggested that there is a fundamental need to distinguish between a household's 'ability to pay' and 'willingness to pay' in any discussion of the concept of affordability (Fankhauser and Tepic, 2007). Indeed, this is a useful point, as there is a pervasive idea that poor families are unwilling to pay for the services offered by formal providers. However, on the other hand, it could also be deemed a rather futile discussion that misses the key debate. The two ideas that the world's urban poor are either unable to pay or unwilling to pay for formal water services both appear to have shortcomings, but still commonly persist. The reality of the situation is that water consumed by low-income households is recurrently sourced through alternative providers at a significantly greater expense, suggesting that poorer households may be both able and willing to pay for water. Water is an indispensable life resource, and unserved households will likely continue to pay inflated prices to informal water providers out of *need* rather than *willingness*. As such, it has been surmised that "whatever the cost families will sacrifice food, heat, and shelter to pay for minimum water consumption" (Solo *et al.*, 1993; 9), and I similarly seek to understand in this study the extent to which households will continue to make provisions to ensure they are able to purchase water.

The main support for this idea that poor households are both able and willing (or compelled) to pay for water is indeed the fact that water sourced through the commercial informal market is often far more expensive per unit of volume. Kakebeeke and van Wijk (1996) reported that the poorest members of unserved communities in the developing world have been known to pay as much as 21 times more than the amount paid by households with piped connections. Meanwhile, Bhatia and Falkenmark (1993) reported that the cost of water from informal providers varied between 5 (Ivory Coast) and 100 times (Mauritania) more expensive than formal water providers across Africa in the early 1990s. The pricing structure of the informal water market clearly differs considerably between regions, but these disparate figures nevertheless begin to display how this most basic and fundamental resource can become a financial strain to many poorer households excluded from formal water supplies. Low-income households typically have limited financial resources, yet are often left to employ the invariably more expensive services (per unit of volume) of these informal providers to access

sufficient volumes of water (Matsinhe *et al.*, 2008a). A key question to uncover in this study is the frequency at which such services are employed.

It appears illogical that low-income households in developing countries continue to pay highly inflated prices rather than connect to the formal piped network. One reason for this relates back to Mitlin's (2002) interpretation of the affordability concept to include connection costs and methods of payment. We see in developed countries how governments construct residential homes wherever there is spare land, and because there is strong urban planning it is relatively straightforward (physically and financially) to extend the existing infrastructure to serve these new communities. However, urban planning in developing countries is often unable to keep up with the number and speed at which communities bloom. Public utilities may not be able to extend the current urban service infrastructure without greater subsidisation and effective management, as the financial cost in terms of both the initial capital and long-term maintenance involved is often too great (Banerjee *et al.*, 2008). Private companies, meanwhile, may be unwilling to provide low-income groups with a service based on the premise that they generate inadequate profit returns.

The result is that connection costs may be passed on to consumers (either through a lump sum or inflated tariff structures) and the methods of payment (both for the initial connection cost and future bills) are inflexible. There may also be the inhibiting stipulation of legal land tenure in order to connect to the piped network. On the other hand, sourcing water through the informal market can offer consumers flexibility, and reduce the financial outlay at any one time despite the greater cost per unit of volume. Thus, the opportunity to connect to the formal water network infrastructure does not solely depend on the physical availability of water or proximity to service pipes. A detailed engagement with this complex debate will ensue in the empirical chapters in light of the findings from a context where everyday life is exemplified by marginality. After all, the issue of affordability is pertinent but is far more composite than the common portrayal that low-income consumers are simply not able to pay.

Several commentators have also questioned the idea that pricing inequity stems from a lack of financial or technical resources, instead highlighting the problems of adversarial policies and the wider political economy of the water sector in the global South (Spiller and Savedoff, 1999; Calaguas, 2000; UNDP, 2006a). Even with insufficient resources, governments in developing countries must be attempting to improve water pricing equity in some form, and one possibility is the pursuit of public-private partnerships (PPPs). Water PPPs in developing countries have generally performed quite well in terms of coverage, service quality and efficiency (Marin, 2009), thereby improving water pricing equity. Such agreements – and formal private sector involvement in general – do not exist in the context of water supply in Ethiopia, yet provision challenges remain widespread. Informal water providers, on the other hand, are thought to be prominent in Ethiopia, meaning the foundations for unique partnerships with these actors could already be in place. As such, the following section navigates the literary debate on informality in general and water informality specifically.

2.4. Informality

Theoretical discourse

Informality emerged within development discourse in the early 1970s and, in truth, debates over its definition, causes, and influence have been ongoing since its theoretical inception. It was initially coined in the early 1970s, and dissonance surrounding the concept has historically been reflected in four dominant schools of thought: the *dualist*; *structuralist*; *legalist* and *voluntarist* (Maloney, 2004; Chen, 2005). The dualist school portrays informality to exist as a marginal sphere that is entirely separate from that of the formal, devoid of the regulations and planning measures that characterise the latter (Hall and Pfeiffer, 2000). Moser (1978), Chen (2005) and several other authors from the so-called structuralist school of thought, meanwhile, have led the challenge against such a dualistic existence. They understand informality as a labour-cost-reducing and competitiveness-increasing subordinate to the capitalist sector. In fact, Chen (2012) claims that the growing interest in informality derives at least in part from an emerging

appreciation that it is not only linked to formal structures, but also contributes significantly to the overall economy.

Hernando de Soto and the third, legalist school propose that the informal sector mainly consists of entrepreneurs who decide to operate informally in order to bypass the costs, time and effort associated with formal registration (de Soto, 2000; Chen, 2008). The fourth school of thought, the *voluntarist* school, has emerged more recently and argues that "informal entrepreneurs choose to operate informally after calculating the relative costs and benefits of remaining formal or becoming informal" (Chen, 2008; 22). Despite this continued irresolution, it appears that both necessity and choice drive informality (ibid.), and the existence of the school of thought classification merely reflects its complexity, diversity and dynamism. In essence, the concept of informality is entrenched with ambiguity, a fact this thesis hopes to address in the context of water at least.

The innate disagreement on the topic to some extent resonates with and originates from the complicated and heterogeneous meaning of the word. The term 'informal' is regularly uttered in a multitude of everyday scenarios, but it is an ambiguous and contextually varying concept, which makes it difficult to assign a universal definition (Misztal, 2000). Denoting a subject 'informal' is at the discretion of the user and is therefore open to interpretation. Without an international statute of sorts concerning informal activity, it was inevitable for disparate policy approaches to emerge and for blurred boundaries between 'formal' and 'informal' to materialise. Now we see a settlement or economic activity that is considered informal or illegal under the purview of the state in one region may be identified under a converse category of legitimacy elsewhere (Roy, 2005). Similarly, sometimes "informal spaces have been perceived as unplannable; [while] on the other hand, there has been a series of attempts to improve and integrate such spaces" elsewhere (ibid.; 150).

Nevertheless, informal economic activity usually denotes labour-intensive activities that take place outside the confines of state regulation (Sindzingre, 2006). It is essentially the lack of recognition of an activity by a governing authority that deems it informal.

Informal rules can be perceived to be “extensions, elaborations and modifications” of formal or legally recognised rules, but there is also a strong emphasis on barter, reciprocity, and kinship (North, 1990, 40). Informality can therefore perhaps be depicted “as a logic that shapes political bargaining and the social struggles involved in determining the changing and continuously contested boundary between ‘formal’ and ‘informal’ spheres” (Hossain, 2011; 275). It is a social process that reflects the situation of the political economy and explains the strategies of economic actors in a given region (ibid.). A worker in the so-called formal economy, meanwhile, may have a contract with an employer that outlines predefined work conditions, job responsibilities and wage structure, and may receive social security benefits. Formality is therefore associated with conforming to convention, regulations or custom, often statutory (Hall and Pfeiffer, 2000).

Possibly the most intriguing and revolutionary shift in perspective towards informality emerged in relation to the moneymaking facet; the informal economy. In the 1950s and 1960s, it was widely believed that the implementation of strong economic policies and effective allocation of resources in developing countries would eventually lead to the absorption of these supposedly ‘petty’ informal jobs into the ‘modern capitalist’ or ‘formal’ economy (Lewis, 1954). However, unemployment continued to rise as a result of health advances, population growth and an increase in the use of capital-intensive technologies, meaning this so-called ‘Lewis Turning Point’ never occurred (Chen, 2012). The informal sector has not only persisted but in fact continues to develop, while the growing awareness of this expansive entity and its inclusion within development discourse has also largely redefined the way we perceive poverty. Both our understanding and the narrative of the poor in developmental circles has shifted away from the misconception that they exist as an “inert mass excluded from participation in modern society” and more towards the idea that this heterogeneous group comprises “a dynamic class of people engaged in myriad activities” that can either ensure household subsistence or generate considerable profit (Portes, 1983; 152). Nevertheless, it must be remembered that informal sector workers are still, more often than not, the poorer members of society and many of the economic activities they

engage in are opportunities resulting from the existence of widespread exclusion from, or the failure of, formal structures.

This brief overview of the theoretical debate underlying informality is important to introduce the contestation surrounding the topic and the state's inherent connectedness with the informal sector. In fact, such is the ubiquitous and productive nature of informal activity even within so-called formal situations, both the validity and value of this dichotomous differentiation have been increasingly questioned (AlSayyad and Roy, 2004). Jenkins and Andersen (2011) similarly contested that a binary interpretation between the formal and informal sectors is futile and has also perhaps led to detrimental implications for the development of urban areas throughout the global South. As such, this thesis will maintain an accepting and supportive stance towards informality throughout and, like the stance adopted by the structuralist school, acknowledge its fluidity and interconnectedness with the formal sphere. However, for the purpose of analysis and in order to promote a greater in-depth understanding of unregulated water operations than already exists, this paper must also effectively preserve this theoretical detachment through the use of the terms 'formal' and 'informal'. After all, the so-called informal sector "houses the greatest number of poor families and, almost by definition, those families without access to ordinary services such as water and sanitation" (Solo *et al.*, 1993; 2). It will now therefore be useful to discuss how and for what reasons informal water situations materialise.

Creation of informal spaces

Many dualists have made somewhat negative claims about the informal sector, trivialising its operations and depicting it to represent a household survival strategy in times of emergency (c.f. Hart, 1973; Tokman, 1978). This rather insular view disregards the scale, complexity and profitability associated with many informal operations. Roy (2005; 148) also expands on this criticism to firstly suggest that such parochial portrayals somewhat erroneously accept the assumption that informal actors are excluded from global capitalism, and secondly that they fail to distinguish between "the varying

degrees of power and exclusion" between informality and poverty. The positive perception towards informal activity adopted throughout this study derives in part from the fact that it is usually purposive and reflects the deficiencies of the formal structures or deregulated systems in place (Hossain, 2011). In other words, informal activity is usually necessary, irrespective of whether it is a household survival technique or a business strategy.

Throughout sub-Saharan Africa and the rest of the developing world, the concept of inverse governmentality is therefore particularly pertinent. Nielsen alludes to its prevalence in Maputo, Mozambique, defined to exist:

> "in an unstable social setting where official governance agencies continuously fail to deliver what they have promised, the population projects governance as its problem rather than vice versa."
>
> (Nielsen, 2011; 332)

Although this quote was predominantly in reference to the housing affordability issue and the subsequent rise in the construction of informal homes on the city of Maputo's periphery, it highlights an important and relevant issue in the context of this thesis. Indeed, it would be inconceivable to expect residents to wait for their respective governments to deliver universal access to formal housing (Solo *et al*., 1993). But there are also a host of other domains in which circumstances may be similarly inequitable, often forcing or stimulating urban residents across sub-Saharan Africa to take matters into their own hands (Nielsen, 2011). Access to water has long been highlighted as one such injustice and Snell (1998; 4) identified peri-urban and low-income communities to often be the "last to receive services from water and sanitation utilities". It would be similarly inconceivable – perhaps to an even greater extent than the housing example – to expect households without access to a formal water supply to simply await assistance from the authorities that have thus far failed to deliver.

Substantiating these points, Gaye and Diallo (1997; 9) estimated that "more than 70 per cent of the urban areas in Africa … [were] completely excluded from the urban public

service network" prior to the turn of the millennium. This is an alarming statistic in itself, but particularly so given that "public service coverage, as a percentage of the population, … [was] decreasing in many cities" in line with rapidly increasing population growth rates (Njiru and Albu, 2004; 30). It would therefore be logical to infer that the fundamental resource upon which urban residents have come to rely on for water, particularly in sub-Saharan Africa, has long been the skills and resourcefulness of themselves, their families and their community members (Simone, 2005). It is this formal service coverage deficiency that seems to act as a stimulus for the development of informal water spaces at least to some extent, within which the responsibility for establishing sustainable alternative water practices essentially falls on commercial unregulated providers and marginalised households.

Indeed, there are obstacles within the sector that inhibit the improvement of formal water coverage. As developing urban centres proliferate outwards, extending the coverage of existing water networks or constructing new systems becomes an increasingly capital-intensive task and necessitates the involvement of significant technical expertise. Such investment in low-income communities is widely perceived as being high-risk for reasons including concerns over cost recovery and the issue of legality, which often deter authorities from allocating already scarce funds to these areas (Budds and McGranahan, 2003; Sima and Elimelech, 2011). It has been previously alluded to how local governments are resource-deficient, preventing them from investing appropriately themselves or raising funds from external sources, and thus making it increasingly challenging for effective policies to be formulated and implemented (Satterthwaite *et al.*, 2005). However, when investment opportunities are available, funds are often mismanaged, ineffectively utilised, consist of one-off payments with limited impact, or allocated for large-scale infrastructure projects that seldom benefit unserved households (ibid.).

Bakker (2003) encapsulates much of this debate in what she labels the 'urban services challenge'. "In many cases, the public water supply network operates in a vicious cycle of the '3 lows': low investment, low service standards, low cost recovery" (ibid.; 332). Surplus capital is frequently transferred away from public water utilities and allocated

to other non-revenue-generating municipal services, leaving limited financial reserves available for water network maintenance or expansion (ibid.). Meanwhile, private water companies appear less keen to lay down comprehensive infrastructure networks in the developing world than private electricity, construction or road companies, due to the lack of potential return. Water continues to be seen as an economic rather than a social service, and major global institutions perhaps unrealistically still seek full cost recovery for infrastructure investment. These issues are further compounded by unskilled staff and widespread corruption throughout the water sector (Lovei and Whittington, 1993).

Many of these latest points lead on neatly to Roy's (2005; 149) argument that "informality must be understood not as the object of state regulation but rather as produced by the state itself". It is in this way that informality can be seen as a mode of urbanisation, a domain that is not just important for the poor but also the middle class and elite (ibid.). For Roy (2009; 84), informality is actually far from being a grassroots phenomenon but instead "a feature of structures of power", while the formal and legal are "moments of fixture in otherwise volatile, ambiguous, and uncertain systems of planning". She highlighted in the Indian context how informality is a deregulated rather than unregulated domain, how it is inscribed in urban planning systems, and how this to an extent renders the state itself a highly informalised entity (ibid.). Similarly, Kooy (2014; 36) discusses how informality in Jakarta continues to be "produced through the politics of development processes, and did not 'fade away' in parallel to the pursuit of the urban infrastructural ideal". In fact, the development of Jakarta's piped water network has been both compatible with and required "the persistence of informality" (ibid.; 48), suggesting informal spaces should indeed not be seen as the exception to planning.

Gandy (2004; 368), finally, contributes a somewhat cynical dimension to the debate. He alludes to the continuation of the historic inequitable political economy by those in positions of power:

> "The infrastructure crisis now facing fast growing cities … is a testament not simply to the technical and fiscal challenge ... but the legacy of an incomplete

> modernity which rested on a brutal distinction between 'citizens' who could lay claim to potable water and mere 'subjects' who were left to make do as best they could".

The creation of informal spaces is therefore fraught with complexity and ambiguity, particularly in urban areas. Indeed, some commentators have challenged the alleged rapidity of current urbanisation rates throughout sub-Saharan Africa that have been widely reported (c.f. Potts, 2009; 2012). However, the post-independence era has undoubtedly played host to the significant outward sprawl of many urban areas, and recent population growth trends have created significant challenges for governing authorities in ensuring inclusive access to basic services (Kamete and Lindell, 2010). Some say that "master planning is too slow" and often lacks the required technical skills and administrative resources for effective implementation (Balbo, 1993; 23), which leads to voids and subsequently informal opportunities. Others comment that informality is actively produced, and "to deal with informality therefore partly means confronting how the apparatus of planning produces the unplanned and unplannable" (Roy, 2005; 156). What is known is that informalisation has become increasingly more visible, and "roughly 75 per cent of basic needs are provided informally in the majority of African cities" (Simone, 2005; 3). In terms of water, low-income households are either forced to devote significant amounts of time collecting water from natural sources instead of undertaking more productive activities (Mitlin, 2008), or spend greater proportions of their income on commercial informal water. The next sub-section considers the characteristics of water informality in detail.

Informal water provision

Central to this thesis is the idea that while concerns justifiably persist over the level of inequitable access to water in most regions across the globe, "everybody alive somehow obtains drinking water" (Solo, 1999; 118). Survival is simply not possible without this fundamental resource. Residents of households without regulated access must therefore acquire drinking water through alternative means, often through the informal

channels that have proliferated in response to the partial coverage of formal infrastructure networks. Throughout the developing world, the pattern of distribution is highly inequitable insofar as the elite often have access to piped water supply, while the poor rely on the informal water sector and unimproved sources (Bakker, 2003; 333). Yet these informal modalities are often highly organised, calculated and multifarious.

Given the ambiguity and contestation surrounding informality, it is important to initially consider precisely what forms of water provision constitute being labelled 'informal' in the context of this thesis. The informal water sector is often discussed in a commercial context, whereby informal providers perform one of the following three overarching roles: *gap filler, pioneer* and *subconcessionaire* (Kariuki and Schwartz, 2005). Indeed, this is true, but it must be clarified that informal activity in the water sector can also denote non-commercial aspects. This study adopts a stance that largely conforms to the broad ideology outlined by Angueletou-Marteau (2007), in which all forms of water provision that operate outside of the legal water management framework and exist as an alternative to public or private utility channels are considered informal service modalities. This encompasses both the commercial operations undertaken by informal providers, as well as the non-commercial aspects such as self-supply systems, the unofficial digging of wells, and accessing water through traditional water sources. Table 3 reveals that informal water sources, to varying degrees, are key to negating the voids left open by the partial service coverage of the formal network.

Location	House connection	Standpipe	Informal water providers / traditional sources
Abidjan, Côte d'Ivoire	76%	2%	22%
Nairobi, Kenya	71%	1%	27%
Dakar, Senegal	71%	14%	15%
Kampala, Uganda	36%	5%	59%
Dar es Salaam, Tanzania	31%	0%	69%
Conakry, Guinea	29%	3%	68%

Nouakchott, Mauritania	19%	30%	51%
Cotonou, Benin	27%	0%	73%
Ouagadougou, Burkina Faso	23%	49%	28%
Bamako, Mali	17%	19%	64%
Maputo, Mozambique	40%	22%	38%

Table 3: Access to drinking water in 10 African cities

[Source: Matsinhe *et al.*, 2008a; 842]

Non-commercial

The UN (2003b) stated that approximately 90% of sewage and 70% of industrial waste is discharged into natural water sources in the developing world without any treatment. Meanwhile, we know that at least 663 million people across the globe are officially recognised as being without access to an improved water source. It is therefore likely that water from many of these polluted sources and other dirty sources will be utilised in order to fulfil various basic household needs, and this reality will persist as long as there are households that remain unserved.

Pollution levels and general water quality vary considerably from region to region, but Tumwine *et al*.'s (2002) study provides a snapshot into the potential detrimental health impacts of utilising untreated surface water stores across Uganda, Tanzania and Kenya. Approximately 33% of households relying on surface water (seeps, springs, reservoirs, ponds, streams and rivers) as their primary source had experienced at least one incidence of diarrhoea in the week preceding the survey. Similarly, Hunter *et al*. (2009) found that the risk of water-related infections drastically heightened in communities when formal supplies failed and residents were forced to drink untreated surface water. In fact, even just a few days of consuming untreated water may be sufficient to destroy the associated health benefits of predominantly using clean sources (ibid.).

The other main issue associated with accessing water from natural sources is the distance consumers sometimes have to travel. Women and young girls are usually responsible for collecting water in developing nations, and can often spend five or six hours a day doing so when distant surface water supplies have to be utilised in the absence of formal provision (WaterAid, n.d.a). For women, the dangers of this role include assault, sexual harassment or rape, attack from wild animals, and injury, and it also reduces the time available for other domestic or economic responsibilities (ibid.). Young girls experience the same issues while collecting water, as well as being inhibited or prevented from attending school (ibid.). Pickering and Davis (2012) also emphasised the inverse relationships between both the volume of water used and walk time to the source, and the walk time to the source and household hygiene levels. The implications of accessing water from unimproved sources clearly extend beyond just the direct health impacts of consuming contaminants.

The other form of non-commercial informal water provision discussed here is the concept of self-supply. Carter (2006; 2) stated that "the term 'self supply' refers to local-level or private initiatives by individuals, households or community groups to improve their own water supplies". The individual, household or group usually provides the investment cost of the water source, but the number of beneficiaries will often be far greater than just the initial contributors (ibid.). Sutton (2009) explains that self-supply systems are often used in response to the inadequacies of formal water supply, and may also reflect the strong desire to use water for both productive and domestic purposes that can perhaps prove to be problematic from communal supplies. Examples of self-supply initiatives include, but are not limited to:

- A few logs across a waterhole
- An earth bund around a waterhole to divert runoff
- A natural spring or shallow groundwater source protected by the community
- A hand-dug well constructed by a householder and shared with his/her neighbours
- Deep borehole drilled by an individual for their own or neighbours' benefit

- Rainwater harvesting
- Water treatment

(Carter, 2006; Sutton, 2009)

Although often associated with rural intervention, self-supply systems are known to exist in urban areas (c.f. Srinivasan *et al*., 2010). Such initiatives are thought to serve a total of around 40 million people across the globe, though much of the discourse on the topic still appears to be pessimistic towards water quality, construction standards, reliability of supply, and the safety either in terms of health or injury (Carter, 2006). Morgan's (2003) study in Zimbabwe, however, revealed that an estimated 50,000 wells once classified as unimproved sources had been upgraded between the early 1990s and 2002 to improve water supply for half a million beneficiaries. In Uganda, Carter (2006) also found that a range of self-supply technologies exist to improve access, to improve the reliability of supply, and to protect the resource at the household level or wider community scale. Thus, self-supply systems are prevalent and low-cost initiatives employed in the developing world to increase the available water quantity and improve water quality, access, convenience, and ease of management (ibid.).

Commercial

While much of the relevant discourse on private sector participation in the water sector is geared towards the operations of larger scale companies, the activities of commercial informal water providers are largely overlooked or under-researched (Solo, 1999). In common with some of the more cynical perceptions towards the informal arena as a whole that persisted until the late 1990s, informal water providers were widely thought to be temporary players in the sector and their existence represented societal backwardness or old fashion (Dardenne, 2006). Concerns have also been raised over the water quality, price differentiation, lack of monitoring, and resource depletion associated with informal water provision (Ahlers *et al.*, 2013). However, informal water providers can offer an important service to residents in areas of the developing world where formal water bodies either do not operate or the water they deliver is

intermittent (ibid.; 473). The role and heterogeneity of informal water providers will therefore be discussed further here.

In line with the reasons outlined earlier for the emergence of informal water spaces, Kariuki and Schwartz (2005; 4) proposed an increasing prominence of informal water provider activity "in countries with low coverage levels, ineffective public utilities [and private companies] that provide inadequate or partial services and remote, difficult-to-access regions". It has therefore been suggested that the role of informal water providers operating in the water sector is generally most notable in Africa (van Dijk, 2008). The extent to which commercial informal water services are employed remains ill-understood, but the quoted figures are usually high and it is generally thought that at least 50% of families residing in African cities acquire drinking water through such channels (Solo, 1999). In truth, however, informal providers are envisaged to have a global importance as an alternative water modality (Sima and Elimelech, 2011). They have been estimated to represent the primary source of water for 25% of urban residents in Latin America (Solo, 1999), and up to 80% across sub-Saharan Africa (Collignon and Vézina, 2000).

Kariuki and Schwartz (2005) discussed how informal water providers usually take one of three main forms. These are labour-intensive mobile vendors who often employ carts or vehicles to facilitate their service distribution; point source providers who occupy kiosks or standpipes; and finally those who utilise a fixed system or network to distribute water to customers. These three modalities can be further subdivided into independent and dependent operators, based on whether the informal provider utilises their own water or purchases it from elsewhere specifically to sell on (ibid.). Independent providers customarily obtain water from their own boreholes or a single supply point, but there are perhaps some health concerns associated with this modality relating to the quality or safety of the water source (Sansom, 2006). Meanwhile, dependent (or intermediate*)* providers obtain water from a formal utility network and either "(i) install and manage network extensions or water points in unserved areas, or (ii) buy, carry and deliver water direct to customers willing to pay them" (Moran and Batley, 2004; 47-48). It is worthwhile to now consider several of the different means within this classification.

There is growing consensus that the informal and formal sectors consistently overlap throughout the developing world, and the operations of **household water resellers** largely typify this interconnectedness. As Sansom (2006; 208) describes, "many households with individual connections to formal water supply resell water from their homes, serving a limited number of households in the surrounding area". This practice takes place under an 'illegal but tolerated' proviso in Dar es Salaam, where prohibition can seldom be enforced due to policing resource constraints and given the widespread exclusion from water that would otherwise transpire (Dagdeviren and Robertson, 2011). In other urban areas across sub-Saharan Africa, a shift in both policy and attitude towards household water resellers has taken place. Kjellén and McGranahan (2006) identified how household resellers have been transferred from a block to a commercial tariff in Accra to aid their operation despite the practice officially remaining illegal. Similarly, municipal authorities in Abidjan have recognised the importance of water reselling by attempting to issue resellers with formal licenses (Dagdeviren and Robertson, 2011).

Substantiating these ideas, it is estimated that approximately 40% of Abidjan's population access water through water reselling at least sporadically (Collignon, 2002), while in urban areas throughout Mozambique and Lesotho household water resellers may provide up to 80% of the water used by the poor (Keener *et al.*, 2010). Elsewhere, Crane's (1994; 73) Jakarta study found that "indirect access to public sector water may be more important than direct access, especially among the urban poor", and 10% of the sample population obtain their water from household resellers. In addition, 13.4% of the sample access water from the formal piped system, and approximately 12% of these alluded to reselling water on to excluded consumers.

There is thought to be a higher cost associated with purchasing water through household reselling than there is for informal standpipes. This is perhaps a reflection of the reduced waiting times, enhanced water pressure, convenient hours of operation, the negation of potentially having to travel a considerable distance, and the flexible payment systems that are sometimes offered (Crane, 1994; Obrist *et al.*, 2006; Boyer, 2007; Keener *et al.*, 2010). Essentially falling somewhere between a full house

connection and a standpipe, household water resellers expectedly provide a competitive service (Keener *et al.*, 2010). In truth, however, little detailed research has been conducted on the pricing of household water resellers or any other informal water modality for that matter; a gap this research will seek to fill.

Standpipes or **water kiosks** can generally be considered point sources, or a service that is situated at a fixed location to which customers travel to purchase water often using a container (Kariuki and Schwartz, 2005). They have been described as the principal informal means through which households in sub-Saharan Africa access their drinking water (Keener *et al.*, 2010), and range from "highly advanced public access points, with multiple taps and full-time employees ... [to] a small hose running from the tap of a connected household" (Sima and Elimelech, 2011; 233). Adding to this heterogeneity, Moran and Batley (2004; 48) suggested that there is an important distinction to make between water kiosks that are constructed with public funding (and often contracted to an informal water provider), and those that are privately financed "at the initiative of a for-profit private provider". Once again it is clear there is a strong overlap between the formal and informal spheres in water kiosk operations.

Referring to the installation of water kiosks in appropriate locations to meet the demands of those in need, Gerlach and Franceys (2010; 458) stated that:

> "Whilst such an approach remains valid for the small percentage of the 'very poor' or 'destitute', more akin to drinking water fountains for survival rather than household supplies, the management and difficulty (cost) of ensuring revenue collection cannot always deliver an acceptable minimum level of service".

So while access to water may appear to be improved through the installation of kiosks, issues surrounding price, water quality, distance of source to place of consumption, hours of service, queuing times and available water quantity, need to be considered as they will essentially determine the level of service. These concerns aside, informal water kiosks are fundamental to the survival of low-income households in many communities

throughout the developing world. Jimu (2008) confirmed this to be the case in Blantyre, as without informal kiosks residents would otherwise be faced with a lack of storage to build up a supply ready for the dry season, travelling long distances to try and source water, and insufficient quantities to meet general household needs. Indeed, the simultaneous utilisation of various modes of water services by consumers makes it difficult to quantify usage or coverage rates, but it was found in Keener *et al*.'s (2010) study of 23 cities across sub-Saharan Africa that average standpipe coverage is 28% but can provide up to 53% of the water supply for the unserved.

Water carriers and **carters** are for-profit mobile operators who obtain water from a variety of sources including wells, boreholes, kiosks and unimproved sources to sell on. In fact, "in cities such as Nouakchott, Ouagadougou, and Bobo Dioulasso, more than 80 percent of water sold at standpipes is bought by carters and not by individuals" (Collignon and Vézina, 2000; 21). In most urban areas across sub-Saharan Africa, water carriers deliver water derived from multifarious sources to the doorsteps of consumers via non-mechanised means (Kariuki and Schwartz, 2005). Water is transported in jerrycans or other containers via hand, via bicycle, by utilising a cart, or via carts pulled by draught animals (Collignon and Vézina, 2000). The cost of water from these providers is thought to be considerably higher than from household resellers or kiosks (Sansom, 2006), in large part due to its labour intensive nature alongside the reduced quantities mobile operators are able to provide.

The number of mobile operators that carry water by hand is thought to be declining in sub-Saharan Africa (except perhaps in extremely impoverished urban areas), and gradually being replaced by the more efficient carters. As a broad group, meanwhile, door-to-door water providers appear to vary in prominence. Keener *et al.* (2010) reported that only a little over 5% of households in some urban areas of Burkina Faso, Chad and Niger are dependent on these types of vendors. Elsewhere, El-Amin and Baldo (2000) reported that 67% of the low-income households situated on the periphery of Khartoum access water from the jerrycans supplied by mobile providers. It has also been estimated that the combined influence of kiosk operators and mobile carters in Bamako

is significant, supplying 84% of households and collecting half of the revenue generated in the water sector (Collignon and Vézina, 2000; 15).

Water tankers are another mode of mobile delivery but are discussed separately here due to the significantly higher volume of water they transport. The trucks used to transport the water to consumers are often a major but worthwhile investment (ibid.), and are sometimes owned by "sole proprietors who may have a small fleet of vehicles" (Kariuki and Schwartz, 2005; 20). Water tankers largely offer a service to low-income, unserved communities and high-volume customers such as government buildings and private firms in urban areas across Africa and Asia (Sansom, 2006). In Delhi and Kathmandu, they are also thought to provide a service to both middle- and high-income communities to supplement the insufficient quantity or intermittent supply provided by formal utilities (McIntosh, 2003). Moreover, Sarpong and Abrampah (2006) claimed that approximately 70% of the water purchased at kiosks or standpipes originally came from water tankers.

Clearly there is considerable overlap between the so-called formal and informal water arenas, as well as an interrelated supply chain between different informal modalities. Ahlers *et al*. (2014) identify the concepts of co-production and disaggregation to help articulate this fluidity. Co-production describes the process through which "hybrid", "uneven" and "contested" service provision modalities are produced (ibid.; 2), while disaggregation highlights the individual (formal and informal) activities and actors involved within a single service delivery modality. This conceptualisation facilitates a realistic understanding of how provision works in the urban waterscape, specifically the power asymmetries and social relations between multiple actors (ibid.). Misra (2014) similarly questions the extent to which the 'formal' is formal and the 'informal' is informal. She instead proposes that the notion of emergent formalisations is more useful in understanding the "process towards reliable and effective functioning" systems and formulating "appropriate policy and action interventions" (ibid.; 31). Thus, although it is necessary to maintain the terms 'formal' and 'informal' in this thesis in order to generate knowledge on the modes of water supply associated with the under-

reported latter, it simultaneously recognises the tapestry of service provision modalities that produce the urban waterscape and the blurred distinctions between them.

Before proceeding to consider several enlightening contexts to situate these ideas, some clarifications need to be made regarding the terminology associated with informal water practices here. Firstly, while informal water provision encompasses a range of activities, there is perhaps a subtle difference between 'vending' and 'reselling'. Vending is a term more commonly associated with mobile providers who transport the water to consumers as part of their service, whereas we have discussed how resellers often sell on water from their household's piped connection (Kjellén, 2000). Zaroff and Okun (1984; 289) fashioned an early and succinct conceptualisation of water vending that continues to feature throughout the literature. They claimed that:

> "Water vending, the sale and distribution of water by the container, ranges from the delivery of water by tank trucks ... to the carrying of containers by individuals ... The water may be obtained from private or municipal taps, standposts, rivers or wells and sold either from a public vending station or door-to-door. Vendors may either sell water directly to consumers or act as middlemen, selling water to carriers who in turn serve the consumers".
>
> (ibid.)

Secondly, a host of terms are employed in the literature when referring generally to commercial informal water providers including 'small-scale private service providers' (c.f. Kariuki and Schwartz, 2005), 'small-scale private water providers' (c.f. Le Vo, 2007), 'small-scale independent providers' (c.f. Ahlers *et al.*, 2013) and 'independent water providers' (c.f. Solo, 1999). This thesis simply uses the term 'informal water providers', and 'informal water provision' when discussing the wider practice. I will now proceed to consider a couple of interesting contexts from across the developing world, where an engagement with informal water practices has taken place and therefore against which some of the theory discussed thus far can be contextualised.

Enlightening contexts

Many of the issues outlined thus far within the informal water component of Section 2.4. are pertinent to **Mozambique**. Despite the predominantly condemnatory stance of the longstanding post-independence government towards informality (Kamete and Lindell, 2010), there has been a considerable rise in the number of informal water providers across the nation. This is largely in response to mass rural-urban migration and the inability of the country's newly autonomous state to extend urban public utility networks (Bhatt, 2006). Within the capital itself, Ahlers *et al.*'s (2013; 474) study found that "in Greater Maputo an estimated 350 - 450 small-scale independent providers [or informal water providers] … service 37,000-44,000 household connections and 320 standpipes". In fact, approximately 38% of households in Maputo rely on the informal water market (Matsinhe *et al.*, 2008a). Informal water providers can not only now be considered key actors within both Maputo and the rest of the country's urban areas, but it is believed that they "presently constitute the most reliable alternative for access to water to the majority of the under-served urban poor" (ibid.; 2).

The scale of their operations also varies considerably, ranging from the microenterprise with a single person manning a borehole or delivering jerrycans, to those that are larger in scope and reach thousands of households, facilitated either through the employment of many staff or the utilisation of a network system (Ahlers *et al.*, 2013). Those that depend on an infrastructural water delivery system have experienced the same network implementation and extension cost issues often associated with formal utilities, and such costs are usually passed on to the consumer (ibid.). Although the services of informal water providers may work out more expensive overall, they are able to offer customers more manageable flexible payment systems; the converse of which has been a key obstacle for residents of poorer communities in the uptake of formal household water connections (c.f. Jimenez-Redal *et al.*, 2014).

Of particular interest in the case of Maputo is the rapid rise of informal water providers from around the 1980s when their early operations were first noticed, to becoming established water sector actors in the city by the turn of the millennium (Matsinhe *et*

al., 2008b). The increasing prominence of informal water providers has been driven by demand, of course, but it is often forgotten that these 'alternative' actors have responded to this demand in an efficient and systematic manner (Bhatt, 2006). Informal water providers have essentially implemented an alternative water distribution system that corresponds more "to the demands of a population with limited means" than the defective formal service provided by Àguas de Moçambique (Blanc, 2010; 375).

This introduces the 'survivalist versus entrepreneurial' debate, and provides at least a basic insight into the often complex business strategies employed by informal providers to deliver water to the unserved or partially served. In addition to this, however, the current importance of informal water providers' services in Maputo is further reflected by the emerging desire of the municipal authorities to either formalise their operations or incorporate their competencies into a new multi-level stakeholder water supply system (Matsinhe *et al.*, 2008b). This development marks a significant shift in attitude by authorities, veering away from public 'condemnation' of informality to a stance more in line with 'cooperation'. A cooperative approach is not without its difficulties, particularly the issue of ensuring accountability without hindering the successful entrepreneurial dynamics of informal water providers through regulation. Nevertheless, a legal complementarity rather than conflict between formal and informal water sector actors appears to be the necessary step to enhance coverage in Maputo (Matsinhe *et al.*, 2008a; Blanc, 2010).

It is also interesting to study the divergent policy approaches adopted in Asia's megacities. The water situation is particularly acute in **Mumbai** (Gandy, 2006) and **Dhaka** (Akbar *et al.*, 2007), where access through wells, bore holes, informal providers and illegal connections is indispensable for the survival of all residents excluded from formal urban distribution networks. Firstly, in the case of Dhaka, Akbar *et al.*'s (2007) study actually revealed that informal water supply systems are not only more reliable than formal services, but the quality of water from some informal modalities is often greater. The water agency in Dhaka has moved to team up with informal providers – similar to the Maputo example – in a bid to prevent the theft of water, which has led to a significant rise in the number of community- or entrepreneur-managed water points

across the city (Solo, 1999). Yet in Mumbai, the police raid informal settlements to confiscate water booster pumps as part of a criminalisation campaign (Graham *et al*., 2013). It is claimed by the media and authorities that informal community members are stealing water from the city through their improvised systems, ultimately implying that these peripheral residents are not citizens in what Graham *et al.* (2013) dub 'hydrological apartheid'. This study contributes to such points, highlighting the impacts on everyday life in Ethiopia if informal providers continue to have their entrepreneurial operations restrained and criminalised.

The final case studies discussed here – **Manila** and **Bhubaneswar** – build on the idea that formality and informality are inherently intertwined in the urban waterscape, as well as how policy approaches and progress reporting are inherently subjective. Firstly, Cheng (2014) discusses how Manila is widely seen as a successful example of water privatisation due to improvements in metropolitan coverage rates. Indeed, utilities have managed to extend networks into low-income areas, yet this has only been possible due to selective partnerships they have formed with existing informal operations, or what Cheng (2014) labels micro-networks. Cheng (2014; 66) states that "within the utilities' stated coverage areas, communities in which micro-networks operate are clearly considered served", before questioning how such areas differ from those outside the domain of formal-informal collaboration. Coverage in Manila is thus defined as the area "utilities seek to serve through a combination of formal and informal means", while areas outside the utilities' scope are considered unserved, even though residents there may use similar types of water providers (ibid.; 67). Delineations of coverage, informality and legality thus begin with those in power, and supports Roy's (2005) assertion that informality is a mode of urbanisation that is produced by the state.

Misra (2014), meanwhile, focuses on two areas within Bhubaneswar to highlight the fluidity between formal and informal water practices. Firstly, the Chandrasekharpur Housing Board Colony is comprised of 2,200 residential units with a state-run networked water supply system, and caters to various income groups. According to Misra (2014), the process, status and design of the construction exemplifies formality on the surface. However, "additions to existing units" have proliferated in response to the high demand

for rental accommodation, with vertically stacked extensions adding “almost 200% to the original designed floor space” (ibid.; 25). Most of the extra construction is illegal having proceeded without municipal approval, and the unrecognised occupants therefore do not have registered water connections. Instead, they are linked to the water connections of the original flats, which means the services they draw are invisible and a false supply deficit is created. Despite the operational risks of excess pumping, “if the informal/undocumented/illegal developments in such areas were to be recognised or regularised, the reality of unplanned, extra-legal encroachments would break the prevailing myth of the ‘planned’ city with well-developed services” (ibid.; 26). Yet, these undocumented modifications or “‘extra’ parts do not exist or operate differently from the formal system”, which in turn problematises the formal-informal binary (ibid.; 28).

Nearby Saliasahi, on the other hand, is a squatter settlement home to more than 40,000 families and epitomises the prevailing idea of informality. Approximately 4,000 bore wells have been created by residents and community groups with well-defined rules in order to help satisfy water demand, though they are “not ‘registered’ or recognised as water suppliers in official records” (ibid.; 27). The authorities nevertheless acknowledge the functioning systems in place in Saliasahi – which incidentally are legal, as self-provisioning is permitted in the region – and somewhat paradoxically consider the area as being ‘covered’. Again, such an arrangement does not fit neatly into a formal-informal classification system.

Beyond survivalism

We have seen that informal water activity is thought to be more significant in areas where formal provision is irregular, has limited coverage or is non-existent. A service partiality towards the elites ensures that wealthier areas generally have better water access, meaning a more prominent relationship exists between impoverished areas and water informality. The unregulated sphere itself has been referred to as being temporary, unproductive, marginal, an emblem of destitution, and tax-evasive (c.f. Levy, 2008; La Porta and Shleifer, 2014), and as a result considered illicit in certain contexts,

as in Ethiopia. Many legalist commentators have subsequently attributed the rise in informality as being a survivalist response to the incapacity or the exclusiveness of the formal sector, thereby forcing those with low socio-economic standing to seek income or resources through any means possible.

This final element of the section introduces an alternative angle to some of these perspectives, by considering informality in line with the notions of enterprise-ownership and entrepreneurship rather than being a mere survivalist strategy. Greater credence needs to be afforded to the draw of informal sector work and what Temkin (2009; 137) suggests offers "independence and initiative opportunities". After all, engaging in unregulated water provision activities is actually an ancient act that has often offered participants a vibrant business at the local scale. It has long provided an important source of income for many households in sub-Saharan Africa (Kjellén, 2000), and the increasing presence of this activity therefore cannot be solely considered as a symptom of the failure of formal systems (Kjellén and McGranahan, 2006). Thus, the incidence of partial formal coverage can also be perceived as an opportunity, or in other words an opening for entrepreneurs to act.

Maloney (2004) explored the profitable potential of informal work in the case of Mexico, rather than it merely being a subsistence or survival strategy. He found that significant numbers of informal employees have vacated their formal positions in favour of entering the sector voluntarily (ibid.). Engaging in informal economic activity and residing in informal homes therefore can be the "optimal decision" that leads to greater prosperity and permanence for many households, than would otherwise be experienced if formal positions and properties were occupied instead (ibid.; 1160). Identifying a profitable opportunity and acting upon it comprises the principal justification behind the argument that many informal water operations should be considered enterprising or entrepreneurial rather than illicit.

Carland *et al.* (1984; 357) suggested that perhaps the primary distinction to make between small enterprise ownership and entrepreneurship is that "entrepreneurial firms may begin at any size level, but key on growth over time". They also identified that

entrepreneurial activities are usually “manifested by some innovative combination of resources for profit” (ibid.). On the other hand, small enterprises may predominantly serve the preferences and interests of those involved in the operation, particularly family members, rather than the interests of the operation itself (Glueck, 1980). Sharing a common autonomy from formal sector work, both of these concepts therefore appear to be relevant in the context of commercial informal water provision, as the latter can be either business-oriented or focused on household financial gain.

Referring to informal water providers as being ‘enterprise workers’ or ‘entrepreneurial’ can also reflect the ingenuity of the services they undertake (Snell, 1998; Solo, 1998). Small enterprise owners and entrepreneurs in all contexts must initially identify where to obtain the raw materials, how to distribute and service the product, how to train workers, how to finance such costs, as well as deal with the multitude of potential problems that can arise in the long-term such as the debilitating implications of increasing competition (Kasper, 2005). Unregulated water providers will clearly have to overcome similar hurdles – irrespective of whether undertaking this informal activity is motivated by profits or generating a family income – and a functioning informal water operation can therefore be indicative of extensive planning and business intellect. It is subsequently important for this study to ascertain why informal providers enter the sector, how they decide what to charge, how they know where to operate, and a host of further questions relating to the business operations of informal water entities.

Indeed, a major criticism of informal water providers is the cost of their service, which has led to some negative connotations that include exploitation and profiteering. On the other hand, it can also seem logical that the services they offer will inevitably be more expensive than those of public utilities or large private sector institutions, which have comparatively greater access to financial, technical and political resources. Informal water providers are believed to operate without subsidies or extensive knowledge of the market and externalities (van Dijk, 2008), and are largely unable to achieve the economies of scale necessary to be able to pass on cost reductions (Bhatt, 2006). Bhatt’s (2006) Maputo study also found that 92% of informal water providers depended on their personal savings in order to operate. In Khartoum, meanwhile, Njiru and Albu (2004)

reported that although many informal settlement households are required to spend a significant proportion of their income on informally supplied water, the rates charged by these providers appear fair considering the associated production and delivery costs.

Competition in the unregulated service delivery sector is also thought to be intense, and informal water providers "assume the full risks of their own investments" (Solo, 1999; 127). It is therefore likely they provide customers with a high quality and tailored service. For example, "in Guatemala City some 200 independent operators – ranging from truck vendors to private aqueducts – provide services to more than half the population" (Solo, 1998; 3). This heterogeneity highlights how informal water providers appear to have emerged in various forms to largely recognise, adapt and cater for the urban poor's needs (c.f. Solo, 1999), which would once again support the idea of informal water providers as being entrepreneurial or enterprising. It has also been shown that water losses in Haiti, start-up costs in Paraguay, and investment costs in Guatemala were considerably lower for informal water providers than for formal utilities (Solo, 1998). This has enabled some informal providers to offer their customers innovative and flexible payment or credit schemes (Solo, 1998). Arrangements such as this can help both the providers to sell their product, as well as consumers on the purchasing side of the transaction. In essence, informal providers may be able to offer the innovative services necessary to accommodate for such complex situations, usually without the regulatory or financial benefits experienced by formal providers (Bhatt, 2006; Kjellén and McGranahan, 2006).

2.5. Everyday urban life

One of the key themes underlying the literature review thus far has been the social injustices inherent within developing urban centres, and the subsequent importance of understanding local experiences and practices on the ground. The final section of Chapter Two engages with this dynamic directly, drawing on strands from critical urbanism and everyday life literature in order to highlight the value of the quotidian as a basis for knowledge creation. The synthesis of these two elements therefore

represents an intriguing and somewhat novel domain, and typifies the narrative of this thesis moving forward.

Elevating the local

Peck *et al*. (2013; 1091) state that "neoliberalism has defined the broad trajectory of urban restructuring" for the last three decades. This regulatory paradigm has somehow managed to survive serial crisis and failure throughout this period – for which it can often be considered primarily responsible – to instead either consolidate or advance its eminence towards ostensible hegemony (ibid.). Cities have experienced many inimical consequences as a result, including "policy failure, destructive social and ecological externalities, endemic inequalities, exploding uneven spatial development, and continued vulnerability to financial and regulatory crises" (ibid.; 1091). Critical urbanism plays a fundamental role in identifying these "sites and sources of social injustice", as well as helping to "shape insurgent theories and practices of emancipatory social change" (ibid.; 1097). Critical urbanism is founded on the premise that "another, more democratic, socially just and sustainable form of urbanization is possible" than existing urban formations and knowledge (Brenner, 2009; 198). It essentially maintains an antagonistic and critical position towards power, inequality, injustice and exploitation within cities, as well as the overarching dominant ideologies (ibid.).

Critical urbanism thus represents a novel shift away from what Brenner (2009; 198) labels "mainstream" urban theory, which also includes approaches derived from other doctrines in addition to neoliberalism such as wider technocracy and tenets from the Chicago School of urban sociology. It draws heavily on Marx's critique of political economy and capitalism to help unmask the "myths, reifications and antinomies that pervade bourgeois forms of knowledge" (ibid.; 199). For many proponents of critical urbanism, these obscurities stem at least in part from the shortcomings of instrumental reason and societal generalisation as modes of knowledge production (Brenner, 2009; c.f. Habermas, 1985; 1987). Prioritising means-end rationality rather than a critical engagement with the ends themselves disregards the normative orientations within

social life, while at the same time reinforcing existing relations of power (Brenner, 2009). Of course, the normative orientations of particular importance here are the informal and domestic water practices as parts of the urban waterscape. Drawing on critical urbanism therefore enables us to instigate a shift in focus away from traditional power relations and the dominance of macro-level water thinking towards the underreported local.

Two further features of critical urbanism concern its close links with historicism and therefore its subsequent dynamism. These are a reflection of the continuously evolving nature of capitalist development theory through its distinct stages. This has in turn necessitated the reflexive reconstruction of critical urbanism itself, in order to fashion a position from which to challenge the inevitable reproduction of urban inequity that has accompanied capitalist transformation (ibid.). Critical urbanism is, after all, intrinsically dialectic and based on context (ibid.). It simultaneously rejects ideological positions that claim "to be able to 'stand' outside of the contextually specific time/space of history" (ibid.; 202). It is these insurgent and dialectic principles embedded within critical urbanism that render it a useful lens through which to consider perhaps one of the most profound manifestations of social injustice occurring in cities across the world today; water. It is also these principles that relate critical urbanism to the notion of everyday life, and the neighbourhood socio-politics that derive at least in part from the wider existing arrangements of the establishment.

The everyday life lens concerns the lived experiences of individuals and their fundamental materialities at a localised scale. It represents the dialectic intersection at which all fragmented activities, rhythms, materials, power and process merge to shape quotidian social existence (Gardiner, 2000), along with the human constituents to whom such features can seem ordinary (Lefebvre, 2000). Blanchot and Hanson (1987) describe the everyday as platitude, but contend that this banality represents what is most important. Similarly, Highmore (2002; 1) states that while the everyday "may delight or depress", its special quality may in fact be "its lack of qualities". It is a rudimentary idea that centres on "the unnoticed, the inconspicuous, the unobtrusive" facets of contemporary living (ibid.). Yet, in spite of this it contends that an understanding of

these aspects is key to reconnecting citizens with politics and what has increasingly become a professionalised arena (Boyte, 2004). Drawing on the everyday therefore has the potential to "reveal the extraordinary in the ordinary" (Lefebvre, 1987; 9).

Indeed, the notion of everyday life has extensive roots in labour theory and existing conceptual engagements have thus delved far deeper than this portrayal. Marx's theory of alienation, for example, concerns the separation of people from the everyday fundamentals of their *Gattungswesen* (otherwise species-being or human nature), primarily as a result of the class echelons that pervade modern capitalist society (Marx, 1976; Swain, 2012). Lukács (1971; 89) similarly explores the idea of the everyday worker as being a "mechanical part incorporated into a mechanical system" that functions independently of an individual and enforces non-negotiable rules of conformity. However, rather than focus on the theoretical complexities surrounding production and what Langbauer (1993) refers to as the boredom and repetition of the assembly line, it is the resulting relationships and tangible activities of everyday life within the domestic and community arenas that are of interest in the context of this thesis.

After all, capitalism administers a powerful divisive force on the everyday urban fabric, but this force extends throughout all so-called spheres – social, cultural, natural etc. – rather than just the economic. It dictates the everyday rhythms of its unknowing yet universal subscribers, while simultaneously organising them into socially constructed strata. However, this subscription implies passivity, when in fact any given individual makes decisions and actively participates "to satisfy needs outside itself" (Lefebvre, 2014; 60). Lefebvre (2014) drew upon Hegel's idiom 'the familiar is not necessarily the known' to suggest it is the unknown rather than the mysterious that is richest. Be it the mysterious or the unknown, it is this almost oxymoronic unconcealed secrecy of everyday life and quotidian routine activities within which much of its potential lies. Indeed, exactly what this potential represents can be subjective. Rousseau (1754) argued in the 18th century how scientific breakthroughs, technological advancement, urban growth and other archetypes of progress simply could not signify progress back then, and perhaps even a retreat in light of the increasingly impoverished, deprived and culturally-produced competitive nature of the human condition. Along these lines, the

everyday can be harnessed in order to truly understand the nature of water inequity that is experienced against a wider backdrop of perceived urban progress and democracy.

Everyday life beyond abstraction

Thus, not only is there a glaring interconnectedness between the seemingly demarcated worlds of the social, cultural, political, economic and natural, but an interconnectedness at the most fundamental, elementary scale of quotidian human existence. Here, the discussion moves on to situate everyday life, in order to consider its substance, or rather how it can take a tangible form. After all, Marx and Engels' (2004; 42) underpinning premise concerns "the real individuals, their activities and the material conditions under which they live, both those which they find already existing and those produced by their activity".

For Goonewardena (2008; 118), this point entails "being grounded in reality, but also … overcoming existing relations – separations – between abstract processes and concrete life". As such, there is a mode of thinking that seeks to frame everyday life as a totality in which lived spaces, quotidian objects and practices can be engaged with, in order to bridge some of the contradictions and tensions that have emerged in theory (Sheringham, 2006). Seemingly polar counterparts such as the referential compared with fictional, objective science versus subjective reflection, and the detachment of space from time came to be re-envisaged (in French culture around the mid-20th century) as interactive elements (ibid.). Negative connotations of the everyday as an ordinary, uneventful condition can meanwhile coexist alongside more positive lived experiences, in a constantly oscillating, dynamic and fruitfully ambivalent sphere (ibid.). So within what Blanchot (1969) labels the indeterminacy of everyday life, a reification of some everyday particulars can thus prove useful.

Of particular pertinence to this thesis, in which the overarching focus concerns water provision and practices in the community and the domestic environment, is the content

of everyday space and concomitantly time. As Smith (2015) writes, space in the context of the everyday can commonly denote the home, the workplace and the street. In developing urban settings, the explicit roles of these spaces are perhaps less well defined where, for example, the street can frequently act as an intersection of bustling activity itself rather than simply a route to an alternate destination. Water encapsulates this spatial indeterminacy, whereby its distribution and redistribution spans various domains, outlets and containers for diverse uses in the household, garden, community, agriculture and industry. It must therefore be remembered throughout the ensuing discussion how space is far from uniform – with differences occurring between both the same and separate manifestations of space – and that people (and water) continuously move between its multifarious forms in everyday life (Perec, 1974).

Lefebvre (2014) actually contends how the city street is the significant space of everyday life, flourishing under its obscure locus between a public and private condition. In fact, the street can almost be perceived as the total figuration of the everyday within which the blueprint of a 'social text' is published (ibid.). For Lefebvre (2014), the street is a place of passage, of interconnections, of circulation and communication, while Sheringham (2006; 376) speaks of the "participation, interaction, and appropriation" associated with the street that underlines its centrality to the everyday. It is thus one key constituent of public space, in which an "anonymous sociability" shapes everyday proceedings (ibid.; 26).

Indeed, it is these same facets that elevate the everyday spatial worth of the street in the context of this study and informal water provision, where complex and calculated practices play out to navigate this fundamental resource as a result. However, while such exchanges in the street continually unfold in front of those in developing contexts, for Perec (1974; 70-71) they still remain invisible and removed from the corporeal or conscience:

> "Observe the street, from time to time, perhaps in a slightly systematic fashion … Note down what you see. The noteworthy things going on. Do we know how to

see what is noteworthy? Try to describe the street, what it's made of, what it's for…"

It is in this way that the street can be perceived here, playing host to the seemingly everyday informal water practices that hold invaluable knowledge and meaning yet remain unfamiliar. It is therefore possible to use what happens on the street as a mediating insight into the ideas of inner and outer life it bridges (Lefebvre, 1991). In other words, the water practices and exchanges in the street reflect the needs and priorities within the home, which in turn are a reflection of the water situation in the wider enabling environment.

At an even more localised scale, Aries (1986), Felski (1999) and Perec (1978) commentate on the everyday space of the home. Aries speaks of the domestic environment as a complex arena, which offers privacy and sanctuary from the public realm but also one that enforces its own personal rules, roles and distinctions. Of course, while the home is indeed spatially separate from the outside world, the dynamics within are still inherently intertwined with the pressures of modernity. Felski (1999) builds on this to discuss how the home is a highly gendered and inequitable spatial domain. Feminists have sought to challenge the ideal of the home as a utopian haven, instead contending that it symbolises an almost prison-like environment of female inertia while their male counterparts conduct the travelling and relative adventure (ibid.).

Perec, meanwhile, sought to situate such dynamics using a fictional apartment block in Paris. He goes into extensive detail about the individual rooms, the seemingly mundane household objects within, and thus their salient meanings and backstories in actuality. What becomes clear is that the home, albeit in a communal sense here in the form of a residential complex, can be seen as a seemingly basic but nevertheless key territorial parameter of the everyday. Felski (1999; 24) summarises to suggest:

"Even if the home is synonymous with familiarity and routine, that familiarity is actively produced over time. … the reality and the ideology of home change

> dramatically over time. … It is often the site of intergenerational conflicts", power struggles, subordination but also empowerment.

Indeed, the home is just one of a number of everyday spaces, albeit highly complex and fluid. However, "integral to the average everyday life is awareness of a fixed point in space, a firm position from which we 'proceed' … and to which we return" (Heller, 1984; 239). This base, for Heller, is the home, while Felski (1999) similarly asserts how the domestic sphere can be perceived as the metaphysical point from which one can venture into other domains and thus from which all activities emanate. As such, we attach ourselves to this familiar environment culturally and emotionally, and it in turn shapes the actions, undertakings and events we pursue in any given time frame. Water in developing nations can play a significant role within this relationship, dictating the manner and nature of domestic decision-making. The home is therefore a fundamental spatial domain both in everyday life and in the context of this thesis.

Also implicit within the concept of everyday space is its convergence with the temporal. As Felski (1999) suggests, the repetition of the everyday means that "everyday life is above all a temporal term". Sheringham (2006; 364) summarises this succinctly:

> "The day is crucial to the currency of lived experience. Smaller denominations (minutes, hours, seconds) can be intensively scrutinized, but they are derivatives, the small change of the day, while larger denominations (weeks, months, years) are multiples of a smaller unit. … Change and process are imprinted in human physiology, in the circadian rhythms of the body."

Time therefore acts as a key stimulus on the everyday rhythms and activities that unfold throughout various spatial domains. This is particularly germane in relation to water, where temporal (daily, but also weekly and monthly) concerns influence the provision, sourcing and consumption strategies that are employed at all levels. In the context of this thesis, the most notable are the temporal considerations attached to water in the spaces of both the street and the home, and how these regulate the lived experience of the everyday for those involved.

To tie these points together neatly, I allude to Franks and Cleaver's (2007) framework for water governance (see Figure 6). They depict how resources are drawn upon in different ways by various actors "to construct particular context-specific arrangements for organizing access to water which are the '*mechanisms*' of water governance" (ibid.; 293). These mechanisms not only shape the outcomes for the poor and on the environment, as Franks and Cleaver (2007) propose, but can also influence every quotidian activity and routine of the individual. In other words, administering inclusive water governance and implementing effective pro-poor change necessitates an understanding of the relations and resource structures at the local level (ibid.).

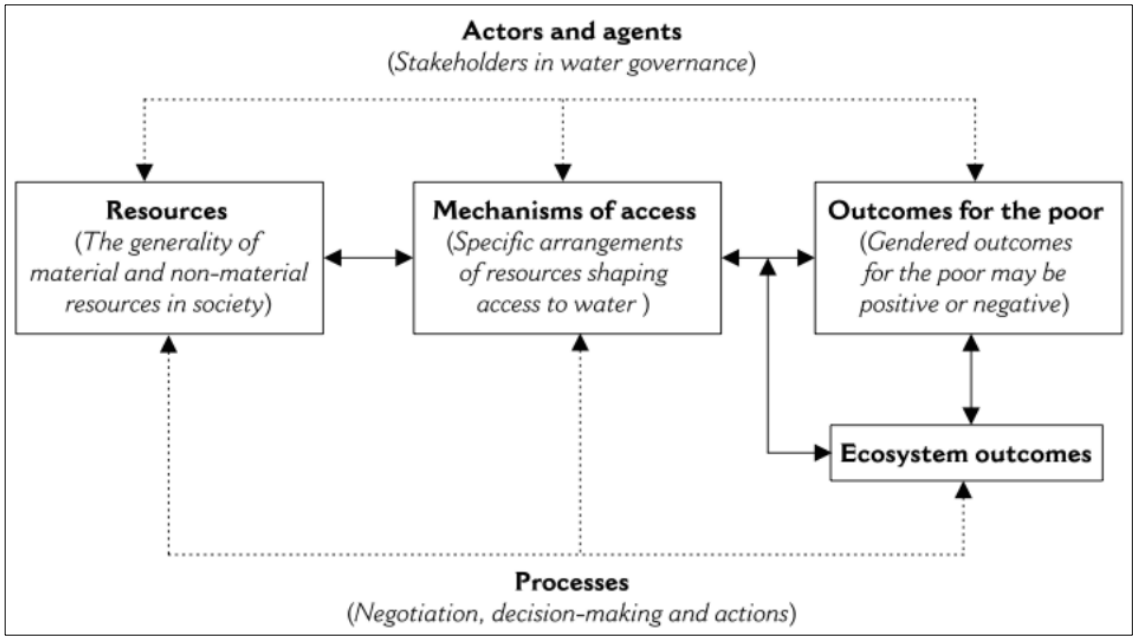

Figure 6: Framework for water governance

[Source: Franks and Cleaver, 2007; 294]

Underpinning all of this are the processes of "negotiation, decision-making and action", which in turn continuously reconfigure the landscape of water resources, mechanisms and outcomes (ibid.; 296). Such processes encompass the resilience and resourcefulness displayed by low-income residents of developing urban areas to navigate uncertain water access, as well as informal water providers whose operations help to support such reactive domestic strategies. After all, the hundreds of millions of people classed as being without access to a so-called improved source still must consume water. The

resilience and resourcefulness embedded within local water spaces will thus be an integral focus throughout this thesis, and the feedback from these situated everyday experiences can help to reconfigure the mechanisms of future regulated provision.

In concluding this piece on surpassing abstraction, it must be stated that some commentators have emphasised how the "experience of the everyday cannot be reduced to its content; it eludes objectification because it consists in perpetual becoming" (c.f. Sheringham, 2006; 16). As Sheringham (2006; 21) summarises, one of Blanchot's central premises is that while the everyday surrounds us, we cannot simply 'arise and go' there. For Blanchot, therefore, our connection with the everyday is curtailed somewhat when it is condensed to disconnected content. It should rather be seen as a level or medium at which individual activities are lived through in a continuous and unpredictable movement; an abstract entity that can be fruitful yet remains anonymous (ibid.). It is in this way that the everyday as a spatial (and temporal) occupation, whereby the home and street are umbrella levels under which dynamic activities and practices play out, can achieve the necessary balance between abstraction and absolute reduction.

Quotidian water

In light of these latest points, it seems fair to reason that a degree of caution is required when focusing on everyday life. It is important to engage with the concept in detail, but not so that its abstract qualities are eroded. Sheringham (2006; 21-22) summarises this delicate balance, where "attention to the everyday involves a tension between knowledge and experience or, to put this another way, the everyday brings out the tension with knowledge inherent in the idea of lived experience". Similarly, Lefebvre (1987; 11) proposed that a divergence exists in the way the everyday is perceived:

> "Some treat the everyday with impatience, they want to 'change life' and do it quickly; they want it all and they want it now. Others believe that lived experience is neither important nor interesting, and that instead of trying to understand it, it

should be minimized, bracketed, to make way for science, technology, economic growth etc. …"

This thesis occupies a more central ground in its position towards the quotidian. It acknowledges the abstract qualities of everyday life and the importance of its extensive theoretical underpinnings, but identifies the lived experiences and tangible tensions as being more pertinent in the local context of water. It also contends that the everyday can indeed be invaluable and enlightening, but change that comes about from everyday knowledge needs to be informed, effective, representative and therefore sustainable. The patience required to do this – what Highmore (2002) likens to the albeit fictional mystery-solving expertise of Sherlock Holmes through paying close attention to the most seemingly insignificant details – should not be substituted for expedited results or change. After all, local water practices are so multifaceted and underpin every rudimentary activity we undertake as humans. The ways in which water is produced, treated, transported, purchased, collected, consumed and prioritised within society are in turn embedded with further meanings, motives and outcomes. Focusing on the quotidian therefore allows us to capture the intricate centrality of water in everyday life, and when synthesised with critical urbanism, provide a platform from which the persisting social water injustices in developing cities can be addressed.

Loftus (2007), in his depiction of water-related challenges in Durban and subsequent reinterpretation of urban environmental politics, is one author to have developed the narrative on everyday life and its interconnectedness with critical urbanism. He draws on feminist standpoint theory together with the idea of nature as a politicised arena to understand the socio-natural relationships and situated knowledges in the city. Power and struggle permeate such sites and interactions, and water represents one of the key everyday mediums through which these complex exchanges play out. For Loftus (2007; 50), following the "everydayness of things" in this context reveals how local water practices and wider capitalist processes are bound up in a "differentiated, dialectical unity". This relational approach he employs ultimately advocates for future waterscape thinking to be shaped by new knowledge and possibilities, which in turn derive from

those physically engaged in the “process of [water] production” at the household level (ibid.; 56).

Taylor and Trentmann (2011) similarly use water as a snapshot into the politics of everyday life. They conceptualised that while the networked infrastructure indeed delivered water to people’s homes, the taps were only turned and therefore the water only consumed according to the quotidian rhythms of people’s lives (ibid.). Perhaps the most significant assertion, however, was how “the everyday responded to external technologies of power, but also left its mark on broader political sensibilities and processes” (ibid.; 241). In a period when the supply and demand imbalance was significant, people effectively helped to shape the system through which water was provided. Water practices and conflicts are, after all, highly localised and diverse, and the universal entitlement to such a resource makes the critical everyday a fascinating field of insight, agency and change (ibid.). It elevates the lived experiences of the individual, the household and the street or community, their localised socio-political environments, and in this case reveals how navigating water can determine the nature of these experiences.

Finally, Peloso and Morinville (2014) and Zug and Graefe (2014) highlight everyday life as being key to understanding the contemporary urban water system. Peloso and Morinville (2014; 122) speak of the “haste, wit and toil” involved in the everyday “chase” for water, “both because water is a daily basic need, and because each day, many parts of the urban metropolis can be cut off from the municipal system”. They suggest that greater water security in the domestic environment can be achieved through multiple, repetitive actions and transactions, and in turn how informal services can therefore “make daily life possible” (ibid.; 124). Zug and Graefe (2014; 141) explore the premise of water gifts and propose how everyday local transactions “indirectly influence processes on scales other than the neighbourly scale on which it is carried out”. For them, understanding local processes in reaction to water supply policies allows us to comprehend the complex “political ecology of the neighbourhood”, specifically wealth distribution alongside political and social relationships (ibid.).

Everyday life therefore represents a largely untapped source of knowledge potential, which is invaluable in an era when the sites and sources of water injustice are commonplace. For Lukács (1971; 21), "the dialectical materialist knowledge of reality, can arise only from the point of view of a class, from the point of view of the struggle of the proletariat". In other words, the everyday experiences of those who must navigate (or work towards helping others navigate) urban water challenges, and the materialities implicit within, must be utilised as a dominant narrative, source of knowledge, and mechanism for change. This can, in turn, articulate "an indictment against the strategies from which the everyday emerges and reveals the arbitrariness of the dominant order" (Ronneberger, 2008; 135). It is this appraisal with which this study is most notably allied, using the everyday experiences of research participants as the fundamental body of information, but also potentially as a basis for an alternative future urban waterscape. The nature of everyday life is indeed shaped by the enabling environment to some extent, as the resulting relations and tensions inevitably influence how this resource is acquired and utilised at the local level, while informal providers are guided, motivated, but at the same time restricted by the same system. Reporting on the everyday manifestations of social injustice – specifically water injustice in the context of this thesis – will simultaneously highlight the need for changes to the existing order.

Chapter Three – Research methodology

3.1. Introduction

Chapter Three maps the development of the research methodology and outlines how the original fieldwork ideas both progressed, and at times altered, to reach the final design. The course of events will therefore be discussed comprehensively, covering the initial stages of the pilot trip when a specific research site had not yet been identified; the research methods and sampling techniques that were employed in the field; and a reflection on some of the challenges and limitations encountered along the way. I also consider the public engagement exercises to be conducted upon the completion of the study in order to disseminate the key findings to a wider audience than just academia.

This latter point is important in the context of this study, as the research is classified as a Collaborative Award in Science and Engineering (CASE) funded by the ESRC. A principal purpose of a CASE studentship is for the researcher to enhance their experience by working alongside a non-academic partner throughout. In turn, the research should be designed in a way that contributes more than just an academic piece of work, and thus foster meaningful interaction between theory and wider practice. With this in mind, a feature of this chapter will be to share the contributions of both academic and non-academic sources in certain methodology-related decisions.

3.2. Research timeline

It is initially important to provide an overview of events that took place throughout the fieldwork. The fieldwork was predominantly undertaken in Ethiopia – aside from some key informant interviews with WaterAid staff in London – and consisted of six key phases (see Figure 7). Here, I consider the particular research activities that were undertaken during each stage.

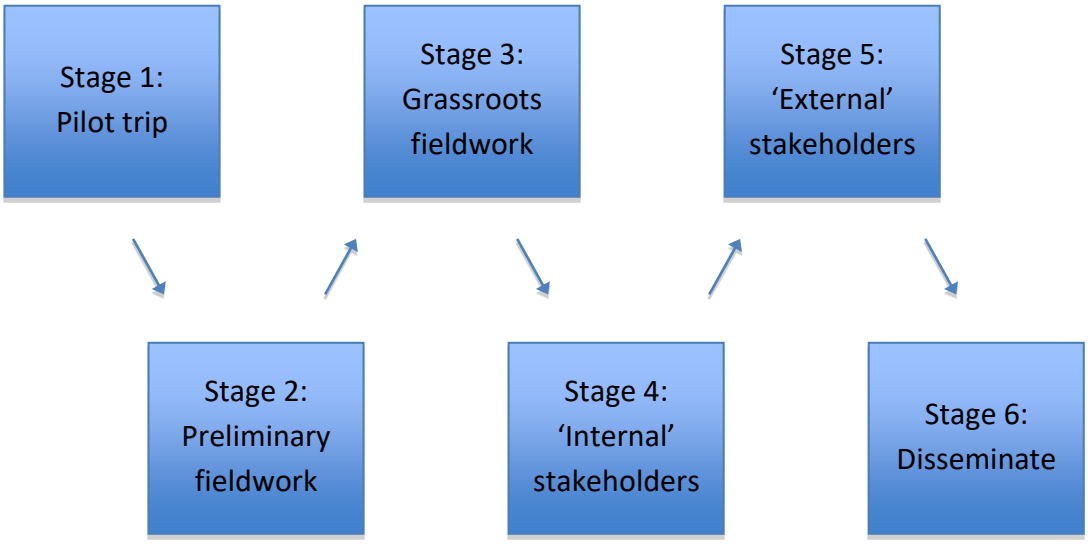

Figure 7: Stages of fieldwork

The six fieldwork stages largely took place chronologically (see Table 4 at the end of this section), but there was some inevitable overlap. The first stage of the fieldwork consisted of a one-month pilot trip in May 2014. This visit had several key objectives, perhaps the most important of which was to either confirm the suitability of the original research site outlined in the PhD proposal or to identify a new one. The justifications and process through which a new site was subsequently decided upon are discussed at length in Section 3.4, but this goal was achieved following several exploratory visits to potential localities and extensive discussions with key staff from WaterAid Ethiopia, one of its local NGO partners, and the regional water authority.

Agreeing upon an apposite research setting early on was fundamental and laid the foundations for several further objectives to be addressed during the pilot trip. By knowing the exact characteristics and location of the research site, as well as gaining an insight into the culture and norms there, the challenge of devising an appropriate research methodology was eased somewhat. It also became possible to organise the practical and logistical elements of the main fieldwork period, such as arranging long-term accommodation proximate to the research area and contacting representatives from local organisations with which to work. These points – along with sector-wide networking, acquiring a greater understanding of the work undertaken by WaterAid Ethiopia, and comprehending the national and urban water governance arrangements

in Ethiopia – comprised the remaining objectives for this pilot trip; all of which were fulfilled.

My second visit to Ethiopia was for three months and took place between October and December 2014. The objective of this trip was to complete the second stage of the fieldwork plan and at least commence stage 3, which again is what occurred. Stage 2 of the fieldwork represented a continuation of the pilot study, dedicated in large part to conducting preliminary interviews with informal community members from the research sites to test the contextual pertinence of the questions I would be administering for the main study. It was also important, as part of stage 2 still, to conduct further informative discussions with WaterAid Ethiopia staff, local NGOs, and regional water authorities, as well as make initial contact with some of the other main in-country stakeholders. Building comprehensive profiles of these organisations and their role in the city's waterscape was crucial for providing context and to further my understanding of how the sector works. It was also simultaneously necessary to maintain a relationship with personnel from such bodies so that I would be in a position to approach them for formal interviews when needed at a later date.

Information acquired from the preliminary interviews was drawn upon to develop the framework for stage 3, which consisted of the main 'grassroots' fieldwork or the data collection conducted at the community level. How and why the chosen research methods were employed will be discussed in further detail in Section 3.3., but semi-structured interviews, focus groups and financial diaries were conducted with informal community members; semi-structured interviews and participant observation were conducted with informal water providers; and water point functionality mapping exercises were undertaken with assistance from local community group representatives.

Following a brief return back to London to refresh, digest the information learned thus far and converse with my supervisors, a third trip to Ethiopia was undertaken over a four-month period between February and May 2015. During this time, it was firstly important to conclude the community level fieldwork that remained from stage 3. The

scope of the fieldwork could then be widened as stage 4 and 5 aimed to acquire the views of some of the water sector's main stakeholders, many of which were identified previously under the second stage. Stage 4 remained 'internal' to the project in the sense that focus groups and interviews were conducted with staff from WaterAid Ethiopia and its local NGO partners. Key personnel from the WaterAid office in London were also interviewed upon my return. In addition to this, stage 5 sought to incorporate stakeholders not directly involved in the formation of this research such as regional and municipal water authorities, other charitable organisations, donors, consultancies, research institutes, multilateral institutions, and government ministries and institutes.

Stage 6 concluded the final elements of the fieldwork, and also encompasses the dissemination of findings. Outside of Ethiopia, the dissemination included presenting at the WaterAid office in London as well as World Water Week, the internationally renowned water conference in Stockholm. Public engagement within Ethiopia has been temporarily postponed amidst an increasingly complex political situation, specifically the government's stance towards NGOs and the freedom of reporting.

Date(s)	Fieldwork stages and key research activities
May 2014	*Stage 1 – pilot trip:* • Identified research sites • Devised provisional methodology • Contacted local organisations for future collaboration • Sector-wide networking • Knowledge gathering on national and urban water sector, as well as WaterAid Ethiopia's activity
October – December 2014	*Stage 2 – preliminary fieldwork*: • Preliminary interviews with community members • Discussions with staff from WaterAid Ethiopia, local NGOs and water authorities • (Re-)established contact and maintained relationship with water sector stakeholders

	Stage 3 – grassroots fieldwork: • Commenced community-level data collection with households and informal water providers • Water point functionality mapping exercises
February – May 2015	*Stage 3 – grassroots fieldwork:* • Completed community-level data collection with households and informal water providers *Stage 4 – 'internal' stakeholders:* • Completed data collection with representatives from the organisations involved in the formation of this research *Stage 5 – 'external' stakeholders:* • Completed data collection with representatives from water sector stakeholders not involved in the formation of this research
Late 2016 onwards [ongoing]	*Stage 6 – disseminate:* • Presenting at conferences and journal article submission • Disseminating to stakeholders in Ethiopian water sector

Table 4: Key research activities summarised by date and fieldwork stage

3.3. Research design: methods and theory

This section discusses the specific methods that were employed to collect data and how the data were analysed to ultimately answer the study's research questions. It will also draw on the theory that underpinned both the method choices and the knowledge these techniques aimed to produce throughout.

This study aligns with the interpretivist paradigm, which advocates the importance of social and contextual understanding or a localised worldview as a basis for knowledge

production. This decision derived in large part from the specific and complex nature of the study in which the underexplored everyday politics of both informal water provision and domestic water strategies comprise the main research foci. The study therefore maintains the idea that the research subjects – and people in general – interpret their environment and themselves in ways that are shaped by the idiosyncrasies of their unique local cultures (The Open University, 2014). All the while these cultural orientations – which can differ even within a given society – influence what day-to-day activities people conduct, as well as when and how they do so (ibid.). Essentially, the overarching position adopted here is that multiple realities exist and are in fact relative (Hudson and Ozanne, 1988), in contrast to the rigid structural frameworks often maintained by positivist research (Carson *et al*., 2001). Knowledge is context bound (Neuman, 2000) and constituted through lived experience rather than there being an objective knowable reality (Sandberg, 2005). Any prior assumptions I held were therefore relinquished as comprehensively as possible in favour of a more exploratory fieldwork approach (The Open University, 2014).

In order to facilitate a comprehensive analysis of a previously under-researched topic along these lines (Herbert, 2010), the study draws on elements from the overlapping research traditions of ethnography, case study and action research. It combines ethnography's desire to understand particular social phenomena in a semi- or unstructured manner (Atkinson and Hammersley, 1994); the goal of the case study approach to explore individual cases, practices and systems in order to provide an insight into a particular issue (Stake, 1994); and the principle of action research to influence practice positively through collaborative means while simultaneously gathering data to disseminate to a wider audience (Meyer, 2000). Here then lies the justification of employing predominantly qualitative and ethnographic research methods for this study. The use of in-depth research techniques befits all of the abovementioned theory and facilitated a study "more in tune with the complexity of human existence than is provided by positivism and structuralism" (Eyles and Smith, 1988; xi).

Table 5 summarises the key research methods and activities that were conducted, how often, and for which of the main research themes they generated findings. Following this, I will proceed to discuss and justify each of the research methods in turn.

Empirical chapter	Main research themes	Research methods and activities
Five	• Water supply versus demand across Addis Ababa • The availability of formal water services in Akaki Kality • The influence of water sector stakeholders • Sector opinion of informal water providers	• 42 semi-structured interviews with representatives from 32 different stakeholder organisations • Urban water point mapping exercises • Policy paper analysis • Water sector conference attendance
Six	• How and why informal water providers emerge • The business strategies and pricing structures employed by different types of informal water provider • Competition and efficiency within the informal market • How government policy influences their operations and sector embeddedness • Provider-consumer relationship	• Semi-structured interviews with 19 informal water providers • 5 participant observation/ shadowing sessions with different informal water providers
Seven	• Socio-economic situation for households in Akaki Kality • Water affordability and water access	• 90 household financial diaries • 180 semi-structured interviews with community residents

	• Household water strategies – sources, consumption priorities, and flexibility • Consumer opinion of formal and informal water modalities	• 10 focus groups with community residents • Community water point functionality mapping exercises

Table 5: Relationship between research themes and research methods

Semi-structured interviews were consistently adopted as a research technique throughout the fieldwork phases. They were employed to acquire the main body of information on a range of topics and from a diversity of informants including informal water providers, consumers of informally provided water, and sector stakeholders across both Akaki Kality and the wider Addis Ababa region. In accordance with my previous justification for adopting a qualitative approach, semi-structured interviews facilitate in-depth dialogues where the onus is shifted onto respondents to construct their own accounts of events (Valentine, 2005). This often leads to the emergence of unexpected matters and interesting perspectives (Longhurst, 2010). Yet, they still allow for the research topics to be covered (Galletta, 2013) and enable the researcher to achieve some degree of consistency or replicability compared to unstructured interviews (Corbin and Strauss, 2015).

A further feature of using semi-structured interviews is that they can seem like a relaxed conversation, as the experience or setting can be informal and both the interviewer and respondent will often be familiar with the subject in question. However, as Webb and Webb (1932; 130) famously asserted, a semi-structured interview is a "conversation with a purpose". Both the researcher and participant work quite hard for the duration of the interaction to cover the former's predetermined objectives (Yeo *et al*., 2014), but a relaxed atmosphere can help ameliorate the task and facilitate its successful unfolding. The overarching benefit of semi-structured interviews is that they can provide an opportunity to collect and rigorously examine narrative accounts of social worlds (Miller and Glassner, 2011; 144), or stories that reveal "culturally embedded normative

explanations" of one's everyday politics (Orbuch, 1997; 455). As such, they can add a dimension of reality to a study, as opposed to general statistics or sweeping trends.

To assist with the interview process, I created a series of general interview schedules to cater for the different types of participants (see Appendices A1.1. to A1.4.). However, in order to realise the potential benefits of interviews I have outlined, and to create the supportive environment necessary for a flowing and respondent-led conversation, it was important for these interview schedules to act as a guide rather than a rigid structure. Thus, to reaffirm, this technique was essentially chosen as the primary research tool as it ensured the most important topic areas were covered in detail, while simultaneously offering respondents time and freedom to communicate their often very personal opinions (Willis, 2006).

To supplement the data gathered from the semi-structured interviews, focus groups were also conducted with residents from the two low-income target communities. Lloyd-Evans (2006; 154) stated that "individual human behaviour is influenced by collective behaviour and thought, and the focus group can be as important as the in-depth interview in understanding the importance of codes of behaviour and 'ways of doing'". Focus groups are therefore similar to semi-structured interviews in some respects, but they present the researcher with the opportunity to gauge multiple perspectives and offer participants a platform to share experiences or debate their ideas (Bedford and Burgess, 2001; Gibbs, 2012). Employing focus groups for this research facilitated this and allowed me to acquire the view from within the communities on some very important and sensitive social issues (Lloyd-Evans, 2006). The key to the success of the discussions was the concerted effort I made to administer comfortable and respectful sessions, in which participants felt able to overcome the social pressures of self-disclosure and discuss their opinions freely (Krueger and Casey, 2015). This was achieved by inviting participants with shared characteristics, experiences or something in common to the same session, as well as ensuring my role as a mediator – rather than someone with power or influence – was made clear (ibid.).

Stewart and Shamdasani (1990) proposed that under-recruiting for focus groups could lead to unproductive discussions or an inadequate number of participants in the event that individuals cancel. However, following extensive discussions with staff from WaterAid Ethiopia and its local NGO partners, it was decided that the focus groups needed to be kept relatively short to address only a few key themes and should therefore include no more than five participants. This was justified on the basis that Akaki Kality is renowned for being a hectic and dynamic environment within Addis Ababa, meaning prospective interviewees were unlikely able or willing to sacrifice too much working time in order to participate. Appendix A1.5. displays the succinct thematic guide that was used for focus group discussions as opposed to the general question schedules employed for semi-structured interviews. The themes were selected for further deliberation based on some of the key findings from the semi-structured interviews, meaning they therefore had to take place during the final fieldwork visit to Ethiopia. Conducting focus groups in conjunction with semi-structured interviews ultimately acted as a fruitful combination for collecting the views of community residents on local water issues.

Ethnographic methods were used in the form of observing and shadowing informal water providers – both mobile and static – in order to witness and therefore better understand their daily operations. Gobo (2011; 17) outlined the common characteristics of participant observation and these are the principles I largely adhered to:

- The researcher establishes a direct relationship with the social actors;
- staying in their natural environment;
- with the purpose of observing and describing their social actions;
- by interacting with them and participating in their everyday ceremonials and rituals; and
- learning their code (or at least parts of it) in order to understand the meaning of their actions.

Overall, this participatory technique was a revealing experience and gave a detailed insight into all commercial aspects of informal water provision, particularly the complex relationships between providers and consumers. I was able to spend long enough in the target communities in order to gain the confidence of the research subjects and ultimately carry out the exercises (van Donge, 2006), albeit with significant input from my local interpreter given the language barrier beyond conversational basics. The close association between ethnography and naturalism was also fundamental to its success, and the procurement of further knowledge in addition to that acquired from interviews and focus groups. The shadowing and observation approach aligns with the aforementioned research methods in that it leaves room for unexpected outcomes to arise, which has become so important in the field of development (ibid.). Yet, it allowed me to step back to witness events in a far more natural state, undisturbed or at least not umpired (Hammersley and Atkinson, 2007).

It must be stated that the sessions were still conducted in an overt fashion, meaning all participants being directly observed were aware of my role as a researcher (Atkinson and Hammersley, 1994). This was because it was expected that most customers of informal water transactions would be intrigued and immediately enquire about my presence anyway, which incidentally materialised in practice. It was also thought that those who did not enquire may have become inhibited without the knowledge that I was a researcher, given both the sensitivity of the topic and my clear non-native appearance. Operating overtly essentially allowed me to avoid potentially impacting upon either the consumer-provider relations or the water transaction itself, while the ideal of going unnoticed as an observer is seldom achieved in practice (van Donge, 2006).

Further supplementary qualitative methods were also employed in the form of water point functionality mapping exercises, and analysing policy documents and articles from local newspapers. Water point functionality mapping exercises were undertaken in the two research sites with the help of local community group leaders who acted as guides and invaluable sources of information. These exercises allowed me to locate the formal water points, and understand their reliability and the subsequent extent to which residents use them. Sourcing relevant stakeholder policy documents and news articles,

meanwhile, was important to help gauge local concerns, the perception of water in policy circles and the media in Addis Ababa, and whether issues such as informality, shortages, leakages, and pricing were being discussed openly.

However, there are of course shortcomings and limitations associated with using qualitative research methods. In trying to elicit the perceptions of respondents through qualitative means, perhaps one of the main issues to consider is that there may be multiple meanings attached to their experiences (Silverman, 2013). Holstein and Gubrium (2011) raise the valid question as to whether interview responses do indeed reflect the lived experience or rather the actively constructed narrative within the community. An interpretation made by the researcher or the points they feel to be significant may also be a product of his or her predilections (Bryman, 2012). Some therefore see interviews and focus groups as being too subjective, while the perspectives of the researcher can in turn be shaped by individual experiences or the close relationships often built with the research participants (c.f. Bryman, 2012). Similarly, Cornwall and Jewkes (1995; 1667) stated how participatory research can be perceived as being "biased, impressionistic and unreliable".

Directly related to this is the fact that qualitative research can also be difficult to replicate, as the data procured can depend on the skills and individual tendencies of the researcher, and the process through which knowledge is generated is often complex and unstructured (Bryman, 2012). However, it is exactly these two characteristics that needed to be incorporated into the overarching research design in order to navigate such a convoluted and under-researched topic. Employing a predominantly qualitative and ethnographic study was therefore the logical and almost only conceivable approach to procure the necessary level of detail and type of data to accurately inform the water sector on everyday access and informality.

Nevertheless, it was still decided that a triangulation approach should be employed in order to further enhance the rigour and validity of the research. Triangulation essentially ensures that the results acquired from "using a method associated with one research strategy are cross-checked against the results" from another method and research

strategy (ibid.). It could be argued that triangulation would be partially achieved with the use of multiple research methods, albeit within the same overarching qualitative strategy. However, a quantitative research method was also employed in addition to these otherwise qualitative techniques.

The issue of water pricing features prominently throughout this study and so conducting quantitative financial diaries with informal community residents, which detailed the various prices they pay for water against the particulars of their household finances, supplemented and corroborated the related qualitative data perfectly. It was decided between my supervisors – both academic and non-academic – and I that this would be a useful research tool to ensure that the analysis of local water dynamics is comprehensive in the context of the research sites. Financial diary templates were created (see Appendix A1.6.), translated into the national language Amharic, and left with willing participants after a thorough explanation of what was required for a four-week period in two different seasons. I then returned to collect the diaries at the end of the period and, apart from on two occasions, they were filled out more than adequately. The financial details these documents requested included related to income, assets, expenditure (not just on water, but every other aspect of daily life), the use of financial services, and unexpected losses such as a family bereavement or loss of employment.

The procured data from the fieldwork methods were analysed using a few different techniques. The analysis of qualitative data can indeed be both challenging and time-consuming, but it is a fundamental process to illuminate significant or particular aspects of "the social world under scrutiny" from extensive raw text (Basit, 2003; 144). Condensing the gathered information, what Tesch (1990) referred to as 'data distillation' and what is commonly known as coding, is achieved through determining the categories, relationships, and assumptions that inform the respondents' view of said world (McCracken, 1988). The main decision was whether to employ manual or electronic coding as part of the qualitative data analysis, and both the semi-structured interviews and the focus group discussions were transcribed and then analysed thematically using manual coding. Incidentally, my field notes from the phases of participation observation were also analysed manually.

This manual approach is justified in part due to the fact that the data analysis was scheduled to commence together with the actual data collection and continue for the duration of the study thereafter, including my extended time in Ethiopia. Such an all-encompassing approach is widely endorsed in qualitative research as opposed to considering the data analysis as a concluding act (Basit, 2003). It was therefore deemed unproductive to develop and become acquainted with an electronic software package over several weeks to analyse a manageable sample, but also from a practical point of view in a region with frequent and often prolonged power outages. Meanwhile, manual coding has significant benefits, principally the prioritisation of depth and meaning within the data, and the avoidance of increasingly deterministic and rigid analysis processes (John and Johnson, 2000).

In terms of the quantitative aspects, the numerical data from the financial diaries were analysed using SPSS Statistics software. It was subsequently possible to generate both descriptive and inferential statistics, which summarise and draw conclusions about the numerical data respectively (Antonius, 2003). Although this is a predominantly qualitative study, administering a mixed methods approach in which both qualitative and quantitative techniques were utilised ensured the strengths of both were incorporated and the rigour ultimately enhanced (Cresswell, 2009).

3.4. Site selection and sampling

This section outlines the thought process and justification behind the choice of research sites; provides detailed characteristics of these agreed upon areas; and considers the sampling strategy adopted to collect data.

Research site selection

The original proposal for this PhD identified two towns – Sebeta and Butajira – south of Addis Ababa as the preliminary research sites. However, it was acknowledged at the

beginning of this study that these locations might change during the course of the first year given the challenge of locating an appropriate research site from afar. A principal objective of my initial pilot trip to Ethiopia was therefore to explore several options as possible research sites with the help of WaterAid Ethiopia staff.

The main points for consideration were the contextual relevance of the sites, safety, accessibility, the potential for comparability, distance from the WaterAid Ethiopia office in central Addis Ababa, and the availability of support from its local NGO partners. In addition, the sites did not have to be two entirely separate locations if the size and characteristics of just one settlement meant that it was more suitable. Although Sebeta and Butajira are two very interesting towns and would have been topically relevant to this study, it appeared that access may have been problematic and it was not clear whether support from WaterAid Ethiopia's local NGO partners would be forthcoming. With these issues in mind, WaterAid Ethiopia's staff and I decided to change the research area from Sebeta and Butajira to Akaki Kality, a sub-city of Addis Ababa itself. I will now proceed to discuss how this area is contextually pertinent and conforms to all of the above considerations.

Akaki Kality (also sometimes spelled Akaky Kaliti) was recently classified as a series of villages located outside of Addis Ababa, but became an official region within the south-east corner of the city around the turn of the millennium. Akaki Kality had experienced rapid urbanisation as a result of the in-migration that accompanied industrial growth, prompting the city administration to upgrade the region to become the tenth of Addis Ababa's sub-cities (see Figure 8). It therefore offers ease of access to the WaterAid Ethiopia office in Bole sub-city.

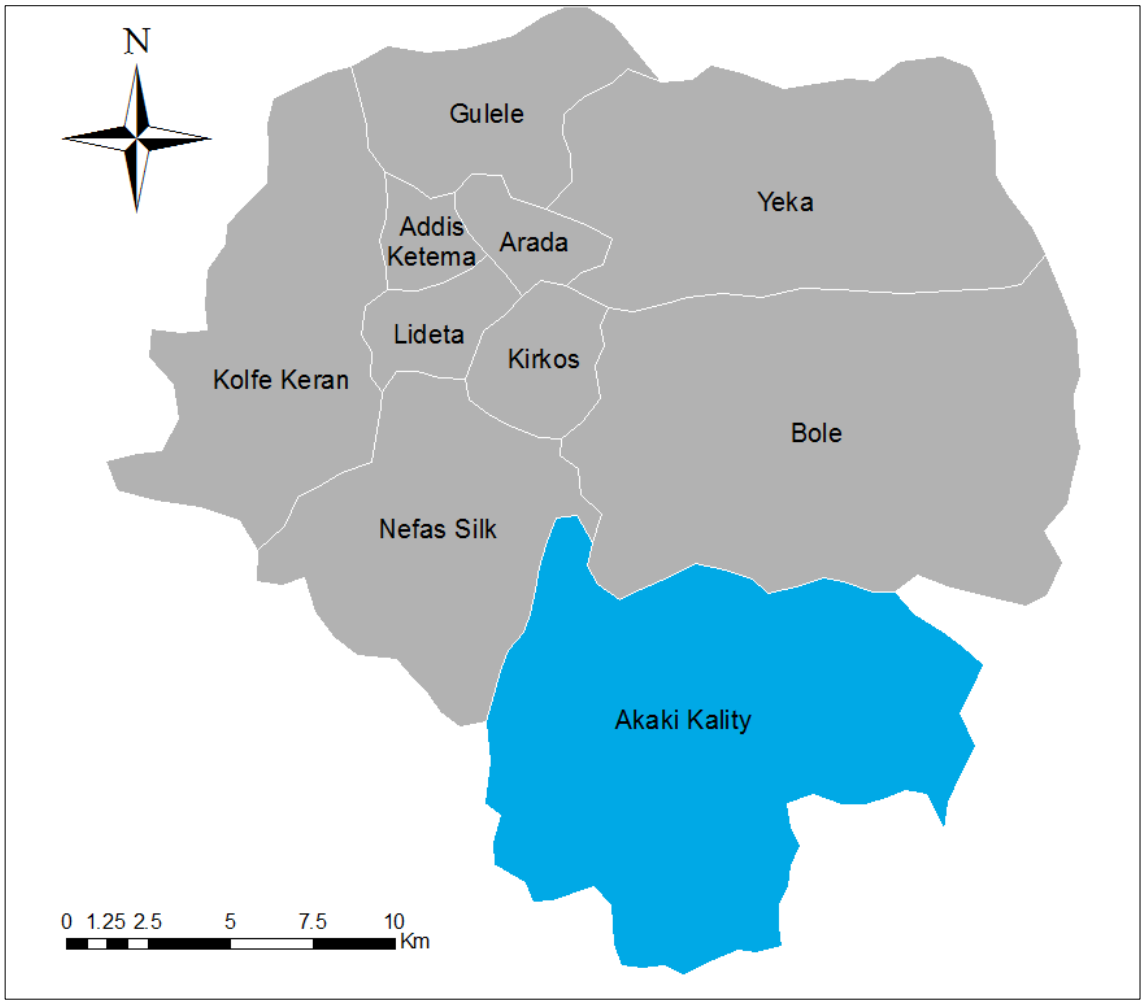

Figure 8: Addis Ababa's sub-cities

In 2014, Akaki Kality was home to 210,000 people or 7% of the total population of Addis Ababa (WaterAid, 2014a). This includes an 80,000 strong labour force to serve the increasing level and growth of industry across the region, where an estimated 300 industries such as metal, paint, garment, and food processing are currently based (WaterAid, 2014b). The total population of the area is thought to be extremely diverse, comprised of "beggars, street dwellers, daily labourers, housemaids, commercial sex workers, factory workers, civil servants, merchants and farmers" (WaterAid, 2009a; 3). Table 6 shows the estimated population breakdown of the eleven *woredas* in Akaki Kality. However, the population is continuously and rapidly increasing as further migrants arrive in the hope of sourcing work. Extensive condominium-housing construction projects are taking place in *Woredas* 9 and 10, for example, that are

expected to more than double the population of the sub-city in the coming years (WaterAid, 2014a).

Woreda	Population	%
1	29,446	14
2	16,159	8
3	20,318	10
4	24,460	12
5	26,489	13
6	31,319	15
7	26,489	13
8	24,462	12
9	5,921	3
10	2,256	1
11	2,256	1
Total	209,575	100

Table 6: Woreda *populations in Akaki Kality sub-city*

[Source: WaterAid, 2014a; 3]

Despite this growth, the level of poverty in Akaki Kality remains severe. Income inequality is highly pronounced (ibid.) and a significant proportion of inhabitants earn less than 1 US Dollar (USD) per day (WaterAid, 2009a). Most of the housing structures are substandard, dilapidated and densely 'arranged' in a way that is devoid of any logical planning (ibid.). Moreover, households are commonly comprised of at least five or six family members, meaning conditions within the domestic environment can be crowded (WaterAid, 2014a). A striking proportion of residential structures can ultimately be considered 'slum housing', as Figure 9 conclusively reveals was the case in 2003. Although slum housing appeared to dominate the entire Addis Ababa housing market, the proportion was significantly greater in Akaki Kality. Accurate, more recent data is difficult to come by, but it is known that housing challenges in the region have since intensified further still in line with rapid urbanisation.

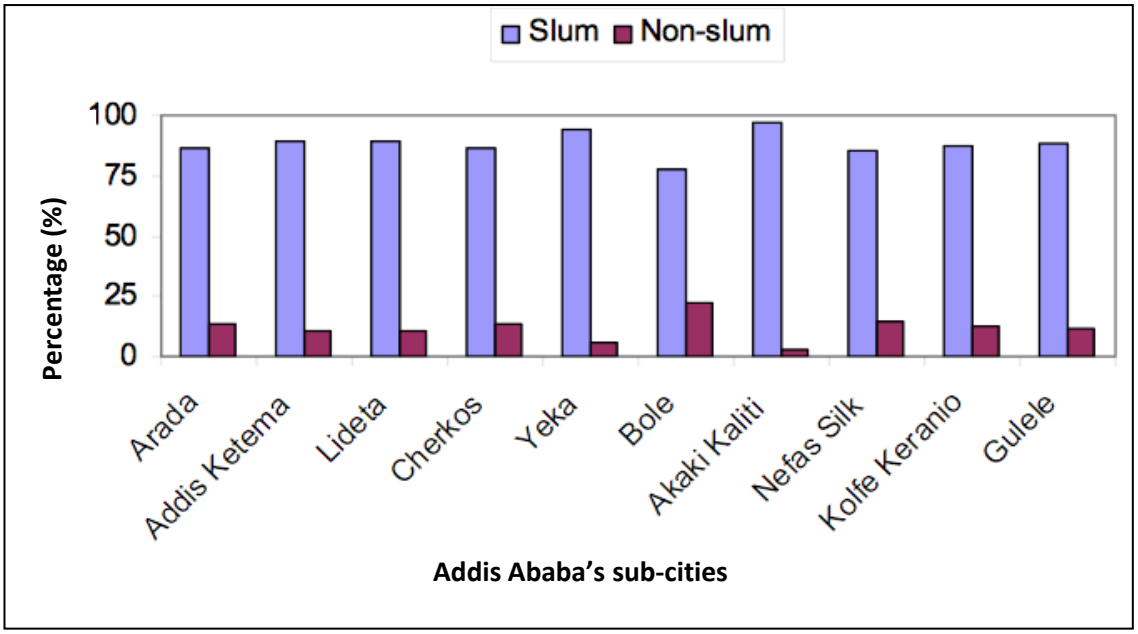

Figure 9: Proportion of slum housing in Addis Ababa's ten sub-cities

[Source: UN Habitat, 2003b; 12)

Indeed, a service infrastructure of sorts is in place in Akaki Kality, however it is thought that many inhabitants do not benefit from these provisions, and those that do may have to cope with intermittent supply (WaterAid, 2009a). Basic water and sanitation facilities are therefore still not widely available, accessible or functional across the sub-city (WaterAid, 2014a), and it is thought urbanisation is far outpacing the supply from existing formal services. This is partly attributed to the fact that rental housing comprises the predominant form of tenancies in Akaki Kality – although the proportion is declining due to investment and development activities – and landlords appear to have little regard for the water, sanitary and hygienic needs of prospective tenants (ibid.).

A 2006 UN Habitat survey also found that the percentage of the Akaki Kality sub-city population with access to improved water decreased to an alarmingly low level when cost and the quality of water were taken into account (see Figure 10). WaterAid Ethiopia staff therefore anticipated during the early formulation of the research design that water must be sourced – at least in part – through informal means in Akaki Kality, but little is known about the extent or dynamics of the local water sector in truth. These contextual characteristics and the burgeoning nature of Akaki Kality make this peripheral urban region a highly relevant site in which to conduct this research.

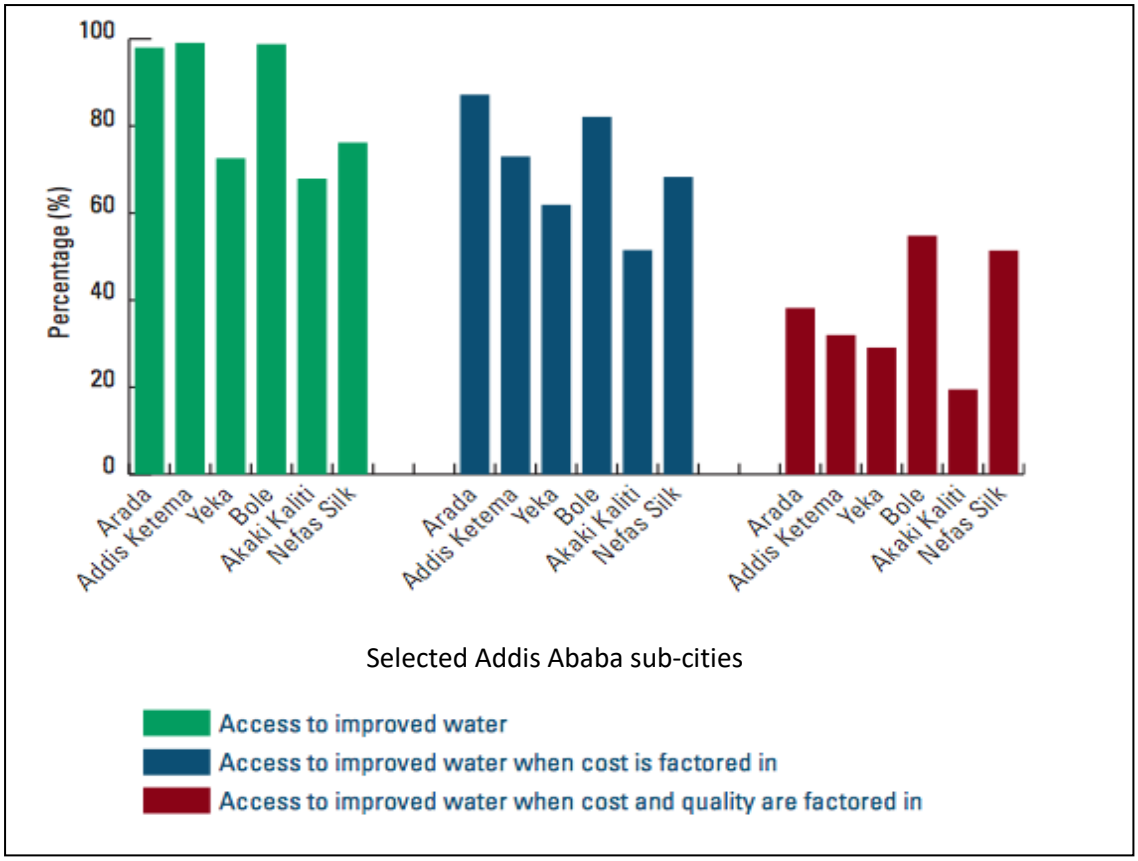

Figure 10: Improved water access in selected Addis Ababa sub-cities, factoring in cost and quality

[Source: UN Habitat, 2006a; 83)

In addition to this topical pertinence, the capacity to coordinate with one of WaterAid Ethiopia's local NGO partners – Emmanuel Development Association (EDA) – for the duration of my fieldwork was another advantage of selecting Akaki Kality as the research site. EDA is an indigenous development organisation that aims to help vulnerable and disadvantaged people in a range of areas including WASH, education, and health. During the pilot trip, EDA personnel assisted me by recommending specific sites within Akaki Kality that were most appropriate for this project, as well as introducing me to several key stakeholders. During the main fieldwork stages, EDA facilitated my initial access to the informal communities, informal water providers, and other key local informants in the region; committed one of their social workers to act as my temporary local interpreter; and ensured my personal safety. This level of support was invaluable and provided further confirmation that this contextually relevant sub-city was the ideal location in which to conduct this research.

Before proceeding to discuss the sampling strategies that were employed for the main data collection phase, it is important to briefly describe how some research tools were piloted. The principal goal of the pilots was to improve and refine the financial diaries and some of the semi-structured interview question guides, ensuring they were contextually appropriate. They were conducted over a ten-day period in October 2014 in a community of *Woreda* 7 called *Grano Doro.* This community, consisting of 191 households, was an ideal setting for the pilots as it has a similar socio-economic status to this study's main research sites; only partial or limited access to formal water supply; and EDA representatives were able to facilitate my access. Subsequently, a series of slight modifications were made to the relevant research tool templates, and I commenced the main data collection phase with a sharper understanding of water provision modalities and household consumption in the region.

Sampling

This sub-section discusses how and why the specific target communities identified were selected, as well as the individual households, community members, and informal water providers themselves. It also reveals how key stakeholder informants were recruited for interview. Table 7 displays the number of respondents that participated in this study.

Research participant	Research technique	Number
Informal water providers	Semi-structured interviews	19
Community residents	Semi-structured interviews Financial diaries Focus groups	180 (90 in each site) 90 (45 in each site) 10 (5 in each site)
Sector stakeholders	Semi-structured interviews	42

Table 7: Research participant numbers

The first sampling-related task was to identify the specific target communities in which the main ('local' level) fieldwork would take place. During the pilot trip, it was mutually

decided between myself, EDA, Akaki Kality Water and Sewerage Authority (AKWSA), and WaterAid Ethiopia that the research should focus on the communities within *Woreda* 7 and *Woreda* 10 of Akaki Kality (see Figure 11). Considerable input came from these three stakeholders in identifying the research sites, and I approved following extensive discussions and given their vast knowledge of the area. The extent of the water infrastructure in *Woreda* 7 and *Woreda* 10 varies significantly, and while the level of informal water activity in the two localities was largely unknown during the planning stages, it was firstly anticipated to exist and secondly to varying degrees given the differences in formal water provision between sites.

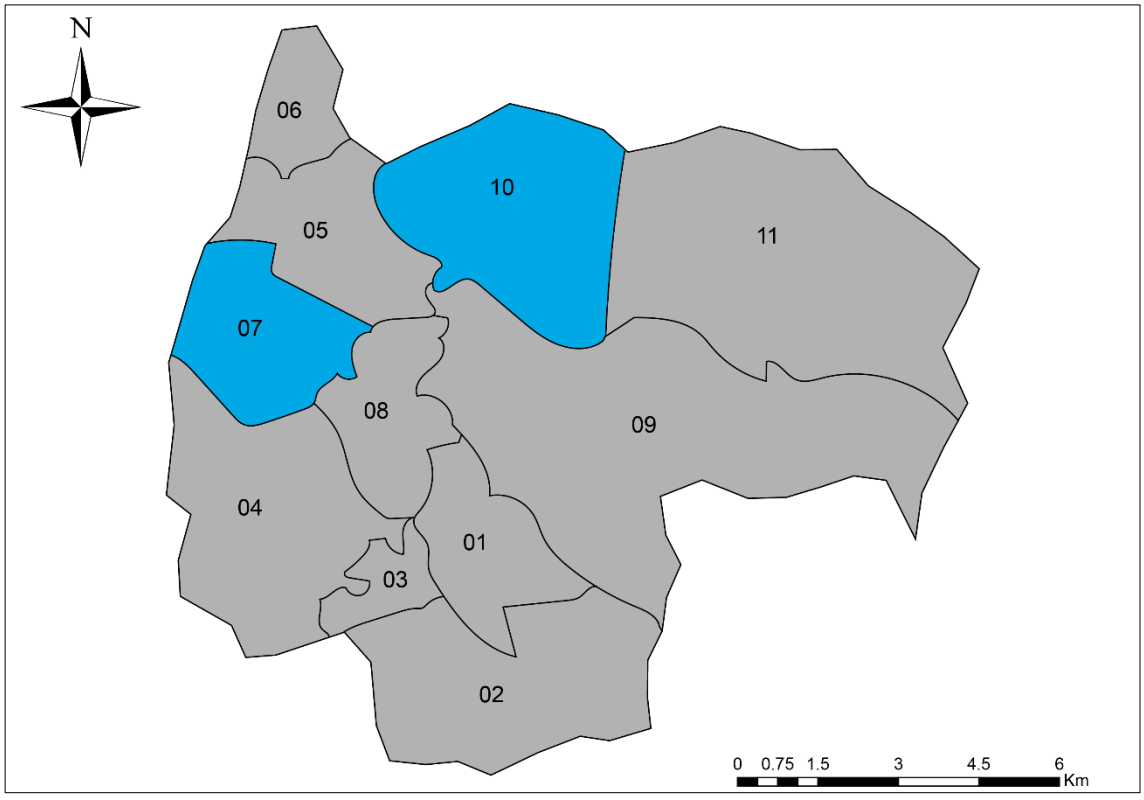

Figure 11: Akaki Kality woredas *and research sites*

Home to the head office of EDA, *Woreda* 7 was identified as the 'control' site where at least a basic water infrastructure is already in place. Some of the households in the locality have private connections to the formal network and there are also three community water points (one government water tank; one NGO-supplied community tap; and another community tap set up through a co-initiative between the government and community members). *Woreda* 10, meanwhile, had no access to formal water

supply at the outset of this study, but a water tank was built there in the final few weeks of my fieldwork. These two localities were therefore selected predominantly due to their contextual relevance to this study and potential comparability with one another.

The individual houses and residents within each community were selected for their respective interviews, financial diaries, or focus groups using a variety of sampling techniques. Firstly, for the community interviews it was important – and perhaps the only possible approach – to initially utilise gatekeepers in order to ensure safety and given the otherwise difficult-to-access nature of the research sites. King and Horrocks (2010; 31) define a gatekeeper as "someone who has the authority to grant or deny permission to access potential participants and/or the ability to facilitate such access". They also propose that the advantages of using a gatekeeper extend beyond making initial contact with research participants, as associating with known 'internal' individuals in an unfamiliar community or organisation confirms your credibility and trustworthiness as a researcher (or outsider) to potential respondents (ibid.). In addition, the gatekeeper approach ensured that my research was entirely overt.

The first gatekeeper was a social worker from EDA, who facilitated my initial access into the two communities. She then introduced me to another gatekeeper in each community, which in *Woreda* 7 was an individual with influence over local water-related decisions and in *Woreda* 10 was a community leader. These subsequent gatekeepers then initiated contact with a few key respondents in their respective communities, who were involved or interested in local water matters and had varied household socio-economic situations. This can therefore also be considered purposive sampling, but given its dependence on an initial gatekeeper I have classified it as thus. Thereafter, my local interpreters and I conducted the rest of the interviews in the two communities primarily through purposive and snowball sampling.

Purposive sampling, or criterion-based sampling, was used so that the profile of the sample was aligned with the goals of this research (Parfitt, 2005). A variety of participants were targeted based on several sample criteria, including households at all levels of the (limited) local socio-economic spectrum; mixed household water situations,

spanning those with private connections to those with no connection and situated a considerable distance from water points; single-headed households; female-headed households; the elderly; and those whose livelihoods depend on water. By doing this, it was hoped that the views of residents from all types of households within the study population were considered (Ritchie *et al.*, 2014).

Snowball sampling was also utilised, or when a researcher repetitively "accesses informants through [an introduction or] contact information that is provided by other informants" (Noy, 2008; 330). Upon the completion of several interviews, snowball sampling was enacted, particularly (but not only) if the suggested contacts matched one of the aforementioned purposive criterion. Again, we see the nuance between sampling strategies, but again, I am classifying it as snowball rather than purposive sampling based on the initial dependence. Snowball sampling acted as a fruitful technique through which to acquire interesting and informative research participants.

Financial diaries and focus groups with community residents, interviews and ethnography with informal water providers, and interviews with key stakeholder informants were arranged using largely similar sampling strategies, but I will discuss how the process differed slightly. Many of the financial diaries were arranged with willing *interview* participants, whereby a financial diary template was left with a household following the interview for them to complete over a four-week period. The original sampling technique for financial diaries therefore corresponded with that of the semi-structured interviews. Meanwhile, focus groups were conducted in my final fieldwork visit to Ethiopia after the predominant themes to arise from the interviews had been identified, and a mixture of participants were invited to participate. These were once again selected through purposive and snowballing sampling techniques, as well as a few interview participants who were particularly keen to debate their perspectives upon discovering my intention to hold future focus groups.

One of the principal research themes of this study was to better understand the role of informal water providers. It was therefore important to acquire the perspectives of, and conduct participatory approaches with, as many of these actors as possible. Given the

illegal and somewhat underground nature of their activity, and the subsequent expected difficulty in gaining access to them, it was decided prior to commencing the fieldwork that attempting to source informal water providers would be a continuous process throughout all visits to Ethiopia. This was achieved through a mixture of sampling strategies, specifically purposive (approaching them as and when they were seen), gatekeeper (accessing them through community residents once a level of trust had been built) and snowballing (accessing them through existing research participants).

After the main bulk of community-level data had been acquired, the final element to the fieldwork was to conduct interviews with stakeholders. Once again, this was achieved through a mixture of gatekeeper, sampling and snowball sampling strategies. My supervisors at WaterAid, WaterAid Ethiopia and EDA acted as my main gatekeepers and introduced me to some important contacts from across the WASH sector and the wider enabling environment for me to interview. Many of these interviewees then assisted me by providing the contact details for other relevant stakeholder contacts and instigating a snowball effect. It was simultaneously important to identify relevant organisations for which I didn't necessarily have a link or route in, and either establish contact or visit in advance in order to arrange an interview.

3.5. Challenges and limitations

This section considers the main challenges and limitations that were encountered throughout the study. It raises a description of the issues, how I attempted to either manage or negate them, and the potential implications of such obstacles on the data. The challenges discussed here are my language training experiences; working with an interpreter; gaining access to key informants; the dynamic nature of the research sites; and the ongoing threat of terrorist activity in Ethiopia.

Language training

The national language of Ethiopia is Amharic, which is the second most spoken Semitic language in the world behind Arabic. It was acknowledged at the outset of this studentship that learning Amharic would be both a significant and time-consuming challenge, given its complexity and obscurity. The ESRC thus presented me with the opportunity to undertake a funded extension in my PhD, to spend time either in the UK or Ethiopia studying the language. After all, a linguistic connection with the target population is desirable in any form of social science research. It helps to establish a close relationship and build trust with respondents, as well as negate the potential loss of 'conceptual equivalence' in any translated communication during interviews (Temple and Young, 2004).

However, after deliberating with both my academic and institutional supervisors, it was decided that such an undertaking would perhaps not be a worthwhile investment. This was justified on the grounds that the level and length of language training required to be able to conduct interviews in Amharic, and without a translator, would be too extensive in the context of a three-year study. Amharic is also a language native only to Ethiopia, and thus it was deemed improbable that dedicating a significant period to learning the language would benefit my personal or professional development. Nevertheless, I still felt it was important to enrol on a ten-week 'Introduction to Amharic' language course at The School of Oriental Africa Studies, University of London, between January and March 2014. By the end of the programme I was able to converse in elementary Amharic and read the script – comprised of more than three hundred intricate so-called *fidels* – that I once perceived to be entirely alien.

During my first visit to Addis Ababa, it quickly became apparent that both WaterAid Ethiopia staff and local residents were highly appreciative of my efforts to greet them in Amharic and learn their language. Indeed, it appeared my objective to acquire sufficient vocabulary to assist me in everyday interaction had been achieved. The warm response I received prompted me to take further lessons throughout the fieldwork process at the Joint Language School in Mekanissa, Addis Ababa, when I could spare the time. Learning

the fundamentals of Amharic proved to be an invaluable activity that unquestionably enriched my experiences while living in Ethiopia.

Despite these efforts, the next sub-section will discuss the perceived impact of the language barrier – and the subsequent need to work with an interpreter – on the research.

Working with an interpreter

It is with regret that the task of mastering Amharic in time for my fieldwork would have been too onerous, as working with an interpreter during social research always presents challenges. Working with an interpreter for the fieldwork conducted at the community level was the primary challenge I encountered during the entire fieldwork process, in large part due to the potential influence it can have on the acquired data. Before I discuss how I went about minimising any negative influences of working with an interpreter, I briefly want to explain my employment of the phrases 'working with' and 'interpreter' – as opposed to 'using' and 'translator' – in the context of qualitative research.

First of all, working with a so-called local 'interpreter' or 'guide' rather than a 'translator' better reflects the extent of their role. The two interpreters that participated in this study (I initially worked with an employee from EDA for the pilot phase until a more permanent interpreter from the target communities could be identified) provided me with invaluable local knowledge of the research sites; an insight into the water facilities there; security; and of course the necessary language skills to assist in the effective production of interviewee accounts. The concept of 'working with' rather than 'using' an interpreter – a model that Edwards (1998) referred to as 'making interpreters visible' – suggests that these individuals often oversee a role that extends far beyond that of a mere conversational tool. This was evidently the case in the context of this study.

In terms of their linguistic value, however, the interpreters who participated in the fieldwork for this study were integral to the data collection process. Ensuring conceptual equivalence was maintained in the translated dialogue represented the principal concern. Extensive discussions were therefore held with the interpreters prior to starting the data collection process to confirm they had grasped the content of the study, understood any unfamiliar terms in the question guides, and acknowledged my desire to avoid any paraphrasing of the respondents' remarks. A single interview with community members or informal water providers sometimes lasted up to approximately two hours so that detailed responses could be interpreted verbatim. Focus groups with community members were conducted in a slightly different manner. The interpreter quietly relayed the general responses being raised by participants to allow me to keep on top of the conversation, as well as to avoid the repeated disruption of the conversation that would accompany an out-loud translation of each response. The interpreter and I then sat down together following the session to translate the recorded dialogue verbatim, which was similarly time-consuming but worthwhile upon reflection.

Working with an interpreter during the fieldwork conducted at the community level was undoubtedly a success. It was clear that the in-depth responses made by research participants were matched by the detailed nature of the translated material. The main shortcoming of working with an interpreter was the difficulty of establishing a social rapport with respondents. My elementary Amharic helped with this and my efforts to converse in the local language were respected, but as Marschan-Piekkari and Reis (2004; 225) suggested the process of building a relationship and trust with an individual is partly "an outcome of communication and language skills". Nevertheless, this was a necessary trade-off as the research would not have been possible without an interpreter.

Accessing key informants

I was warned from the outset of the PhD that accessing informal water providers might prove to be a considerable challenge. Informal water activity is, after all, considered illegal in Ethiopia but it was nevertheless an important obstacle to overcome given its

centrality to this thesis. To do so, it was thought that I would have to gain the trust of informal community leaders and residents first – probable consumers of informally-sourced water – to then use as gatekeepers through which to approach the informal providers themselves. Similarly, it was also anticipated that government officials and water sector practitioners in Ethiopia might be either unable (due to a lack of knowledge) or unwilling (to either avoid becoming associated with a branch of illegality, or to try and prevent me from researching it) to disclose information regarding the role and geography of informal water provision.

Indeed, these projections ran true at least to an extent. In several meetings with representatives from various water sector stakeholders, responses relating to informal water providers included acknowledgements of their existence but a general uncertainty over their whereabouts; a lack of understanding regarding their activities; forthright denouncements of informal water providers as criminals; and rejections of the idea that they even exist in the city. A few stakeholder representatives also became fairly reserved or withdrawn during the interviews when addressing the topic of informal water providers, meaning responses were not particularly informative at times. Receiving such feedback was somewhat disconcerting, particularly early on in the study, as the magnitude of the perceived challenge ahead in accessing informal water providers became evident.

However, my concerns were soon appeased after commencing the fieldwork in the two target communities. It took only a matter of weeks, perhaps three at the most, in each community before it appeared I had become a familiar face. Relocating to two separate guesthouses within each research site – rather than continuing to make the short commute from a more comfortable residence in central Addis Ababa – aided this process. Residents starting addressing me by name and the former expressions of surprise or suspicion I received at first had changed to smiles, handshakes and well-wishes. It was around this time I felt I could ask residents from the communities for an introduction to the informal water providers from which they often source water.

Even after establishing relationships with members of the target communities and requesting they perform this gatekeeper role, there were still doubts as to whether the informal water providers themselves would trust me given the illicit nature of their work. Many informal water providers did indeed appear to be sceptical at first and a handful did refuse to continue the conversation. This was a source of frustration, in large part due to the knowledge that there would be a finite pool of informal water providers in both research sites to sample from and these individuals were clearly selling water.

While I could not pursue these sellers, most concerns expressed by others were generally alleviated upon hearing the goals of this research and its affiliation with the NGO WaterAid. In fact, once I had overcome these initial hurdles of access and trust, many of the informal providers I conversed with were not only very forthcoming but also saw our encounter as an opportunity to express their voices and elucidate the proficiency of their work in a region where such undertakings are usually oppressed. I was therefore able to conduct informative interviews with informal water providers and shadow them in their operations fruitfully.

Dynamic research sites

The dynamic nature of the research sites presented me with a few concerns over the course of the study. I firstly refer to this dynamism in relation to my experiences of employing *Woreda* 10 as a research site. As mentioned, this *woreda* was identified early on during my initial pilot trip as one of the regions in the sub-city without either a formal piped water network or an individual outlet. It was the perfect locality in order to compare the role of informal water providers and household water strategies with that of *Woreda* 7, the control site in which a formal water infrastructure exists. Without even hearing of the plans to construct a water tank, this materialised and my first knowledge of the new outlet came during my concluding set of site visits in the final few weeks of fieldwork. This highlights just how quickly a situation can evolve in the region, and the difficulty of conducting research in such dynamic circumstances is profound. While this development did initially appear to be problematic, it actually became an interesting

finding in itself and helped me to understand the processes of local water provision and everyday bargaining.

Secondly, Akaki Kality in general has transformed from a series of villages to a sub-city of Addis Ababa in a remarkably short space of time. Little documentation subsequently exists on the region given its recent inception as a peri-urban area, while statistical information for the region that is available can quickly become dated in light of its continued growth. In trying to accurately understand the history and current situation within the region, it was therefore important to use the scarce documentation carefully and conduct measured conversations with those who could be considered either regional or sector experts.

Threat from terrorism

I mentioned previously that I changed accommodation during my trips, which helped me to become a recognised inhabitant of each community. However, another factor in my decision to move away from central Addis Ababa was the ongoing terrorism threat.

Official travel advice prior to departing for my pilot trip to Addis Ababa was to be cautious. It was detailed that a militant group had carried out previous small-scale attacks in the city so travellers need to exercise vigilance, particularly in crowded public areas. However, tensions intensified later in the year and the terrorist group threatened all countries with a peacekeeping military presence in Somalia, including Ethiopia. Early on during my first fieldwork trip, the Bole area of the city was targeted and travellers were advised against unnecessary visits to public places or gatherings. Bole is where my original guest house was situated, and where WaterAid Ethiopia and many other WASH sector actors are based.

My decision to include this information in my thesis derives from the fact that it was a significant mental challenge that negatively affected my time in Ethiopia. Moving to an unfamiliar environment for a considerable amount of time is daunting in itself, but I

found that the ongoing terrorist threat compounded the sense of isolation that sometimes accompanies independent fieldwork. I was unable to explore much of the city and was therefore prevented from experiencing Ethiopian culture in full. It is hoped that this undesirable situation did not impact upon my research, but I am the first to admit that I was cautious about spending more time than was necessary in the Bole area of Addis Ababa.

Chapter Four – National and institutional context

4.1. Introduction

This chapter initially discusses the contextual backdrop of Ethiopia and aims to understand how certain social, political and economic factors have influenced the nation's contemporary water situation. It explores conflict and political instability, federalism, foreign aid, and civil society, before proceeding to consider the current nature of poverty and inequality in the national, urban and water-centric contexts of Ethiopia. These issues have been directly or indirectly related to the creation of informal water spaces in Ethiopia's urban areas, and are therefore highly pertinent to address. Following this, the second dimension to this chapter discusses the international role of WaterAid, as well as its work within Ethiopia.

4.2. National context

Political backdrop

It must be acknowledged that the state of a nation's present situation or prospects for its future are not necessarily directly determined by the past, as demonstrated by the "rapid transitions from brutal autocracies to stable democracy" that have taken place in Germany and Japan (Clapham, 2004; 72). However, a wealth of literature exists on the development paths taken by many African nations and the unfavourable fortunes they have experienced in contrast to most in the contemporary global North (c.f. Potter *et al*., 2008; Schuurman, 2013).

The simplest explanation for the lagging behind of sub-Saharan Africa is widely attributed to the accumulative legacy of oppressive external influence and colonisation (Heldring and Robinson, 2012). Ethiopia, by contrast, represents a somewhat unique case in point having managed to resist foreign invasion and maintain independence, even while many of its immediate geographic neighbours succumbed to colonisers. In

spite of a relative idiosyncratic political history in this regard, Ethiopia has still been encumbered by alternative modes of oppression and instability that have fashioned its contemporary situation at least to an extent. It is therefore important for this sub-section to consider the nation's recent political history as a contextual backdrop before later exploring the current nature of the national water sector.

It is not the intention here to cover the history of Ethiopia in its entirety, however. I will instead discuss the political situation and major events that took place throughout the latter quarter of the twentieth century up to the present day. This is because it was from around 1973 that Ethiopia entered its main phase of inimical socio-politics – or at least a significant phase during which the foremost events were not treated with complete official indifference (c.f. de Waal, 1991) – since the fall of colonialism across sub-Saharan Africa. It was in 1973 that a famine devastated much of northern Ethiopia while the following year saw the deposition of Emperor Haile Selassie – who incidentally attempted to conceal the existence of widespread starvation as in earlier episodes – by a Marxist coup. Ethiopia immediately became a nation entrenched with autocracy and civil war.

Mengistu Haile Mariam was at the forefront of the seventeen-year socialist military dictatorship (referred to as the *Derg*) that followed the overthrow of Haile Selassie, during which "the power of the traditional elite was reduced" (Bigsten *et al.*, 2005a; 14) as part of an overarching goal to "extirpate any competing civil society or ethnic activity" (Marcus, 1994; xiv). This suppressive stance towards any ideological adversary alienated large sections of the Ethiopian population, thereby fuelling the opposing rebel groups and intensifying the conflict (ibid.). The civil war itself was brutal. Human casualty figures vary and are difficult to corroborate, but it is estimated that there were hundreds of thousands of fatalities, perhaps even in excess of one million (Kloos, 1992). The Ethiopian People's Revolutionary Party led the opposition resistance against Mengistu, however a 'Red Terror' response was declared that entailed such horrors even against powerless communities that there subsequently became "virtually no overt civilian opposition" to his regime (Marcus, 1994; 196).

It is challenging to accurately quantify the socio-economic impact of such an event, but a 15-year civil war is typically thought to reduce per capita GDP by approximately 30% (Collier, 1999). It is therefore logical to reason that the seventeen-year civil war in Ethiopia potentially caused a similarly damaging shock to the country's social and economic situation. What is conclusive is that this civil war polarised society, either destroyed key natural resources or diverted them away from output-enhancing activities, and created a sense of instability that both deterred foreign investment and limited domestic expenditure on poverty-reduction measures (Bigsten *et al.*, 2005a). The civil war also coincided with the war between Ethiopia and Eritrea as part of the latter's quest towards secession from Ethiopia, an invasion from neighbouring Somalia in 1977, as well as a further phase of famine in the mid-1980s (ibid.).

Why are these examples pertinent in the context of this thesis on water access? They not only reveal that the country went through a significant phase of struggle and suffering thereby impeding its development process, but they also highlight the extent to which the predominant political focus throughout this instability was the consolidation of power at the macro level. With the case of the 1984 famine, for example, the ruling government once again failed to report or even acknowledge the crisis that would have initiated support from the international relief community, in order to instead generate positive press or success stories about the revolution on its tenth anniversary (Marcus, 1994). Similarly, the regime imposed heavy taxes and levies on peasants and poor people throughout its tenure (Dercon, 2002), as well as a widespread repeal of basic human rights in the quest for power (Udogu, 2014). The needs of the Ethiopian people, of which access to potable water is one of the most crucial, appeared to represent an inferior issue on Mengistu's governance agenda.

The acting government was formally dissolved in 1987 but Mengistu remained in a presidential position for a further four years until he was ousted in 1991. With connotations of progress, Harbeson (1998) somewhat generously referred to Mengistu's regime as one characterised by the 'militarisation of economic development'. The term 'militarisation' is key, however, and accurately depicts the nature of his rule. The social, political and economic situation in 1991 was clearly the

antithesis of propitious and therefore one far from ideal for the new government – the Ethiopian People's Revolutionary Democratic Front (EPRDF) – to inherit. The need for widespread change in Ethiopia was evident, and this sub-section will now move on to consider the structural and economic reform that ensued.

The incoming administration in 1991 had little option but to implement drastic and sweeping reforms that prioritised democracy and human rights. Ethiopia therefore embarked on an experimental transition towards federalism, a shift that entailed the devolution of "political, administrative and economic power to ethnically defined regional states" (Aalen, 2002; 1). The Federal Democratic Republic of Ethiopia (FDRE) was born along with a state constitution in 1995, and both remain to the present day. The country is now partitioned into nine regional states and two city administrations, which are then subdivided into zones, *woredas,* and further still into *kebeles* (FDRE MoH, 2011). A *woreda*, of which there are 801, is the basic decentralized administrative unit in Ethiopia (FDRE MoH, 2011), and it ostensibly appeared that these created regions had been afforded considerable autonomous capacity to self-rule under the new system (Ayenew, 2002). The IMF also formally subjected Ethiopia to structural adjustment in 1992 in an attempt to ensure recovery and subsequently growth. A "decentralised and market-oriented economic system with an increasing role for private enterprise" was therefore the product of the desired change (Bigsten *et al.*, 2005a; 15). However, the extent to which these purported shifts have either transpired or had the desired impacts throughout Ethiopia in reality has been subject to contestation.

Decentralisation as a general policy has become almost synonymous with improved decision-making, greater accountability and other elements associated with the concept of good governance (Ayenew, 2002). It is also widely recognised that poverty alleviation and socio-economic development can seldom take place without addressing the widespread deficiency of basic amenities (c.f. Singh, 1999; Kemper and Sadoff, 2003; Sanctuary and Tropp, 2007). One of the main objectives of decentralisation in the Ethiopian context was therefore to improve service delivery through institutional rearrangement and the transfer of planning and control to the local level (Gebre-Egziabher and Berhanu, 2007). However, sceptics observe that while the *woredas*

established under the federal system are expected to manage most social, economic and political matters without interference from central government, they remain financially weak and lack the necessary administrative and technical resources for which successful self-rule is possible (Ayenew, 2002). In fact, Ayenew (2002; 146) concluded that not only do *woredas* remain dependent on higher-level tiers in the federal government system and therefore do not possess sufficient decision-making power in actuality, but also "instructions [still] flow from top to bottom in an unbroken bureaucratic line from the regional government to the zones".

Abbink (2006; 196) develops these ideas further still to suggest that the "central party is not ready to let go of power", as well as to propose the democracy-inhibiting existence of non-transparent neopatrimonialism in contemporary Ethiopian politics. In some cases, 'token decentralisation' has taken place, or political delegation in the knowledge that the new recipients of responsibility lack the necessary implementation authority (Arsano, *et al*. 2010). This complicates the process and potentially reduces operational effectiveness to below centralised standards. These points have led some commentators to arrive at the conclusion that the dominant ruling party has somewhat paradoxically managed to consolidate control under the guise of a federal system (Aalen, 2002). The potential water-related implications of this, and the persisting culture of incentives for upward accountability, is that projects may still conform to the centralised design and progress could be over-reported in line with policy benchmarks and targets (Arsano *et al*., 2010). Perhaps decentralisation exists more on paper than it does with regard to implemented governance and the rights of the people in reality.

Meanwhile, the national currency – the Ethiopian Birr (ETB) – underwent a 143% devaluation among other drastic reforms in line with the IMF's goals (Dercon *et al.*, 2005). The economy of Ethiopia did begin to display signs of growth and adaptive potential under fiscal and structural reform. However, Ethiopia's economic progress was once again halted by conflict between 1998 and 2000, this time a war against Eritrea. In addition, the subsequent rise in the government's military expenditure (at the expense of pro-poor expenditure), as well as the increase in the cost of living due to subsidy cuts on basic commodities and services (Gurmu and Mace, 2008), were further compounded

by a severe drought in 2002. Ethiopia has ultimately struggled to cope with political, climatic and economic adversity throughout its recent history. Such instability is often passed on and reflected in the status of potable water access rates, as demonstrated by the experiences of many other low-income countries (c.f. WSP, 2011a).

This sub-section has thus far covered some of the major events that have taken place throughout Ethiopia's recent political history, but it is now important to consider the state of contemporary civil society and aid dependency in Ethiopia. Revisiting the latter end of the twentieth century and the phase of significant political change in Ethiopia is once again important here. Clark (2000; 5) stated that when the *Derg* administration fell in 1991, "civil society groups and NGOs emerging from the wreckage left behind were weak, disorganized, and without either significant resources or constituent bases". Campbell (2001; 164) broadly researched the ensuing explosion of NGO activity after the collapse of the old political order in Ethiopia to find that minimal interaction existed between NGOs themselves or between NGOs and the establishment. Nevertheless, Ethiopia was still suffering from the effects of civil war, a string of food shortages, forced mass displacement and a dwindling economy throughout this political transition. The socio-economic situation in Ethiopia at the time was therefore desperate and the work of NGOs in the attempted stabilisation process was essential (Clark, 2000). Similar recognition should also be afforded to the major international relief organisations both during and after each of the humanitarian emergencies.

As the new government began to consolidate power, however, it became increasingly critical of the work of NGOs, their long-term development strategies, and the way their activities were "perpetuating an unnatural dependency on relief assistance" (ibid.; 6). In fact, the Ethiopian government passed a bill in early 2009 called the Charities and Societies Proclamation (CSP) that reduces the rights and limits the capacity of NGOs (Vernon, 2009). The CSP firstly defines Ethiopian charities as those that "are formed under the laws of Ethiopia, all of whose members are Ethiopians, generate income from Ethiopia" or no more than 10% of funds derive from foreign sources (FDRE, 2009; Article 2.2). So-called 'Ethiopia Resident Charities' are formed under Ethiopian law, consist of members whom all dwell in Ethiopia, and who receive more than 10% of their funds

from foreign sources, while 'Foreign Charities' have predominantly foreign sources, laws and funding (ibid.). It then proceeds to prohibit so-called 'Ethiopian Resident' and 'Foreign' charities from participating in the following areas:

- The advancement of human and democratic rights
- The promotion of equality of nations, nationalities and peoples and that of gender and religion
- The promotion of the rights of the disabled and children's rights
- The promotion of conflict resolution or reconciliation
- The promotion of the efficiency of the justice and law enforcement services

(ibid.; Article 14)

Vernon (2009) highlights that limiting NGO involvement in areas such as democracy, human rights and law enforcement essentially reduces the potential for government power to be challenged. The Ethiopian government also actively checks any form of advocacy work or policy analysis conducted by NGOs in Ethiopia to instead encourage them to undertake service delivery projects (Hodenfield, 2014). In fact, it has been compulsory since 2011 for 70% of NGO expenditure in Ethiopia to be allocated towards direct service delivery to ostensibly regulate administrative costs (Hayman *et al.,* 2013; ICNL, 2015), which also indirectly limits NGO advocacy efforts. The impact of these recent restrictions, which perhaps represent a milder continuation of the aforementioned dismissive approach towards civil society adopted throughout Mengistu's regime, is likely to be quite profound. Foreign funding is the principal (and often only) form of funding for NGOs in Ethiopia. However, donors have already become tentative to either fund or engage with projects in Ethiopia as a result of the CSP, particularly those that are considered long-term (Hailegebriel, 2010).

The result of this longstanding state authoritarianism towards civil society is that associations and NGOs have been unable to contribute "much in the way of defining the norms and values that might underpin accountability (for themselves or the state)" in fear of institutional survival (Campbell, 2001; 164). Yet, there appears to be minimal

evidence to suggest that decision-makers are willing “to listen to the voluntary sector or are ready to recognise that it has legitimate claims” (Rahmato, 2002; 118). Attempting to keep NGO activity at the grassroots level through such restrictions is considered by many as an impediment to the nation’s development process and in opposition to the goal of achieving equity and sustainability (Hodenfield, 2014). The CSP and other anti-civil society measures effectively contradict the rights-based approach to development that has become such a key national development strategy in democratic societies (Hailegebriel, 2010).

In spite of this, however, there are currently far in excess of 3,500 domestic and international NGOs and CBOs (community-based organisations) in Ethiopia, engaging in a range of extremely important project areas from health and food security to physical infrastructures and capacity building (Teshome-Bahiru, 2009). Relief assistance in Ethiopia continues to be extensive, with its operations reaching a pinnacle in 2003 in terms of the size and scope of resources handled (Lind and Jalleta, 2005). In fact, the country was among the top five recipient countries of net overseas development aid almost every year between 2004 and 2013 (apart from 2006), consistently ranking alongside conflict regions such as Iraq, Afghanistan, Pakistan, and the Democratic Republic of the Congo (World Bank, 2016a) (see Figure 12). Ethiopia evidently remains one of the very poorest nations in the world, despite the recent progress that has been made with regard to economic growth and poverty reduction.

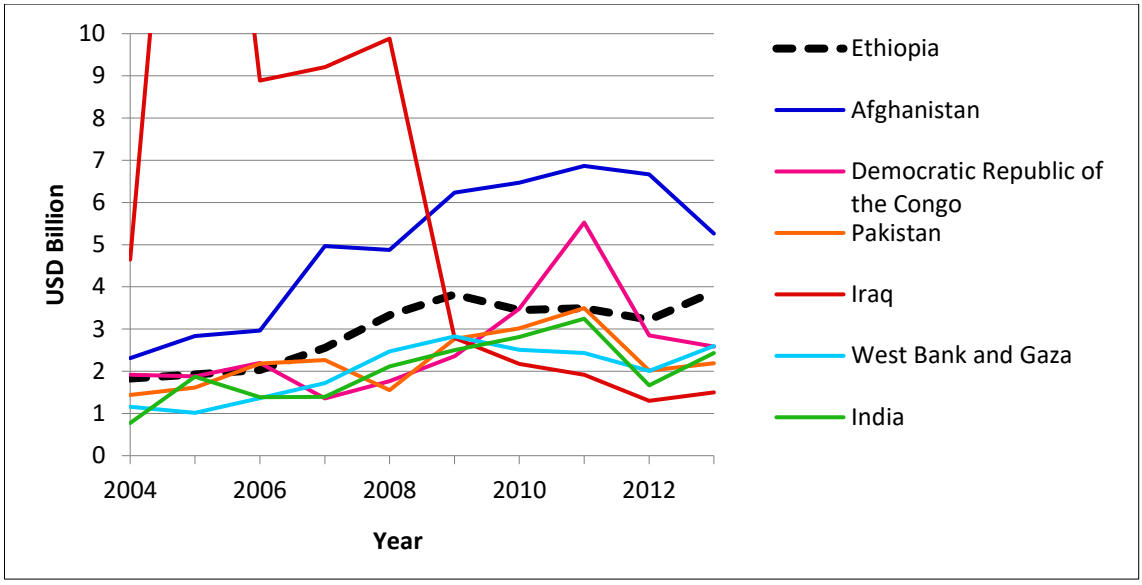

Figure 12: Net official development assistance received

[Source: World Bank, 2016a]

The accumulative consequence of the points raised throughout this sub-section is that the social, economic and political landscape is highly complex and one that is fraught with challenges. In the context of this thesis, the obstacles inhibiting water progress start to become clearer. The nature of the enabling environment in Ethiopia makes it challenging for WASH sector organisations to function with maximum effectiveness to help address the deficiencies associated with formal supply, which in turn are at least in part a product of the nation's tumultuous recent history. The anticipated significance of informal water providers, who are thought to fill some of the resulting voids in the formal water network, is therefore also inherently related. Ethiopia's water situation will be discussed in the final sub-section of Section 4.2. but, considering that low-income and marginalised households comprise the predominant focus of both this study and WaterAid's international agenda, it is important to lead on from here to discuss the nature of urban poverty and inequality in Ethiopia and the wider East African region.

Poverty and inequality

Ethiopia has historically been referred to in the media alongside images of *rural* hardship. Studies on urban poverty in Ethiopia are uncommon, while the urban poverty perspectives that do exist tend to be framed relative to the rural experience (Muzzini, 2008). However, the World Bank's (2001; 15) perception of poverty – "pronounced deprivation in well-being" that encompasses a lack of material income or consumption, low levels of education and health, vulnerability and exposure to risk, and voicelessness and powerlessness – goes a long way to outlining the nature of circumstances inherent within large sections of Ethiopian society. Ethiopia is ranked 174th out of the 188 countries for which data is available in the Human Development Index (UNDP, 2015a), and it was also estimated that 88.2% of the total Ethiopian population lived in multidimensional poverty in 2011 (UNDP, 2015b). Multidimensional poverty is broken down in Figure 13, while Table 8 provides a detailed insight into the level of the multidimensional poverty across Ethiopia.

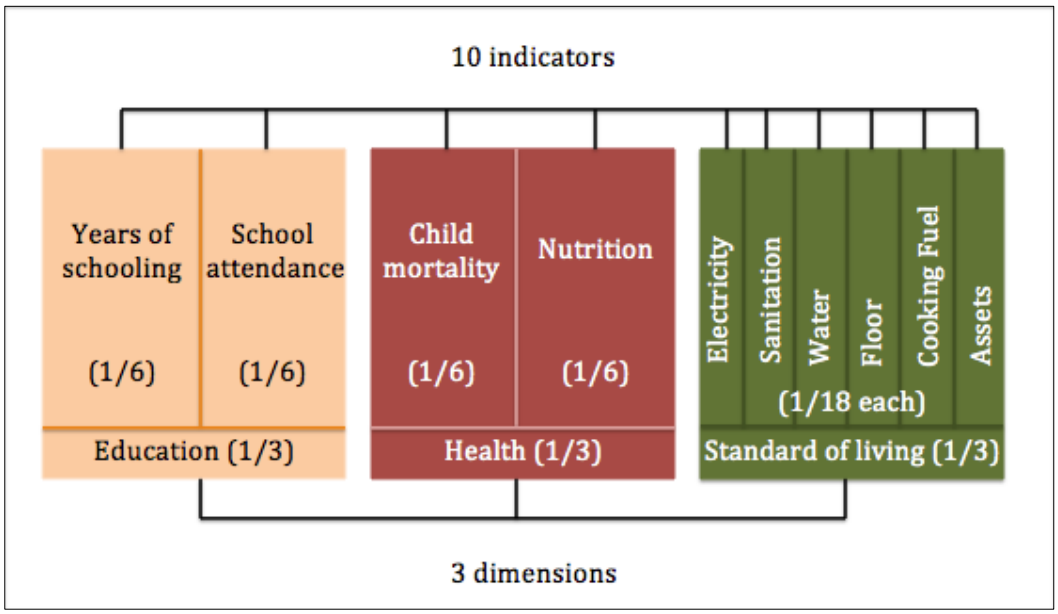

Figure 13: The global MPI dimensions and indicators

[Source: OPHI, 2015; 1]

Year	2011
Percentage of poor people (H)	87.3%
Average intensity across the poor (A)	64.6%
Multidimensional poverty index (MPI = H x A)	0.564
Percentage of population vulnerable to poverty	6.8%
Percentage of population in severe poverty	71.1%
Percentage of population destitute	58.1%
Inequality among the MPI poor	0.290

Table 8: National level MPI data for Ethiopia

[Source: OPHI, 2015]

Contributing to this high level of poverty is the fact that the nation has consistently ranked lower in gross national income per capita and the gross enrolment in primary education ratio than the average for sub-Saharan Africa, while its under-five mortality rate of 61.8 in 2014 fared slightly better at the continent level but remained comparatively high on a global scale (World Bank, 2016b). Regular climatic events have also compounded the situation, as between 1980 and 2000 droughts caused an annual average loss of life of over 14,000, while a major flood event took place approximately once a year (UN Habitat, 2014a).

Indeed, such measurement indices have been the subject of criticism (c.f. Revallion, 2010), but the figures they generate nevertheless provide an insightful snapshot into the prevalence of poverty. Poverty is ubiquitous across both the nation (and the wider East Africa region), facts upon which both literary and institutional authors appear to be undivided (Enquobahrie, 2004). This is in spite of the alleged progress the country has made towards the attainment of the MDG targets, as displayed in Table 9.

Overarching MDGs	Ethiopia's progress in line with MDG sub-targets
Goal 1: Eradicate extreme poverty and hunger	• Proportion of people living below poverty line reduced from 48% in 1989/90 to 23.4% in 2014/15. • % of pop. who are economically active increased from 55 to 64 between 2004 and 2014. • % of undernourished people decreased from 74.8% in 1990-92 to 35% in 2012-2014.
Goal 2: Achieve universal primary education	• Total net enrolment in primary education increased from 21% in 1996 to 92.6% in 2014.
Goal 3: Promote gender equality and empower women	• Gender parity in schools improved from 36% (primary) and 41% (secondary) in 1995/96 to 93% (primary) and 85-94% (secondary, year dependent) in 2013/14. • Share of parliamentary seats held by women increased from 2.8% in 1996 to 38.7% in 2015.
Goal 4: Reduce child mortality	• Under-five mortality per 1,000 live births has reduced from an estimated 167 in 1990 to 60 in 2015.
Goal 5: Improve maternal health	• Maternal mortality per 1,000 live births has reduced from 1,400 in 1990 to 420 in 2013. • % of married women using contraceptive methods increased from 8.1% in 2000 to 41.8% in 2014. • % of deliveries attended by a skilled provider increased from 5.6% in 2000 to 14.5% in 2014. • % of women receiving antenatal care from a skilled provider increased from 26.7% in 2000 to 39.6% in 2014.
Goal 6: Combat HIV/AIDS, malaria and other diseases	• Adult HIV/AIDS prevalence rate decreased from 4.5% in 2000 to 1.1% in 2014. • % of people living with HIV/AIDS on antiretroviral therapy increased from 1% in 2004 to 54% in 2014.

	• % of pop. with treated bed nets increased from 22% in 2010 to 45.8% in 2014. • % of pop. protected by any malaria vector control was more than 60% in 2012. • Tuberculosis mortality rate reduced from 89 to 32 deaths per 100,000 between 1990 and 2013.
Goal 7: Ensure environmental sustainability	• Natural resource conservation prioritised in Ethiopia's development plans (SDPRP, PASDEP and GTP). • % of households with access to improved drinking water increased from 25.6% in 2000 to 55% in 2014. • Access to improved sanitation facilities increased from 3% in 1990 to 28% in 2015.
Goal 8: Develop a global partnership for development	• Ethiopia formally applied to join the World Trade Organisation in 2003. • Ethiopia's membership to the Common Market for Eastern and Southern Africa grants it market access to over 400 million people in 19 countries. • Ethiopia was one of top ten recipients of aid for trade from 2006 to 2013. • Ethiopia plans to increase domestic manufacturing of medicine from 20% in 2015 to 50% by 2025. • Internet subscribers increased from 2,500 in 2000 to 7.8 million in 2014. • Mobile phone subscribers increased from 18,000 in 2000 to 30.5 million in 2014

Table 9: Ethiopia's progress towards the attainment of the MDG targets

[Source: NPC and UN, 2015]

It is thus clear that poverty remains pervasive across Ethiopia. In order to help balance the traditional rural emphasis and in line with the scope of this study, it is here we turn to predominantly focus on the aspects of urban poverty and inequality.

The World Bank acknowledged the heterogeneous scope of urban poverty and the associated challenges of calculating urban poverty estimates, setting thresholds or so-called poverty lines, and identifying agreed-upon definitions even of the constituent terms 'urban' and 'poverty' (Baker, 2008). The UNDP and UN Habitat (2013) similarly advocated the idea that urban poverty is a multi-dimensional and an inherently complex concept that cannot solely be thought of in financial terms. The perception and meaning of urban poverty can also be highly diverse between contexts. Considering 54% of the world's population inhabited urban areas in 2014, and that this figure is expected to increase to 66% by 2050 (UN DESA, 2014), urban poverty is becoming an increasingly important concept to understand and manage. Yet, it continues to be misrepresented and misjudged (Mitlin and Satterthwaite, 2013).

The relationship between urbanisation and poverty is generally portrayed as a positive one, as cities across the globe are described as places of opportunity, the 'engine rooms' of human development (UN Habitat, 2013) and 'poverty fighters' as a result (UN Habitat, 2008a). These claims are justified on the basis that the incidence of poverty in rural areas is generally higher and more pronounced than in urban areas, as well as the premise that "no country has ever achieved sustained economic growth or rapid social development without urbanizing" (ibid.; x). While such assertions are both correct and valuable to an extent, the incidence of *rapid* urban growth can simultaneously connote the deepening of poverty and inequality if effective measures are not in place. In fact, Mitlin and Satterthwaite (2004) suggest that the scale and depth of urban poverty has been consistently underestimated. This is mainly due to the skewed nature of aggregate statistics that include middle- and upper-class wealth, as well as the unreflective and easily-manipulated nature of poverty lines (ibid.). It is therefore key to continually contextualise any macro-scale discussion in order to generate an accurate narrative on urban poverty.

East Africa has actually witnessed considerably slower urbanisation rates than the rest of the continent over recent decades, and it is now generally believed to be the least urbanised sub-region (UN Habitat, 2010). Only around 23.5% of East Africa's population are thought to reside in urban areas, however this modest rate is rapidly intensifying and catching up with the higher levels found across other parts of the continent (ibid.). In fact, UN Habitat (2010; 8) proclaims that East Africa's future "is unquestionably urban" and accommodating the growing number of households will become an ever-increasing challenge. Ethiopia largely conforms to this shifting regional pattern. It is one of the most populous countries on the African continent with an estimated total population of 99.4 million (World Bank, 2016b), but less than 20% of these are believed to reside in urban areas (World Bank, 2016c) (see Figure 14). This is considerably less than the average for East Africa as a whole, so it may initially appear that this study's urban emphasis relates to only a minor proportion of the national population. However, "on average the urban population has increased by about 1,000 people a day" between 1990 and 2007, and it has been forecasted that approximately 50 million people will inhabit Ethiopia's urban areas by 2050 (WaterAid, 2010a; 2).

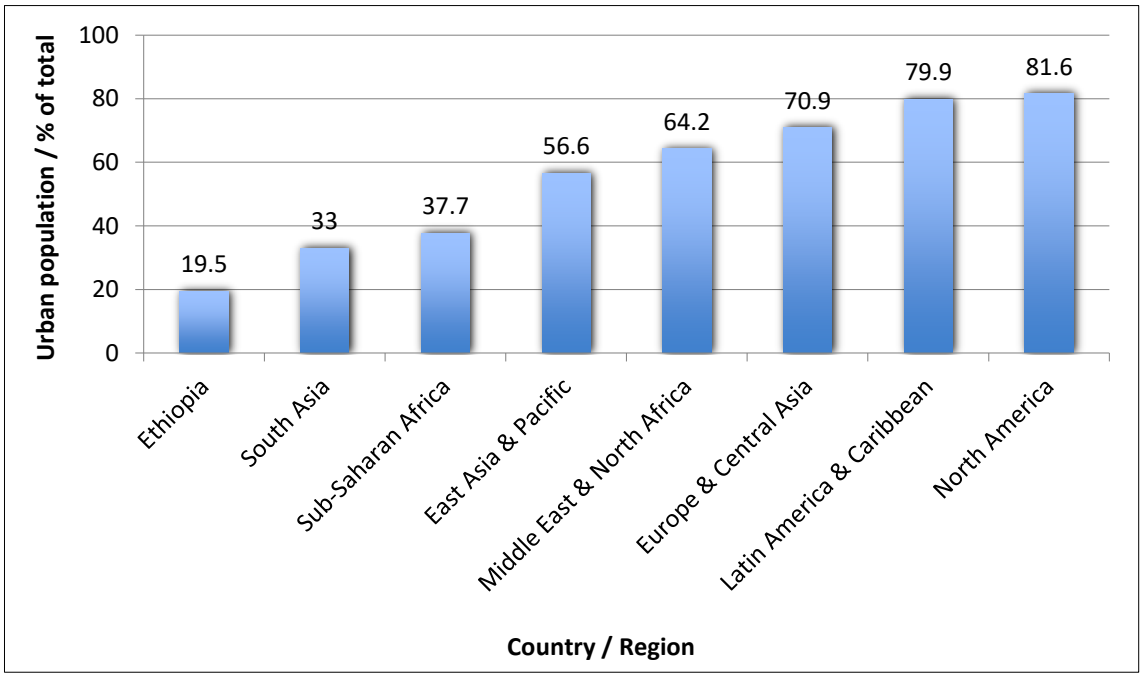

Figure 14: Urban population of Ethiopia compared with global regions

[Source: World Bank, 2016c]

Indeed, this should be seen as an opportunity. Ethiopia is expected to reach middle-income status between 2025 and 2030 through a shift in urban economic activity towards larger, more diversified industrial and service sectors (World Bank, 2014; FDRE MoWE, 2015). Urbanisation in the nation can therefore function as a catalyst for exponential economic growth, widespread job creation, and ultimately connecting the Ethiopian people to prosperity (World Bank, 2014). However, there is a concern that the needs of a growing population will not be met, thereby making cities less attractive destinations for both people and economic activity (ibid.). Job creation, housing, infrastructure and services appear to be a long way from meeting the increasing demand of current demographics in Ethiopia's urban areas after all (ibid.). The key is for urbanisation in Ethiopia to be better administered through land management reform, a heightened capacity and autonomy of local governments, and by facilitating competitiveness, investment and private sector growth (UN Habitat, 2014b; World Bank, 2014). It is also important for the structural transformation to avoid mimicking other development examples, but rather unfold as "an authentic expression of ... [Ethiopian] society itself" (UN Habitat, 2014b; 32). Without effective management in an approach that sees a nationwide network of cities supporting Addis Ababa as the primary centre, urbanisation on the forecasted scale is likely to intensify urban poverty (EDRI and GGGI, 2015).

A key indicator of urban poverty and deprivation is the proportion of an urban population living in sub-standard housing (UN Habitat, 2010). Generally speaking, sub-standard structures are situated in low-income communities and can be commonly associated with a deficiency of the necessary infrastructure and services required to satisfy basic needs; principally safe drinking water, sanitation, health and education services (ibid.). Other common deprivations experienced by impoverished urban communities include vulnerability to natural disasters and health risks, spatial immobility, exclusion, and limited access to income or employment (Baker, 2008). UN Habitat projected that approximately 828 million people worldwide reside in such settlements, also referred to as slums (UN Habitat, 2013). With an estimated 79.1% of people living in slums back in 2007 (UN Habitat, 2014a), Ethiopia had the "highest slum incidence in Eastern Africa" and it is therefore a nation with extremely poor access to

basic services (UN Habitat, 2010; 139-140). Even in the capital Addis Ababa, only 8.9% had access to sewerage in 2005 (UN Habitat, 2014a). However, some of those currently residing in such circumstances are not actually deemed to be poor under certain poverty lines (Satterthwaite and Mitlin, 2004). The scale and underestimation of urban poverty is therefore alarming, particularly as the number of households excluded from access to basic services may rise alongside urbanisation.

It is perhaps for these reasons that interest in Ethiopia's urban areas is growing. It has been suggested that the incidence of poverty in Ethiopia is "virtually as high in the urban as in the rural areas" (Bigsten *et al.*, 2005b; 9), and that poverty is actually "more persistent in [the country's] urban areas" (Bigsten and Shimeles, 2004; 21). Islam and Shimeles (2006) expanded on these ideas to conclude that chronic poverty is higher in Ethiopia's urban areas to the extent that an urban household classified as 'experiencing poverty' during the preceding year is twice as likely to remain in poverty than rural households. Muzzini (2008), meanwhile, suggests that non-monetary deprivation is significantly more prevalent than monetary deprivation in the nation's urban areas, with 36% of the total urban population residing in slum-like conditions without actually being considered income poor.

Accordingly, three policies materialised since the turn of the millennium to address urban poverty in Ethiopia, although it must be stated that these had a national orientation rather than being exclusively urban. The Sustainable Development and Poverty Reduction Program (SDPRP) was launched in 2002 as a framework to reduce poverty, while simultaneously pursuing growth and maintaining macroeconomic stability (FDRE MoFED, 2002). With cross-cutting themes spanning agriculture and food security, education, health and HIV/AIDS, roads, water and sanitation, and gender, the SDPRP was formulated to achieve progress towards MDG attainment in the 2002 – 2005 timeframe. However, it was more limited in scope than the MDGs, lacked decentralised participation and rather served as a platform from which the second poverty reduction strategy could be developed (Haile, 2015). The Plan for Accelerated and Sustained Development to End Poverty (PASDEP) – also geared towards MDG attainment progress – incorporated private sector development, industry and urban development as three

additional foci for the 2005 – 2010 period (FDRE MoFED, 2006). Indeed, it was more comprehensive than the SDPRP and the economy grew by 11% in these five years, however widespread poverty challenges still remained in part due to weak financial mobilisation and implementation capacity (FDRE MoFED, 2010; FDRE, 2011a).

The 2010 – 2015 Growth and Transformation Plan (GTP) aimed to harness the successes and learn from the challenges experienced throughout the SDPRP and PASDEP. Under this third poverty reduction strategy, advances in the performance of some of the major sectors in the first four years have been shown to result in an economic growth rate that was double the average for the rest of sub-Saharan Africa (FDRE, 2015). However, official monitoring reports refer to economic progress in great detail along with accompanying figures, yet allude to the GTP's simultaneous goal of poverty eradication only very generally. In fact, the terms 'poverty reduction' and 'poverty eradication' feature on several occasions as achieved goals in themselves without any further engagement or analysis. The issue of poverty thus appears to be subordinated beneath macroeconomic progress.

The lack of detailed engagement with the urban poverty issue in top-down approaches means that the concept itself – the starting point of any debate – can often be so fundamentally flawed. A host of basic needs such as asset bases and civil and political rights may be implicit in an individual circumstance of poverty, but are not incorporated into many international guidelines (Mitlin and Satterthwaite, 2013). Meanwhile, the criteria that are used to represent poverty can be misleading based on the use of arbitrary benchmarks. In the context of Ethiopia, where the socio-economic dynamics both within and between urban areas are so diverse and complex, it can be challenging to delineate even an accurate representation of *urban* poverty let alone effectively implement national plans that incorporate urban issues. After all, it is estimated that "45% of the urban population live in 907 towns with less than 30,000 [inhabitants] … [while] 55% of the urban population live in 63 towns with greater than 30,000" (FDRE MoWE, 2011; 2). This study therefore seeks to provide a localised insight into urban poverty using the everyday experiences of respondents at the community level.

Poverty, the incidence of informal settlements, and the briefly aforementioned idea of exclusion are also inherently linked to inequality. It is clear that many cities in the developing world are a long way from ensuring residential communities are afforded equal conditions and opportunities (UN Habitat, 2008a). This is the case across East Africa, where "low-income majorities are not benefiting from the commensurate increases in wealth" (UN Habitat, 2010; 142). Instead, exclusion of the urban poor from economic assets, social resources and basic infrastructures persists, as well as a "highly imbalanced leveraging of political power" (ibid.; 144). Inequality must therefore be discussed in the context of multiple human development spheres (UN DESA, 2013).

Economic inequality is often calculated using the Gini coefficient method, which "is a measure of statistical dispersion expressed in a figure between 0 and 1 that quantifies differences in welfare and compensation within a given population" (UN Habitat, 2010; 26). With a Gini coefficient somewhere in the region between 0.5 and 0.599, where 1 represents total inequality or a setting whereby one individual owns everything, Ethiopia is classed as being a nation with '*very high inequality*' (ibid.). Only the bracket entitled '*extremely high inequality*' denotes a more unequal situation. Meanwhile, Addis Ababa is only one of two urban areas across Africa (excluding South Africa where unprecedented inequality is symptomatic of apartheid) for which data is available that has an income-based Gini coefficient of above 0.6. Addis Ababa is also one of only two cities along with Maputo to have a consumption-based coefficient of over 0.5 (ibid.).

Gender inequality is also endemic in Ethiopia and is largely upheld by "discriminatory laws, harmful traditional practices, and stereotyped thinking" (UN Habitat, 2008b; 14). The result in Addis Ababa is that men access the majority of educational, economic and social opportunities despite 52% of the population being women, while 87% of the lower paid informal sector is female (ibid.). Corroborating this, "23 per cent of women in the city are illiterate, and another 22 per cent have no more than primary education" (ibid.; 14). Nationwide culture also dictates that women undertake all domestic responsibilities (UNDP, 2015c). An estimated 34% of (predominantly female) residents in Addis Ababa regularly have to spend significant time travelling outside of the home just collect water (UN Habitat, 2008b). Women in Addis Ababa are also heavily disadvantaged in terms of

health, where 69% have been subjected to Female Genital Mutilation (FGM) and 50% are not assisted during childbirth even despite the complications that can arise as a result of FGM (ibid.). Meanwhile, ethnicity- and class-based inequality is similarly pervasive in Addis Ababa, particularly in relation to education, health and legal rights (UNDP, 2015c). It appears the utopian idea of the 21st century city as an integrated, people-centred environment (UN Habitat, 2013) is not yet a description that can be applied to Addis Ababa.

Even when trying to localise the discussion away from the global scale, still there remains an inevitability of employing a Western narrative to try and understand urban poverty and inequality. The later empirical chapters aim to minimise this by undertaking a more realistic and experiential analysis of the everyday. The issues discussed in this sub-section nevertheless introduce the important underlying themes and highlight the challenging contexts in which governing bodies in Ethiopia – and across East Africa – have to try and administer effective and inclusive urban water governance. I will now proceed to discuss water in the Ethiopian context in more detail, a resource that continues to shape poverty throughout the nation. The discussion draws upon elements from the concept of water poverty, a term used to help articulate the nature of a given waterscape. It is principally comprised of: the resources (what is available?); access (what is the extent of the coverage?); use (how effectively is water used?); capacity (what is the capacity to manage water?); and environment (what are the environmental impacts?) (Allen and Bell, 2011).

Water

Ethiopia has plentiful water resources that could adequately serve the population, yet drought has continued to play a role in shaping the nation's recent history due to its uneven spatial distribution (FDRE MoWR, 2002). The settlement and population pattern in relation to the geographical landscape of Ethiopia is somewhat paradoxical, as "the [total percentage of the country's natural] water resources available in the east and central river basins is only 10 to 20 per cent whereas the population in these basins is

over 60 per cent" of the country's total population (FDRE MoWR, 2001; 2). Meanwhile, the sparser population in the west and southwest have access to over 80% of Ethiopia's natural water resources (ibid.).

This adverse situation is further compounded by the increasingly unpredictable seasonality of rainfall, as well as a history of extensive national water management challenges. Many obstacles experienced in the Ethiopian water sector are performance-related, specifically the speed and quality of intervention, programme expansion, and a lack of harmonisation between sectors (WaterAid, 2010d). It is largely a result of these management issues rather than an absolute shortage of water that accessing water has become a daily struggle for many Ethiopian residents, particularly households comprising the poorer echelons of society. However, management challenges are also easier to overcome than physical scarcity. This sub-section will therefore consider some of the institutional dynamics and policy frameworks that are central to the sector.

The Ethiopian government devised an approach that entails inclusive stakeholder involvement to improve service delivery efficiency, as part of a widespread devolution process of water ownership and management (WaterAid, n.d.b). This resonates with the wider decentralisation process discussed earlier in Section 4.2. Under this devolved water arrangement, the "key stakeholders of the WASH sector in Ethiopia are user communities, district, regional and federal levels of government ... public enterprises, utilities, donors, and NGOs both local and international" (WaterAid, 2010b; 23). While it is believed that the "private sector is an emerging stakeholder with potential for a larger role in future" (ibid.), large private organisations have not featured in the water sector to date, meaning formal provision has instead been collaboratively managed by these aforementioned actors (WaterAid, 2010a). Of course, informal water delivery operations are also thought to be hugely important to those excluded from public water services or to those with irregular access, but entirely unregulated and ill-understood.

Despite the seeming complexity of this multi-institutional landscape, the individual responsibilities of these formal bodies and the relationships between them ostensibly appear to be well defined. It is therefore surprising that performance-related challenges

persist. The water, education, health and finance ministries aim to work closely together under a Memorandum of Understanding (MOU) to promote good governance and inter-sector cooperation, while semi-autonomous public water supply utilities are the direct service providers responsible for ensuring potable water is provided to urban residents (FDRE MoH, 2011). NGOs also play an important role and are expected to be integrated into WASH structures at all levels, as well as harmonise with government procedures (FDRE, 2011b). Efforts to rectify nationwide water sector deficiencies appear to be comprehensive and it was recently reported that water supply coverage, particularly in rural areas, is undergoing "increasingly progressive growth in Ethiopia" (FDRE MoH, 2011; 14).

A series of policy frameworks and mechanisms have been designed since the turn of the millennium through which such progress is being made, and which have helped to shape contemporary water arrangements in Ethiopia. In 2000, the Ethiopian Water Resources Management Proclamation was created to ensure the protection and public ownership of national water resources, as well as their utilisation for the benefit of Ethiopian people (FDRE, 2000). In line with this, the Ethiopian Water Sector Policy was published in 2001 with the overarching objective:

> "to enhance and promote all national efforts towards the efficient, equitable and optimum utilization of the available water resources of Ethiopia for significant socioeconomic development on a sustainable basis".
>
> (FDRE MoWR, 2001; 5)

This progressive vision became integral to the design of all future water policy and strategies in Ethiopia. The following year in 2002, the Water Sector Development Program (WSDP) was developed, which consists of a series of projects across the subsectors of irrigation, hydropower, water supply and sanitation, water resources, and capacity building. Split into short- (2002-2006), medium- (2007-2011) and long-term objectives (2012-2016), the WSDP aims to reflect both national and regional priorities with a focus on actions to make water available for industry, agriculture and energy generation, as well as clean water available for drinking and sanitation (FDRE MoWR,

2002). This latter element, the one most pertinent to this thesis, is addressed under the administration of a subsidiary scheme called the Water Supply and Sewerage Development Programme. Some of the relevant specific objectives of this programme include:

- Provide potable water to most of both the urban and rural population, and water for sewerage where conditions permit.
- Operate and maintain water supply and sewerage services on an efficient and sustainable basis, with effective management.
- Promote stakeholder participation in the planning, design, implementation, rehabilitation, operation and maintenance of water supply and sewerage schemes.

(ibid.; 27)

In 2005, a similarly influential scheme was launched in the form of the Ethiopian Government's Universal Access Plan (UAP). This had the predominant aim to ensure near-universal access to water and sanitation services across Ethiopia by 2012 (WSP, 2011b). The precise targets outlined in this plan were 100% and 98% for water and sanitation respectively (WaterAid, 2010e). However, forecasts based on the early growth rates from the UAP indicated that these targets would not be met by 2012, a fact particularly notable in rural areas. The 2008 Mass Mobilization Igniting Program (MMIP) was therefore devised as a revision to the original 2005 UAP to encourage widespread participation, mobilisation and ultimately expedite the process of delivering access to WASH facilities for all, but by 2015 instead (FDRE MoWE, 2008). Linked to these is the 2011 Urban UAP, which sought to categorise 970 towns by population size and financial requirements alongside reported water supply, to further boost the chances of attaining the urban access targets (FDRE MoWE, 2011).

Perhaps the most current and all-encompassing water governance standard is the WASH Implementation Framework (WIF). The first draft of Ethiopia's WIF was formulated in October 2009, and one of its main aims was to promote the concept of an integrated One WASH Programme, or in other words, a plan to try and synergise an abundance of

projects into one harmonious and coordinated effort (FDRE, 2011b). The One WASH Programme is founded on the following four guiding principles:

- Integration of the water, health, education and finance sectors
- Alignment of partners' activities with those of the Government of Ethiopia
- Harmonisation of partners' approaches and activities
- Partnership between implementing parties at all levels

(FDRE, 2013; 15)

In turn, the activities undertaken as part of the One WASH Programme can be categorised into three key domains:

- Creating an enabling environment and good governance
- Maximising availability and efficient use of human and financial resources to create demand for better WASH services
- Capacity development for improved delivery of WASH services at all levels

(ibid.)

The One WASH Programme essentially operationalises the aforementioned MOU and the WIF (ibid.), while the collective overarching goal of these individual policy constituents was to ensure that the still ambitious targets eventually agreed under the UAP, MMIP and the GTP in the 2010 – 2015 strategic framework (98.5% water supply and 84% improved sanitation access coverage by the end of 2015) were met (FDRE, 2011b). Together the key frameworks all serve to coordinate the country's approach to WASH services and the result is that progress has indeed been made. However, it is perhaps pertinent to once again revisit the ambiguity of 'water access', this time dissecting it in the Ethiopian context rather than at the global scale.

Figure 15 displays the shifts in access to various water source modalities in Ethiopia between 1990 and 2012. The total population using improved water sources recently increased to only 52% of the total population (WHO/UNICEF JMP, 2014), without taking

into account the aforementioned shortcomings of such an indicator. Access to potable drinking water in Ethiopia's urban areas alone improved to a significantly higher value (WHO/UNICEF JMP, 2013b). The WHO/UNICEF JMP estimate that piped water directly to premises and alternative sources of improved water together served 97% of the nation's urban residents in 2012 (WHO/UNICEF JMP, 2014). It is therefore widely acknowledged that Ethiopia has indeed met its MDG target far in advance of the proposed 2015 deadline (WHO/UNICEF JMP, 2012; c.f. Ludi *et al*., 2013).

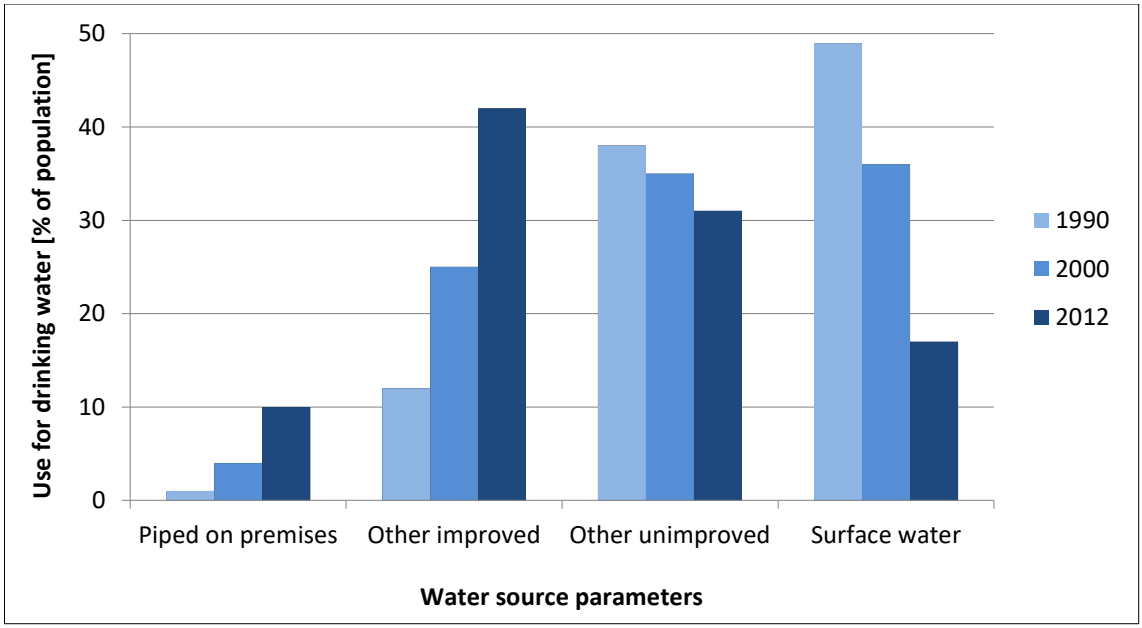

Figure 15: Use of drinking water sources in Ethiopia, 1990-2012

[Source: Data from WHO/UNICEF JMP, 2014)

However, it must be repeated that these seemingly encouraging statistics only denote the level of access in theory. The disconcerting reality can be overlooked whereby many of the urban and rural poor in Ethiopia remain victims of water sector inequity, either in the event of over-reporting or even if MDG targets are validly attained (WaterAid, 2010a), as is the case with many other nations across sub-Saharan Africa (c.f. WSP, 2006). Issues relating to infrastructure reliability and sustainability, water quality and quantity, and perhaps even power dynamics or cases of local water source appropriation are often not considered in the reporting of progress and statistics. In Ethiopia's urban areas, residents may be inaccurately perceived to experience greater access to water than in actuality (WaterAid, 2012a).

To explore one of these issues – functionality – in greater depth, WaterAid established the Post-Implementation Monitoring Survey (PIMS). This inventory-type survey recorded data on the effectiveness and sustainability of all water infrastructure and sanitation implementations carried out in the Amhara, Oromia, SNNPR and Tigray regions between 2006 and 2012 (focusing on 2007, 2009 and 2011 – or the 1st, 3rd and 5th year – as the three key baseline years of implementation). The principal findings were as follows:

> *"Of the 103 pieces of water infrastructure surveyed, 80% were functional, 14% were partially functional and 6% were non-functional. There is an expected rise in the rate of functionality between 2007 and 2009, with an associated decline in non-functionality. However, between 2009 and 2011 this rate of functionality levelled off suggesting that those water points displaying partial functionality became non-functional."*
>
> (WaterAid, 2012b; 14)

These results are broken down further still in the following two figures:

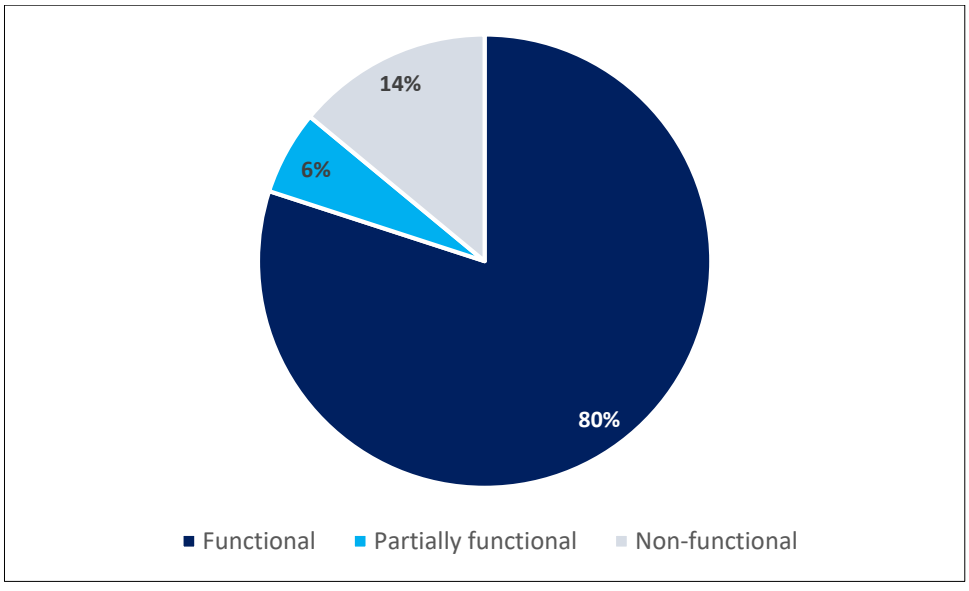

Figure 16: Aggregated water point functionality in Ethiopia

[Source: WaterAid, 2012c]

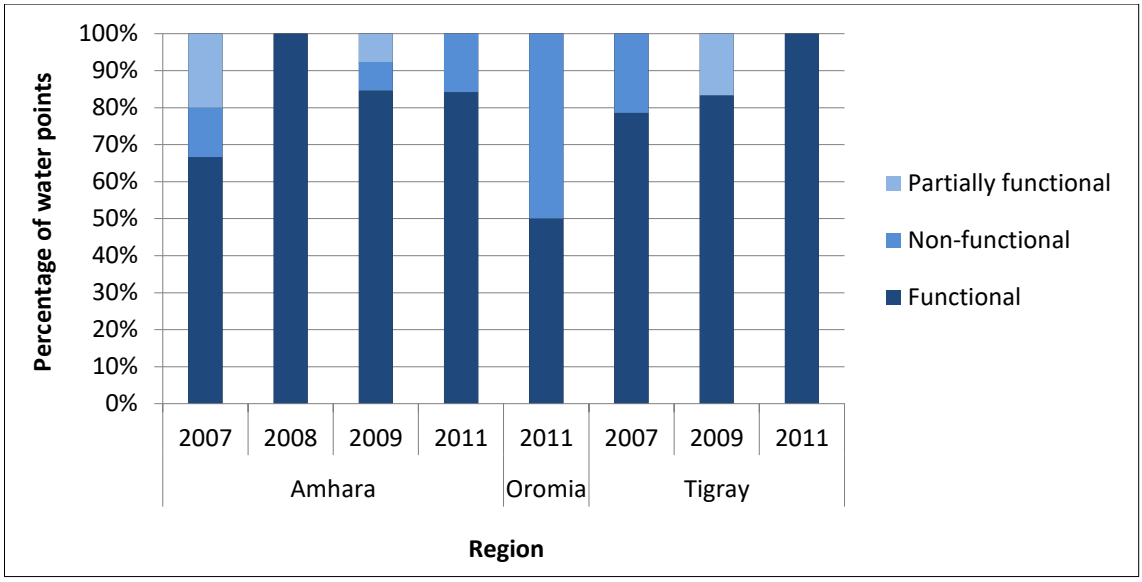

Figure 17: Water point functionality by region

[Source: WaterAid, 2012c]

While these results on water point functionality in Ethiopia may initially appear reasonably promising, there is still cause for concern. The one fifth of all water points that are only partially functional at best, as displayed in Figure 16, is quite alarming when thought of in population terms. These non- or partially-functional water points would have been constructed to serve thousands of households, meaning these individuals will often be forced to locate alternative – perhaps distant or more expensive – sources. Manually drilled boreholes were also found to have a 100% rate of failure (WaterAid, 2012b). Meanwhile, Figure 17 displays the varying nature of water point functionality rates between three of Ethiopia's regions, showing it to range from 50% to 100%. The situation is therefore highly inequitable between regions, and those in disadvantaged areas are likely to experience a greater social injustice in terms of accessing water. Finally, it must be remembered that this PIMS concluded in 2011 and was merely a snapshot into the national water situation even then. Addis Ababa and therefore Akaki Kality were not included in the survey so the reality of the situation in these regions remains unclear, a fact that this localised study aims to address at least in part.

Thus, in spite of the structural reform, sector programme creation, and the significant progress that has been made to national water access rates, WaterAid (2010e)

stipulated that 22 million people in Ethiopia were still expected to remain unserved by the end of 2015. A concerning implication is that these poor unserved families are often forced to source water through alternative, more expensive channels. WaterAid (2010a; 3) estimates that households excluded from formal water sources could be paying "more than three to five fold for water from informal vendors" in Ethiopia. Another small survey concluded that one fifth of respondents in Addis Ababa relied on informal water providers, the average price from which could be "almost eight times the lowest rate of the tariff" (WaterAid, 2011a; 9). The anticipated significance of the informal water market to those situated in Ethiopia's low-income communities once again reinforces the importance of this study.

Inherently related to these points is the issue of water quality. While the number of deaths attributable to waterborne diarrhoeal disease has fallen from 1.8 million in 1990, there were still 842,000 in 2012 (WHO, 2015). The Ethiopian government by its own admission stated that "water quality monitoring in the health sector has not been well addressed" (FDRE MoH, 2011; 15). According to a rapid assessment of drinking water quality conducted on a national scale between 2004 and 2005, only 72% of water facilities met quality standards (ibid.). Regular water quality monitoring has still not been implemented at the federal level since then, rather testing usually takes place sporadically, on new water supply systems, or in the event of an emergency waterborne epidemic (ibid.). Urban water utilities undertake their own checks and treatment processes, but most "lack sufficient capacity to monitor the quality of water they produce (ibid.; 18). Indeed, the National Drinking Water Quality Monitoring and Surveillance Strategy aims to address some of these deficiencies, but this 2011 – 2015 strategy is a somewhat recent development. Considering that the inability of authorities to ensure the quality of water sold by informal providers is one of the key justifications behind their illegal status in Ethiopia, these points are somewhat surprising.

4.3. Institutional context

This research presented me with the opportunity to work closely with WaterAid both in London and Addis Ababa for the duration of the three-year study, as well as the organisation's local partner in Akaki Kality. Such an arrangement essentially facilitated comprehensive access to local government officials, a network of influential urban water stakeholders, and ultimately expert, sector-wide knowledge. This affiliation with leading institutions and gatekeepers also made it possible to reach the low-income target communities and informal water providers, two otherwise potentially difficult-to-access groups. Considering WaterAid was therefore integral throughout the study, this section will reflect on its philosophies and work.

WaterAid

Global and rural outlooks

WaterAid's overarching vision "is a world where everyone, everywhere has safe water, sanitation and hygiene", while its mission "is to transform the live of the poorest and most marginalised people by improving access to safe water, sanitation and hygiene" (WaterAid, 2015a; 2). These principles have long shaped the multifaceted work conducted by WaterAid, but there are four specific strategic pillars prioritised in its 2015-2020 global strategy to further progress made towards achieving the goal of universal access to water and sanitation services. These are:

Equality: tackle and challenge the inequalities that prevent the poorest and most marginalised people from realising their right to safe water, sanitation and hygiene.

Sustainable services: support governments and service providers to strengthen the systems and capabilities required to deliver sustainable water, sanitation and hygiene services.

> **Integration**: work with others to develop plans and activities that accelerate change by integrating water, sanitation and hygiene into sustainable development.
>
> **Hygiene**: positively influence hygiene behaviour to maximise the benefits of access to safe water and sanitation.
>
> (ibid.; 17)

These pillars represent a continuation of WaterAid's ongoing overarching themes of sustainability, poverty reduction, and the eradication of inequity, addressed through a range of approaches such as advocacy work, direct service delivery, knowledge sharing, collaborating with partner organisations, establishing cross-sector linkages, empowerment, and capacity building (ibid.). Gender, disaster resilience, and the environment also act as fundamental cross-cutting issues. WaterAid is the world's largest civil society organisation focused solely on water, sanitation and hygiene, and recently delivered on its 2009 – 2015 strategy goal of reaching over 10 million people with safe water and 13 million people with sanitation (ibid.). The organisation is therefore in a strong position to help achieve the ambitious goal of universal access to water, sanitation and hygiene by 2030 (ibid.).

The goals and strategies implicit in WaterAid's work evidently align with the principles of this research. Understanding the political, economic, and social context of a country, region or community is seen as key to implementing effective and sustainable change through a collaborative approach (ibid.). These ideas are largely adhered to in the 37 countries in which WaterAid is currently active (ibid.) (see Figure 18). Likewise, this study seeks to situate the everyday water-related experiences of low-income urban community residents and informal water providers against the wider regional waterscape, with a view to influencing long-term sustainable change. WaterAid is therefore a highly pertinent and invaluable partner organisation with which to collaborate for this research, and to maximise the potential impact of its findings.

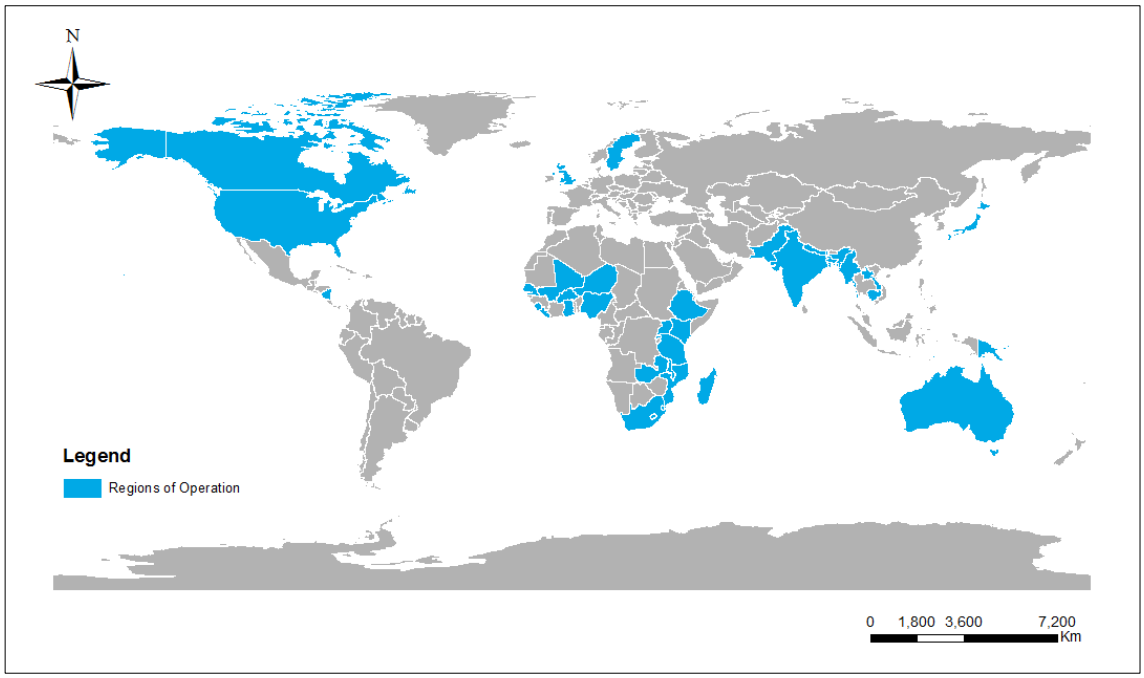

Figure 18: WaterAid's international scope

As discussed in Section 4.2., one element of WaterAid's recent work has been to understand and explore water point functionality. Linked to, but extending beyond, functionality rates are the factors commonly behind the breakdown of water points such as corruption, political interests, hydrogeological incompatibility and a lack of wider contextual understanding. Firstly, corruption is rife in the WASH sector and so transparency, accountability and good governance feature as key tenets of WaterAid's advocacy agenda (WaterAid, 2001). This will help to address the incidence of quick and cheap water point installations that benefit the installer in terms of time and profit margins, rather than serve as sustainable community water sources for consumers. WaterAid also promotes conducting hydrogeological surveys and poverty research on the surrounding communities prior to erection to reduce water output complications and increase the effectiveness of a water point (Casey and Carter, 2014).

However, a water point is still likely to break down at some stage throughout its lifespan, regardless of implementation practice or whether it is situated in an optimal site. Some issues are minor, but others are more complex meaning the question is whether it will be repaired and returned to service, or remain unfixed and fall out of use (ibid.). This comes down to human management and financial challenges, including weak supply

chains for replacement parts and weak support mechanisms for user communities (ibid.). It is also common that some parts are sourced abroad, which complicates an already convoluted repair process. WaterAid is therefore working in collaboration with several UK development and aid organisations to utilise a newly created diagnostic tool to help identify causes of – and solutions for – water point non-functionality (ibid.).

Before considering the relatively recent engagement of WaterAid specifically in urban areas, it is important to briefly consider its traditionally rural approach. The Sustainability Framework developed by WaterAid has a predominantly rural focus, in large part due to the fact that rural populations are thought to constitute the majority of those not yet served by improved water supply and sanitation services. Three main issues comprise the challenges associated with the sustainability of rural water supply:

- Limited capacity (in the sense of knowledge, skills and material resources) of communities.
- Inadequacy of financial revenues to cover the full operation, maintenance and capital maintenance costs of infrastructure.
- The historical, fragmented approach to service delivery carried out by different actors in the WASH sector, with competing agendas and a disregard of government frameworks.

(WaterAid, 2011b; 11)

WaterAid therefore advocates the following conceptual framework to help promote sustainable rural water services:

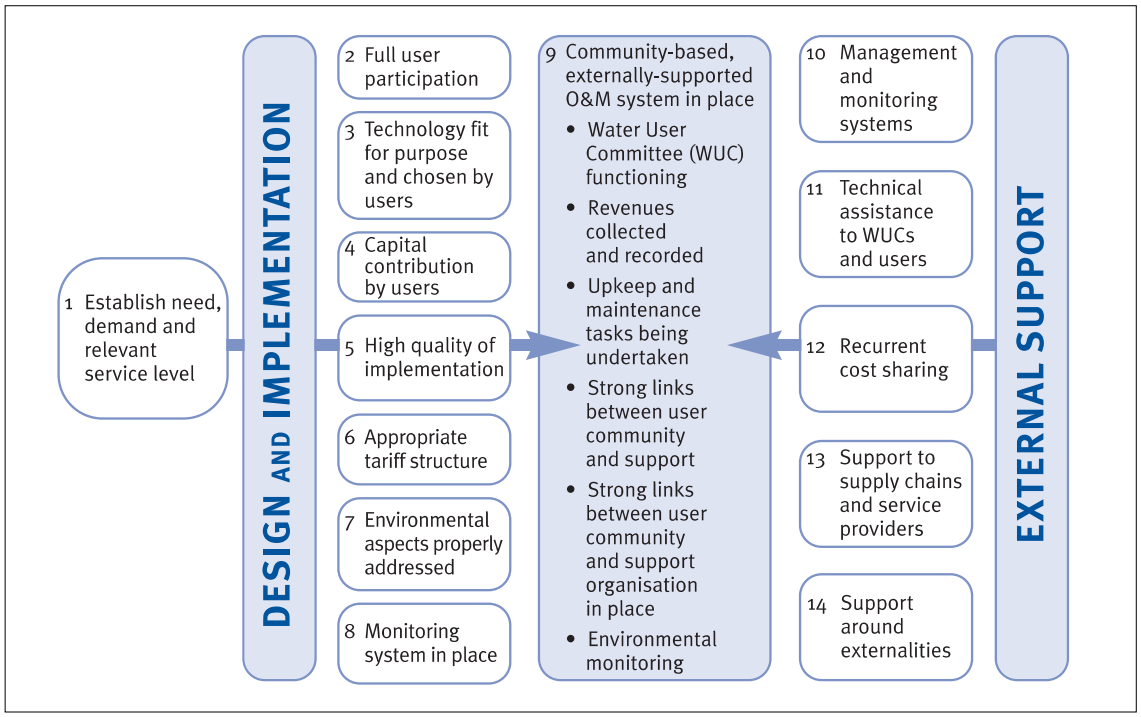

Figure 19: Conceptual framework for community-based management of rural water supply services

[Source: WaterAid, 2011b; 12]

This framework was designed to provide an understanding of the necessary components for effective services and management rather than a rigid structure. The first component [1] suggests that without ascertaining demand then sustaining changed practice is instantly undermined. Programme design and implementation then requires several fundamental elements [2-8] to promote a healthy, functioning community-based management system [9]. Meanwhile, external support is needed to assist the system in relation to various aspects [10-14] (ibid.). This provides a brief insight into the rural water supply model championed by WaterAid in its country programmes. The urban focus of this study, however, dictates that WaterAid's work in urban areas will follow on from here in comparatively greater detail.

Urban work

While WaterAid is optimistic about achieving universal urban water access (and universal access in general), it simultaneously acknowledges the extent of the demographic, social, economic, political and technical challenges ahead, as well as the need for innovative solutions. The organisation has raised concerns surrounding quality of service and water point functionality, indicating how "it is most common for the water supply to be intermittent … [flowing] for perhaps two hours twice a day", even for urban households reported as having access to improved facilities (WaterAid, 2011c; 13). A common coping mechanism is the utilisation of informal water providers, which are more expensive. However, WaterAid has also identified that poor households usually experience substantially increased costs compared with wealthier residents for water through formal means, "irrespective of the official tariff" (ibid.).

Urbanisation presents further challenges. In contrast to many western economies where governments and service providers invariably possess the resources and capacity to deal with significant demographic shifts, their counterparts in the developing world are often overwhelmed (ibid.). The decision made by WaterAid to expand into urban-based work derives at least in part from this fact, in conjunction with the rapidity and regularity at which urbanisation is taking place. Table 10 highlights the extent of the challenges and impacts within a shifting urban landscape, which can in turn complicate the challenge of providing equitable and universal access to potable water services.

Theme	Challenge / issue	Potential impact / outcome
Demographics	Increasing density	• Changing social structures and norms • Increased health risks due to closer proximity • Stressed natural and built water environments
	Urban planning	• Nature and scale of the shifts can be unpredictable • Significant capital and innovation required to service the poor
	Urban migrants increase	• Without planning, migrants may end up in cycle of poverty with limited housing or job opportunities • Basic service networks become oversubscribed
	Threat to water resources	• Population and industrial growth means higher water demand and threat of resource pollution
Social	Weak social cohesion	• Mixing of people from different cultures or groups • Individual or family unit becomes more important than the collective
	Politicisation	• Increased politicisation of populations and awareness of rights • Shifting roles between genders
Economics	Rural subsistence to urban slum	• 'Urban opportunity' may not materialise and unsafe, inadequate, cramped housing the result • Adapting from using rural natural resources to money-oriented environment not easy • No domestic investment incentive for tenants without legal tenure

	Economies of scale	• Perceived benefit of urbanisation may not materialise for peripheral urban poor • Extending water and waste infrastructure systems is capital intensive and the political returns are not well understood by policymakers
	Tariffs and revenue	• Cost-recovery and flexible tariffs are not well understood / utilised in low-income communities • Collection of tariffs can be challenging • No 'one size fits all' solution, creative financing solutions required
	Linking at-scale technical solutions with economics	• Technical solutions must consider scale, must be financially viable and should look to tap into local economic development opportunities
	Small towns	• Often do not experience economies of scale • Too big for rural solutions, too small for conventional urban solutions
Technical	Water resources	• Capacity of local water resources often ignored in pursuit of economic development • Resources can become heavily polluted or depleted with increasing human and industrial consumption
	Resource protection	• Improved sanitation, drainage and solid waste management systems will be needed • But often ignored or the development and growth of the city has outstripped the authorities' capacity

	Appropriate solutions	• Technical biases of advisors or the expectations of politicians/professionals can translate into economically-inappropriate solutions • Large-scale water provision and waste solutions match high demand but may become untenable
Governance	Urban complexity	• Nature of the urban environment means that governance arrangements are more complex • Necessary to promote inclusive management, but can become equally burdensome and inefficient • Service providers often deliver a 'just enough' service, or just enough to avoid major societal and governance challenge
	Incentivisation	• Delivering low-cost services to slum settlements often hinges on finding ways to incentivise local service providers to perform at a 'good level'
	Multiple actors	• Authority-provider relationships can vary widely between contexts • Roles and responsibilities can be undefined or become unclear

Table 10: Water-related challenges and impacts of urbanisation

[Source: WaterAid, 2011c]

In addition to its global principles, WaterAid has also formulated five key principles as a foundation upon which all current and future urban work can be constructed. Urban programmes must:

1. *Strive to ensure services are delivered in an inclusive manner.*
2. *Make conscious strategic choices according to local need or context.*
3. *Focus on facilitating relationships and collaboration between diverse actors.*
4. *Give high priority to sanitation and hygiene.*
5. *Closely integrate our policy advocacy and implementation work.*

(ibid.; 26)

One of WaterAid's recent urban projects which is particularly apposite in the context of this study is the work undertaken to help strengthen pro-poor investments in Ghana, Burkina Faso and Tanzania. Research commissioned by WaterAid found that seemingly pro-poor WASH schemes were failing to fulfil the objectives of reaching those most in need in Accra, Ouagadougou and Dar es Salaam (Newborne *et al.*, 2012). Obstacles such as weak infrastructure, high connection costs and bureaucratic processes persist in Accra, while in Ouagadougou some poor regions were excluded yet non-poor districts were included (ibid.). Under the Dar es Salaam Water Supply and Sanitation Project, a fund was set up to ensure that at least 80% of new water connections were for low- and middle-income consumers (ibid.). However, not only are the eligibility criteria restrictive even for those in networked areas, but the water supply service itself is often substandard (ibid.).

It therefore appears that while the principles of inclusion and affordability have been incorporated into policy for poor areas in these nations, project design and implementation limitations have meant that such ideas have failed to materialise fully in practice (ibid.). WaterAid is therefore working alongside stakeholders in these respective countries to ensure that policy commitments are enforced with context-specific and time-bound targets, detailed planning, and monitoring and evaluation to ensure low-income households are reached with WASH interventions (ibid.).

This research, meanwhile, directly assists WaterAid in achieving the first three of its five urban principles in Ethiopia. Firstly, WaterAid (2011a; 26) stated how "it is crucial to understand the dynamics of discrimination of vulnerable groups in towns and cities, and the mechanisms such groups use to access water and sanitation services" to ensure services are delivered inclusively. By interviewing poor consumers in urban areas, as well as the informal providers from which many residents are thought to purchase water, it will enhance our currently limited literary understanding of informal water provision and ultimately enable WaterAid to make better informed decisions to ensure equitable water access is achieved.

The study also assesses and informs on the situation in two low-income communities in the specific context of Akaki Kality, therefore aligning with WaterAid's second urban principle of advocating local, needs-based strategies. Much of the output, however, remains applicable to inform strategy in other urbanising regions throughout sub-Saharan Africa. Thirdly, the study advises WaterAid on the stakeholder relationships and dynamics within the local water sector (particularly the often-overlooked informal providers) in order to help promote effective collaboration moving forward. It is therefore hoped that these direct benefits to the project implementation work will then indirectly influence the fifth principle; WaterAid's policy and advocacy work.

While the fourth principle appears to somewhat conflict with this study's overriding focus on water, prioritising sanitation and hygiene is merely a reflection of the severe neglect and lagging behind of these facilities in most of the global South's urban areas. This is particularly notable from a demographic perspective, as population growth has far outpaced the rise in access to improved sanitation and hygiene facilities; whereas the number of improved water users as a percentage of the total urban population has remained comparatively more stable (WaterAid, 2011c). It is certainly not to depreciate the importance of water, particularly when clean water is so integral to both sanitation and hygiene practices. This prioritisation instead acknowledges the greater scale of future challenges associated with these components of the urban WASH sector.

However, as discussed previously, urban centres are far from homogenous. WaterAid's perspective on urban WASH issues calls for this diversity to be both acknowledged and addressed accordingly. Cities and small towns commonly exhibit vastly dissimilar characteristics from one another even though they are each labelled as 'urban' areas. Significant differences also often occur from city to city or between small towns themselves. It is the small or emerging towns in the developing world that have become the focus of considerable WASH sector-attention in recent years, a fact attributable to both their incompatibility with the rigid urban-rural dichotomy in development and policy discourse, as well as their rapid growth rates leaving behind increasingly insufficient WASH facilities (WaterAid, 2010c).

Nevertheless, finding WASH solutions for small towns continues to be problematic. Small towns are generally ill-understood and so when they are the "focus of assistance from central government and donors, both the lack of analysis and the lack of capacity, combined with certain rural or urban biases, tends to result in 'cookie cutter' approaches to water supply and sanitation provision that treat all small towns the same" (ibid.; 12). Yet, it is generally estimated that around ten small towns exist for every one large town and there is a concern that small towns in the global South are forecasted to quadruple in both number and size before the year 2040 (Pilgrim *et al.*, 2007). WaterAid therefore advocates a long-term approach to small towns in light of their often-transitory disposition, which prioritises efficient funding and capacity building as the basis for fit-for-purpose programming and partnerships (WaterAid, 2013a). Similarly, a feature of this study will be to understand the specific water context and needs of Akaki Kality to ensure current and future policies are contextually apposite.

To conclude this urban element, WaterAid's outlook towards the developing world's urban residents will be considered, specifically the urban poor who are thought to comprise the primary consumers of informally sourced water. As mentioned, formal water systems in low-income nations often deliver an intermittent service to urban consumers. However, different societal classes or income groups may display varying coping strategies to service their water needs (WaterAid, 2011c). Middle class or wealthy urban residents may have access to pumps on the water mains (perhaps

illegally), pumps to deliver water to a rooftop tank, or alternative storage tanks to name just a few (ibid.). Those wealthy enough to employ such coping mechanisms may become desensitised to the water supply limitations that exist as a result (ibid.).

In contrast, the impact of intermittent supply or non-functional water points on the urban poor can be more profound. Low-income households are often forced to employ the more expensive services of informal providers or go without water. Here lies the justification of WaterAid's concern in urban contexts being centred on the poor (ibid.). However, like urban areas, the 'urban poor' as a category is also heterogeneous. Overlap is inevitable regardless of the number of subdivisions, but Table 11 outlines the useful segmentation utilised by WaterAid to help deliver sustainable water services.

Classification	Characteristics
Vulnerable non-poor: lower middle-income households	Often employed at low wage levels by government or formal private sector. Reside in more conventional housing in, or on the border of, informal settlements. Susceptible to financial shocks, ill-health, or family expenses. Conventional water tariffs are normally affordable, but flexible repayment services may be necessary.
Developing poor	Slum households with at least one regular earner and sufficient income to invest in permanent/semi-permanent construction materials.
Coping poor	Slum households with temporary building materials (but that might be used for many years) and perhaps one daily employed, unskilled earner.
Very poor	Single parent (possible female-headed) families, sharing a temporary structure with other families. Rely on very irregular or seasonal employment.
Destitute	Street sleepers and street children with no fixed living space.

Table 11: WaterAid's partitioning of the 'urban poor'

[Source: Adapted from WaterAid, 2011c; 9-10]

The key overarching concern to emerge from this dissection in the context of this study is that the urban poor predominantly reside in informal settlements, and households situated in such areas are customarily deficient of adequate water services. This is particularly the case in sub-Saharan Africa (UN Habitat, 2006b), where the need for successful pro-poor service delivery mechanisms has never been more apparent.

The perception that poor families are unwilling to pay for water, in addition to the financial, technical, political, physical and legal obstacles, are the primary spheres of quandary that prevent utilities in developing nations from reaching the urban poor. However, WaterAid (2011a) states that the first point can be addressed by identifying suitable solutions to the others. As such, the organisation advocates a pro-poor model (see Figure 20) that service providers must adopt to reach impoverished settlements with effective solutions (WaterAid, 2009b).

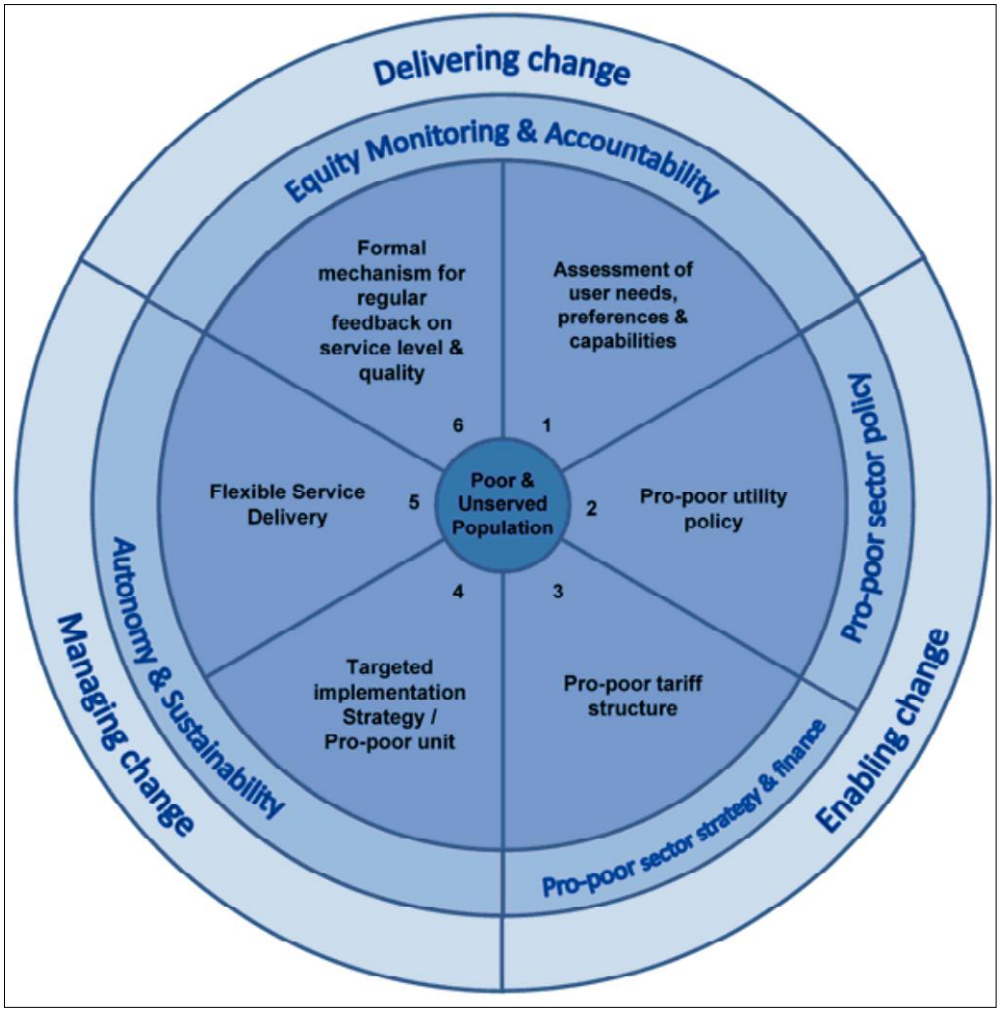

Figure 20: Key characteristics of pro-poor service utilities/providers

[Source: WaterAid, 2009b; 13]

Essentially, WaterAid (2011a) contends that the global requirement for pro-poor service delivery can be realised through reforming and strengthening the capacity of utilities, allowing them to reduce the costs and improve the quality of service for consumers. For this to materialise, both WaterAid and in-country utilities need to better understand the urban poor, particularly how and at what cost these formally unserved members of society currently access water services, as well as the nature of their relationship with informal providers (ibid.). This will then aid the design of tariff, subsidy and repayment structures, encourage innovation, while also allowing approaches to be tailored according to context and to the needs of the target audience. In addition, WaterAid acknowledges the service carried out by informal service providers and the subsequent need to work with them (ibid.). This study therefore fills a knowledge gap on the widely

under-researched domain of informally provided water, helping WASH institutions and local authorities to formulate successful pro-poor service delivery mechanisms in Akaki Kality and beyond. After all, benefits are not simply confined to the urban poor, as "by meeting the needs of poor people utilities can grow and increase profitability" (ibid.; 7).

Critique

Of course, some of the work carried out by WaterAid and NGOs in general has attracted criticism and it is important to provide that balance here. It is firstly fundamental to acknowledge that NGOs are far from a homogenous group. Their extensive heterogeneity has been described to span from community-based membership organisations to international relief or development service organisations (Bratton, 1989). This diversity often complicates the challenge of fully comprehending the individual and collective influence of NGOs as civil society constituents. They have also been accused of operating on the margins of politics yet shying away from political involvement, owing to the fact that they predominantly operate in a so-called 'political niche' somewhere along a continuum between top-down diplomacy and bottom-up participatory systems (Princen, 1994). Clarke (1998) and Mercer (2002) also contend that there has been a lack of emphasis on the political impact of NGOs in the literature, which has resulted in an axiom whereby the positive role of NGOs in the democratisation process is seldom challenged.

On the projects implemented by WaterAid specifically, Rusca *et al*. (2015) found that the Water Users Association (WUA) model in peri-urban Lilongwe had encountered several drawbacks, contrary to the 'success-story' image portrayed by the organisation. The WUA model is based upon collective management, efficiency, empowerment and participation, and it is these principles upon which WaterAid sought to improve water supply in an area where the Lilongwe Water Board had a monopoly over service provision. WaterAid, along with the water utility, subsequently established "a service provider, the WUA, responsible for operating the kiosks, and a Kiosk Management Unit (KMU)" under the Lilongwe Water Board, which supports management and acts as a

regulator or mediator (ibid.; 784). However, rather than aiming for a broader, participatory system of supply, WaterAid had to ensure the support and approval of local elites, "by granting them a number of privileges ranging from key positions within the Associations, to authority in decision making, to financial benefits and increased status within the community" (ibid.; 786). WUAs have since become an expensive provider in order to align with the governing guidelines of full cost-recovery and profit-making, whereby the price of water sold by WUAs to consumers is more than three times that of the water sold by the Water Board to WUAs (ibid.). The maintenance and continuity of the service has also not improved, leading Rusca *et al*. (2015) to conclude that hierarchic structures and macro project targets took precedence over the empowerment and everyday needs of the poor.

Cotton *et al.* (2013), meanwhile, synthesised findings from several independent evaluations of WaterAid's country programmes more generally. They were subsequently able to assign outcome statuses to WaterAid's performance across seven key domains. While WaterAid's work on partnership development, equity and inclusion, and policy advocacy were classified as 'strong', areas such as programme structure, organisational learning, and service delivery, sustainability and accountability were identified as being either 'moderate' or 'weak'. For Cotton *et al*. (2013; 7), perhaps the aspect of greatest concern related to the "insufficient application of learning from the performance and effectiveness of existing programmes to the planning of future work". Thus, as with other international NGOs operating in complex settings across the developing world, WaterAid has evidently encountered challenges and stumbling blocks. Nevertheless, it still remains the ideal partner organisation with which to collaborate for this research, particularly in the context of Ethiopia.

WaterAid Ethiopia

Attempting to implement solutions as a matter of urgency has often taken precedence in the WASH sector, at times replacing the quality of performance, project sustainability and effective cooperation between influential actors and stakeholders (WaterAid,

2010f). Since the opening of the in-country office in 1991 – which coincided with the year of significant political change towards federalism in the nation – WaterAid has thus endeavoured to ensure that pro-poor interventions in Ethiopia are both effective and sustainable.

The decision of WaterAid Ethiopia to undertake its current work in Oromia, Amhara, Benishangul-Gumuz, and SNNPR was based on the balance between security concerns elsewhere; the potential for new partnerships; level of need; the potential to work with marginalised communities; and the potential to make a concentrated impact in these areas rather than a scattered programmatic presence across a large country (ibid.). The organisation is also pursuing decentralisation as an important focus through the development of three regional or zonal 'strategic hubs' in the remote Benishangul-Gumuz, the diverse and densely populated SNNPR, and Oromia – the largest of Ethiopia's regions (ibid.). These hubs will facilitate an integrated and holistic approach to develop WaterAid Ethiopia's existing work and coordination with partners, as well as to increase technical oversight, maximise cost-effectiveness, and improve project implementation efficiency in line with the federal governance structure currently in place (ibid.). WaterAid Ethiopia has also recently started to undertake projects on the outskirts of Addis Ababa, which coincides with the focus of this research.

The overarching plan of WaterAid Ethiopia to address the WASH needs of poor, vulnerable and marginalised members of society can be partitioned into the categories of 'rural', 'urban' and 'cross sector' (WaterAid, 2010f). By adopting a combination of diverse approaches within each of these domains, including "service delivery, research, capacity building and policy and advocacy work", one of WaterAid Ethiopia's principal goals is to help improve the quality of service provided by water utilities and to strengthen their influence (WaterAid, 2010a; 11).

WaterAid's current rural programme in Ethiopia aimed to ensure there were almost 1.2 million new users of WASH services by 2016 (WaterAid, 2013b). While this represented a revised version of the previous 1.29 million figure (ibid.), WaterAid Ethiopia is still making significant headway in improving access to rural WASH facilities. Projects such

as the 2015 Hintalo – Alaje Water Supply, Sanitation and Hygiene Promotion Project are facilitating such progress. Based in Tigray, one of Ethiopia's poorest regions, this project aims to benefit 30,900 residents in the Hintalo Wajerat *Woreda* and 42,045 residents in the Emba Alaje *Woreda.* It will be achieved through implementing 21 spring developments, 15 gravity-fed water supply systems, 15 hand dug wells and 9,000 household level improved pit latrines, as well as the rehabilitation and expansion of existing systems (WaterAid, 2015b). Direct service delivery such as this – alongside capacity building to improve user communities' management and monitoring practices, and advocacy work to influence local level WASH development policy – comprise WaterAid's rural activities in Ethiopia. Meanwhile, WaterAid Ethiopia's cross sector programme aims to improve understanding of the role of WASH in education, health and agriculture sectors through engaging with various stakeholders at global, national, regional and *woreda* levels (WaterAid, 2013b).

In terms of urban work, WaterAid has had relatively limited influence in improving water service delivery in Ethiopia's towns and cities (WaterAid, 2010a). The organisation's capacity in urban areas is fundamentally hindered by the unavailability of the substantial financial support necessary to generate pervasive change. There is also a "lack of capacity in managing the available resources and lack of coordination among different WASH sectors" in Ethiopia (WaterAid, n.d.b; 1). Nevertheless, WaterAid has still endeavoured to stimulate meaningful and sustainable urban change in Ethiopia in accordance with the MDGs and national targets, through building the capacity and harnessing the indispensable support of partner NGOs, government institutions, public utilities and CBOs (WaterAid, 2010f). The key user groups identified as beneficiaries of this change are marginalised groups, schools and health institutions (WaterAid, 2013b).

One urban project of pertinence to this study has been to increase the efficiency of WASH service provision in seven designated towns by strengthening the capacity of utilities and municipalities (WaterAid, n.d.b). The water dimension to this capacity building project sought to enhance, by 20%, the performance of the seven towns' utilities by 2014 (ibid.). This encompassed a heightened efficiency of water production and distribution, improving the satisfaction of consumers, and maximising the cost

effectiveness of service utilities (FDRE MoWE, 2011; WaterAid, n.d.b). Water coverage increased on average 29% across the seven towns, although this did range from 169.12% down to a regress of -52% in Burayu, which was attributable to the significant population growth experienced there (Global Accounting Alliance, 2014). The actual number of consumers with access to a water supply increased at an average of 43.9% across the seven towns (ibid.). Meanwhile, leakage declined by an average of 30.4% in line with the project goal of improving efficiency (ibid.).

In addition to small towns, WaterAid Ethiopia has recently sought to improve the quality of life for those residing in low-income communities within Addis Ababa. One project located in the Kolfe Keranio and Nifas Silk Lafto sub-cities has targeted pre-schools, primary schools and communities to facilitate 236,238 new users of WASH facilities (117,320 in water and 118,918 in sanitation) (WaterAid, 2014c). It seeks to draw on established local partnerships to build the capacity of all those that are key in promoting service delivery and practice, such as the *woredas*, sub-city water and health offices, the schools and the communities (ibid.). This research therefore acts as a natural bridge between these small town and urban project examples by focusing on Akaki Kality, which is more developed than the former but less developed than the latter. It therefore contributes to WaterAid's growing urban portfolio in Ethiopia.

Chapter Five – The creation of informal water spaces

5.1. Introduction

The preceding material has thus far provided an in-depth review of the context for this study. In the literature review I discussed the idea that informal water activity is actively produced and can often emerge from the deficiencies or voids left open by formal channels, while Chapter Four built on this to consider some of the general challenges facing the national water sector in Ethiopia. At this point we move on to consider the empirical material of the study and thus pursue a rather more localised focus, beginning with this chapter on the creation of informal water spaces in Akaki Kality and the wider Addis Ababa region.

Section 5.2. uses the perspectives of the main sector stakeholders to map out the formal water challenges in Addis Ababa and Akaki Kality. It considers the cost and provision of formal water sources, as well as the factors that inhibit everyday access for residents in a context of significant demographic and physical urban change. Section 5.3. then analyses how stakeholder representatives across the Addis Ababa region perceive the informal domain, including an unforeseen but enlightening piece on their use of unregulated providers. This chapter essentially argues that there is undoubtedly a market space for informal providers to operate in Ethiopia's urban water sector, and the continued paucity of (or lack of widespread improvement in) formal supply is only cementing their position and importance as service providers across the region.

Appendix A2.1. details the relevant stakeholder organisations that were interviewed and at what stage during the study, as well as the pseudonyms I will henceforth use. It must be stressed, however, that comments made by representatives reflect their personal views, unless it is stated otherwise.

5.2. The current state of the formal waterscape

In considering the current socio-economic and water situation across Ethiopia in Chapter Four, we began to ascertain some of the pervasive challenges facing the WASH sector. The absence of formal private sector involvement means the responsibility for providing water lies with public utilities; regional and municipal branches of a resource-limited government that must simultaneously address a plethora of other societal issues. NGOs oversee a supportive service delivery role – particularly in rural areas – while it is envisaged that the unregulated and illegal private water sector performs an important (albeit unofficial) function in urban and peri-urban water provision. The conjectured presence of the latter suggests the incidence of either voids or deficiencies in the formal service network, which confirms the significance of the initial section on determining the present condition of regulated water modalities.

Arguably one of the most enlightening findings to emerge from the fieldwork is the seeming lack of accord between stakeholder representatives regarding access to formal water modalities. The best example of this transpired during an early meeting I chaired in 2014 between WaterAid Ethiopia, EDA, and AKWSA staff to try and establish a suitable research site. In the ensuing dialogue, representatives from WaterAid Ethiopia and EDA aligned to firstly query the positive outlook adopted by AKWSA towards the current water situation in Akaki Kality, and secondly politely rebuff its claims that all *woredas* within the region are adequately served. Following a lengthy discussion and offering the AKWSA representative time to mentally resolve some data clarity issues, he subsequently relaxed these initial assertions to disclose that two *woredas* in Akaki Kality had no access to formal water outlets at the time. It then became possible to select the most appropriate of these two unserved localities to employ alongside my served control site, *Woreda* 7.

The significance of these dynamics is twofold. The fact that information on the water situation in the region is unclear and ambiguous – even to sector experts and water management officials – is reflective of the somewhat deficient, disorganised and functionality-constrained system currently in place. The extent of the physical water

infrastructure network in Akaki Kality may be accurately documented, but the uncertainty and in some cases discomfiture displayed by many stakeholder representatives when trying to delineate accurate water access rates is palpable. Secondly, the defensive and surreptitious stance sometimes adopted by government level representatives when disclosing information is indicative of the widespread challenges they face. Government bodies are effectively solely responsible for providing water in the absence of formal private sector involvement, but the task of ensuring the rate at which new supply modalities are created is exceeding – or at the very least keeping pace with – surging demand is acute in a context of rapid demographic change and limited resources.

What is agreed upon is the paradoxical incidence of rising water demand alongside deepening problems of service delivery in both Akaki Kality and the rest of the capital. The city is undergoing intense economic growth, which is accompanied by further demand for water from industry and agriculture. The concomitantly intense urbanisation rate in turn compounds this rising demand even further. Meanwhile, the elevated altitude of Addis Ababa alongside profound technical capacity constraints inhibits the potential for authorities to transfer water from surrounding low-lying regions to many parts of the city (AAWSA, 22/05/14[8]). The existing infrastructure also continues to deteriorate from its already aged condition, whereby pipe blowouts are becoming increasingly frequent and between 30 and 40% of total available water is now lost as non-revenue water (NRW) (or leakage) (AAM-2, 19/05/15). For these reasons, in addition to a general lack of financial capacity, it is unsurprising that some urban inhabitants may at times be without formally-sourced water due to the insufficiency of supply. Critical urbanism's call for a shift towards a more socially just urban order therefore must come about in the Addis Ababa context, in the form of egalitarian water-related change.

[8] All interviews were undertaken in Addis Ababa, unless stated otherwise. See pseudonyms in the appendices for details.

Nevertheless, onlookers must afford the water authorities some degree of empathy considering the significant challenges they face. An Addis Ababa Municipality representative indicated that urban water authorities are already operating at the extent of their capacity, but are constantly striving for progress through attempting to harness the potential of every surface and underground water source (AAM-1, 18/03/15). At the time of interview in March 2015, the municipality hoped to achieve an increase in the percentage of the city population with secure access to water from approximately 76-80% to 90% by June of the same year (ibid.). Incidentally, these figures – like those publicised by the Ethiopian MoWR (see Section 1.3.) – are markedly less than the internationally recognised rates for urban water coverage in Ethiopia issued by the WHO and UNICEF JMP. This must once again challenge the accuracy and worth of the latter, as well as access figures in general. After all, it would be logical to expect that the reliability of water-related statistics is greater when they derive from bodies who tackle such issues on the frontline. Unfortunately, the pervasiveness of manipulation and hidden agendas makes it difficult to ascertain in truth.

The current political structure of Ethiopia means that Addis Ababa is responsible for achieving its own water-related progress. The Federal Government does not offer any financial support to Addis Ababa, because the city can generate its own resources and sustain itself through taxation as the capital and commercial centre. The water that is available for consumption through commercial channels is therefore heavily subsidised by the semi-autonomous municipal government for the benefit of society. The municipality perceive its costs to be "*insignificant and remarkably cheap, especially when you compare it to other Horn of Africa countries*" (ibid.). Water in Kenya, for example, is "*typically priced at 40 USD per 1m^3 whereas the equivalent volume in Ethiopia from government outlets for domestic consumption is no more than 2* [Ethiopian] *Birr*" (approximately 0.092 USD[9]) (ibid.). This is in reference to the price of water per unit of volume through the piped water network, which actually costs approximately 1 ETB and 75 Santim (approximately 0.08 USD) (MoWE, 12/03/15), while

[9] All currency equivalents are calculated using a 07/06/16 exchange rate on xe.com, where 1 ETB = 0.04604 USD and 1 USD = 21.7182 ETB.

water from community points is typically priced at 25 Santim for 20 litres (approximately 0.01 USD).

Ultimately, the current water coverage across Addis Ababa is unclear and varies according to source. Prominent officials throughout this study have quoted percentages around the mid-seventies. Official global sources, meanwhile, idealise Ethiopia to have an urban coverage percentage somewhere in the mid-to-high nineties, within which it is logical to reason that Addis Ababa drags the average up. The formal piped network is the key water provision modality across the city, with water points supplementing the supply. In terms of Akaki Kality specifically and the physical infrastructure there, residents from nine of the eleven *woredas* were categorised as having access to at least one formal water point during my first visit to Ethiopia. Upon the completion of my fieldwork in Ethiopia, this had increased to ten.

The diversity within this classification is profound, however. Some have multiple water points, such as my control community sites – in *Woreda* 7 – which have three, while others have just one including my target communities in *Woreda* 10, and only then was this a recent installation. Meanwhile, the varying numbers of water points within these localities are expected to serve a vastly dissimilar number of households. My target communities in *Woreda* 7 have a combined population of approximately 2,000 while those in *Woreda* 10 are home to approximately 2,600, meaning the rough ratio of people to every community water point in the two communities is 666:1 and 2600:1 respectively. However, this breakdown does not account for water point non-functionality, or the citywide rationing policy in place that alternates supply throughout the week between regions to stave off a shortage. The impact of these issues will be discussed in detail in the empirical chapters that follow, however it is important to state here that they reduce the availability of formal water within the communities to untenable levels.

Given the stakeholder interviews were conducted after my data collection from within the two target communities, it was possible to offer representatives from AKWSA an early insight into such issues. A specific discussion point was the frequency at which

residents spoke of the insufficient refilling of the water tanks in the respective *woredas*, and the response was accepting:

> "*I think our* [AKWSA] *record of providing water is quite good, but there may be any number of reasons why the tanks do not get filled on time. Shortage of water; shortage of trucks to deliver the water; road traffic is bad so the number of possible trips within a time frame will reduce; the number of people is rising here* [in Akaki Kality] *and the water is used more quickly."*
>
> (AKWSA, 11/03/15)

Once again the combined issue of limited resources alongside the sub-city's rapidly shifting demographics is alluded to as the principal challenge. Sustainable urbanisation, while a viable goal, is currently not being experienced by water consumers in the region and ultimately requires innovative solutions.

In terms of private domestic supply, the potential for households to connect to the piped water network exists in some regions within the sub-city, such as *Woreda* 7, while no network has been developed in others, such as *Woreda* 10. However, the physical presence of a nearby water pipe is far from the sole determining factor as to whether a household can connect. Firstly, "*a house needs legal security of tenure to get a domestic water supply*" (Habitat, 18/05/15). Residents therefore need to either own or rent the house formally, although connecting to the piped network while renting is significantly rarer. This is due to the unwillingness of tenants to invest in an asset they do not own, as well as the fact that authorising such a move is at the discretion of the property owner, which may be a private landlord or the government. Such a policy therefore immediately prohibits a significant (but ultimately unknown) proportion of households from connecting to the piped water network in Akaki Kality, a region in which unauthorised housing has become a prominent feature to support the rising population.

However, much of the remaining population are also restricted because the "*combined cost of the initial technical installation and plumbing, in addition to the ongoing service, is too high*" (EDA-4, 03/04/15). The connection costs predominantly fall on the

consumer, as while the government in part "*subsidises the cost of pipes when the household is located up to approximately twenty metres away from the main line*", consumers are obliged to pay the remainder and the full cost of any further pipe extensions required (WAE-3, 19/05/15). According to the Addis Ababa Municipality, the total cost of connection a consumer would typically be required to pay falls somewhere in the region of around 500 ETB (approximately 23.02 USD), maybe extending up to 1,000 ETB (approximately 46.04 USD). This seems a significant sum of money for low-income households – that will often depend on highly irregular income – to pay in one upfront instalment. It is therefore logical to reason that such a policy prevents most of those who are legally entitled from connecting.

In addition to varying levels of infrastructural progress in the region, quality issues have also become a growing concern. The government wanted to establish a concentrated industrial zone in Akaki Kality – allowing room for its continued expansion – in part to simplify the tasks of providing companies based there with access to water and electricity, and the administration of effective environmental monitoring systems (UNDP, 18/05/15). However, the scale of the environmental monitoring challenge has become acute:

> "*The difficulty of monitoring every factory, what type of chemicals and metals they use, and what they leak to the environment becomes continually more pronounced as more industrial organisations relocate to the region, and the operations of existing factories expand.*"
>
> (AAM-1, 18/03/15)

Meeting the current demand in Akaki Kality – calculated to stand at 120 litres per person per day (AAWSA, 22/05/14) – is clearly fraught with challenges. The formal waterscape is solely depended upon to achieve this (at least by policymakers) in a sustainable and universal manner, but in its current state the infrastructure can only be described as severely stretched and oversubscribed. Investment is also low and more than half the costs are expected to be met by users. This situation is also found across the whole of the Addis Ababa region, as well as Ethiopia's urban areas in general (WSP, 2011b). It is

these facts that give rise to the informal water provision market, whose constituents seek to fill any formal service voids left open. Perhaps this unregulated resourcefulness is already in place to fulfil the water sustainability needs of the city, and should thus be harnessed rather than ignored or condemned by the established urban order.

5.3. Water informality as the norm

Although formal water challenges in the region are evidently extensive, those thought to be filling some of the resulting gaps are currently considered illegal actors in Ethiopia. The issue of water quality appears to be one of the obstacles preventing the urban water sector from accepting informal water providers as market players, alongside a complete uncertainty over their operations or the significance of their role. The following example extracts from interviews with stakeholder representatives highlight this prevailing position:

> "*Nobody knows about the quality of water from informal providers. Whenever there is an interruption to formal service provision, there is an alternative provider. Whenever there is an alternative provider, you may find they are using unsafe water so of course it is a concern. There could increases in diarrhoeal incidence or disease outbreak.*"
>
> (ADV, 06/03/15)

> "*The water problem is solved with huge projects. It is not simply solved by selling one or two plastic bags or jerrycans to the people. It needs strategic planning, huge amounts of projects, properly implemented ideas, and professionally led activities. If you collect all the vendors together and determine the amount of water they provide, their role is very insignificant compared to the city distribution. The channelled system is providing 3 to 4 million people with water*."
>
> (AAM-2, 19/05/15)

"*Water vendors might collect water from inner city areas, various piped network outlets, formal water points, broken pipes, rivers or contaminated bodies to then redistribute perhaps to peri-urban areas. It is not possible to make sure if the water they sell is safe or not. In times of water shortage, the rich can buy bottled water, but those without money buy from unsafe vendors.*"

(WHO, 09/03/15)

The concluding sentence of the last extract is quite obscure and perhaps highlights the general lack of knowledge on the unregulated market, as the comparatively high prices charged by informal water providers is another commonly cited factor that contributes to their illegal status. However, in truth the topic of informal water provision is riddled with ambiguities and paradoxes. Some stakeholder representatives condemned unregulated providers based on seemingly justifiable concerns, while simultaneously acknowledging the shortage of water in many peri-urban areas that would currently exist or would likely worsen without these alternative actors:

"*Those who don't have formal access still need water from whatever other source they can identify. Without it survival is impossible.*"

(ibid.)

"*They* [informal water providers] *are very important to low-income communities. They minimise health complications and ensure many families have a good quality of life, but they are illegal. They should not be providing this illegal service, so I cannot advocate them. But I can advocate that water is indispensable.*"

(CARE-1, 05/03/15)

Comments made by stakeholder representatives were thus quite discordant at times. The challenge befalling the respondents seemed to be getting caught in between personal views and the human right to water on the one hand, and the uncertainty over the sources of 'informal' water as well as the institutional policy with which they are associated on the other. The following extract perhaps best displays this quandary:

"*It should be the right of the people to get access to water within 125 metres of their home ... it is not fair ... only 56% of people currently have access to water from an improved water source in Akaki Kality … but nobody should be getting water without AAWSA providing it to them, ... vendors are illegal and I cannot condone their actions.*"

(AAWSA, 22/05/14)

Clearly informal water provision is a very sensitive and emotive issue, and one that has direct implications on both the quality of everyday life and survival of low-income households. However, it became apparent from the interviews conducted with stakeholder representatives that the unregulated sale of water is far from a phenomenon associated solely with areas of an inferior socio-economic status.

At the outset of this study, the incidence of informal water provision in wealthier, more central urban areas had been expected to occur, just to a much less significant degree than in small towns or peri-urban areas where the formal water infrastructure is comparatively undeveloped. Akaki Kality was accordingly identified as the perfect research site in which to investigate such a domain. Yet, the extent to which informal water provision does appear to take place in central Addis Ababa – albeit from a relatively limited sample – is remarkable. 35 of the 40 in-country stakeholder representatives interviewed in this study confirmed that they employ the services of informal water providers regularly. For most of these 35 respondents, the definition of 'regularly' was approximately once every two weeks but for all it denoted an occurrence at least once every month (see Figure 21). Even two of the remaining five respondents who do not purchase water from informal providers regularly indicated that they do so from time to time.

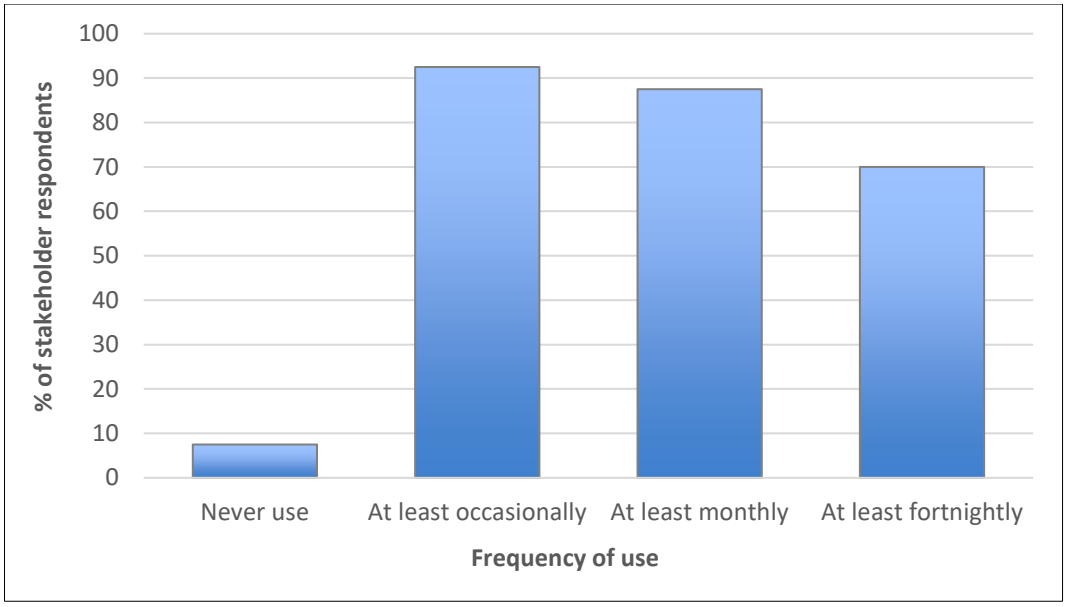

Figure 21: Usage of informal water providers by stakeholder representatives

Figure 22, meanwhile, maps the residence locations of the stakeholder representatives interviewed in Addis Ababa. It highlights how the respondents inhabit an array of different districts across the city, both in terms of their geographic location and subsequent socio-economic milieu. This suggests that water access issues are far from just being a characteristic of poorer, peri-urban areas in the city.

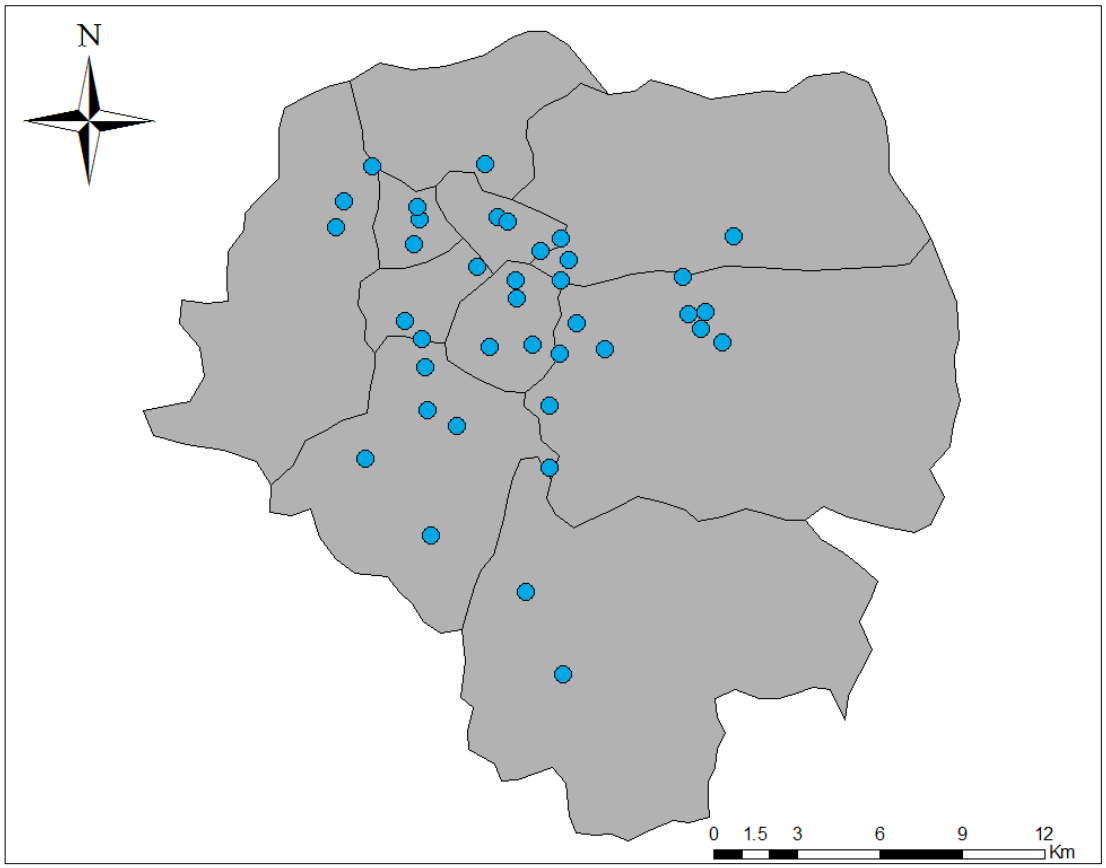

Figure 22: Residence locations of stakeholder representatives across Addis Ababa

After all, there was only one reason for which the 35 respondents attributed to regularly using informal water providers and that was out of need. They act as an alternative source for these stakeholder representatives when their domestic supply and/or local community water points are not functioning. Some respondents expanded on this:

> "*I have a guy* [an informal provider] *who I call and he turns up at my house the same day with his water tanker. There is never an emergency because I can rely on him, but our* [informal] *provider is very important to us as a family as I have a young daughter. It is frustrating that we can go days without my tap functioning, so there are clearly outage problems that extend further than it simply being a matter of citywide rationing. I am continually complaining and I am always told the issue will be sorted soon, but even now I think it has been 10 days since it last worked."*
>
> (EDA-5, 20/05/15)

> "*That* [need] *is the only reason people ever use* [informal] *vendors. No one would pay 5, 10, 20 times the price of water through government channels out of choice, especially in slum communities. Unless of course there is a quality issue* [with government-supplied water] *but this is very rare. What do I mean by this? Vendors are very important. They ensure water is readily available when it would otherwise not be. It* [informal water] *is just expensive."*
>
> (WA, 13/03/15)

> "*Of course I use them* [informal water providers], *we all do in my community. I suppose it is fairly expensive compared to what we pay from our tap, but if the alternative is no water then you don't even think about it. It is a very important service these informal guys provide.*"
>
> (AfD, 05/03/15)

Another stakeholder respondent also praised the "*proficiency*" and "*professionalism*" displayed by the two informal water providers he uses when his household experiences a formal service outage, commenting particularly on the "*swift delivery*", the "*adequate*" quality of water they supply, and their "*complete desire to please customers*" (Oxfam, 22/05/15).

This narrative arose recurrently throughout the interviews. Considering the level of agreement between respondents and the diverse regions across Addis Ababa in which they reside, it is logical to deduce even from a modest sample that informal water providers appear to be engrained not just within low-income communities but everyday urban society in Ethiopia. There is clearly a market space for informal providers in the nation's urban water sector, at least currently, as the inadequacies of the formal water network are forcing households from a range of socio-economic backgrounds to source unregulated services.

The fact that the majority of interviewed stakeholder representatives – of which many can be considered experts in the WASH field; earn regular salaries from reputable organisations; or are associated with the organisations that advocate the illegality of

informal water provision – purchase water from informal providers for domestic consumption is testament to the challenges facing the sector but also the inconsistencies embedded within. Naturally, some of these stakeholder representatives actively denounce the use of informal water providers in the professional environment to be consistent with their governing policy. However, doing so will typically be in direct contradiction to their own personal actions. Many are employing the services of informal water providers out of necessity, either when there are water shortages or water point functionality issues. It is therefore problematic to accept that the activities of these unregulated actors can be deemed illegal when the resource they are supplying is the fundamental resource upon which both human and household survival depends.

This lays the foundation for the analysis in the forthcoming chapters on informal water provision and local water dynamics within the two research sites. If stakeholder representatives living across central Addis Ababa frequently use informal water providers, the everyday significance of these unregulated providers to residents in peri-urban Akaki Kality is expected to be acute if not bordering on dependency. After all:

> "*Peri-urban areas have a shortage of water, there is no doubt. It is a natural problem, a topographic problem and in some cases a resource or manmade problem. Whatever the reason, there is a shortage and this is the fundamental concern.*"
>
> (AAM-1, 18/03/15)

In other words, it is in these peripheral regions where the role of informal providers in curtailing the inequality of the existing urban order will likely be most profound, essentially allowing the urban poor to navigate the complex water materialities that shape their everyday life.

Chapter Six – The role of informal providers in the supply of water

6.1. Introduction

This chapter focuses specifically on the role of commercial informal providers in the everyday supply of water in Akaki Kality. Section 6.2. initially seeks to consider exactly why and how informal water providers emerge in the context of inadequate formal water supply, as well as providing more of a background and introductory insight into who these unregulated actors are. It also reviews the different types of provider that dominate the unregulated market within the two target communities in Akaki Kality, building on the 'categorisation' and 'scale' literature discussed in Chapter Two.

The chapter then progresses to analyse the business strategies and operations undertaken by informal water providers in Akaki Kality. It covers a wealth of issues relating to the everyday practices of informal water providers, including where they source the water; their various delivery methods; the diverse pricing (and payment) structures they employ, their associated profit margins, investment profiles, and own household financial health; the level of market competition they face and how this influences service efficiency and conflict; the nature of their relationship with customers; and changes that have emerged in the local water sector, as well as future prospects. This thesis has frequently asserted that informal water provision is a highly under-researched field, meaning there is a subsequent lack of in-depth knowledge on the activities of its components. The analysis provided in Section 6.3. will undoubtedly contribute to filling this literature void, showing how these unregulated actors commonly oversee intricate, profitable, but pro-poor operations.

Finally, Section 6.4. builds on this latter point to analyse the paradox that informal water providers in Akaki Kality are adopting an increasingly underground position in the wider waterscape to avoid detection, while also assuming an ever-heightening degree of responsibility to reach their consumers in the face of deepening formal supply challenges. Throughout the chapter I will draw heavily upon the anonymised

perspectives of informal water providers who participated during the fieldwork, in order to help illustrate and consolidate the wealth of data covered throughout.

6.2. Their background and emergence

Chapter Five highlighted the deficiencies associated with the formal water network in Akaki Kality (and the wider Addis Ababa region). It concluded that the market position of informal water providers in the region's water sector is both strong and will continue to be strengthened so long as low-income households are required to manage this, in effect, social injustice on their own. The first of Section 6.2.'s two sub-components therefore proceeds to analyse some of the origins and motivations of these unregulated actors in Akaki Kality. The second sub-component then discusses the different modes of informal provider that operate in the region. It concludes by aiming to sharpen our understanding of how informal providers set up their water selling operation, in addition to the requirements and sources of their initial investments. Table 12 provides the pseudonyms and key characteristics of each participating informal provider from the two research sites for ease of reference and to maintain their anonymity throughout.

Operating in Site A – *Woreda 7*						
Pseudonym	**Gender**	**Age**	**Origin**	**Mode of operation**	**Time as seller**	**Date(s) of interaction**
IWP-A1	Female	55-64	Addis Ababa	Household reseller	10 years	31/10/14, 22/04/15
IWP-A2	Female	35-44	Addis Ababa	Household reseller	3 years	04/11/14
IWP-A3	Female	45-54	Akaki Kality	Household reseller	14 years	07/11/14
IWP-A4	Male	45-54	Akaki Kality	Kiosk/Point source operator	6 years	13/11/14, 22/04/15

IWP-A5	Male	45-54	Adama	Mobile; pushcart	11 years	17/11/14
IWP-A6	Male	18-24	Jijiga	Mobile; pushcart	3 years	18/11/14
IWP-A7	Male	45-54	Addis Ababa	Mobile; donkey-cart	20+ years	27/11/14 04/12/14
IWP-A8	Male	25-34	Addis Ababa	Mobile; donkey-cart	7 years	01/12/14
IWP-A9	Female	35-44	Akaki Kality	Household reseller	9 years	04/12/14
IWP-A10	Male	35-44	Addis Ababa	Mobile; pushcart	8 years	05/12/14
IWP-A11	Male	45-54	Addis Ababa	Mobile; tanker truck	17 years	16/04/15
IWP-A12	Male	18-24	Dire Dawa	Mobile; pushcart	4 years	22/04/15
IWP-A13	Male	35-44	Debre Berhan	Mobile; pushcart	16 years	24/04/15
Operating in Site B – *Woreda* 10						
Pseudonym	**Gender**	**Age**	**Origin**	**Mode of operation**	**Time as seller**	**Date(s) of interaction**
IWP-B1	Male	45-54	Addis Ababa	Mobile; donkeys	12 years	12/12/14
IWP-B2	Male	25-34	Bahir Dar	Mobile; pushcart	5 years	15/12/14
IWP-B3	Male	35-44	Nekemte	Mobile; donkeys	17 years	18/02/15 19/02/15
IWP-B4	Male	25-34	Addis Ababa	Mobile; pushcart	7 years	20/02/15

IWP-B5	Male	35-44	Addis Ababa	Mobile; wheelbarrow	10 years	06/05/15
IWP-B6	Male	25-34	Mek'ele	Mobile; by hand	8 years	08/05/15

Table 12: Informal water provider characteristics from Woreda *7 and* Woreda *10*

Origins and motives

This first sub-section focuses on addressing the issue of who the informal water providers in Akaki Kality actually are, specifically their geographical origins and the principal reasons for pursuing this particular income-generating activity. Although these may initially appear rather minor points to discuss, uncovering such background information can be key to shedding light on these market players and the water situation in their region of operation. In addition, as very little is known about informal water providers in detail, it is important to conduct a comprehensive analysis of all issues associated with them. Such an approach therefore necessitates the inclusion of this rudimentary information.

In truth, there was no simple answer or dominant trend that arose during the data analysis when attempting to uncover an informal water provider 'identity' in Akaki Kality. A common denominator in terms of their socio-economic background or geographical origin, for example, did not emerge. In fact, perhaps one of the most enlightening findings was the considerable range and diversity between the nineteen individual background stories. The socio-economic context of their households at the outset of selling water appeared to range from destitute and very low-income to financially comfortable and in one case relatively wealthy. Given the individuality of each background story (as well as most other aspects associated with their operation that will be discussed in due course), grouping these unregulated actors together under the banner of 'informal water providers' admittedly does appear to have its shortcomings, but is nevertheless necessary for analysis purposes. I will, however, endeavour to

contextualise and consider the cases independently throughout to counter this limitation, providing frequent example extracts from the interview process.

Geography

Before discussing the geographical roots of the nineteen informal water providers, it is important to initially clarify that two currently reside in between Akaki Kality and central Addis Ababa, but commute a short distance via local transport to operate within their respective communities in the former. Nevertheless, these two providers explicitly considered themselves to be citizens of Akaki Kality during the interviews. This was due to the combined reason that their households are situated closer to Akaki Kality, and because they described feeling a greater sense of belonging there. For these reasons, along with the beneficial fact that it removes some potential complexities from the analysis, all informal water providers who participated in this study are deemed to currently inhabit the sub-city of Akaki Kality. I will now proceed to discuss some of their background stories and reasons for situating in Akaki Kality.

The majority of informal water providers in the two target communities originate from outside of Akaki Kality, with only three of the total sample signifying otherwise. This is in large part a reflection of Akaki Kality's rapid urbanisation and relatively recent development from a series of villages situated outside of Addis Ababa to becoming incorporated as one of the capital's sub-cities. It is therefore logical to deduce that a significant proportion of Akaki Kality's current total population also do not originate from the region, so such a finding with regards to the origins of informal water providers is perhaps not unexpected.

Figure 23, below, maps the various locations across Ethiopia where the informal water providers in this study come from. It reveals that the roots of the sixteen providers not from Akaki Kality are split fairly equally between the wider Addis Ababa region (where nine originate) and various locations across the rest of the country (where the remaining seven are from). Although Akaki Kality is indeed now a part of Addis Ababa, this

development materialised somewhat recently in the capital's history. I have therefore separated them here and in the ensuing discussion to highlight how the newly urbanising Akaki Kality region has experienced in-migration from other parts of the city and the rest of the country.

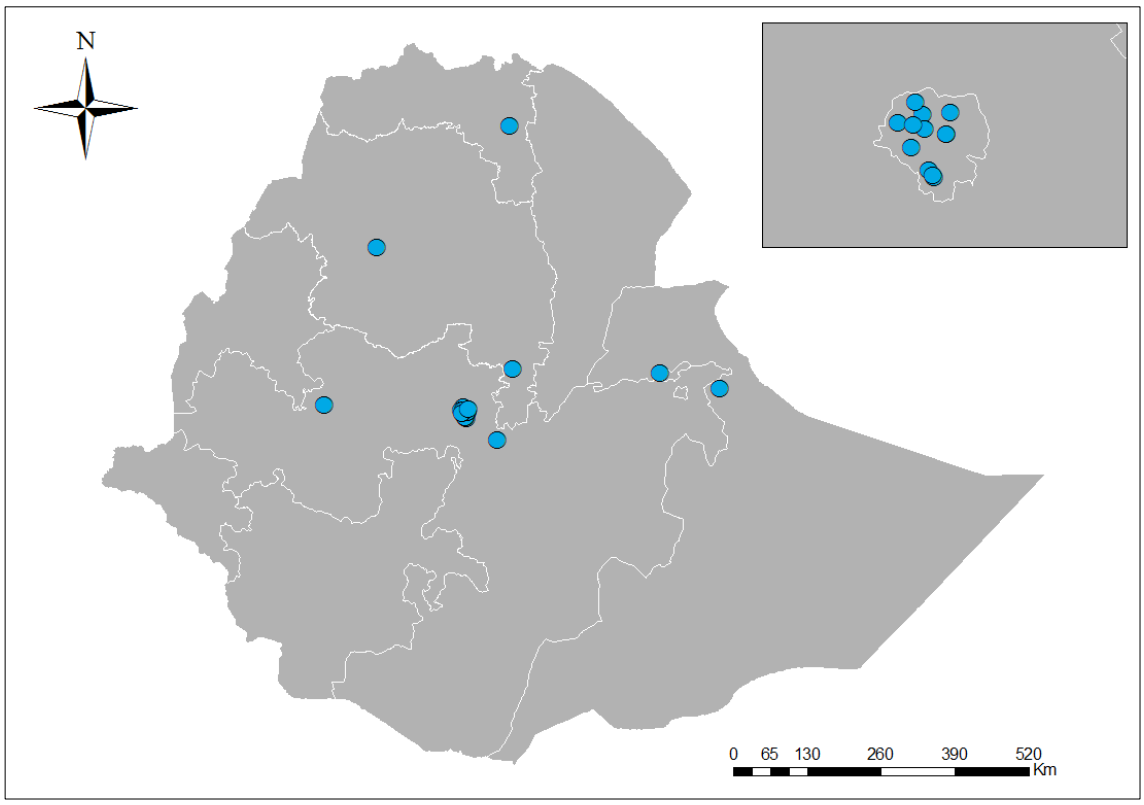

Figure 23: Origins of Akaki Kality's informal water providers

The overarching primary stimulus in moving to the region for those informal water providers not originally from either Akaki Kality or other parts of Addis Ababa was the prospect of acquiring a superior position of employment and improving household income. Additional factors did emerge including the desire to move closer to other members of the family, the appeal of the city lifestyle, and greater access to health and education services. However, these longer-distance migrant respondents unanimously included potential employment prospects as at least part of their answer and many, as I stated, highlighted this as their principal motive for moving. Incidentally, one of the reasons for moving to the sub-city had particular significance in the context of this thesis, as the sibling of an informal water provider is currently an employee at AKWSA. This

circumstance prompted his decision to start selling water (despite its illegality) due to a heightened awareness of the water situation throughout the sub-city.

The rationale for relocating to Akaki Kality was also similar for those who originated from other parts of Addis Ababa, as the majority once again indicated the employment prospects in an area burgeoning with industry as the primary reason. This is a noteworthy finding, that these former residents of the central parts of the capital city and hub of Ethiopia were attracted to the idea of outward migration in search of opportunity. Although this outward migration took place over a short distance to a suburban area, and on a relatively small-scale in this instance given the size of the sample, it nevertheless suggests that the old central core of Addis Ababa does not necessarily represent the urban ideal or automatic destination for economic opportunity. Rather, the city (and economic opportunity with it) is undergoing notable urban sprawl.

Finally, the water providers who originate from Akaki Kality itself alluded to the sub-city's emerging potential and the fact that it is simply their home as the main reasons for continuing to reside there. The conclusions interpreted from this thread of the dataset are therefore rather compelling in suggesting that many of these informal water providers viewed Akaki Kality as a growing region of economic and social opportunity (see Figure 24).

Figure 24: Weighted reasons for informal water providers moving to, or remaining in, Akaki Kality

However, rather interestingly it was perhaps not necessarily seen – at first at least – as a region in which there was an opportunity to sell water, particularly for those not originally from the area. In fact, the consensus among informal water provider respondents who originate from outside of Akaki Kality and the wider Addis Ababa region was that they did not specifically identify or have a predetermined plan of entering this field. One respondent stated:

> "*My father wanted to move here* [to Akaki Kality from Bahir Dar in the Amhara region] *to get a job in one of the factories and I thought to follow him. I made roofing and building materials in a metals factory for a short time, but the income was low and conditions were poor.*"
>
> (IWP-B2, 15/12/14)

He then proceeded to outline how he eventually recognised that there was an opportunity to sell water given the clear deficiencies of the formal supply system, which would ultimately lead to making "*more money and* [the ability to] *manage my own time*" (ibid.). Another indicated outright that it seemed senseless to remain in his first job upon moving to Akaki Kality as a lorry driver when it would be possible to "*get a higher income*

for my family selling water ... and build my own business" (IWP-A13, 24/04/15). These two responses were not isolated examples, as several other informal water providers also unequivocally stated their preference for this mode of informal work over formal employment. They alluded to voluntarily electing to enter the former either because of a poor experience in the latter, or due to the recognition that the everyday prospects associated with this type of informal activity are generally greater.

Another of the informal water providers I interviewed originally lived near to the city of Dire Dawa in the east of the country and moved to Akaki Kality with similar intentions of finding paid employment. Contrary to the previous two examples where the local water sector had been specifically pinpointed as an opportunity after a period in other positions of employment, however, this respondent struggled to secure a job and rather found himself resorting to selling water to generate some form of income:

> "*At first it was difficult because I thought I could get a job here* [in Akaki Kality] *no problem, but this was not the case. I was trying every day and I realised I had to do something different to start making money ... so I started selling water. ... In the beginning I thought this would be temporary, but the money was good, I was helping people, and I started getting to know the customers and building the business.*"
>
> (IWP-A12, 22/04/15)

Here, the potential of selling water in Akaki Kality was therefore only recognised somewhat fortuitously after effectively undertaking this income-generating activity in an act of desperation. From then on, selling water became what he described as a "*freedom*", a "*pleasure*", and, perhaps most importantly, financially "*comfortable*" for his family (ibid.).

The situation of one informal water provider who similarly has origins away from both Akaki Kality and Addis Ababa did conflict with the consensus outlined in the preceding two paragraphs, however, in the sense that becoming a player in the local water market was pre-planned. He explained that he spoke with friends who already lived in Akaki

Kality prior to his move to the region and was therefore aware of the significant water challenges that residents were experiencing. "*It* [moving to Akaki Kality to sell water] *was an opportunity to help those families that struggle without enough water and an opportunity to help my family"* (IWP-B3, 18/02/15). He expanded on this to outline how he struggled to accept the idea that he was exploiting other people's misfortune and adversity for personal advancement, but gained comfort from the fact that he was concurrently providing an important service while the government was failing in its role to provide sufficient water for all.

In contrast to these trends, the majority of informal water providers I interviewed who have rather more local origins from other parts of Addis Ababa either specifically highlighted the potential for selling water in Akaki Kality as the main reason for relocating there or had identified water provision as a potential employment option in advance of moving there for different reasons. For example, one respondent – originally from a central district of Addis Ababa – stated:

> "*Everyone could see how quickly* [Akaki] *Kality was growing with the industry, which means more jobs and more people. ... There were not enough homes* [in Akaki Kality to cater for this urbanisation] *so many families would be without water and other* [services]. ... *I came here to help the people and yes, make a business."*
>
> (IWP-A7, 27/11/14)

Meanwhile, another research participant – also with roots in Addis Ababa – outlined that:

> "*When my husband wanted to move here* [Akaki Kality] *for his job, we knew it was a poor place. It was always my plan to make sure we had a* [private household] *water tap so that we could sell water to others.*"
>
> (IWP-A1, 31/10/14)

In attempting to discuss some of the respondents' reasons for moving to Akaki Kality, we are inadvertently beginning to uncover some of the motives for becoming an

informal water provider, and specifically an informal water provider operating in Akaki Kality. Indeed, the potential for employment in whatever form appears to represent the principal factor for these respondents in deciding to move to Akaki Kality. Yet, it appears that many informal water providers not originally from Akaki Kality or Addis Ababa moved to the region in the hope of securing formal employment positions, but quickly recognised the potential to establish a water selling business there. Just the one respondent highlighted the potential to enter the local water market could also be recognised from afar, albeit with information from local sources.

Meanwhile, many of those with geographically proximate origins to Akaki Kality had identified a gap in the local water market that needed filling, thereby highlighting how tangible the sector challenges in the region are. There is little logic, after all, in electing to become an informal water provider in a region where the formal water network has extensive, reliable coverage. It is clear, therefore, that the decisions made by some of these interviewees to move to Akaki Kality and to become an informal water provider were at least to some extent linked. It is important to now directly consider the motives behind some of the other informal water providers in choosing to conduct this mode of business in Akaki Kality.

Entering the unregulated water market

In Chapter Two, I discussed the literature surrounding the motives of informal water providers in choosing their line of work, and how it is often framed within the entrepreneurialism versus survivalism debate. I therefore think it is important to initially discuss the two research participants from this study's sample that do not conform to these ideas, or that rather contribute a third dimension to the discourse. I propose that the third dimension in the debate should be that of philanthropy. Interestingly, the two research participants in question both originate from Akaki Kality, a finding that is perhaps indicative of the sentiment and personal cause in their altruistic motive for becoming informal water providers. One stated:

> "*I have lived here* [Akaki Kality] *my whole life and it has been difficult, conditions have always been difficult. But now because of the amount of people I must say the conditions are worse and more common. I am lucky, I have my* [fruit and vegetable] *stall and I have my water tap* [in the household] *so I wanted to help others. I now sell my water to my family and friends when there is no* [service] *interruption, but I make sure that I do not make any money.*"
>
> (IWP-A3, 07/11/14)

Similarly, the other informal water provider, when outlining her philanthropic motives, explained how:

> "*Water is so important to every household. We need it to prepare food, drink and wash our bodies and clothes, and some need it for other things. But there is not enough so this is why I started giving my* [household] *tap water to people close to me for the same as what I pay.*"
>
> (IWP-A9, 04/12/14)

She proceeded to add that the sporadic functionality of her household tap alongside her time-consuming domestic responsibilities means that she is unfortunately unable to offer this service on a wider scale. These two examples nevertheless highlight how the decision to become an informal water provider can be the result of an innate willingness to help other community members, something that is seldom referred to in the existing literature. There is, however, another common denominator with these two examples. Both respondents alluded to the fact that they are in a position financially and have other sources of household income in order to be able act in this philanthropic way. They can subsequently charge customers the same per unit of volume than what they pay their service provider, just to cover their own costs. On occasions, customers tip or pay these two water providers a small sum in excess of what is charged, as a gesture of gratitude for allowing them to allocate the money for other household needs. This leads me on to discuss the next of the broadly defined motives for becoming an informal water provider that arose in the data collection; survivalism.

I have already mentioned one example of an informal water provider entering the unregulated water market as an act of survivalism when discussing motives for moving to Akaki Kality. The respondent outlined how he was unsuccessful in his applications for a host of formal employment positions during the first few months upon arriving in Akaki Kality, and turned to selling water to generate urgently needed income. In truth, there was only one further example of a respondent indicating survivalist motives for undertaking informal water provision. She stated:

> "*My husband's contract ended at the school and he was struggling to get another job at other schools or doing something else. I decided to start selling water from our* [private household] *tap so that we had an income.*"
>
> (IWP-A2, 04/11/14)

It is interesting to note, however, that while these two respondents did indeed exhibit survivalist motives in pursuing an informal water market operation at the outset, both also appeared to shift towards more of a business way of thinking in their decision to continue in this line of work:

> "*After about one year, my husband eventually found a job at another school but I wanted to keep earning money by selling water to help the family. I try to price the water fairly, as the money is still good and I have regular customers. ... Why would I stop doing this* [selling water] *now?"*
>
> (ibid.)

Similarly, we saw in the earlier example of the informal water provider originally from Dire Dawa that he eventually realised he could develop a solid and profitable operation. This prompted him to stop searching for a formal employment position to instead concentrate on building up this "*exciting business opportunity*" (IWP-A12, 22/04/15).

Finally, I will consider those with motives underpinned by a sense of financial opportunity that appear to dominate the sample (see Figure 25). I have purposely refrained from using the terms entrepreneurial and enterprising here and I will briefly

explain the significance of doing so. It was discussed back in Chapter Two how an entrepreneurial operation may focus on profit, development and expansion (perhaps using innovative methods) (Carland *et al.*, 1984), while enterprising activities may just serve the interests of those involved rather than the operation itself (Glueck, 1980). However, they will be considered together here under the theme of 'financial opportunity', as not only is there a clear link and considerable overlap between them, but also because my initial focus here centres on the *original* motives for becoming an informal water provider. The active or subconscious decision to adopt either an entrepreneurial or enterprising approach (in line with the above definitions) is likely to have materialised over time or in light of the operation's relative success. Individual differences will become clearer in Section 6.3., when the actual financial strategies employed by informal water providers are discussed in detail.

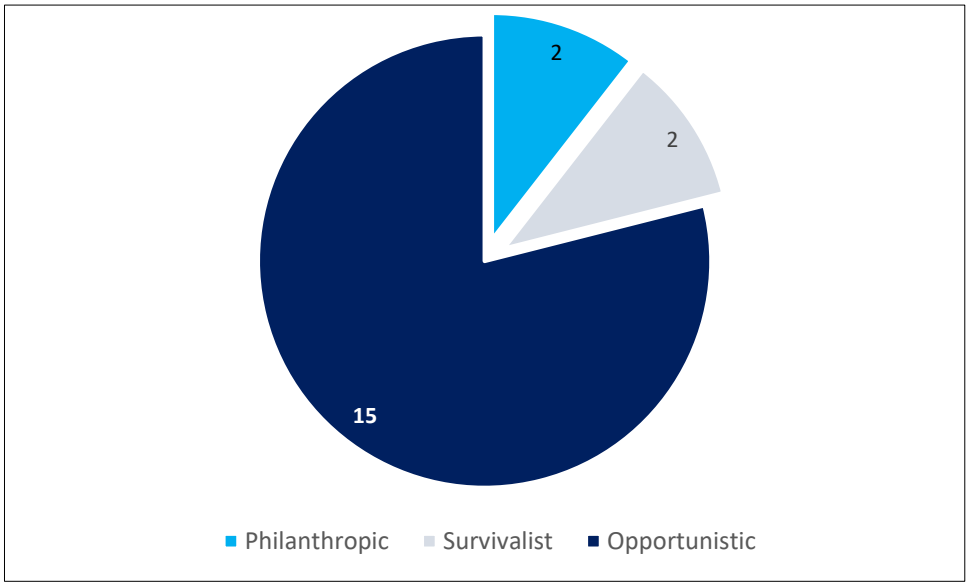

Figure 25: Motives behind the nineteen informal providers entering the unregulated water sector

As Figure 25 shows, the majority of respondents alluded to financial potential as their primary motive for becoming an informal water provider in Akaki Kality. Here, I aim to consider some of the examples from the interviews with informal water providers that have not already been mentioned, rather than once again recount the motives that have arisen in this sub-section somewhat inadvertently. Nevertheless, these previous cases

are still pertinent, as the theme of 'opportunity' to have emerged thus far appears to continue throughout the rest of the sample. In other words, respondents recognised the local water market gap and acted on it, irrespective of whether this decision was made early on in Akaki Kality's urbanisation process or much later, perhaps some time after the respondent moved to the area or following a period in another job. For example:

> "*I have lived here* [in the same household that is now classed as a part of *Woreda* 7] *my entire life and there have been problems getting water for as long as I can remember. But as more people started coming* [migrating] *here, the demand for water became greater while the amount* [level of supply] *stayed the same. This was when I decided to get a water supply connection at my* [convenience goods kiosk-type] *shop, to sell as well as my products.*"
>
> (IWP-A4, 13/11/14)

This respondent clearly recognised that the challenges surrounding water access in the region were both prevalent and intensifying but also regrettable, stating that:

> "*Of course I wish for prosperity and good health for my people but this was God's way and I believe I was meant to use this* [opportunity] *to help my family and others.*"
>
> (ibid.)

It was this potential that also proved too tempting for the majority of other informal water providers in this sample not to pursue. One indicated that there will be a role for informal water providers in Akaki Kality and many other urban areas in Ethiopia – including the central and wealthiest parts of Addis Ababa – for the foreseeable future considering the rate at which demand is outpacing supply, the current functionality levels of many formal water sources, and the subsequent need for the authorities to enforce water rationing systems (IWP-A5, 17/11/14). Another stated how:

> "*The government condemns our work but we are the ones who experience the shortage and see the families trying to find different sources when their normal*

supply is not working, even in Bole [a central and wealthy part of Addis Ababa] *when I lived near there. We stop these families going without water.*"

(IWP-B5, 06/05/15)

Although unregulated, it became clear throughout the interviews and phases of participant observation with these informal water providers that they have a sound knowledge of the complex urban water market in Akaki Kality, Addis Ababa and beyond. Many have turned their first-hand experiences of water shortages as residents into a business reality, pinpointing the constantly changing coverage 'gaps' left by the formal water network and filling them accordingly. In addition to this, two of the informal water providers had identified the absence of any mode of formal water supply specifically in the locality of *Woreda* 10*,* thereby prompting them to conduct their selling operation there. One stated:

"*the people here* [in *Woreda* 10] *have to travel very long distances to get water from the ground*[water] *source and then carry heavy jerrycans back to their home, as there are no taps or water points in their community. I now live in* [adjacent] *Woreda 9 so that I can provide this service for many families there."*

(IWP-B1, 12/12/14)

The other stated that:

"*I, and my father before me, have been one of the only water sources available to the people in this community* [now classified as a part of *Woreda* 10] *for almost thirty years. ...* [The scarce water supply] *is why my father first chose to come here and why I took over from him when he stopped."*

(IWP-B4, 20/02/15)

This sub-section has analysed the origins of informal water providers in Akaki Kality, their motives for either continuing to reside in this newly urbanising sub-city or choosing to relocate there, as well as their reasons for selling water in the two localities this study focuses on. It has shown that Akaki Kality was perceived by the majority of research

participants and prospective migrants as a place of socio-economic opportunity. Inherently linked to this is the fact that the principal decision to sell water in Akaki Kality as a source of income was due to its potential, although a handful of respondents did allude to either survivalist or philanthropic motives.

Modes of provision and setting up

This second sub-section builds on these themes to consider the different modes of informal water provider in Akaki Kality, and the different functions they perform in the service delivery cycle. This will help to illustrate the taxonomic dynamics of the informal water market in Akaki Kality, and the early divulgence of this information here will also provide ease of reference throughout the remainder of this thesis' empirical material. The sub-section then progresses to highlight exactly how these providers converted a recognition of formal water network deficiencies into a viable operation. It explores how they set up in terms of the sources of funding, the start-up capital required and early investment portfolio adopted; as well as the technical aspects including any service infrastructure installations or transportation requirements. It also considers the role of any external influences, whether they were positive and constructive inputs in the form of advice or assistance, or perhaps negative and even intimidating.

Before I discuss the commercial aspects of informal water provision that comprised the predominant focus of the fieldwork, it is important to briefly raise the modes of non-commercial informal water supply that did emerge. The literature review covered the issues of accessing water from natural sources and the concept of self-supply, the latter of which encompasses a range of initiatives spanning deep borehole drilling, hand-dug wells, and make-shift source protection measures to rainwater harvesting and household- or community-level water treatment (Carter, 2006; Sutton, 2009). These topics were incorporated into the interviews and focus groups I administered with both community residents and stakeholders but the responses – or rather lack thereof – indicated that such initiatives are sometimes resource-constrained and are subsequently uncommon in the region.

In fact, technical installations or modifications and community-wide self-supply systems do not appear to take place at all in either of the two research sites in Akaki Kality, and many research participants seemed either sceptical or confused at the prospect of undertaking such initiatives. There also appeared to be a lack of impetus on the part of stakeholders to promote knowledge sharing on these issues in Akaki Kality, or perhaps rather a prioritisation of seemingly larger-scale initiatives. The two non-commercial modes of informal supply that did emerge as adopted methods in the target communities were rainwater harvesting and accessing water from natural sources (although the latter takes place in *Woreda* 10 only). However, the use of non-commercial modes of informal water supply is far less widespread than commercial forms in the two research sites, and they will be considered in Chapter Seven alongside household water strategies.

Commercial modes of informal water provision

In terms of the commercial modes of informal water provision, this subject facilitates perhaps the first real opportunity in the empirical element of this study thus far to directly compare the findings from the two research sites in *Woreda* 7 and *Woreda* 10 of Akaki Kality. I will initially consider the different types of informal provider in *Woreda* 7, the 'control' site in which a formal water network consisting of three water points and the cost-dependent option for (some) households to connect to the piped supply system. I subsequently proceed to see how the modes of operation differ in *Woreda* 10, the research site that was entirely unserved by formal water means until a fixed water tank was constructed towards the end of the fieldwork. Following this, I draw out some further observations on informal water provider modalities from across the two research sites, including some interesting findings regarding gender roles.

Woreda 7 unquestionably exhibited the greatest diversity out of the two research sites, in terms of the types of informal water provider that operate there. Firstly, the presence of point source operations – both household water resellers and water kiosk operators – reflects the service infrastructure environment and the option for households or

commercial properties to request to be connected to the formal piped network. Some of the responses from these individual point source operators have been alluded to already in the previous sub-section when discussing their origins and motives, but here I will aim to discuss the relevant information specifically relating to their mode of operation. Of the thirteen informal water providers that were interviewed and/or shadowed in *Woreda* 7, five operate a point source service. Breaking this down further, four of these point source operators oversee a household reselling system of supply, while one opts to sell water at a purpose-built kiosk as part of a shop that also retails convenience commodities. The eight other informal water providers encountered during the fieldwork in *Woreda* 7 are all mobile providers who utilise mechanised or draught-led modes of transport to deliver water to their consumers. The quantity of water it is possible to transport by these different modes varies quite considerably, which in turn influences the scale of operation and the potential everyday income, but also the initial financial outlay and running costs. Some of the small handheld carts – effectively wheelbarrows – only have a capacity to carry a few twenty-litre jerrycans, whereas the tanker truck can contain several thousand litres of water.

I will now cover some of the basic features of each informal water provision modality in *Woreda* 7, starting with the point source operators given that this form is unique to this particular locality out of the two research sites. The four household water resellers I encountered in *Woreda 7* have a private connection to the formal piped water network either in their yard or on the side of their dwelling for personal use (see Figure 26). The one water kiosk operator I interviewed has a similar private connection but at his shop premises rather than at a residential property and is therefore not classified as a household water reseller. Incidentally, this commercial property did used to be his home and it was after the water connection had been installed that he transformed it into his new place of business and moved into another house.

Figure 26: Household tap used for reselling water

The overarching theme to arise from the interviews with these point source operators regarding this modality was one of everyday convenience – regardless of whether their original motive for becoming an informal water provider was opportunistic, survivalist or philanthropic – in that selling on the water they pay for at their respective properties is quite straightforward and poses them "*very few problems*" (IWP-A1, 31/10/14). Another respondent suggested that the required effort to undertake this household reselling role is usually so negligible, apart from when the community demand is higher during longer-term formal water point outages, that it almost "*seems like free money*" (IWP-A2, 04/11/14). This respondent is able to continue with her household tasks as normal, and the brief interruptions to serve customers are also welcome as many were either already or "*have now become my friends*" (ibid.).

The mobile informal water providers in *Woreda* 7 are rather more diverse than the point source operators in terms of the water delivery mechanisms they employ. The aforementioned tanker truck can transport up to approximately 15,000 litres at a time, making it by far the most significant mobile means for delivering informal water to

consumers in *Woreda* 7. The operator explained that the principal appeal of this mode of water provision is the potential income and the scale of operation it can support, allowing him to conduct proceedings "*in this community* [*Woreda* 7] *and two others*" (IWP-A11, 16/04/15). It also ensures he does not physically over-exert after an injury in a previous job, as the truck effectively mechanises his entire operation. The tank on the truck can be filled from openings on the roof through which water can be fed from a private household tap – or sometimes via stationary overhead storage tanks particularly in times of shortage and poor functionality – and is easily dispensed to customers' jerrycans through a tap-controlled outlet on the side. Essentially, "*all I have to do is fill it up, then drive to my customers, turn the tap and collect the money*" (ibid.).

The same informal water provider also stated that this modality enables him to keep relatively active as well as participate in a sociable line of work by "*meeting friends and new people every day*" (ibid.). In fact, these ideas of keeping active and being social were recurring responses from mobile informal water providers in *Woreda* 7 when quizzed about the positives of their respective modality, aside from the much-mentioned financial benefits that seemed to emerge in relation to questions on most topics. A respondent who operates a donkey-drawn cart to deliver the water he sells in *Woreda* 7 – the mode of informal water transport that is the next level down in scale from the tanker truck – similarly stated that he enjoys "*being outside and interacting with people, and I love this* [donkey]. *With the money I make as well, it is my dream job*" (IWP-A7, 27/11/14). This mode of transport consists of a single donkey (or sometimes two) pulling a cart of up to approximately twenty-five or thirty 20-litre jerrycans of water. A seat for up to two people is mounted on the front of cart, from which the donkey can be instructed and guided. "*The only problem is the quality of the roads, but you get used to that quite quickly, and trying not to work …* [the donkey] *too hard*" (ibid.).

The remaining type of mobile informal water provider in *Woreda* 7 encompasses those that operate various handheld carts. These come in the form of pushcarts with two large wheels and a handle to both steer and apply the necessary force to manoeuvre a typical load of approximately fifteen to twenty 20-litre jerrycans; a cart that is similar to the pushcart but slightly smaller and allows the operator to pull the load (of around ten to

fifteen 20-litre jerrycans) instead; and wheelbarrows that are normally used to transport up to five 20-litre jerrycans. Many of the research participants who operate one of these handheld carts also spoke of the social and physically active aspects of their work. One revealed that he is "*a people person"* and the nature of his job requires him to continuously interact with customers in order "*to receive orders, keep* [them] *happy and sometimes negotiate*" (IWP-A6, 18/11/14). Another stated that "*it is better than working in a factory ... it means I am exercising all day so it keeps me healthy*" (IWP-A12, 22/04/15), However, several handheld cart operators did also allude to how it can be extremely strenuous work, particularly in comparison to their aforementioned counterparts who can either rely on draught animals or engine power.

Woreda 10, on the other hand, is comparatively limited in terms of the range of informal water providers that operate there. For a locality with 927 households that has long been without a formal water supply until relatively recently, and which was the case for the main duration of my fieldwork, this is somewhat surprising. Indeed, I did not anticipate there to be any point source operators given the continued absence of any underground piped water network in the area. However, I did perhaps envisage, or rather would not have been surprised, to discover a greater diversity in the modes of transport used (and therefore the scale or reach of each business) in the selling operations in *Woreda* 10. In actuality, the informal water providers operating in this locality only use a modest assortment of small-scale water transport mechanisms. Providers function in the form of attaching jerrycans of water to draught donkeys rather than donkey-drawn carts (see Figure 27); two similar-sized variants of the handheld carts that can be either pushed or pulled; as well as one who opts to deliver jerrycans of water by hand. Of the six informal water providers interviewed and shadowed in *Woreda* 10, all deliver water to consumers by the jerrycan, two use draught animals, three operate handheld carts, and just the one as I mentioned simply travels by foot and carries jerrycans himself rather than utilising any mechanised mode of delivery.

Figure 27: Draught donkeys used to transport water to sell

A principal reason for this difference in the types of mobile informal water provider found in *Woreda* 10 compared with *Woreda* 7 appeared to be the inaccessibility of the former. This was in terms of the geographical location, and the physical condition of the roads both to the sources of water from which they obtain the water to sell as well as the recipient community itself. *Woreda* 10 can take significantly longer to reach from the centre of Addis Ababa than *Woreda* 7, which according to one respondent, will perhaps immediately deter tanker truck operators due to the added fuel costs of transporting the water from accessible, central filling stations (IWP-B4, 20/02/15). The communities in *Woreda* 10 are also only reachable via a road that is somewhat precarious with little evidence of manmade intervention. The poor condition of the road can be highlighted by the fact that upon my first visit to the site, my taxi driver was only willing to take me as far as a certain point, after which I was instructed to either walk or switch to one of the *bajaj* vehicles that gather there in anticipation. The unwillingness of taxi drivers to reach this community in *Woreda* 10 means it is likely that tanker truck drivers and operators of other larger scale informal water provision modalities will be similarly, if not more, hesitant to function there.

Likewise, the nature of the *Woreda* 10 environment presents logistical issues to smaller-scale informal water provision modalities. One respondent, who utilises draught donkeys to transport the water he sells, stated that it would be difficult and potentially unsafe to operate a donkey-drawn cart because the route to his current groundwater source involves crossing some "*uneven and steep*" terrain (IWP-B3, 18/02/15). Two other informal water providers operating in *Woreda* 10 also referred to the fact that the environment played a part at least to some extent in their initial decision to undertake water selling via their respective modalities. One cited the steep terrain as a specific reason for choosing to operate a cart that can be pulled (IWP-B2, 15/12/14).

Another stated "*I used to have a* [handheld push] *cart but the wheel* [axle] *was always breaking because of the* [uneven] *ground and losing me money*" (IWP-B6, 08/05/15). Rather than invest in a new one, "*I decided to make more trips to my* [water] *source and carry the water to my customers*" instead, both by hand and fastening jerrycans to the body (ibid.). It is important to note, however, that the new condominium housing being constructed near to the community is expected to instigate improvements to the surrounding roads (WaterAid, 2014a) and an increase in the level of water demand. Future changes in the types of informal water provider to operate in *Woreda* 10 may therefore transpire given their seemingly significant ability to adapt and desire to seek out new markets.

Stepping back from the comparison between the two research sites, a further finding of note to arise from this analysis on the different types of informal water provision across Akaki Kality is the extent to which it is a highly gendered income-generating activity. Not only does the unregulated water market in Akaki Kality appear to be male-dominated, but the limited participation of women also seems to be confined to household water reselling. In fact, every single mobile water provider was male and similarly all household water resellers were female. The only male point source operator simultaneously managed his water kiosk alongside the rest of his shop in *Woreda* 7. This trend fundamentally seems to reflect a much wider gendered division of labour in Ethiopia, where it is still very common for domestic and so-called reproductive tasks to be perceived as the responsibilities of women in the household, while men are expected to

be out pursuing the income-generating activities. For example, one of the household water resellers stated that:

> "*Selling water from my home is a great opportunity for me to continue helping my family but also providing extra for them. ... It allows me to continue with housework and my duties in the home but it also allows me to contribute some money to the household.*"
>
> (IWP-A2, 04/11/14)

Similarly, another of the female respondents outlined how her domestic responsibilities...

> ... "*come first but this* [selling water from the private household water tap] *does not require too much effort so I am able to do both. ... I wouldn't be able to push a cart full of bottles* [jerrycans] *anyway*."
>
> (IWP-A1, 31/10/14)

Both of these respondents therefore support the idea that everyday domestic responsibilities perhaps to some extent limit women's participation in the job market and their role in the unregulated water market. The latter respondent also contributes an additional dimension to the gender-based responsibility debate (or perhaps rather introduces sex-based roles) in that the mobile selling of water is extremely physically demanding.

Of course, this is not to say that mobile informal water provision is beyond the physical capabilities of women. Such a sweeping statement would be both prejudice and incorrect. After all, the responsibility of collecting water for the household from distant sources via uneven or dangerous routes regularly falls on women and young girls across much of the developing world (WaterAid, 2010g). However, several of the respondents suggested that to be able to conduct such an operation as a livelihood often requires significant strength and stamina. Heavy loads need to be transported all day, everyday and sometimes over mountainous terrain depending on the area of operation or the

route from source to consumer. The female respondent in the preceding paragraph conceded that mobile water selling would be beyond her physical capacity, while a male mobile water seller stated:

> "*it is sometimes very tiring for me and I used to be a long-distance athlete and have a background in manual labour. ... My wife could not have done this even before she had a baby three years ago. Maybe not even my brother could do this.*"
>
> (IWP-B6, 08/05/15)

Perhaps this clear difference between the type of informal water provision undertaken by males and females can thus be best attributed to a combination of mainly gender- but also sex-related factors. Firstly, the historically gendered division of labour appears to shape this situation in that Ethiopian women are predominantly expected to stay at home and spend their time overseeing domestic responsibilities, while the men should leave home to act as the breadwinners (MDG Achievement Fund, 2013). In addition, the male human anatomy is *traditionally* considered to be naturally larger and perhaps stronger (Sloane, 2002), but I must reemphasise that this generalised ideology is far from being universally applicable. The result is that the mobile form of informal water provision may be perceived in such contexts as a "*manly job*" (IWP-A10, 05/12/14), while the stigma attached to men staying at home – irrespective of whether this is to oversee a profitable water selling operation – means that household water reselling is usually a role undertaken by women (IWP-A13, 24/04/15).

Establishing an operation

This sub-section has thus far discussed the range of different informal water providers that operate in the two research sites. I will now proceed to consider the various ways in which some of these unregulated local water market players set up their respective operations, as well as any positive or negative external influences they experienced. Towards the end of Chapter Two I briefly alluded to Solo's (1999) assertion that informal water providers must typically bear the risk of all investments made into their business

venture. It is, after all, logical to reason that no subsidisation or other types of formal assistance will be available to prospective informal water providers given the unregulated and often illicit nature of their operation. Here, I analyse the findings from my two research sites on the topic.

I will once again begin the discussion with the household water resellers whose collective experiences as a 'group' in setting up appeared to be the most diverse, in large part due to the fact that their original motives for establishing an informal water operation encompassed the three aforementioned categories of financial opportunism, survivalism and philanthropy. It is primarily important to state that although the initial and often only technical requirement to undertake a household water reselling operation is essentially constant – the installation of a connection to the formal piped water network – the cost of this initial investment varied quite considerably between the five point source operators who participated in this research. This is because there is no fixed overall cost of connecting a household to the formal supply in the region. Prospective recipients of a piped service are obligated to pay for the technical installation at the property, as well as any extensions to the existing pipe network that may be required. The geological and surface accessibility of the designated point of connection and its distance to the existing pipe infrastructure will therefore have a considerable bearing on the overall calculation of cost.

Neither of the two household water resellers with philanthropic motives invested in a private household tap for the purpose of providing water to others, but rather to improve their own quality of life and simplify a host of basic daily household tasks. Nevertheless, their experiences of installing a household connection and setting up an informal water selling business are still equally as informative. One paid the regional water authority 1500 ETB (approximately 69.06 USD) for a private household connection around the turn of the millennium while the other paid 450 ETB (approximately 20.72 USD) a few years later in 2005. Both outlined that the process from submitting an application to the regional water authority for a household tap up to the actual installation of the tap (and in one case the extension of the underground pipes) was relatively painless from a consumer point of view. One described how "*the water*

authority made the [technical installation] *plans and calculated the price, ...* [which] *we then tried to reduce. Apart from the negotiating, we just had to wait for correspondence*" (IWP-A3, 07/11/14). For both of the household water resellers with philanthropic motives, the funding for their private taps came from their own personal savings, which in turn derived from other household income-generating activities, and the entire process took between two and three months.

The remaining three point source operators I interviewed demonstrated slightly differing approaches to funding their private household water taps, borrowing from various sources and arranging payment plans. This was in large part a reflection of their families' slightly less secure financial situation compared with the two cases already discussed. The household water reseller who initially exhibited survivalist motives in undertaking an informal water selling operation after her husband lost his job did state that it was not her original plan to acquire a personal tap in order to sell on the water. However, she used to "*spend so much time collecting or organising water each day*" for basic domestic tasks that it became the "*priority*" of the household to save up for one so that her time could be spent more effectively (IWP-A2, 04/11/14). The installation of a private water tap in her household was eventually calculated to cost 1200 ETB in 2011 (approximately 55.25 USD). "*All of our* [disposable] *money was allocated*" towards it and in the end, after several months "*we borrowed some money from my brother-in-law*" to cover the shortfall (ibid.).

The benefit of borrowing money from close family members is that it may not incur any added interest charges, as was the case in this instance. However, others do not always find themselves in this fortunate position and are forced to arrange loans elsewhere. This was the necessary course of action for the final two point source operators in order to pay at least a portion of the installation cost for their private water taps and therefore begin selling water. One used a combination of money from personal savings, profits from his shop, financial contributions from family members, and a small amount from a loan shark to pay for his initial connection cost of 1100 ETB in 2008 (approximately 50.64 USD).

> Despite the loan shark charging "*very high rates of interest ...* [employing this form of financial assistance] *was just something I had to do and it was worth the trouble, even though a few months passed before I could pay the debt and I think I ended up paying back more than double*" the amount that was originally borrowed.
>
> (IWP-A4, 13/11/14)

The other household water reseller did not initially want to use personal savings for her household water tap, which cost 750 ETB (approximately 34.53 USD) in 2004. Instead, she utilised a combination of a structured payment plan that she agreed with the regional water authority over five months, along with what she thought was a trustworthy source of credit for a small outstanding amount. While the former went relatively smoothly, interest swiftly began to accrue on the money borrowed from the latter source seemingly against the terms that were agreed. She decided to quickly pay "*the loan using family savings to stop wasting money*" in surcharges (IWP-A1, 31/10/14). The examples discussed thus far do indeed show that informal water providers predominantly assume the full risk of their initial investment, and for some the risk is costly.

Mobile informal water providers are evidently required to make somewhat different investments than household water resellers and kiosk operators at the outset. By contrast, mobile providers predominantly do not need a private water tap, and instead usually require both a means of transporting the water and a regular source from which to obtain the water they sell. Nevertheless, they still predominantly appear to take on the full risk of their venture, as the cases from the two research sites in Akaki Kality demonstrate. I will highlight the particularly interesting instances of how some mobile providers set up rather than consider each in turn, however, given that they are larger in number than the point source operators and some responses exhibit similarities and considerable overlap with others.

Perhaps the most interesting finding in relation to mobile providers setting up their operation is the prevalence of partnerships arranged at the outset, either with various community residents or people in authority both from across the sub-city and beyond.

These partnerships vary in nature, but can consist of a regular source of water for the mobile provider in return for a predetermined share of the profits to the initial water supplier. Other forms involve a source of funding or construction for the mode of transport apparatus used by the mobile water provider, once again with spin-off conditions. I use the term partnership intentionally, as a transactional relationship either continues to this day or continued for a significant amount of time after an initial collaboration. For example, one respondent who operates as a mobile water provider stated that he works "*with a man* [who] *lives about forty minutes away from here* [*Woreda* 7] *by foot. In the beginning, I arranged to pay him 15% of the profit I earn from the water he sells me*" and this agreement is still in place (IWP-A6, 18/11/14).

Meanwhile, another of the mobile providers outlined how the man who built his handheld cart to transport the water he sells negotiated to receive payment (for the materials rather than the cost of labour) in the form of a jerrycan of "*water each day for the first three months"*, a discounted rate thereafter, as well as an unspecified percentage of the profit also for the first quarter (IWP-A12, 22/04/15). These examples typify the often complex ways in which some of the respondents entered innovative contractual agreements when setting up their operation, as well as the level of trust that is needed between associates. Of the fourteen mobile informal water providers to participate in the study, eight had arranged a partnership in one of these aforementioned forms at the outset.

For some, particularly those mobile providers that didn't enter into a contractual partnership in the setting up phase, the main initial investment was the respective mode of transport they had chosen to operate. It appears these were usually paid for either with a lump sum monetary payment, a structured monetary repayment system, or through a non-monetary method such as the bartering of goods. The one tanker truck in operation cost its operator 20,000 ETB (approximately 920.80 USD) and given the significance of such an outlay, a structured system of repayment was crucial. "*The only reason I was able to buy this* [tanker truck] *is because I know the salesman. He knew I would make money from selling water so he gave me a discount and allowed me to*

[re]*pay the sum over approximately eighteen months*" (IWP-A11, 16/04/15). We once again see the significance of community and family networks in the setting-up phase.

Meanwhile, draught donkeys cost the four operators who use them somewhere in the region of 500 to 2,000 ETB (approximately 23.02 to 92.08 USD) or an equivalent non-monetary value. For example, one respondent "*exchanged 500* [Ethiopian] *Birr* [approximately 23.02 USD] *and one goat for a donkey*" (IWP-B1, 12/12/14). Donkey carts cost their operators between 700 and 1200 ETB (approximately 32.23 to 55.29 USD), whereas the various forms and sizes of handheld cart cost the operators somewhere in the region of 600 to 1300 ETB (approximately 27.62 to 59.85 USD) depending on its size, or an equivalent non-monetary value. Finally, the one wheelbarrow that is currently in use cost 400 ETB (approximately 18.42 USD).

In turn, the funding for these investments usually derived from personal savings and loans from either family members or loan sharks, as I discussed previously in relation to the point source operators. The main point is that informal water providers, along with their families and friends if they contribute, do indeed shoulder the investment risk. While it seems to have paid off for the majority of respondents who have set up successful operations, we have already touched on one example of how mechanical equipment can malfunction. This mobile provider whose cart persistently faltered ended up losing a significant amount of money – both in terms of interruption to the service he provides, and the forfeit of his transport mechanism that he could only sell on for parts at a significant loss from the price he originally paid – before re-establishing his business by downscaling and opting to operate on foot (IWP-B6, 08/05/15). We have also seen how employing the services offered by loan sharks can be similarly risky.

The final topic to be addressed in this sub-section is the presence of a few external influences in the setting up phase. Of course, I have discussed the influence of external funding sources such as family members, friends in the community and loan sharks, with a varied range of positive and negative outcomes. However, it is also necessary to consider the incidence of informal water providers receiving either constructive input (aside from funding), or experiencing sources of intimidation that influenced their set-

up. One respondent spoke at length about the external positivity surrounding his then prospective entry into the local unregulated water market:

> "*The support from the people around me at the beginning encouraged me to sell water even more. I spoke of my plans to my neighbours and they said 'go on, go on, we can get our water from you'. … I spoke to a* [local community] *group who completely supported my idea and offered advice. … and I spoke to my brother* [at the regional water authority] *who told me how the sub-city is in need of* [water sellers] *and which areas I should sell in.*"
>
> (IWP-A5, 17/11/14)

The level of need in Akaki Kality became patently clear just from the stories this respondent had to offer and the extent to which externalities spurred him on to undertake this informal water selling operation. However, perhaps a greater proponent of the need for water as well as the potential of selling the resource in Akaki Kality is the perseverance of some respondents despite having experienced negative externalities – sometimes quite severe – at the outset.

The two main sources of disapproval derive from informal water providers already established in the local water market and, to a greater degree, the policing authorities. The high degree of competition between informal water providers naturally drives operational efficiency, but it can also lead to threats and acts of intimidation. This is particularly the case towards new or prospective market players, who are perhaps seeking to operate within a similar geographical domain. One respondent spoke of how he was 'strongly advised' to reconsider selling in his particular region or expect repercussions (IWP-A6, 18/11/14). He proceeded to add that it has thus far proved to be an empty threat aside from a few further verbal altercations in the early stages, but nevertheless served as a serious cause for concern and made him question whether to continue.

Two other respondents spoke of the rather more detrimental externality of the policing authorities in their early stages:

"*There was no proof I was selling water but I was threatened and told I would be reported if I did not pay him* [the officer] *regularly*. … *I was worried as the justice system is corrupt here* [Ethiopia] *so I paid him once but I have not seen him again.*"

(IWP-B1, 12/12/14)

"*In the beginning they* [the authorities] *are always asking for money but the worst part is when they shout and confront you physically in front of customers. That happened to me once and after that I knew I had to quit or try to stay completely hidden.*"

(IWP-A10, 05/12/14)

This last point reaffirms the significance of addressing external influences as the final topic in this sub-section. There appears to be a clear need for informal water providers in Akaki Kality, yet there is also a danger they are being forced underground, or even worse perhaps eventually pushed to cease selling. The result of either would be harmful to those without regular formal water access who depend on such services. As, although the majority of informal water providers display opportunistic motives and enterprising or entrepreneurial operational tendencies, the next section will also reveal how the welfare of their customers is paramount.

6.3. Operational strategies

Moving on from the inaugural stages of informal water providers' operations, this section sees a natural development in the analysis towards the myriad business strategies employed post-setup. It covers a range of themes relating to their social, financial and operational experiences within the two research sites in Akaki Kality.

Temporal practice

I firstly explore the nature of an archetypal working day in the region's unregulated water market, as well as how this can alter both between season and in times of relative water scarcity. It will also highlight the routine changes and coping mechanisms adopted by informal water providers in times of low demand or due to unforeseen operational obstacles such as technical malfunctions. It once again appears most logical to separate this topic according to service modality, commencing with the point source operators before considering the mobile operators.

Point source operators

The principal decision to be made by point source operators regarding their working day is their hours of operation, given the fact that all aspects of the retail operation – namely the water source, the distribution of water to consumers, and the fiscal or non-monetary exchange – take place in the same fixed location. The main recurring assertion raised by the majority of household water resellers was the importance of providing a flexible service, or at least having a desire to operate a more flexible service. Differentiating between these two is key, as the ability of household water resellers to work is ultimately determined by the functionality of their respective water points. Three out of the four household resellers stated that they do not enforce specific opening hours if their private tap is working and not experiencing a rationed outage. One of the household resellers stated:

> "*I allow my customers to come at any time and I must continue* [to offer unrestricted opening hours] *if I want to keep my regular customers and attract new*" ones.
>
> (IWP-A2, 04/11/14)

Another outlined how:

"*It is so useful for people in this community to access water whenever they need it, and I try to provide this service because filling ten or twenty jerrycans in a day and collecting the payment does not take too much time.*"

(IWP-A3, 07/11/14)

However, 'try' seems to be the operative term as formal service outages are a common occurrence in Akaki Kality (and the wider Addis Ababa region). Outages frequently occur as a result of the rationing system implemented by authorities to try and balance the demand-supply deficit in an equitable way, but also because of accidental interferences caused by the construction industry and standard technical faults. Customers of household water resellers are therefore often only able to collect water at certain times of the day – usually at night – during periods of intermittent supply, or sometimes even as infrequently as certain days of the week. The incidence of outages "*is very frustrating for me, but it can be critical for my customers*" stated one household water reseller, who also explained how she tries to help counter any unexpected shortages by making sure that the approximately thirty jerrycans she has accumulated over time are filled at the beginning or end of each day to tide customers over (IWP-A1, 22/04/15) (see Figure 28). Some customers also place orders in advance of collecting their water or have a standing order. This is to try and negate the potential of the water point not working at the time of a speculative visit and to reduce waiting times.

Figure 28: Household reseller prepares jerrycans of water ready for customers

The typical daily working hours of household water resellers in Akaki Kality varies from between 4 and 5 o'clock in the morning to around 10 o'clock in the evening, when their private tap is functioning continuously. It must be stated, however, that this relatively early start to a working day is not for the sole purpose of selling water, but also to oversee a host of other domestic tasks. When the formal service they receive is sporadic (and often operational only at socially inconvenient times), their working hours will be dictated accordingly, often commencing at 11 o'clock in the evening. Customers may nevertheless turn up throughout the day unaware of a service outage and subsequently have to manage without water or find an alternative source. The water kiosk operator, meanwhile, aims to undertake his water selling operation in conjunction with the selling of his other shop products. The operator opens from around 5 o'clock in the morning to 10 o'clock at night, but similarly if the water point is not functioning during the day then he will often work extended hours to allow water consumers to return.

In addition, four out of the five point source operators do not take holiday for differing reasons. The three with the original motives of either opportunism or survivalism

elucidated that they favour working all year round in order to keep customers happy and to maximise earnings, while one of the philanthropy-motivated household water resellers stated that she has to oversee other domestic responsibilities so there is no need to have a break from selling water. One point source operator does take time away from selling water to visit family, but suggested that "*the people who buy their water from my tap will definitely keep coming back as it is cheap. ... it makes very little difference to me* [if they source water elsewhere] *anyway, as I only sell the water to help others*" (IWP-A9, 04/12/14).

Although some modest provisions and coping mechanisms were employed by one or two of these fixed water sellers there is, in truth, little else that can be done given that they rely on a solitary formal water source. Of course, those with philanthropic motives for originally becoming an informal water provider and who therefore do not look to make a profit from their operation are not concerned by service outages, apart from for their personal use. However, for the point source operators who initially pursued the informal selling of water either because it was an opportunity or out of desperation described periods of intermittent supply to their private tap as "*frustrating*" (IWP-A1, 22/04/15), "*disruptive*", "*tiring*" as a result of the subsequent extension to their working hours (IWP-A4, 13/11/14), and financially "*stressful*" (IWP-A2, 04/11/14).

Mobile providers

In contrast to the point source operators, a working day for mobile water providers can often consist of two, three, or even more cycles of the same or a similar routine. The routine usually involves a trip to the source (or multiple sources) from which they obtain water to sell on, the distribution of that water to their customers, and sometimes the collection of orders for the next day or for future visits. It may also involve the collection of any outstanding payments as a result of the significant flexibility and innovation associated with many of their cost recovery strategies, something that I will discuss in due course. Trips to the water source may also take place late at night in preparation for the next day – if the source is both accessible and open at that time – and is usually done

either to maximise daytime operation or to enable the informal provider to complete other domestic tasks or social engagements before work.

One of the similar aspects between a typical working day conducted by point source operators and mobile providers are the working hours, often spanning a duration from sunrise to around 9 or 10 o'clock at night. Another similarity is the fact that a typical day for mobile providers is highly variable according to the level of demand, which is in itself dependent on multiple factors such as the functionality of formal water sources and the season. However, rather than extending their operating hours like point source operators in times of intermittent supply, many of the mobile providers stated that their daily routine mainly changes in terms of the number of trips they have to make to collect water from their source(s), and therefore the intensity at which they have to work. There is also greater diversity within the daily operations of the 'mobile provider' classification, as the tanker truck operator in *Woreda* 7 is often only required to make one trip to his source prior to selling, whereas some of the smaller handheld cart operators with inferior storage capacities and the provider who personally carries his water are regularly required to make multiple trips to their respective sources. The planned number of trips to the water sources they have to make can also fluctuate throughout any given day depending on the success of 'speculative' or random sales.

This latter point introduces the balance between chance custom versus arranged sales, an intriguing dynamic in the business strategies employed by mobile water providers. It emerged that recurring or pre-arranged water orders comprised at least an element of the daily sales made by all mobile water providers in Akaki Kality, although the extent to which they depended on this custom did vary from provider to provider. In fact, recurrent or pre-arranged orders placed by customers comprised a larger proportion of the daily water sales than random sales for ten out of the fourteen mobile water providers from across the two research sites (see Figure 29), and two estimated that in excess of 80% of their income derives from such sources.

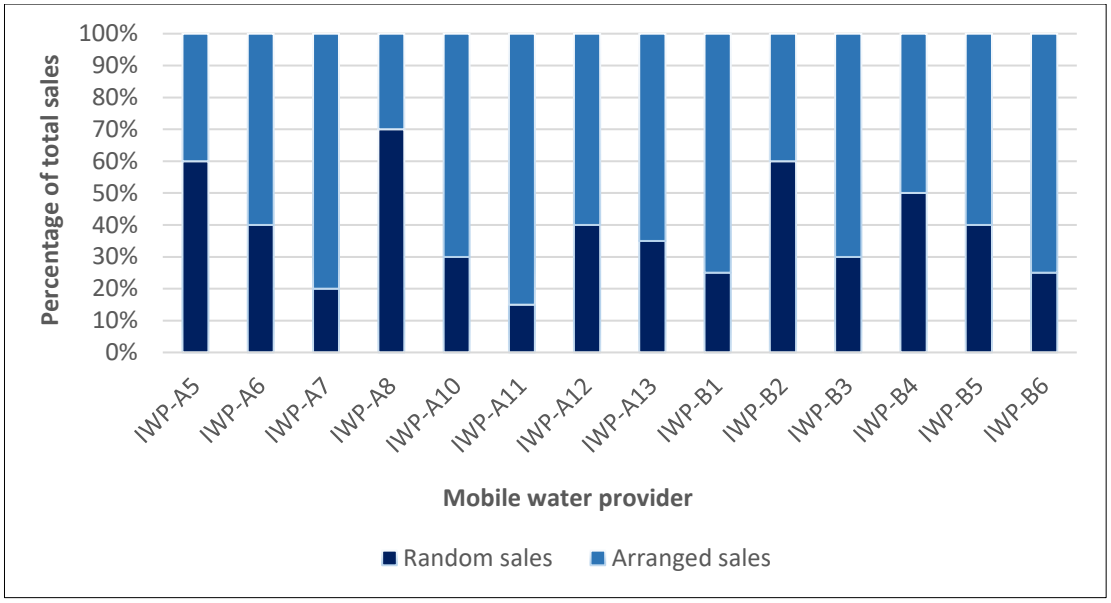

Figure 29: Random versus arranged sales for mobile water providers

Interestingly, these two operate the larger modes of transport to deliver water to customers in the form of a donkey-drawn cart and a tanker truck and therefore rely on arranged orders for the primary reason that it would not be as worthwhile otherwise.

> "*I have to make sure I will sell enough each day before I go out and then I hope to pick up customers by chance when they see my truck. The fuel would cost me too much to just go out and not get any custom.*"
>
> (IWP-A11, 16/04/15)

Similarly, the operator of the donkey-drawn cart stated that it would be short-sighted and potentially costly in the long-run to force his donkey to operate all day without any guaranteed sales, given the significant physical strain of towing a heavy load (IWP-A7, 04/12/14).

Organisation and the ability to secure regular customers are therefore clearly important traits for a significant proportion of the mobile water providers in Akaki Kality. However, salesmanship and strategic planning are also required to generate 'chance' custom. This can be important for those who need to top-up their predominantly order-based daily

income, but particularly for those who primarily rely on this form of income. One of these mobile providers who predominantly depends on unorganised sales stated how:

> "*It is important to know which areas are without water, which areas have a faulty water point, which areas do not have their* [formal] *tank filled enough, which areas get switched off* [from the main supply due to rationing]."
>
> (IWP-A8, 01/12/14)

This respondent clearly has a sharp comprehension of the formal water network and the fluctuating geographical market spaces that open and close each day, adding that "*I always try to make sure I am there when I hear there is a shortage or anticipate one*" (ibid.). Meanwhile, another mobile provider in the lesser-served (and until recently, unserved) *Woreda* 10 alluded to the importance of his salesmanship and negotiation skills:

> "*Some people still set out to try and collect water from far away so I try to persuade them that I have it* [the water] *right here, to save them time and energy ... Sometimes I come down in price but only if they commit to buy a certain number* [of jerrycans in the near future]."
>
> (IWP-B2, 15/12/14)

The working day for an informal water provider in Akaki Kality is evidently varied and necessitates the consideration of numerous elements. What is perhaps the main one – the sources from which they collect water to sell on – will now be considered in further detail.

Water sources

This sub-section considers what water sources informal providers use, as well as how they modify or maintain either the water or source itself. Of course, here I focus on mobile providers because we have ascertained that household water resellers and water

kiosk operators receive the water they sell on directly from the formal piped network to either their residential or commercial property. The various sources used by mobile water providers in Akaki Kality is a subject matter that is key to this thesis, as it appears to be relatively indistinct both in the minds of policy makers throughout the developing world and within much of the existing literature.

Water source diversity

Rather than discovering a general inclination of mobile providers to use a handful of particular local water sources that serve their operational needs, the overarching finding to emerge from the two research sites was once again diversity, in simultaneity with the interconnected themes of adaptability and operational efficiency. Picking up on the first of these, the diversity exhibited by Akaki Kality's mobile providers in this early water-acquisition stage of their everyday work cycle is highly pronounced. An entire spectrum of water sources is utilised in terms of the type of source and their geographical location, as they are situated both in the relatively local areas surrounding the two target communities and from much further afield. The actual sources from which the mobile providers acquire water to sell on includes household water resellers, interestingly either already located within the recipient community (in the case of *Woreda* 7 only) or in a different *woreda*; formal community water points; naturally occurring water sources in the form of surface water bodies, springs, and groundwater supplies; personal rainwater harvesting mechanisms; the many faulty, leaking or broken pipes of the formal water system; and unofficial connections to the formal piped network (see Figure 30).

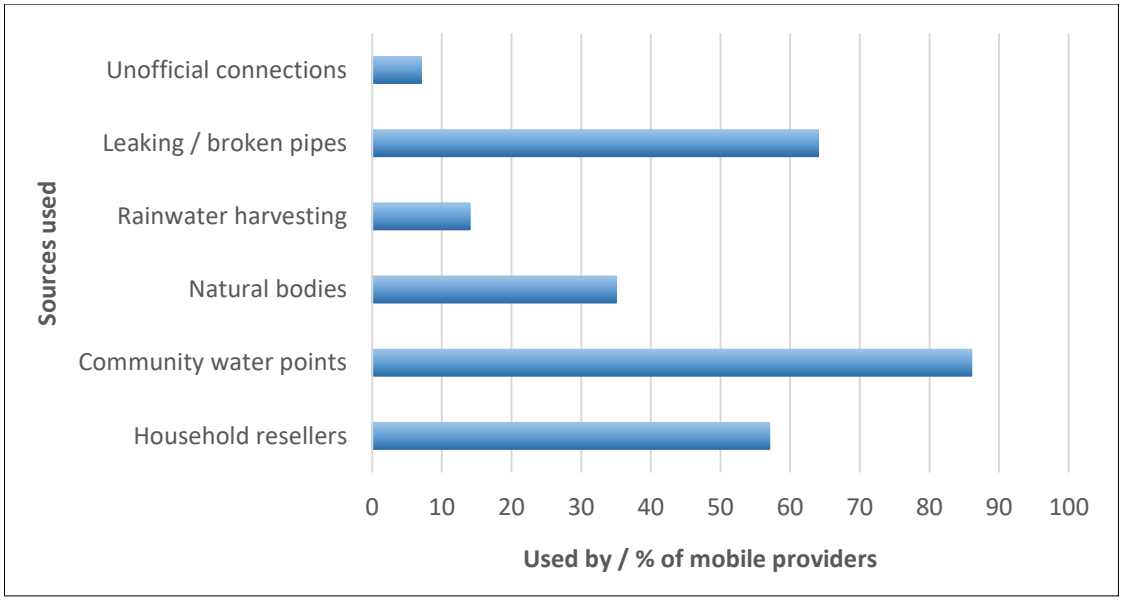

Figure 30: Water sources used by mobile providers

The collection of water from some of these sources to then sell on can be considered as adding to the existing volume of formal urban water supply, such as rainwater harvesting and the use of natural bodies. For others that involve a formal supply point, it either cannot be considered as such or is perhaps less obvious. This topic featured quite prominently during an interview with a representative from the Addis Ababa Municipality. The respondent remarked that for informal water providers to have any value either now or in the future:

> "*They have to be adding water to the existing volumes currently in circulation in the urban water system. Only if this is the case will there be potential to work with unregulated providers or incorporate them into the formal provision setup.*"
>
> (AAM-2, 19/05/15)

Indeed, the logic behind this line of reasoning is understandable on the basis that one of the principal water challenges across Akaki Kality and the rest of Addis Ababa is the absolute supply deficit against the level of demand. There is a subsequent desire for solutions that directly address, or contribute to the reduction of, this deficit. However, I simultaneously challenge the above assertion, as even those mobile providers who collect water from sources that would perhaps not be classed as adding to the existing

volume of supply still carry out an invaluable service. They redistribute water from functioning community water points and where supply is constant or plentiful to those that experience inadequate or intermittent supply with few alternatives. Similarly, by collecting water from pipes that would otherwise be lost to leakage, mobile providers are effectively adding to the volume of available urban water supply.

These latter points are largely echoed in the remarks made by mobile water providers in Akaki Kality. One mobile provider stated that:

> "*The water* [from many of the formal network pipes] *is leaking and going to waste. I am not stealing so my work should be seen in a positive way by the water authority, as people are getting water that would be lost and never reach them because of me.*"
>
> (IWP-A10, 05/12/14)

Another mobile provider who sells water in *Woreda* 7 and usually obtains his daily supply from a community water tank in an adjacent *woreda* also fervently challenged the idea that his role in the local water market was of little worth:

> "*They* [the authorities] *can think that I am pointless but the important thing is that my consumers appreciate my work and depend on me. What is wrong with buying water from a tank in a community that is filled regularly and always has a supply, and taking it to the community here* [*Woreda* 7] *where the water points do not always work or the tank is not always full?*"
>
> (IWP-A13, 24/04/15)

Similarly, a mobile water provider who operates in *Woreda* 10 made analogous remarks but in relation to the redistribution of water from a household reseller in a served community to the unserved community (prior to the installation of a water tank) in which he works (IWP-B2, 15/12/14).

It also transpired that more than half of the mobile providers in this study regularly collect the water they sell on from more than one source further highlighting this diversity, with ten out of the fourteen indicating as such. This collective diversity in the water sources used by mobile providers in Akaki Kality facilitates and promotes a more equitable water distribution, at least in terms of its physical availability rather than price. Inadequate or intermittent supply in one area is frequently offset by the transference of water from other areas with greater or more regular supply, as well as water that would otherwise be lost to leakage as so-called NRW. In these instances, the mobile providers reported that the level of supply is not unsustainably depleted – and therefore the needs of inhabitants are not compromised – in the source area.

Inherently linked to this diversity are the two themes of adaptability and operational efficiency, which both emerged from the data in close connection with the water sources used by mobile water providers. In addition to the majority of mobile providers utilising more than one source on a regular basis from which they collect water to sell, all but one of them also stated that they have a backup water source in case of functionality, contamination or general availability issues with their customary sources. By 'backup', I refer either to a further water source that can be used as an alternative to the multiple regular sources utilised by an individual water provider, or an additional water source if the provider in question ordinarily only uses a single water source.

The significance of this is that these mobile water providers exhibit the necessary attribute of adaptability to be successful market players, particularly in light of the typically volatile nature of the urban water market that persists in Ethiopia. It simultaneously displays their desire to maintain maximum efficiency irrespective of the obstacles that arise in a working day, further highlighting the seriousness of their operation. In support of these points, one mobile provider explicitly stressed that:

> "*It is very important to avoid getting stuck without an available water source for a day, otherwise I will not make any money that day and probably even worse lose some of my customers.*"
>
> (IWP-A5, 17/11/14)

It is evident that these unregulated water providers understand the unpredictable nature of the formal water service, appreciate the needs of the consumers, and are fully committed to their role as a mode of alternative supply.

Water source modification

The final topic covered in this sub-section can be broadly categorised under the umbrella term 'water source modification', which encompasses small-scale water treatment and briefly the maintenance of water sources. Contrary to popular belief, it appears that informal water providers who access water from natural sources to sell on do undertake small-scale water treatment. Indeed, not all informal water providers would necessarily need to treat the water they sell given that the considerable spectrum of sources utilised encompasses formal, tested supply. Of the respondents that obtain water from unimproved sources, two alluded to treating the water prior to selling, but it is far from a recurring action. The process evidently does not take place on a wide scale, and perhaps to some extent endorses the concern elucidated by authorities in the region regarding the quality of water being sold by informal providers.

However, the first important point to raise from this is that water treatment *has* taken place. This will usually incur added costs for the informal providers depending on the types of treatment undertaken – discussed in the next paragraph – and therefore shows that profit is not their sole focus. The quality of the water being sold and the well-being of consumers must also be in the thought process of informal water providers. Secondly, it became apparent that those who had not previously treated unimproved water they sell on would be eager to do so if the price and availability of the necessary resources was facilitative. The past incidence and almost unanimous future willingness of informal water providers in Akaki Kality to consider using treatment methods on water obtained from natural sources lends significant credence to my claim that this form of unregulated supply can be incorporated into the legitimate urban water provision framework.

The forms of water treatment that have been used by informal water providers are simply boiling the water (on a very small-scale); the use of a purifying process thought to be chlorination from the description, but both the respondent and my local interpreter were unsure; and home-made filters. The mobile provider who personally carries the jerrycans to consumers undertakes the boiling technique and so the reasonably small scale of the operation can be conducive to such a treatment. He stated that "*my customers have asked for high quality water before, just for drinking, so I boiled the water at home before selling and charged the customers slightly more*" (IWP-B6, 08/05/15).

The interesting circumstances surrounding the other individual to have undertaken water treatment have already been alluded to in this chapter, as his brother is an employee at AKWSA. It was from his brother that this informal water provider acquired the water purification substance and filter in order to use in the instance that both of his usual (formal) water sources experienced simultaneous outages, which has happened on just a few occasions. This mobile provider stated that treating the water prior to selling it of course reduces his typical daily operational efficiency due to the additional time constraints, but the health and satisfaction of customers is of much greater importance and thus treatment is a necessary process when utilising unimproved sources (IWP-A5, 17/11/14).

It is also important to add that other mobile water providers appear to issue quality warnings before selling a potentially lower-grade water batch, sometimes out of courtesy but sometimes also as a serious health concern. The following extract highlights this and shows how discounts for consumers can accompany:

> "*It was after the rains one year when there was some flooding and the water from my* [backup spring] *source looked slightly* [cloudy], *maybe from the dirt and sediment in the water on the surface. ... I am sure it would have been fine to drink, but I reduced the price and told customers it maybe should be used for cooking or washing*" to be safe.
>
> (IWP-A6, 18/11/14)

The second aspect associated with the theme of 'water source modification' is that of maintenance. Maintenance is key for all that rely on a water source for their livelihood in Akaki Kality, where both preventive and restorative measures on formal water points and natural sources take place. The preventive measures taken in Akaki Kality are inspection and the servicing of parts, while the replacement of malfunctioning parts comprises the restorative measures. The interesting point to raise here prior to an engagement with maintenance costs in the following sub-section is that even providers without ownership of a source contribute to maintenance. Several mobile providers alluded to offering financial or technical assistance to those from whom they purchase water to then sell on. This was justified on the basis that such an approach aids their operation and therefore their customers in the longer term.

Financial aspects and customer relations

This final sub-section initially focuses on all aspects relating to the financial elements of unregulated water operations in Akaki Kality, before progressing to consider the nature of the relationships between informal providers and consumers. Breaking this down, it will encompass the various pricing structures enforced by informal water providers; the investment profiles they oversee; as well as their individual and their households' personal financial situation as a result of undertaking this informal income-generating activity. This functions as a pertinent precursor to the later social element, in which I reveal the transactional (but also personal) relationship between providers and consumers, specifically the ideas of cost recovery; discounts; flexible payment systems; and barter. There is a clear interconnection between strands in this sub-section and while there may be some overlap throughout, I will begin by discussing the pricing structures of the service offered by informal water providers in Akaki Kality.

Pricing

The cost of water from informal water providers is considerably more expensive per unit of volume than it is from formal modes of supply in Akaki Kality. In this instance and unless stated otherwise hereafter, I am of course referring to the informal water providers with opportunistic and survivalist motives for entering this form of work rather than those who oversee a not-for-profit philanthropic operation. This finding immediately suggests that the role played by informal water providers in serving low-income communities would be either negligible or at least greatly reduced if the coverage and reliability of formal piped networks and water points were entirely adequate for all. As it is, the formal water supply situation in Akaki Kality is such that residents at least to some extent depend on the services provided by informal providers and will continue to do so for the foreseeable future. They are therefore required to pay the prices that are issued (see Table 13).

Operating in Site A – *Woreda* 7			
Pseudonym	**Mode of operation**	**Total price per 20 litre jerrycan**	**Discounts offered**
IWP-A1	Household reseller	4 ETB	For close friends and family
IWP-A2	Household reseller	4 ETB	
IWP-A3	Household reseller	10 Santim (cents)	Universally low price
IWP-A4	Kiosk/Point source operator	3.75 ETB	Family
IWP-A5	Mobile; pushcart	6 ETB	For close friends and family
IWP-A6	Mobile; pushcart	6 ETB	On low-grade batches
IWP-A7	Mobile; donkey-cart	6 ETB	For their source operator

IWP-A8	Mobile; donkey-cart	5.5 ETB	On low-grade batches
IWP-A9	Household reseller	15 Santim (cents)	Universally low price
IWP-A10	Mobile; pushcart	6 ETB	For close friends and family
IWP-A11	Mobile; tanker truck	5 ETB	
IWP-A12	Mobile; pushcart	6.25 ETB	For their source operator; On low-grade batches
IWP-A13	Mobile; pushcart	6 ETB	
Operating in Site B – *Woreda* 10			
Pseudonym	**Mode of operation**	**Total price per 20 litre jerrycan**	**Discounts offered**
IWP-B1	Mobile; donkeys	6 ETB	For close friends and family
IWP-B2	Mobile; pushcart	6.5 ETB	Bulk/regular orders
IWP-B3	Mobile; donkeys	6.25 ETB	On low-grade batches
IWP-B4	Mobile; pushcart	6 ETB	On low-grade batches
IWP-B5	Mobile; wheelbarrow	6 ETB	
IWP-B6	Mobile; by hand	7 ETB	

Table 13: Prices and discounts offered by informal water providers

Table 13 shows how prices do vary slightly from provider to provider. Reasons for this include general costing preferences, influenced by the difference in operational effort (for example the fuel or energy used by mobile providers during transportation

compared with household resellers); the perceived quality of the water, and sometimes its treatment; the prospective cost of maintenance and repairs; and the willingness of the provider to accept payment or part-payment through barter. The final column in the table also shows how it is relatively common for the customary prices to be discounted for certain people and reasons. Nevertheless, the seemingly typical price of a 20-litre jerrycan of water from a mobile provider across both communities in Akaki Kality is 6 ETB (approximately 0.28 USD), while the same volume from a household water reseller in *Woreda* 7 seems to be around 4 ETB (approximately 0.18 USD).

The cost of the former is sometimes broken down further by informal water providers in terms of the actual price of the jerrycan of water – often 1 ETB (approximately 0.05 USD) – combined with the cost of transport, which is typically 5 ETB (approximately 0.23 USD). However, several community residents did allude to the futility of this common itemisation, given that it firstly matters little to customers as they have to pay the total cost, and secondly because there seems to be little reasoning behind it apart from perhaps to justify or ease the blow of such an outlay for consumers. After all, it represents a severe hike to the formerly mentioned price of a 20-litre jerrycan from a formal water point such as a community tap, which appears to be set at the fairly constant and significantly cheaper rate of 25 Santim (or cents) (approximately 0.01 USD). At this point I have not used the cost of having a private household connection as a comparison, but Chapter Seven will analyse the complex finances associated with such an investment in Akaki Kality.

Thus, there is a considerable price disparity between water from formal and informal sources, but this does not necessarily the derive from a collective desire of informal water providers to charge exorbitant rates and profiteer, as it is often cited in much of the existing literature. Rather, it appears that these seemingly expensive prices are what they must charge customers to make this role a worthwhile venture, by assuming the full risks of their investment and operating without subsidisation. One mobile water provider stated that:

> "*The price* [charged] *is needed to provide food and water for my family and for my donkey that pulls the cart. I bought her* [the donkey] *and the cart with my own money, and I have to make repairs* [to the cart]. *These costs add up so I cannot reduce the price, otherwise I would make less money than in many other jobs.*"
>
> (IWP-A7, 27/11/14)

As candid as this last point may seem, it is true that this mode of informal work is a livelihood for many and therefore needs to generate an income for those who elect to undertake such a role. Informal water providers work long hours each day, illegally, without employee benefits, and often without taking holiday. The financial gain needs to be at least akin to other potential forms of employment in order for them to be enticed into plugging the formal water service void in the first place. The relative congruity of prices between similar types of informal water provider would also indicate that these figures are not randomly conjured. Of course, informal water providers are aware of and discuss one another's pricing strategies, and the prices set by new service providers entering into the unregulated water market may to some extent be a competitive reproduction of the prevailing costing strategies. However, I contend that a significant degree of thought and calculation has gone into the pricing structures.

For example, the driver of the water tanker truck alluded to the increasing cost of fuel and the costly nature of repairs to his mode of transport, as well as the need to make a living on top of this, as his primary reasons for pricing the water the way he does (IWP-A11, 16/04/15). Respondents also highlighted that they factored in the costs of maintaining water sources and modes of transport into their pricing strategy (IWP-A10, 05/12/14; IWP-A1, 22/04/15). Meanwhile, another had considered the impermanence of his role as an operator of a handheld cart due to its physical strain and the subsequently probable need to either cease vending or motorise his operation sooner rather than later (IWP-B6, 08/05/15).

The important matter is that while customers may not be content about paying these sums of money for such a basic resource, several informal providers attested to the fact that consumers simultaneously appear to understand the reasoning behind informal

water being significantly more expensive than formal water prices. The customers reportedly realise that it is not exploitation on the part of informal water providers, but that these actors provide a service to make a living, and that the competition they face in the unregulated water market will help to keep their prices relatively stable. In addition, customers pay these prices in times when there are few water alternatives.

As mentioned, however, some informal water providers offer discounts for bulk or regular orders, as well as to close friends and family members who live within the communities in which they operate. One respondent stated "*I sometimes provide the people closest to me with* [jerrycans of] *water for 3* [Ethiopian] *birr*" (just over 0.14 USD), but he cannot afford for this to be a regular occurrence (IWP-A10, 05/12/14). In addition, two household water resellers operate in *Woreda* 7 with philanthropic intentions and therefore do not seek to make money. The prices issued by these two sellers for a 20-litre jerrycan are 10 Santim (approximately 0.005 USD) and 15 Santim (a little under 0.007 USD). The preceding sub-section also raised the idea that informal water providers may discount low-quality and perhaps non-potable water, and Table 13 disclosed that five providers from across the two research sites administer such a strategy. In such instances of quality concern, the final sale price of the water varies considerably and is usually dependent firstly on how the provider perceives the quality and subsequently the negotiation process between provider and consumer that inevitably ensues. For some community members in Akaki Kality, then, there are options to obtain water through commercial informal means for cheaper prices than the prevailing informal market price.

Investment and household finances

The investment strategies employed by informal water providers in Akaki Kality and the state of their own household financial health are two highly interconnected discussion points that I will consider here, concluding the financial aspects element of this sub-section. Greater profit reinvestment back into the water selling activities undertaken by informal water providers will maximise operational potential and efficiency, but

simultaneously reduce the amount of disposable income available to use in their own households. Meanwhile, low profit reinvestment will induce the converse side of these upshots. The investment strategy is therefore clearly a highly consequential decision for informal water providers.

The overarching point to initially make is that informal water providers in Akaki Kality, or specifically those with initial opportunistic and survivalist motives at least, appear to make a comfortable living from this income-generating activity. Of course, the extent of their household financial security varies between providers depending on the customer base, volume of sales, and geographical reach of their water selling operation, as well as additional income from other household sources which is indeed a fairly common occurrence. Selling water represents the sole form of household income for nine out of the seventeen (for-profit) informal providers across the two research sites; constitutes the principal form of household income for six; and the secondary source for two informal providers (see Figure 31).

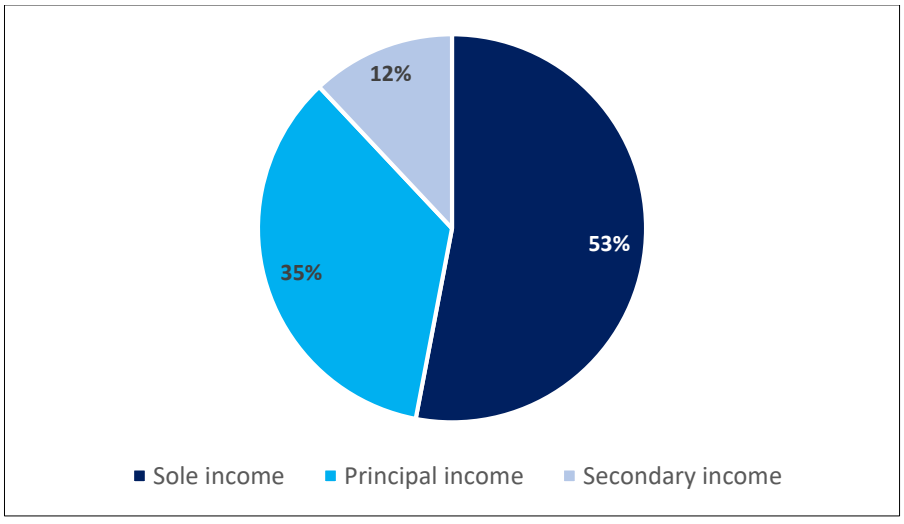

Figure 31: Significance of selling water informally to household income

The contribution of informal water provision to household income thus ranges considerably, from 100% to 30% (again if the philanthropic household resellers are omitted from the dataset). Other forms of employment in the households of the informal water providers to participate in this study include teachers and bank workers, but predominantly different modes of informal activity including laundry services,

vehicles repair services and the sale of a wide variety of other products from stalls, on foot or from home. However, informal water providers at all scales unanimously alluded to how this mode of informal work can support a good quality of life and could do so both as the main source of household income and independently.

For example, one mobile provider stated that selling water:

> "*Is a good income for my family. My wife also sells* teff *but this is just to increase our income. ... Selling water is the main income for us.*"
>
> (IWP-B3, 19/02/15)

Another stated that:

> "*Everyone will always need water and the water system here means that I will always be needed to sell water here. It is a good job because of this security but mainly because I am able to feed my family*" without any other sources of household income.
>
> (IWP-A10, 05/12/14)

Such comments and statistics confirm that informal water provision in Akaki Kality is a viable and rewarding mode of commerce, having supporting households comfortably and sustainably for many years. It is because of this relatively secure and fruitful backdrop that some informal water providers decide to continuously invest back into their business, the details of which I will now discuss.

While the informal providers largely agreed that selling water provides their households with a stable level of financial support, the actual income and profit from this unregulated activity inevitably varies. This diversity subsequently pervades into their investment strategies, and the array of approaches on display by these research participants is striking. Firstly, the two household water resellers with philanthropic underlying motives evidently do not procure any surplus revenue from selling water to re-invest or conduct maintenance, purely for business reasons at least. When these

households undertake either preventative or restorative measures to their private water sources, they often utilise their own financial resources with a domestic purpose in mind. However, regular customers will also sometimes pool together and contribute if a particularly costly issue arises. This stems from the recognition that looking after these relatively cheap water sources will benefit consumers in the long-term.

The two informal providers with an initially survivalist motive for selling water both spoke of the benefit of conducting maintenance and reinvesting generated profit back into their operation, however also outlined how this only became financially viable some time after commencing:

> "*Money was a problem – that is why I started selling water – so my main priorities were finding water to sell and making enough money to buy food. Investing in my business only became possible and only became a thought when I was* [financially] *comfortable, had found a regular source, and had a routine.*"
>
> (IWP-A12, 22/04/15)

Once this had been achieved, and once operational motives had ultimately shifted from survivalist in nature to more business-oriented, the importance of undertaking repairs on his mobile cart to improve efficiency, sourcing replacement jerrycans to avoid water contamination, and maintaining his water source became clearer:

> "*Of course it became important. Everybody who has a business wants to make it the best it can be, and* [re]*investing some of the profit helps me to do that. ... Any* [marginal gain] *I can get will lead to overall progress.*"
>
> (ibid.)

Twelve of the fifteen informal water providers with opportunistic motives similarly alluded to reinvesting revenue back into their operations. Succinctly quantifying the level of investment made by informal water providers is somewhat testing given the diversity between all modes of operation discussed thus far and how dynamic they are, in addition to the fact that some respondents found it challenging to estimate

themselves. The percentage of the estimated total profit reinvested back into the business (excluding the continuous purchase of water for resale, excluding philanthropic household water resellers, and calculated based on their current situation) ranged from 5 to 30%, with the average a little over 12% (see Figure 32). The rest is set aside for savings, the household, and improving immediate quality of life. It is for these reasons that three informal water providers choose not to invest in their operation, and here lies the distinction between entrepreneurial and enterprising. Nevertheless, the overarching willingness of informal water providers to reinvest profits back into their operation highlights its importance, how they are confident in the potential and success of their businesses, and ultimately how the majority can be considered entrepreneurial.

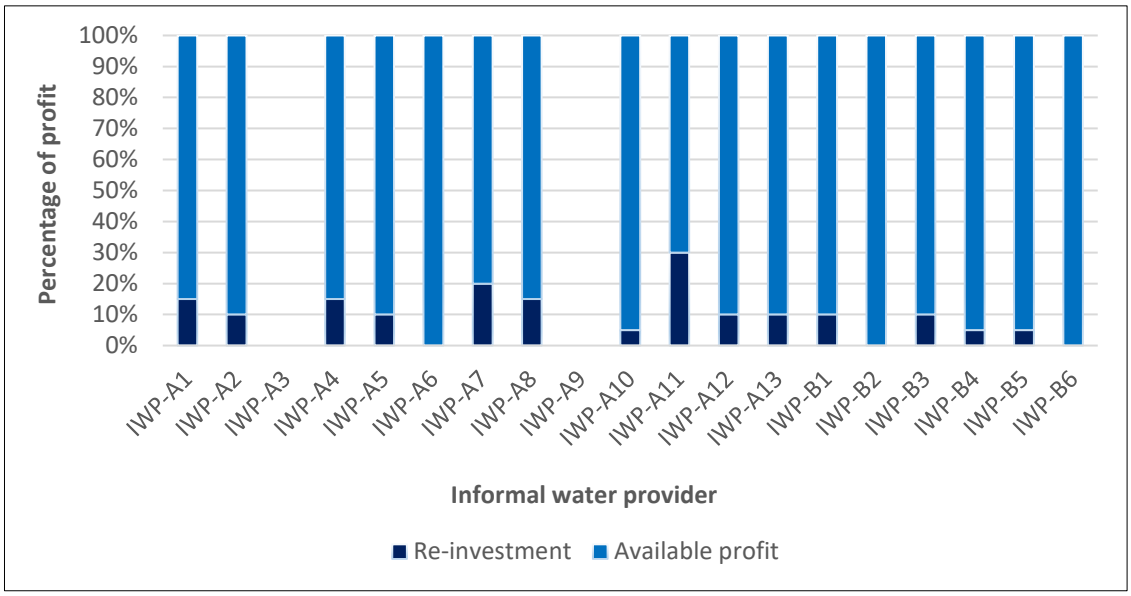

Figure 32: Investment strategies of informal water providers

Provider-consumer relationship

The concluding element to Section 6.3. introduces the relationship between providers and consumers, from the perspective of the former. This dynamic is inherently linked to the financial aspects of informal water provision, as it can often be deduced from the prevailing literary narrative that unregulated sellers benefit from profiteering or exploiting the needs of low-income customers for personal gain (c.f. UNDP, 2006b). The

results from this study largely counter this idea, however, by highlighting how informal water providers try to help their customers. The respondents outlined that they offer innovative and flexible payment systems, discounts, leniency and manageable purchase quantities to their customers, while indeed making a living from doing so. Table 14, below, highlights the particular services offered by the nineteen informal water providers in this study.

Operating in Site A – *Woreda* 7		
Pseudonym	**Mode of operation**	**Consumer-oriented services**
IWP-A1	Household reseller	Payment leniency; some discounts
IWP-A2	Household reseller	Unrestricted opening hours
IWP-A3	Household reseller	Not-for-profit; flexible operating hours
IWP-A4	Kiosk/Point source operator	Some discounts; flexible operating hours
IWP-A5	Mobile; pushcart	Some discounts; payment flexibility; option for barter
IWP-A6	Mobile; pushcart	Quality-related discounts
IWP-A7	Mobile; donkey-cart	Payment plans
IWP-A8	Mobile; donkey-cart	Quality-related discounts; payment leniency
IWP-A9	Household reseller	Not-for-profit; option for barter
IWP-A10	Mobile; pushcart	Some discounts; payment leniency
IWP-A11	Mobile; tanker truck	
IWP-A12	Mobile; pushcart	Quality-related discounts; payment plans; flexible operating hours
IWP-A13	Mobile; pushcart	Payment leniency
Operating in Site B – *Woreda* 10		
Pseudonym	**Mode of operation**	**Consumer-oriented services**
IWP-B1	Mobile; donkeys	Some discounts; payment leniency
IWP-B2	Mobile; pushcart	Some discounts; payment plans

IWP-B3	Mobile; donkeys	Quality-related discounts
IWP-B4	Mobile; pushcart	Quality-related discounts; payment leniency
IWP-B5	Mobile; wheelbarrow	Flexible operating hours
IWP-B6	Mobile; by hand	

Table 14: Consumer-oriented services offered by informal water providers

In support of these points, one informal water provider asserted:

> "*Of course it is important for us to help them* [low-income households]. *People need water to survive and there is a shortage, otherwise I would not have a business. I care for my customers very much and so it is vital we work together and have trust. If the trust is there they can pay me* [for the water] *when they can – days or maybe even weeks later. Or instead of money they can sometimes pay me with other goods that my household might need. I need to make a profit but I also offer discount to my family and friends, and sometimes those in great need. I will not put pressure on anyone* [to repay] *and I think they respect me for that.*"
>
> (IWP-A5, 17/11/14)

This type of response was echoed throughout the majority of the conversations with informal water providers, in particular the ideas of mutual cooperation and respect. Chapter Seven also highlights how this position is shared by consumers, who collectively adopt an overriding positive opinion towards their unregulated providers. One of the original research questions for this study was to ascertain the extent to which the informal water market influences service provision in my research sites. In truth, this relationship between informal water providers and their customers is at the heart of everyday water transactions. Informally sourced water does work out more expensive per unit of volume, however formal supply systems in Akaki Kality are unable to withdraw the upfront costs of connecting to the piped network, and are unable to guarantee the reliability or the level of flexibility afforded by informal providers. Low-income residents thus both need and depend on this unregulated source.

6.4. Position in the waterscape

The concluding section of Chapter Six seeks to situate the role of informal water providers in the context of Akaki Kality and the region's wider waterscape. It will initially focus on the position of informal water providers amidst a disabling environment. In other words, the first sub-section will define their role in the two dynamic target communities and revisit their unanticipated pervasiveness in wealthier regions of Addis Ababa, all the while being forced to operate underground. The second element situates the unregulated water market independently of the enabling (or rather disabling) environment, by focusing on the competition, efficiency and future prospects.

Amidst a disabling environment

It is initially important to consider the rather more negative aspect of how the condemnatory and criminalising stance of the authorities towards informal water providers is forcing the service they provide increasingly underground. We ascertained towards the beginning of this chapter how the illegal status of commercial informal water provision acted as a negative influence and engendered a sense of fear for some of these unregulated actors in setting up their water selling operation. Indeed, such feelings have not appeared to fade with time and have, if anything, intensified as the scale of individual operations and the number of encounters with authorities increase. One respondent stated:

> "*It is a problem* [having to operate in secret] *because it affects my business and I am always worried that I will be arrested. My family depends on the income I make from selling water so if I get caught I worry for them, not for me.*"
>
> (IWP-A13, 24/04/15)

When asked to expand on how operating underground and the presence of authorities impacts upon his business, he explained that he has been stopped and cautioned in the

past. This interrupted his sales, has since required him to display constant vigilance, and even influences his area of operation:

> "*It was lucky because each time there was no evidence that I was selling the water on my cart so it* [the cautions from authorities] *just loses me time and money. I once paid the official 100* [Ethiopian] *birr* [approximately 4.60 USD] *to stop him taking his investigation further. ... The main problem is sometimes when I go to a community and I see or hear that an official is in the area, I have to decide if I should sell water that day or not. ... I have lost a regular customer in the past because I was unable to fulfil his order*" as a result of the authorities' presence.
>
> (ibid.)

These feelings of frustration and anxiety are largely echoed in the responses given by many informal water providers. One respondent fervently questioned the time and resources spent by authorities on attempting to inhibit the unregulated water market – although it must be stated that their interference is not perpetual – as rather than "*try*[ing] *to stop the only way some families can get water*", efforts should be directed towards more pressing matters that could conversely improve the lives of residents in low-income communities (IWP-B1, 12/12/14). Meanwhile, another research participant suggested that the possibility of going to prison "*is not healthy as I always have to make sure I am not being watched so I do not get caught*" (IWP-A8, 01/12/14). He also revealed that two of his friends who likewise sell water have been cautioned in the recent past, and visits from officials appear to be slightly more frequent than they were when he started selling water seven years ago.

Indeed, it is important to remember that such a stern policing approach is not unfounded. We have seen that the principal concern relates to the quality of water supplied by informal providers and the associated health implications for consumers, which in turn derives from a lack of knowledge about the sources these unregulated actors use. Linked to this, the other key justification is the belief that informal providers themselves are actively breaking water pipes, rather than just collecting water from the already damaged or naturally deteriorating network. This has been found to take place

in other urban areas of the developing world, where intentional damage to pipes has created a greater dependency on informal providers and in turn a stronger incentive to keep causing damage. However, there was little evidence from this study to suggest it occurs in Akaki Kality. I accompanied several informal providers to their multiple water sources during the fieldwork as part of my participatory exercises to observe operations. They also fervently denied engaging in vandalistic practices during the interviews, instead articulating the wealth of legitimate options available alongside an already aged network that is prone to leaks. But of course, given the sensitivity of the subject and localised nature of the study, it is difficult to gauge how truthful or representative this assertion is, or indeed whether such a value would be maintained by informal providers in the perhaps seasonal-related event of having less available water to sell.

Nevertheless, the concern is that informal water providers are being increasingly driven to operate underground, which could potentially lead to the vital resource they provide becoming more of an expensive black market commodity rather than just an informal one. The price of informally sourced water in Akaki Kality at the moment – while still expensive compared to legal channels – appears to be reasonably uniform between for-profit providers. This is to some extent facilitated and moderated by both the level of competition between providers and the fact that the information regarding the service they offer appears to be freely available and well-known within the communities. However, the more informal providers are forced to function in secret, the greater the chance that informal water will be perceived as a dangerous commodity to handle and therefore become difficult for prospective consumers to acquire. It is possible that the already expensive price of informal water may then become unaffordable with added clandestinity and reduced competition, potentially leaving many low-income families without an alternative water source in times of formal paucity or outages.

The increasingly underground nature of the operations undertaken by informal water providers is of particular concern due to their seeming importance in the local water market in Akaki Kality. We have seen how informal water providers value the significance of their own service, but to corroborate this position in the waterscape it is important to also tie this in with the view from within the communities here prior to a

more detailed engagement throughout Chapter Seven. It must be reemphasised here that the research sites were primarily chosen in order to highlight the roles of informal water providers in two settings with varying degrees and modes of formal water supply. However, there appeared to be only a marginal difference between the two communities in terms of their dependence on informal water providers. In fact, there was a greater dependence on informal water providers in *Woreda* 7 despite the presence of a formal infrastructure, which highlights the issues surrounding functionality and sporadic supply experienced by residents there. The services offered by informal water providers feature prominently in the episodic household water plans devised by consumers in *Woreda* 7, as almost 90% of community resident respondents stated they use informally sourced water at least once a week and approximately 96% indicated they use it at least once a month.

The dependence of community residents on informal water providers in *Woreda* 10 was also evident but perhaps not quite as defined as expected considering its complete lack of formal water services. This fact is attributable to the aforementioned geographical characteristics of the settlement, but also the level of community spirit and cooperation among dwellers. This community spirit appears to simultaneously stem from and contribute to the less-than-expected number and limited diversity of informal water providers there. Pockets of residents have developed small-scale community support networks to help one another access water, alternating the responsibility for travelling to a distant source to collect the water as well as ensuring the elderly and more vulnerable members of the community are assisted.

Nevertheless, it must be stressed that the role of informal water providers remains fundamental in *both* target communities. The fact *Woreda* 7 already has an infrastructure yet the majority of families I interviewed regularly employ the services of informal providers suggests that these unregulated actors will be important to consumers for the foreseeable future. Only when issues surrounding the coverage, functionality and supply quantity of the formal network are reliably resolved in *Woreda* 7 will there be a potential impact on the role of informal water providers. In addition, the water tank was constructed in *Woreda* 10 towards the end of my final fieldwork visit

to Ethiopia and so I tried to spend a significant proportion of my remaining time in that community to determine how this development impacted the role of informal water providers there. Although it was only possible to do this for a short period, it was evident that consumers still required the services of informal water providers – albeit to a slightly lesser degree – in order to supplement the water they obtain from the new tank, as it experiences inadequate replenishment to meet the community's demand. It will be interesting to see how the construction of this new water tank, as well as the forthcoming completion of the nearby condominium housing complex, will affect the role of informal water providers in *Woreda* 10 in the longer term.

In addition to these findings on the role of informal water providers in my two chosen research sites, it is also important to briefly revisit the idea raised in Chapter Five that these unregulated service providers are similarly active and important to residents in the more central parts of Addis Ababa. Many of the justifications for using informal water providers raised during the stakeholder interviews lent credence to the idea of 'formal insufficiency'. Importantly, these comments align with the findings from the informal providers themselves regarding functionality and the supply-demand deficit. This helps to corroborate the idea that informal water providers are fundamental in helping to plug the service voids left open by formal network deficiencies even in areas with a so-called water infrastructure in place. The formal water infrastructure is far more advanced and extensive across many central areas of Addis Ababa than it is in *Woreda* 7 or *Woreda* 10 of Akaki Kality, yet still we see pervasive functionality issues and the case of demand outweighing supply.

One of the main conclusions to draw from this is that while this study was originally formulated to focus on a newly urbanising region of Addis Ababa, where a prevailing concern is that population growth and the subsequent rise in water demand is far outpacing supply, the urban water problems in Ethiopia extend far beyond such contexts. We have seen how Addis Ababa has water coverage rates ranging from around three-quarters to almost-universal according to many official sources, but the findings of this study and the experiences on the ground depict a very different image in reality.

Informal water providers are essentially integral – and will continue to be integral – in landscapes of extensive formal water supply quandaries.

A detached appraisal

This section has thus far situated the significance and embeddedness of informal water providers against the backdrop of the formal water network in Akaki Kality and central Addis Ababa. It is also important to situate the characteristics of this form of commercial unregulated service provision independently in these contexts. Here, I will briefly analyse the competition between the region's informal water providers; the extent to which this level of competition drives efficiency; and their capacity to meet growing demand moving forward.

It became clear from the interviews with informal water providers that healthy competition and specifically personal advancement takes precedence over the establishment of internal support networks upon which unregulated actors can depend in Akaki Kality. This is not to say that support mechanisms do not exist, but those that do are small-scale – seemingly involving just two counterparts – and have derived from a friendship and subsequent willingness to help one another, predominantly in times of need. It emerged that this type of localised support – relationships between competing providers, rather than the aforementioned partnerships between source owners and unregulated sellers – is currently in place for two pairs of informal water providers in Akaki Kality. One described such a relationship as:

> "*An important insurance policy if something goes wrong. If my water sources fail, my customers will still get their water. But of course, if my friend helps me it has to be worthwhile for him just as it will if I help my friend. We understand that, we won't make as much profit as normal in these situations but it is important.*"
>
> (IWP-A8, 01/12/14)

This overarching desire to both satisfy customers and further personal financial interests first and foremost has led to highly efficient services being administered by informal water providers, and sometimes also conflict between them. Chapter Five revealed how some stakeholder respondents across the city praised the service offered by informal water providers. In line with this, it became clear during my time in Akaki Kality that the quality of service they offer is very much a high operational priority for the informal water providers themselves, in large part driven by the need to survive in a competitive context of extensive water informalisation:

> "[My service] *must be perfect. The quality of the water must be good. I have to bring enough water and I must be on time. Otherwise, there are many* [other providers] *who are ready to take my place*."
>
> (IWP-A13, 24/04/15)

In fact, every mobile water provider attested to these or similarly demanding operational standards. Non-philanthropic point source operators, meanwhile, emulate this high quality of service, but expect the water they provide to always be safe having passed through regulated testing.

Of course, commercial informal modalities are expensive per unit of volume, yet the future prospects of the informal market appear secure. This becomes clear when mapping their adaptive capacity against the journey of Akaki Kality from inception to its current state, via rapid demographic and physical transformation. The majority of informal providers maintained that scrupulous planning has been key to keeping ahead of the urban changes, and thus on top of the increasing demand. Likewise, they are anticipating further shifts in the regional landscape, and there is nothing to suggest that this is beyond either their capabilities or new actors' entering the unregulated market. The key will be maintaining service standards irrespective of the cost, and if cost can somehow be reduced through an innovative approach with authorities that harnesses rather than condemns their potential, we will see a further entrenchment of their already pronounced role.

It is this point upon which I must conclude this chapter; the prominence of informal water providers and the significance of their role in the service delivery cycle in Akaki Kality, as well as across the rest of Addis Ababa. I had, perhaps unsurprisingly expected these unregulated actors to exist in my two research sites in Akaki Kality during the formation of this doctorate study. Yet, even I find myself astounded at the extent of their prominence in the research sites (particularly the supposed 'control' site) and ingenuity of their operations. Moreover, the discovery that informal water providers also appear to be highly active in many comparably affluent areas in central Addis Ababa is a hugely enlightening finding. Prior to the fieldwork I had hypothesised that informal water providers serve to plug the voids left unserved by the formal network. Indeed, this is true, but many of the gaps exist in areas classified as being served by the formal water network. This lends substantial weight to my critical line of argument towards target-based progress and monitoring back in Chapter Two.

Chapter Seven – Water access and consumption at the household level

7.1. Introduction

Chapter Seven represents a slight shift in focus towards the consumers, specifically their water consumption within the household against a backdrop of local household finances. Section 7.2. initially seeks to discuss some of these latter, non-water aspects such as household assets, income, and expenditure using the data gathered from the financial diaries I administered in the two target communities. Section 7.3. then proceeds to analyse all issues associated with the diverse water strategies employed by low-income households in Akaki Kality, in terms of both from where the water is sourced and for which everyday household tasks they decide to use it. This discussion will therefore encompass the different modes of water supply used by households in the two target communities; consumer opinion of both the quality of service and quality of water from these sources; whether water from particular sources is utilised for particular household tasks; who is responsible for water issues in the household; and the aforementioned household finances in relation to these water strategies.

The analysis is then developed in Section 7.4., which considers the perspectives of low-income households towards informal water providers, as well as some spin-off discussions on water affordability, water access and citizenship in the localised context of Akaki Kality. Here, I propose that some of the existing debates surrounding these concepts have engendered a series of myths that are open to challenge. In short, I present evidence to show that:

- Consumers of informal water predominantly appreciate and depend on the service offered by informal water providers;
- Low-income households are both able and willing to pay for water;
- The concept of water access is in fact fluid and a low-income household may experience continuously shifting levels of access along a continuum;

- Informal water provision, rather than just regulated service modalities, can promote a sense of citizenship among recipient communities.

7.2. Household finances

It is important to commence with an insight into the household finances and associated level of poverty among community residents. This will support and help contextualise the ensuing analysis on household water strategies. I introduced Akaki Kality back in Chapter Three and alluded to how it is considered a very poor region, not just in the global context but also within Ethiopia itself. The data acquired from the region's inhabitants in this study indubitably corroborate this claim. It was found from the financial diaries I administered that almost 69% of the 90 participants from across the two communities live either on or below the UN's 1.90 USD per day poverty line (see Figure 33). This figure rises to over 84% when considering *Woreda* 10 in isolation. The qualitative data from the interviews reinforced this and the associated marginal cost lifestyles that exemplifies the everyday within the two communities. Household decisions regarding water sourcing and consumption strategies have therefore become extremely vital.

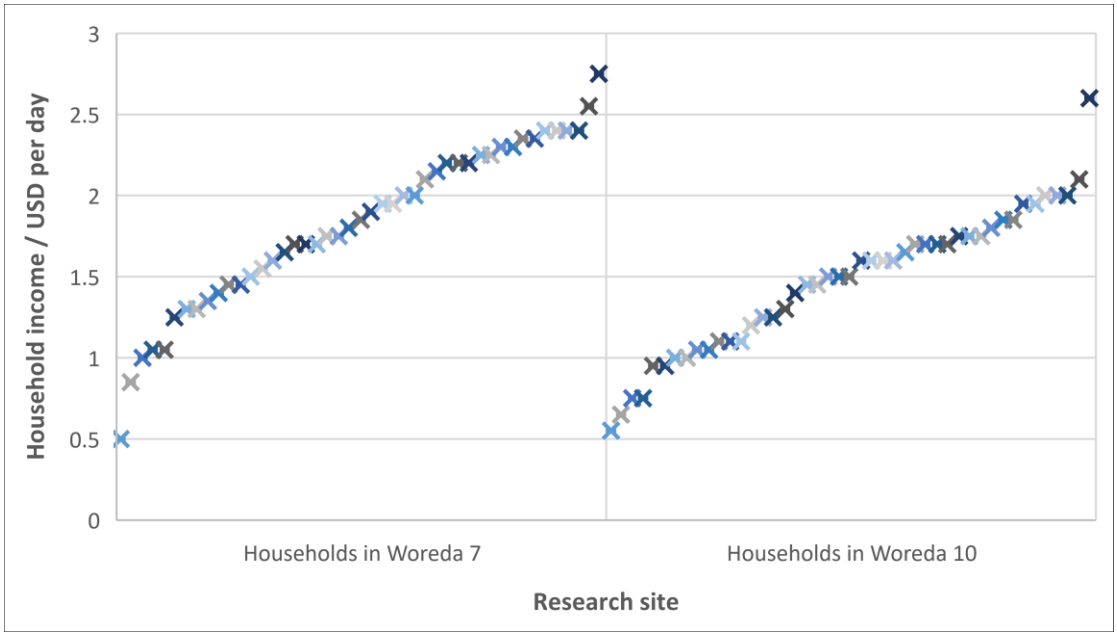

Figure 33: Daily household income across the two research sites

Household income in the two communities appears to predominantly derive from participating either in the widespread factory scene or one mode of the myriad informal sector operations that exist across the region, although the preponderance of respondents aligned with the latter. A handful of community research participants also indicated alternative modes of formal sector employment to factory work as a source of household income. Considering this alongside the fact that a significant percentage of respondents live below the poverty line, it seems reasonable to question the extent to which such income-generating undertakings can comfortably support a household in Akaki Kality. I speak of the household rather than the individual here, as respondents sometimes found it challenging to differentiate between the two. Many instead alluded to the pooling together of financial resources within their respective households.

Of course, household finances encompass far more than just income, and the financial diaries I administered in the two research sites sought to reflect this in order to gain a thorough representation of the respondents' situations. The diary templates requested participants to detail aspects such as assets, access to financial services and expenditure among other things. Firstly, the level and type of asset possession varied within the two communities. Owning a car appears to be extremely rare in Akaki Kality, where residents mainly walk or rely on public transport – when it is financially viable – to travel around. A couple of respondents also indicated that they have acquired bicycles, but they are also seen by many as luxurious. Household electrical items (apart from mobile phones and radios) are similarly uncommon as they are generally deemed unnecessary and costly.

Aside from mobile phones, the most common type of asset owned in the target communities is livestock, whether for consumption, reproduction, dairy production, or for draught purposes. Respondents indicated how there can be a sense of dependence on these assets (to provide immediate food while also acting as a perpetual insurance policy if the need to resell arises), and alluded to how such an acquisition would improve their quality of life immeasurably. Despite this, still only around 17% of the participant households owned a livestock animal at the time of asking. With these points in mind,

the low rate of livestock ownership is therefore a further indicator of the unfavourable financial situations experienced by many residents in Akaki Kality.

It is unsurprising given some of these findings that the procurement of financial services in Akaki Kality – specifically formal or informal savings schemes, loans, and insurance – is insignificant. Whether this is a direct reflection of the level of access or whether such services are simply not on the everyday agenda of community residents is open to debate and most likely a combination of the two. Respondents' justifications within some follow-up interviews were rather evenly divided between one or the other, but the key finding is that less than 10% have accessed any form of financial service. Informal loans comprised the most common service within this minor percentage, usually involving family members and close friends for a business or investment purpose, such as the setting up of an informal water operation discussed in the preceding chapter. Loans from other sources such as micro-credit services and loan sharks, and community savings systems, also exist but are seldom used by the typical resident in Akaki Kality. The focus within these communities very much centres on satisfying immediate needs on an everyday basis.

As such, one of the most important findings to arise from the financial diary data relates to the household expenditure. Aside from when unexpected or occasional events materialise such as a wedding, illness or a sudden loss of income, the main areas of household expenditure in Akaki Kality are customarily food, WASH services (either the purchasing of water for use within the household or paying for shower and sanitation facilities at the local community centre), and rent (although this is dependent on the land tenure situation of the individual household and therefore varies). WASH services – and primarily the purchase of water for use within the household for basic needs – almost unanimously featured as one of the top two highest areas of monthly expenditure for each household and was often identified as the domain of greatest expense. This firstly supports the idea that the general way of life in this region is dominated by fulfilling basic needs first and foremost, rather than the pursuit of luxuries. It also reaffirms the significance of this regular financial outlay on water that households in Akaki Kality have to take into consideration, making the contents of the ensuing

section on such under-researched household water strategies highly pertinent and enlightening.

The average percentage of monthly household expenditure allocated for water is 25% across the two communities, although the individual quantities specified by each household that compiled a financial diary equates to a range from just over 20% to approximately 38% (see Figure 34). These are staggering statistics, particularly so when trying to relate this to developed contexts. A hypothetical price hike of water bills in the so-called West to these levels – requiring consumers to apportion between a fifth and over two-thirds of overall spend – would undoubtedly trigger nationwide social unrest. Western water bills, as it is, currently represent a relatively insignificant proportion of monthly expenditure, but the need for efficient and economical water use in Akaki Kality has never been more apparent.

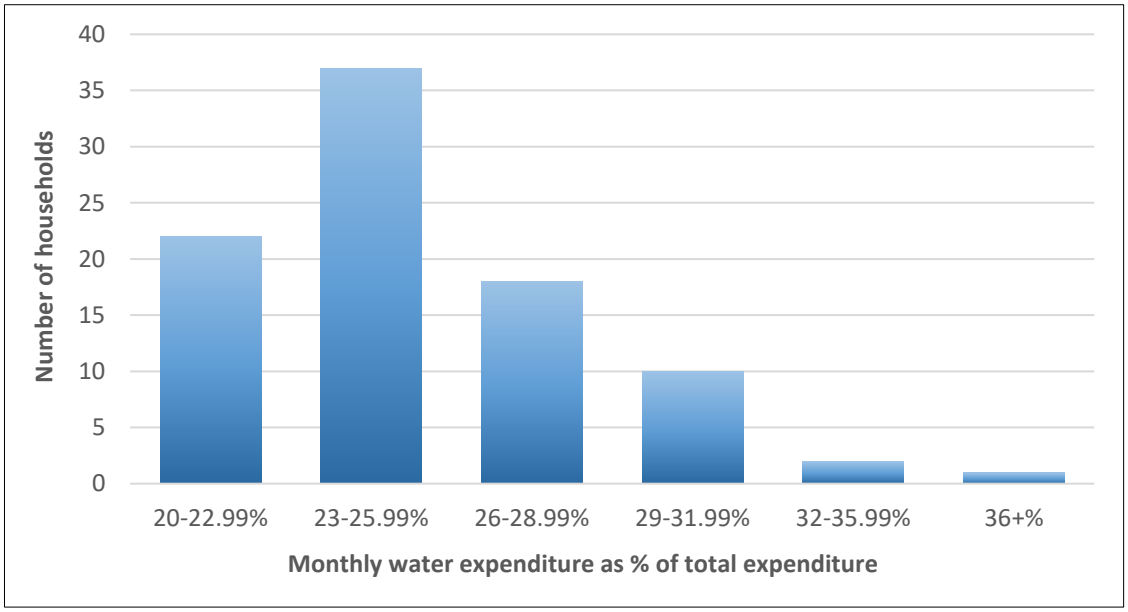

Figure 34: Water expenditure across the two research sites

7.3. Domestic water strategies

This section analyses the various water sources households either choose or are forced to employ in Akaki Kality, as well as how they decide to use this water within the

household. We have already ascertained that Akaki Kality is a setting in which everyday routines are dominated by marginal cost decisions, and where there is a subsequent requirement to satisfy basic needs a single day at a time. Demonstrating diversity and flexibility in the sourcing of water – a resource that represents the principal monthly expense for many households – therefore becomes paramount to reduce costs and minimise the potential impact of either formal or informal service interruption. Inherently linked to this is the simultaneous need to prioritise water for certain domestic tasks, particularly in times of water scarcity or financial uncertainty. The almost inseparable interconnectedness between the strategic elements of sourcing water and its domestic consumption means that Section 7.3. will consider these issues concurrently rather than across independent sections.

The different water sources used by households in Akaki Kality evidently encompass all those that have been discussed throughout the two preceding chapters, and can be broadly categorised under the domains of formal and informal services. The formal water services in the region are comprised of private household water connections, state- or NGO-funded community taps, and community tanks. Informal services include purchasing water from household resellers, buying from mobile providers, and the sourcing of water from natural bodies, via rainwater harvesting, and from broken or unofficial outlets on the piped network. Research participants alluded to the regular use of multiple sources simultaneously, or at the very least the employment of a couple of main sources with perhaps several other identified backups in case of complications with these primaries. In no instance did a respondent indicate the use of just one main water source, further underlining both the prevalence of functionality challenges and the subsequent significance of administering effective, concerted water strategies.

Both formulating a household water strategy and overseeing all things water-related in the domestic environment in Akaki Kality is a predominantly female responsibility, as is the case throughout much of the developing world (c.f. Crow and Sultana, 2002). In fact, Ethiopian gender roles see that the management of the domestic environment in its entirety is the responsibility of women. It is typical for female heads of household to formulate the initial overarching plan, but the active sourcing of water thereafter can be

the role of any female occupant in a dwelling (including the female head) or is simply shared between them. Interacting with informal water providers and the physical collection from a formal water point comprise the principal methods of sourcing water in *Woreda* 7, although rainwater harvesting does take place and some have private connections. In *Woreda* 10, private connections and therefore household resellers do not exist, while collecting from natural sources is more common.

Several factors play a part in the decision of prospective consumers to choose a particular water source in Akaki Kality. These include – but are not limited to – price; the quality of the water; the reliability and seasonality of the service; the available quantity of water; convenience (distance, opening hours, and queuing times at the source); and the relationship with the water provider. Implicit within all of these is the intended consumption purposes for a particular 'batch' of water. Interestingly, the issue of legality seldom featured in resident responses as a factor to consider, and rather the poignant statement "*if we respect the law, we may die*" (A26, 01/11/14) emerged from one focus group to sum up the prevailing frustration towards this matter. The following discussion and accompanying example extracts from the interviews with community residents provide an insight into the importance of such factors in the decision-making process, and consequently some of the advantages and drawbacks of the water sources available in Akaki Kality.

Price and quality

Price is central to the water sourcing strategy employed by every household in Akaki Kality and consistently featured as the foremost consideration. After all, if formal water services were to become universally and reliably available then it is likely global communities would always utilise these sources given their significantly lower cost and perceived[10] greater quality. The role of the informal water market would expectedly

[10] Several respondents actually questioned the water quality from some formal tanks and community taps across the two research sites in Akaki Kality, having experienced ill-health.

decline as a result. However, this utopian ideal is far from becoming the reality in Akaki Kality.

It is therefore little surprise that many in *Woreda* 10 prioritise the collection of water from natural sources and more recently the sole water tank in order to limit their use of the expensive services offered by informal water providers. Similarly, the vast majority of households in *Woreda* 7 will initially aim to use formal water outlets, simply because of the more favourable price per unit of volume. Only in the rather common event of service interruption will residents subsequently pursue informal channels. It must be clarified, however, that this general price-based preference for formal outlets in *Woreda* 7 refers to stand-alone formal water points, rather than the piped network. This is due to both the inequitable cost of connecting to the piped network coupled with the substandard service it can provide.

We have ascertained that there is a fairly standard rate of 25 Santim for 20 litres of water from formal community outlets. Households with a private tap for personal use in *Woreda* 7, however, have paid on average just over 1150 ETB (approximately 52.95 USD) to connect to the piped network. This includes both the technical installation as well as any extensions to the existing infrastructure that are needed. The ongoing service charge costs subscribers on average 8 ETB (approximately 0.37 USD) each month, although the range typically spans from 5 to 10 ETB (approximately 0.23 to 0.46 USD). While the monthly service charge may sound reasonable, the average connection charge is a substantial outlay in the context of everyday life in Akaki Kality, and also needs to be paid in a one-off instalment. Three additional factors compound this situation even further.

Firstly, from a legal perspective a household requires secure land tenure in order to connect to the piped network, which immediately prevents a significant proportion of those in Akaki Kality who reside in so-called slum housing. Urban authorities across Addis Ababa maintain that providing services to illegally constructed households could be construed as an act of validation. Secondly, for households that still qualify, it must be remembered that the charges quoted above must often be paid alongside the cost

of water from other sources. This includes both community water points, as well as the rather more expensive informal water providers when community water points are empty or non-functional. The need for alternatives on top of having a domestic connection derives from the fact that private taps typically "*fail more often than they provide water each month*" (A64, 28/11/14). Thirdly, the aforementioned average cost of connecting to the piped water network considers only those that have actually paid for an installation. Other residents who have sought a connection but declined the water authority's valuation appraisal stated they were quoted figures in the region of 4,000 ETB (A2, 27/10/14), 6,000 ETB (A84, 24/02/15), and even 11,000 ETB (A42, 06/11/14) (approximately 184.16 USD, 276.24 USD, and 506.44 USD respectively). Such prices and the range of prices, in a region where perhaps over two-thirds live below the poverty line, are far from being pro-poor or equitable (see Table 15).

Water modality		**Minimum [encountered]**	**Maximum [encountered]**
Community water point		0.25 ETB [20 litres]	0.25 ETB [20 litres]
Piped network connection	Cost of connection	450 ETB	11,000 ETB
	Monthly service charge	5 ETB	10 ETB
Commercial informal provision	Point source operators	0.1 ETB [20 litres]	4 ETB [20 litres]
	Mobile providers	5 ETB [20 litres]	7 ETB [20 litres]

Table 15: Cost comparison of water modalities in Akaki Kality

Price indeed remains central to household water strategies in Akaki Kality. However, this is complicated by the substandard service offered by both private domestic services and other formal modalities, as well as the inhibiting connection charges of the former. A regular demand for unregulated sellers – from which the price of a 20 litre jerrycan is typically between 15 and 28 times greater than it is from a formal community water

point – therefore remains and looks set to continue for the foreseeable future. Expanding on this, one respondent stated:

> "*For us the price of the water is the most important thing to consider*. … *We cannot use the water if we do not have enough money to pay for it, and if we can get cheaper water then we can use the money we save to buy other important things. I therefore use the* [community] *taps when it is possible, but I am often forced to buy from* [unregulated] *sellers.*"
>
> (A78, 23/02/15)

Similarly, another resident from *Woreda* 7 outlined how her household's water sourcing strategy is fundamentally centred on cost. Her household's monthly outgoings can be significantly reduced by being efficient, stockpiling water from community taps and tanks when possible, and attempting to be positioned towards the front of the queue for these formal sources in times of intermittent or insufficient supply (A13, 29/10/14). She did also, incidentally, praise informal water providers and highlighted the service they provide as being "*lifesaving*" in the absence of reliable formal provision (ibid.). A resident of *Woreda* 10, meanwhile, highlighted the importance of mutual support networks to reduce costs. Neighbours take turns collecting water from the distant groundwater source in order to limit expenditure on the services offered by commercial informal providers (B36, 24/11/14). Thus, there is an overarching favouring of cheaper water services among all Akaki Kality residents.

The issue of price is concomitantly linked to the water quality in these localities, as the latter can be a key determinant of the former in the rather more expensive informal market. When residents employ the services of informal water providers in Akaki Kality, they may often purchase higher-grade batches for needs involving direct ingestion and lower-grade batches for other domestic tasks if available, particularly those that do not directly affect health. This suggests that striking a balance between price and quality, for many households at least, is an intrinsic feature of domestic water sourcing strategies across Akaki Kality. Such a strategy is only possible because of the "*honesty and care*" (A22, 31/10/14) of the "*very knowledgeable*" (B60, 11/12/14) informal water providers

in Akaki Kality, who advertise and therefore discount the price of the water when the quality is perhaps unsafe or even questionable for direct ingestion. Low grade batches become available when informal water providers have been unable to treat naturally existing water, their regular source becomes contaminated, or if they become aware of a hygiene concern either at the source or during transit. One resident praised this type of service as being:

> "*Very important to us* [in *Woreda* 7] *because we may already have some water that we can drink but need a bit more to wash with and wash clothes*. *Cheaper water is ... of course better in this case.*"
>
> (A54, 17/11/14)

This approving and appreciative sentiment towards such a service was echoed among the majority respondents from across the two research sites. It also often presents the chance to negotiate with the seller, and residents claimed that the cost of a jerrycan can regularly come down to between 50% and 75% of the customary price in such instances.

This topic also introduces some of the water consumption priorities within the household. Residents of Akaki Kality almost universally agreed that all water-related domestic tasks are essential and therefore water is a necessary, accepted expense. However, prioritisation does take place to a considerable degree, either in terms of allocating higher grade batches for specific tasks, or sacrificing some tasks in times of scarcity or prolonged service interruption. Water for drinking was consistently identified by respondents as the main consumption priority in the household, followed by cooking and food preparation. Household strategies not only try to ensure that water is "*always available*" for these domestic tasks (B53, 08/12/14) but also water of high quality, particularly for drinking.

Water for household activities such as laundry, bodily hygiene and rearing animals were generally identified as existing on a secondary priority 'tier', with other tasks such as sanitation, domestic cleaning, and garden upkeep being ranked further down the list after these. This is not to say that obtaining water for these secondary and tertiary tasks

is not important, but rather will be sacrificed in times of water shortage and financial hardship if needed. A sacrifice can either entail allocating a lower grade batch in order to undertake the task at hand, or simply not undertaking the task altogether. It is also interesting to note the prominent sense of family care and unity in Akaki Kality, where the young, elderly and unwell household members are often prioritised. In other words, these individuals are commonly afforded a larger proportion of water (and higher quality water when applicable) to ensure their needs are met "*before stronger family members*" (B6, 11/11/14). This can happen throughout the year, but once again particularly in times of resource shortage and financial hardship.

Tier 1	Tier 2	Tier 3
1. Drinking 2. Cooking 3. Food preparation	1. Laundry 2. Bodily hygiene 3. Rearing animals	1. Sanitation and hand-washing 2. Domestic cleaning 3. Garden upkeep

Table 16: Tiered and ranked domestic consumption priorities in Akaki Kality

Therefore, while the price of water is paramount to residents in Akaki Kality, this is clearly only the case up to an extent. We would otherwise see non-commercial forms of informal water sources – particularly rainwater harvesting and the collection of water from natural water bodies – comprising a far greater percentage of the total water sourced in the region than is currently the case. One respondent attested to this in detail by stating that water is:

> "*so important to all of us, but I think it is more important to avoid drinking dangerous water when possible. People try not to collect water from the rivers because they are afraid it will make them sick. Not many people collect rain*[water] *either, maybe because of* [limited] *storage but for some it is also because it is difficult to keep their roofs clean*" and, used as runoff surfaces, therefore may contaminate the water.
>
> (B73, 16/02/15)

There is sometimes also a perception that river water can "*even be too dirty*" for non-ingestion tasks (B29, 20/11/14). The desire for a certain grade of water quality – harmless and readily consumable – subsequently drives prospective consumers in *Woreda* 7 to predominantly utilise commercial water source avenues, as well as a significant proportion of those in *Woreda* 10.

In terms of the general quality of water from commercial sources – which encompasses private household connections, water tanks and community taps from the formal network, and both static and mobile informal water providers – Akaki Kality residents offered some extremely interesting verdicts. Those with private household connections are generally very satisfied with the quality of their tap water, although one respondent jokingly linked quality to functionality by replying "*the water quality is absolutely terrible, zero. There is never any water in the taps for us to use so the quality must be zero*" (A38, 05/11/14). Customers of unregulated household resellers also noted no noticeable quality issues with the water from these private connections, despite transporting the water away from the source in jerrycans. In fact, most household water resellers appear to be acutely "*aware of the importance*" of hygiene, actively replacing or maintaining the condition of jerrycans they provide customers (A3, 27/10/14).

In addition to informal point source operators, the almost unanimous opinion of consumers towards the quality of water supplied by mobile informal providers is similarly positive. Respondents alluded to the quality as "*perfect*" (B10, 12/11/14), "*as good as water from any other approved source*" (A61, 27/11/14), and that they "*use it for every task*" including direct ingestion (B17, 14/11/14). This overarching approval rather contradicts one of the principal reasons issued by Ethiopian authorities – and other governing bodies across the developing world – for maintaining the illegal status of commercial informal water provision, in that they cannot guarantee the quality of water being sold. However, it appears that the role of the informal market, competition between providers, and the desire to both maintain and develop a consumer base in Akaki Kality ensures the quality of water being supplied by unregulated providers is either consumable or comes with a guideline as to what it should be used for. This notion

is overwhelmingly supported at least by the fact that 168 of the 180 respondents[11] from across the two research sites were positive about the quality of water supplied by informal water providers.

I mentioned earlier in this section that the quality of water from formal services is 'perceived' to be greater than it is when sourced through informal modalities. This reflected the somewhat surprising finding that consumer perspectives towards the quality of water from some community taps and particularly water tanks in Akaki Kality varied, at least to a far greater degree than the near-universal positivity towards the quality supplied by informal providers. One respondent from *Woreda* 7 outlined how she consistently aims to obtain drinking water for her household from a specific community tap rather than the nearby water tank, citing multiple incidents of mild sickness and diarrhoea when using the latter. Another from *Woreda* 7 claims there was a quality or "*contamination*" problem with one of the community taps early in 2015 and has since decided to only use water from this source for laundry, cooking and personal hygiene rather than for drinking (A58, 18/11/14). Several other respondents from *Woreda* 7 also rather alarmingly made reference to such issues or concerns – either currently or in the past – with nearby formal water outlets.

The situation in *Woreda* 10 was rather different in that there appeared to be no water quality issues with the solitary water tank there, although it must be reaffirmed that this was constructed towards the very end of my final fieldwork visit. Nevertheless, considering all perspectives from across the two research sites, respondents appeared far more confident in the quality of water supplied by informal water providers than formal water outlets. This sentiment is aided at least in part by the accompanying assessment of individual batch grades offered by unregulated actors. The implications of this finding are staggering, and suggest that the testing and maintenance of formal water outlets in Akaki Kality (aside from the piped network) must be substandard. Yet, it is the significantly more favourable price of 'formal water' rather than the quality that

[11] There were no negative comments, rather the remaining 12 respondents either had no opinion on the issue or had not used informal services recently.

means prospective consumers actively pursue these sources first, once again reinforcing this price-quality household water balancing strategy.

Reliability and convenience

I have already briefly alluded to how reliability and convenience can, by default, precede price and quality in household water strategies. After all, when a water point is non-functional the price and quality of water it is supposed to supply becomes irrelevant. Reliability and convenience otherwise represent the secondary group of considerations when other aspects are constant or when there is a conscious decision to be made. It is here I therefore analyse all aspects associated with reliability and convenience directly. It encompasses factors such as the reliability or functionality of each modality; the convenience of opening or operating hours; queuing times at the source; and the distance from household to source. This latter point is simultaneously linked to the quantity needed; who is available in the household to collect or help collect the water if travelling is required; and therefore the weight of the load and time it will take to collect.

In terms of the reliability of informal providers, the previous chapter referred to the fact that these unregulated actors ensure they are flexible to avoid letting their customers down when water has been requested, albeit from the perspective of the providers themselves. Community residents in both *Woreda* 7 and *Woreda* 10 verified this ardently, claiming that they "*are very dependable*" (B85, 27/02/15), "*have never let my household down*" (B43, 26/11/14), and one provider "*often tells me a delivery time, and the only time he is late is if he has to collect ... water* [from a different source] *but he still always arrives*" (A10, 29/10/14). Only on three occasions has an unregulated water seller ever failed to deliver to one of the respondents repeatedly, which incidentally prompted these households to find alternative informal providers as one of their multiple options. Normally, failing to fulfil an order does not appear to be a viable option for informal providers in a context where water shortages are common and intense competition exists in the unregulated market.

Households that are connected to the piped water network, meanwhile, appear to experience significant reliability issues, causing respondents to either regret or at least question their decision to pay for a connection in the first place. This finding is only applicable to *Woreda* 7, as such a network is not present in *Woreda* 10. The general feeling among residents with a household connection in the former was deep frustration at having to pay a regular service charge when there are frequent and often prolonged service outages. This is in addition to the significant upfront connection fee and, depending on geographical circumstances, infrastructural extension costs. One household head stated:

> "*We knew about the* [citywide system of] *rationing* [to balance the supply-demand deficit] *and accepted there would be some days our tap would not work. But it has been over two months since a drop of water came out, and we have to pay for this 'luxury'*. … *It* [having a piped connection] *has cost us a lot more overall because we usually still have to pay for water from other places"*.
>
> (A33, 04/11/14)

In fact, negative responses from residents with private household connections such as these were alarmingly common. I discussed in the last chapter how service outages can be problematic for household water resellers in *Woreda* 7, but those operating for profit still manage to maintain a sustainable income by selling when their household connections are functional. For those who have a household connection purely for personal use, and who operate on a particularly marginal budget, the life cycle costs of such an investment in Akaki Kality appear to become untenable. In other words, the connection costs, service charges and ongoing maintenance costs, coupled with this unreliability and subsequent need to continue paying for other forms of water, are essentially not cost-effective. This is, very simply, entirely attributable to the issue of reliability.

Indeed, it is problematic that the overarching utility provider ideology maintains the urban poor as non-viable customers. This perception theorises such customers to be difficult to reach with equitable and financially sustainable water services, unlike in

areas such as Bangalore or Ahmedabad where identification cards or temporary tenure agreements have emerged instead of a legal tenure requirement (c.f. WaterAid, 2009c). There is a clear need for regulations to be loosened in Ethiopia to help informal households secure water supply. However, even if a more flexible regulatory framework was created to either allow connection costs to be spread over instalments or that provides further subsidies to the urban poor, households will still be wary from connecting to the piped network as those that have already invested are not reaping any reward. Changes in policy will thus need to be matched by improvements to the existing piped service.

Formal water points in the target communities across both *woredas* also experience significant reliability issues. Due to the relatively recent installation of the only tank in *Woreda* 10, data acquired on this water point's reliability was not comprehensive. Nevertheless, it still indicated there was a shortfall of between one and two days each week before it is refilled. Meanwhile, respondents in the 'served' *Woreda* 7 are only able to access water from other formal water points in the community for an average of just over three days per week. The water point reliability in *Woreda* 7 can also be dissected further still in relation to seasonality, which naturally eases and intensifies this general base standard. The water pressure and available volume from formal water points in the rainy season ensures the local waterscape becomes inherently more navigable according to residents. In the dry season, on the other hand, the challenge of prolonged non-functionality is commonplace in *Woreda* 7, meaning the availability of formal water declines considerably. Residents also reported a negligible seasonal difference in the rate at which water tanks are replenished despite the subsequent increase in demand for water from these sources in the dry season.

It has thus become even clearer how significant the unwavering reliability of informal providers in both *woredas* outlined previously is to consumers. One respondent stated that:

> "*The situation in the dry season can be very bad but* [informal] *water sellers still manage to deliver water to us. We pay more* [in the dry season as a result of using

informal water providers more frequently] *but that is something we factor in to our finance calculations for the year because there is not enough water here.*"

(A72, 04/12/14)

Most residents in *Woreda* 10 similarly alluded to a rise in dependence on informal water providers during the dry season due to a depletion of their surface and groundwater supplies. The findings also reiterate the importance for households to demonstrate flexibility in their everyday strategic approach. As such, some households undertake seasonal rainwater harvesting both to reduce costs and to stockpile water in anticipation of future shortage, though I should stress that this technique is not customary in the region. The fact it only takes place on a seemingly limited scale across the two communities is somewhat surprising, as participants fervently advocate the process as an invaluable time-saving and cost-cutting mechanism. One respondent stated:

"*We don't have very much storage space and we only use the* [harvested] *water to wash clothes and our bodies because it is not the highest quality, but it still saves us buying all of the water for these tasks. It is very important to us.*"

(B21, 15/11/14)

Other respondents identified a lack of resources and know-how as two key factors that prevent the efficient and hygienic collection of water through rainwater harvesting, however. Finally, the emotions conjured when discussing the severity of the dry season prompted some residents from *Woreda* 7 to admit to collecting water from broken formal pipes. This finding emerged long after my original immersion in the community and was perhaps indicative of the strong relationships and level of trust I had established with inhabitants. Pipes have reportedly been known to leak or rupture without external force, but residents suggested it is likely accessible ones are sometimes sabotaged either by prospective consumers or informal water providers. Residents outlined their regret at sometimes resorting to this modality when the opportunity arises during prolonged periods of formal service interruption, and stopped short of condoning this vandalistic behaviour. However, they also acknowledged that such acts are borne out of desperation and protest towards the inefficacy of urban water authorities.

The convenience of water points concludes this section on domestic water strategies, specifically source opening times or hours of operation, queuing times at the source, and the distance from household to source. Another advantage of utilising the services offered by mobile informal water providers is that they predominantly negate all drawbacks associated with these issues. Respondents indicated that there are of course no queuing times or distances to travel, and rather the providers often issue the consumer with an estimated delivery time to the household. In addition, mobile informal providers in Akaki Kality operate long and flexible hours in order to meet the needs of the consumer, and so inconvenience seldom becomes an issue. Considering this alongside their impressive reliability and water quality standards, community residents depicted mobile informal water providers to be the consummate alternative to either formal or naturally existing water modalities depending on the research site (A17, 30/10/14; B34, 21/11/14).

The issues of opening times, queuing times and distance to source all come into play for formal community water points, and to a slightly milder degree, household water resellers. Distance to source, as well as the nature of the route, meanwhile defines the collection of water from natural bodies. Implicit within all of these considerations is the concept of time, which in turn is an extremely valuable commodity for women in Akaki Kality. Thus, balancing such considerations can be a significant factor in the everyday decision of which source to utilise. One respondent claimed:

> "*there is never enough time in the day to finish my* [domestic] *tasks so I do not like standing in a queue for water. If I go to the* [community] *tap very early it is normally fine and near my home so this* [source] *is my preference.*"
>
> (A50, 08/11/14)

Another from *Woreda* 7 discussed the physical struggle of carrying filled jerrycans and will sometimes collect water from one of the community taps only as a last resort – even favouring paying a neighbour to collect it for her or paying a higher rate from informal providers in the past – "*because it is* [up]*hill on the way back and very difficult with ... back pain*" (A29, 03/11/14).

In fact, many female respondents alluded to the time pressures, safety concerns, and physical strain that accompany the responsibility of sourcing water. Collecting water from a formal source in Akaki Kality may not necessitate the coverage of similarly vast or treacherous terrain as in some of the more rural, remote parts of the country. However, one respondent from *Woreda* 7 stated:

> "*I now suffer great pain in my back from carrying* [a jerrycan of] *water only a short distance several times a week for the last 50 years*, *but it is very important that I keep collecting it.*"
>
> (A59, 18/11/14)

Another from the unserved and significantly more isolated *Woreda* 10 outlined how using informal water providers can at times be invaluable, even if a cheaper viable alternative water source is available that day. This is due to the time it saves and the safety it ensures:

> "*It is tiring* [collecting water] *and I am the only woman in my house so it is my duty. One trip* [to a natural source and back] *can sometimes take two hours, so it can be difficult when I have other duties at home and my stall. ... it is a very dangerous journey. I fear falling and hurting myself, and there are some men who may attack me. Hyenas also live in the hills and one woman was killed*" a couple of years ago.
>
> (B38, 24/11/14)

This analysis on household water sourcing and consumption strategies has ultimately shown there is the continuous need for prioritisation. Households typically prioritise the cost of water and thus formal sources over quality, otherwise informal water providers would unquestionably become even more important than their current role as gap fillers. However, Akaki Kality is a region where formal network outages, insufficient point replenishment and technical malfunctions are commonplace. Prioritisation thus has to take place in terms of water consumption, and those responsible must work out exactly how much water from particular sources – sometimes of differing quality – should be used for certain domestic tasks. Convenience and maintaining safety emerged as further

source considerations, but the overarching themes to arise are flexibility and diversity amidst an environment of water uncertainty. Such uncertainty presents the potential risk of being without water on any given day or during a certain period, meaning households have to demonstrate flexibility and diversity in their water sourcing strategies to minimise the risk of this dangerous possibility.

7.4. Challenging myths: perspectives of the consumers

This final element to Chapter Seven seeks to utilise the perspectives of residents from the informal communities to challenge four received wisdoms that seem to have developed in both literary and policy circles. In short, the four myths I am referring to are as follows:

- Informal water providers exploit consumers and thus are negatively perceived in their target communities.
- Low-income households are unable and/or unwilling to pay for water.
- Low-income households either have access to water or do not.
- Possessing or feeling a sense of citizenship depends on access to *regulated* benefits and services.

Although the preceding empirical material has at times challenged these notions using data acquired from across the two research sites, it is important to develop a concentrated section here. I will now proceed to consider the perspectives of residents pertaining to the first of these misconceived domains in detail, and help promote a shift away from the predominantly negative narrative towards informal water providers that currently exists.

Towards informal water providers

As discussed in Chapter Two, the trade of informal water provision tends to conjure fundamentally negative connotations, perhaps to some extent due to its association with the failure of regulated modalities (Kjellén and McGranahan, 2006). Actors in this unregulated sector can be perceived as ephemeral nuisances and of negligible significance, points that were so famously discussed with regard to informality in general as part of Hart's (1973) coining of the sector. They are also widely seen to be using an indispensable resource to exploit and profiteer from impoverished communities, all the while providing a low-quality, unsafe and sometimes aggressive service (Albu and Njiru, 2002). Such ideas have at least in part contributed to the decision made by some urban authorities, including in Akaki Kality and the wider Addis Ababa region, to denounce and criminalise the unregulated sale of water. However, consumers of informally provided water in Akaki Kality – those who have continuous contact and first-hand experience with these unregulated actors – comprehensively highlighted throughout this study that the reality on the ground is the antithesis of such negative portrayals.

This can be substantiated with the perspectives of consumers regarding three different but interconnected strands. The first of these concerns the importance of the service offered by informal providers as an alternative water modality, specifically the dependence of consumers on these unregulated actors. With close links to this is the second thread, which considers an emotion directed more towards urban water authorities but one that also exhibits empathy and a sense of solidarity with informal water providers. Akaki Kality residents are becoming increasingly frustrated with authorities and their continued effort to suppress the activities of informal water providers. Respondents questioned the seemingly immoral logic behind such a stance and simultaneously raised their concern at the prospect of this alternative water modality becoming reduced or even extinguished. The third tenet presents the overriding positive consumer opinion towards the quality of informal services independently of formal modalities, as well as a general acceptance and understanding within the communities that the prices of informal supply have to be as high as they are.

Commencing with the first of these notions, the majority of residents in Akaki Kality are unreservedly dependent on informal water providers. Indeed, we have seen how such services are predominantly only called upon as a backup due to their higher cost, but also how the term 'backup' is highly misleading. The services offered by informal water providers are employed so regularly that these 'backup' sources either rival or paradoxically exceed the frequency at which formal outlets are used for most across the region. This finding serves as the fulcrum of my argument that informal water providers are not only significant to low-income and formally underserved consumers, but indispensable (see Figure 35).

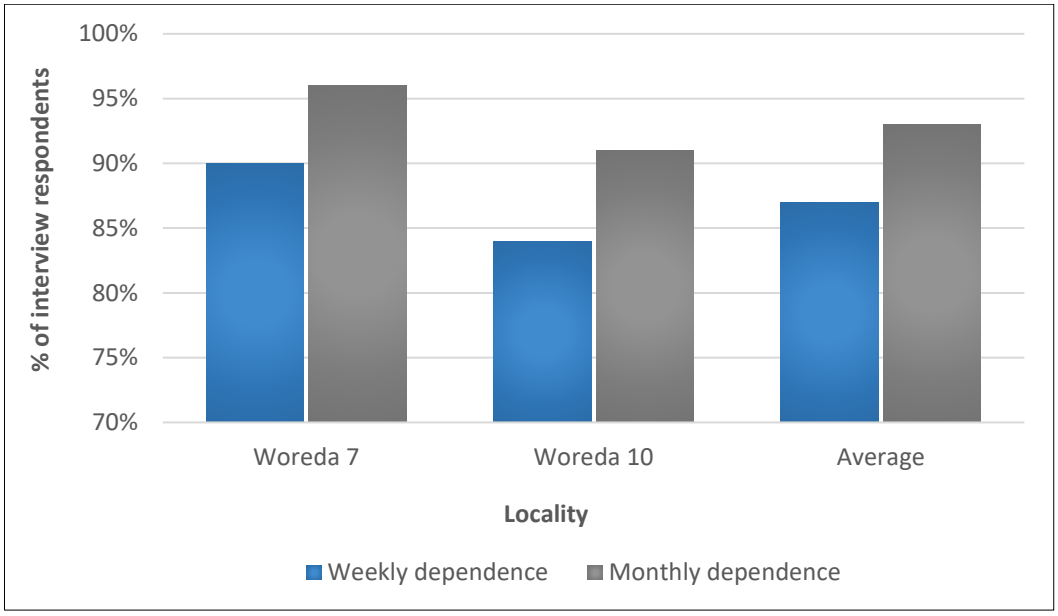

Figure 35: Dependence of Akaki Kality residents on informal water providers

Rather than relay or provide analogous extracts from interviews with community residents to those that helped develop the analysis throughout previous sections in Chapter Seven, here I aim to draw on new case examples and material that directly stress the extent of the community dependence on informal providers. One respondent stated:

> "*It is true, I do not know what I or many of my neighbours would do if these* [informal] *sellers did not come here* [*Woreda* 10]. *Before* [the water tank was erected], *I would buy my water from them three or more times every week and now*

maybe once or twice. So the situation is improving but when more people come [migrate] *here and the tank is not filled up* [regularly] *I will depend on them* [informal water providers] *more once again to survive.*"

(FG8, 15/05/15)

This therefore highlights a strong dependence on informal water providers as well as a simultaneous lack of confidence in urban authorities and the formal water points they administer. Indeed, these interconnected sentiments were echoed, as another respondent from *Woreda* 10 indicated:

"*I have lived here for years and this is the first time they* [the authorities] *think of providing us with water*. *It was only built a few weeks ago and already it is not filled up often enough. Is this a plan that makes it appear like they* [the authorities] *want to help us in Woreda 10 and other poor communities*? *I hope I am wrong but I know it is true. So of course [informal] sellers are important, we need them desperately. [Without them] women would have no time to do anything else as we would always be travelling to collect water.*"

(FG8, 15/05/15)

Similar feelings also emerged from *Woreda* 7, where a formal water infrastructure of sorts has been in place for a number of years. The collective overriding opinion of informal water providers among residents was entirely positive and the level of dependency on their services evidently profound. These unregulated service providers continuously plug the service voids in *Woreda* 7, which experiences persistent non-functionality and the inadequate replenishment of water points. Without them, there would at times be no other viable alternatives aside from undertaking long and potentially hazardous journeys. They and the service they provide were referred to by residents in *Woreda* 7 as:

"*So important for me and my son who are HIV-positive, they make sure we are never without water.*"

(A47, 07/11/14);

> Indispensable as "*we can manage without very much food but if* [informal water providers] *stopped selling we would have to try and cope without water ... sometimes for long periods and this is not possible.*"
>
> (A52, 13/11/14);

> "*Maybe even more important than* [formal] ... *services as although using them* [informal providers] *is more expensive I know I will never have to go without water.*"
>
> (A67, 28/11/14)

These comments made by research participants in Akaki Kality quite clearly delineate the level of their dependency on informal water providers. I also hypothetically asked each of the 180 interview respondents and 49 focus group participants at the end of each of our discussions to very simply state whether they would be able to cope if informal providers were expunged from the current water supply options in the region. The results lend further credence to my assertion that informal water providers are indispensable actors, as 221 of the 229 to answer revealed they indeed could not manage in their absence. Of the remaining eight, three were unsure while another three suggested they would cope purely because there would be no other choice apart from trying to find another way. Only two respondents categorically confirmed that their households would manage.

Several respondents proposed that this dependency on informal water providers in *Woreda* 7 stems from complacency on the part of urban authorities, rather than an innate lack of desire to help that was reported from within *Woreda* 10. According to some inhabitants, authorities perceive the presence of an infrastructure in *Woreda* 7 as a success in itself, and resolving persistent issues surrounding functionality has therefore become a secondary priority behind the establishment of new networks or water points in unserved communities. This leads me on neatly to the second theme in support of the notion that low-income communities unreservedly support the role of informal water providers. Not only is there a somewhat deep sense of frustration towards urban authorities in the region due to the inadequacy of formal water supply, but also in

respect of the negative stance and suppressive action authorities are assuming towards informal water providers seemingly without contingency measures in place.

On occasions, feelings appeared to surpass frustration as some residents from both research sites vented their anger towards urban authorities during interviews and focus groups. Again, this was because they have failed to establish any reliable alternatives, yet actively seek to prevent informal providers from operating. One respondent, for example, questioned:

> "*What do they* [the authorities] *think we should do when the community taps do not work or the tank is not filled? Do they expect us to wait a few days for their services to work again? In my opinion it is a total disgrace and they do not understand normal life problems.*"
>
> (A37, 05/11/14)

Another stated:

> "*I do not understand why the authorities would want to create a situation where thousands of people have no water* [during times of service interruption], *surely they must see that* [informal] *sellers help them and save them money. It is so corrupt here.*"
>
> (A49, 08/11/14)

These remarks generally reflect the dominant narrative of incomprehension to emerge from the interviews in relation to the stance of urban authorities, and it is clear that residents fully support informal water providers and their role in negating what could effectively become an episodic crisis in their absence. Of course, the current policing stance is reflective of a lack of knowledge surrounding informal providers' operations – particularly the water sources they use – and therefore the water quality being supplied. Not only has this study helped to alleviate such concerns, but respondents also estimated that households would be without water for between 40% and 60% of the time in a typical week, if formal water outlets in their current state represented the only

channel through which residents in Akaki Kality could obtain water. By overseeing what is effectively an innovative and extensive water redistribution scheme, informal water providers currently ensure that residents always have access.

The third thread highlights that the positive perspective towards informal water providers on the ground also stems from a widespread recognition of the quality of service these unregulated sellers deliver. This is independent of comparisons with any other modalities. Indeed, I have already discussed at various stages throughout Chapter Seven how consumers fervently praised their reliability, flexibility, willingness to please, and water quality, so my fresh point to touch on here is the financial side. Contrary to popular belief, low-income residents do not feel as though informal water providers are exploiting them. At least this is the case in Akaki Kality, as community residents stated that the service offered by mobile informal providers is certainly worthy of higher prices than formal modalities. Informal water providers often have to "*transport water long distances*" (B81, 19/02/15) and "*need to make a* [worthwhile] *profit*" in order for them to undertake such a role (B75, 17/02/15). They can also only transport a limited number of jerrycans on each trip and do not benefit from economies of scale or subsidisation that utility "*service providers experience*" (B56, 09/12/14).

It is so important to emphasise that these are points made by residents of the two low-income communities that this research focused on. So often in the literature are low-income communities in the developing world inferred to comprise of vulnerable or incapable pawns within a much broader issue. These residents are insightful individuals who are fully cognisant of the complex social affairs that unfold around them. Many other respondents in addition to those quoted above forwarded similarly percipient opinions about both the local and wider water sectors, and very rarely were complaints raised from within the communities about the prices set by informal water providers as a result of this understanding. Rather, it was more an overriding feeling of frustration that these prices have to be paid and that this situation is the norm.

The data gathered from the two target communities during the fieldwork repeatedly indicated an overwhelmingly positive and grateful stance towards these unregulated

actors in the local water market despite the inevitably higher cost of their service. However, as I have mentioned, this local level perception is not often acknowledged by some actors and authorities in the formal enabling environment, or at least not reflected in the policy arena. This needs to change in the case of Akaki Kality and Addis Ababa, as the significance of informal water providers in this region is irrefutable.

Towards water affordability

This chapter has consistently alluded to the significant financial outlay on water that households in Akaki Kality have to cater for each month, of which a significant proportion is used for the considerably more expensive informal water services. Back during the formation of this study, one of my original aims related to the financial findings was to consider the aforementioned issues of water affordability and the ability-to-pay versus willingness-to-pay debate in the context of the research sites. However, in light of the findings, I aim to use the perspectives of Akaki Kality residents in this sub-section to instead highlight how these are perhaps somewhat futile questions to be asking or the wrong debates to be having. I will simultaneously develop the analysis to introduce some interesting alternative ideas.

First of all, in terms of water affordability, a considerable number of residents from across the two research sites in Akaki Kality actually appeared rather unsure at how to speak of such a concept. For most, it was not so much a question of affordability as it was a necessity, and therefore the price of water almost becomes immaterial. I will use a detailed extract from an interview with one *Woreda* 7 resident to highlight this argument:

> "*People here try to save money where they can, but if the price of water suddenly surged for some reason, do you think we would say 'I'm sorry that is too expensive, we will manage without this week?' No, we would pass* [away] *and go to heaven. Of course there is a limit, and we would not be able to get the money together if one jerrycan cost something crazy like 15,000* [Ethiopian] *birr* [approximately

690.60 USD]. *But I speak of this realistically and within reason. People always have a way of finding enough money for water, this is the priority and other things will be sacrificed. ... We would rather water was cheaper from [informal] sellers, but it is always affordable, it has to be.*"

(A20, 31/10/14)

So, while Section 7.3. discussed the individual priorities of water consumption within the household, the topic of affordability in the interviews raised the idea that water itself is the overarching priority. The underlying message within this one example response was echoed among a significant majority of residents in Akaki Kality, a region where marginal household finances regularly become stretched. It emerged that when this happens, most other household expenses are essentially expendable, at least temporarily, if the alternative is either rationing or going without water. This policy of sacrificing basic household needs in favour of water even includes food in times of serious hardship, as households draw upon food reserves that are commonly stored away or borrow ingredients from neighbours in order to cook. The lending of water, incidentally, is not overly common due to its widespread use within the household. Thus, a fairly significant volume would be required by the recipient to make a notable difference, a volume the lender would often not be able to part with.

Water affordability in the context of Akaki Kality is therefore a rather complex concept to gauge. There appears to be general base prices for a 20 litre jerrycan of water from a formal modality (excluding piped household connections), from a mobile informal water provider, and from an informal household reseller, which consumers and suppliers are both generally aware of and adhere to. Yet while these respective prices of approximately 25 Santim (approximately 0.01 USD), 6 ETB (approximately 0.28 USD), and 4 ETB (approximately 0.18 USD) clearly vary quite considerably, they are all affordable to Akaki Kality residents. In fact, even if the latter two more expensive prices for 'informal' water were to increase further still, they would still be affordable until prioritisation strategies within the household and basic lifestyle changes could no longer support or keep pace with the rise. Even if this tipping point is reached, several

respondents were confident that they could "*find a way*" (B65, 12/12/14) by demonstrating the innovation required to meet their need.

So, is affordability the wrong question to be asking? It certainly does not come into the thoughts of many residents in Akaki Kality, as to them water and any other necessity is either affordable or can become affordable through making changes. In essence, affordable water in Akaki Kality can be considered as open and simple as a price that does not unsustainably compromise other basic qualities of life or exhaust the feasible means through which the required purchasing power can be attained. However, given that this tipping point – according to the residents themselves – is a distant or improbable phenomenon, the concept of water affordability in Akaki Kality does appear somewhat abstract and unreflective of everyday reality in the region.

This analysis of water affordability leads me on to consider the ability-to-pay versus willingness-to-pay debate using the findings from Akaki Kality. Indeed, this aforementioned debate has essentially been undermined and rendered futile by the empirical material I have presented thus far. We have found that residents of low-income, informal communities are both able and willing to pay for water from most formal water outlets, as well as 'informal' water that is priced at a far higher rate per unit of volume than it is through formal channels. Where the question of *ability* comes into fruition, and perhaps also where this mythical ability-to-pay versus willingness-to-pay debate at least in part derives from, is that low-income households are unable to pay for the expensive initial connection costs. Indeed, this idea is sometimes included in literature surrounding affordability as outlined in Chapter Two, however this crucial point tends to get eroded in most discussions on the issue. In addition, the key issue of inequity often gets omitted altogether, whereby wealthier, central urban areas regularly escape having to pay such charges. The only apparent *unwillingness* to pay for a formal source, meanwhile, comes in the form of the regular service charge a household connected to the piped network is obliged to pay. This is purely a reflection of the intermittent service and the subsequent need for subscribers to continue employing alternative water sources, and does not incidentally equate to a refusal to pay.

To conclude, low-income households *do* understand the health benefits of consuming potable water and *are* therefore willing to purchase it, while also making sure they are in a position to be *able* to buy this indispensable resource as and when they need it. The consensus among residents from across Akaki Kality was that connection rates would soar if the quality of the service from private household connections was good (and actually existed in the case of *Woreda* 10), and if the initial costs of connecting a household to the formal piped network were not entirely passed on to the consumer or to be paid in one upfront lump sum. Of course, the current state of play relating to these two 'ifs' renders this a hugely hypothetical statement. It nevertheless reinforces the idea that low-income households are indubitably able and willing to pay for quality of water. The debate should instead be focused on how to improve all services and reduce their overall cost for everyone. As, although it may always be affordable, the current amount spent on water as a percentage of total average monthly expenditure in Akaki Kality is unjust.

Towards water access

Back in Chapter Two I reviewed the literature relating to some of the fashionable narratives within development and water circles, part of which critically considered 'access' as defined in the MDGs. This sub-section moves on from this discussion to dissect the term 'access' in relation to water in Akaki Kality; provide concentrated empirical evidence that draws into question the way it is measured and monitored; and essentially challenge its portrayal as being an inherently dualistic concept in much of the existing literature.

We have seen from the two research sites in this study how residential access to water can differ quite considerably even within the same municipality or a similar geographical locality. Residents of *Woreda* 10 in Akaki Kality have, until recently, never had access to a nearby formal water source in terms of either private domestic supply or community points. Even now there is only a single water tank to serve approximately 927 households. *Woreda* 7, on the other hand, has a comparatively extensive formal water

infrastructure with multiple community water points and the option for households to connect to the piped network. However, this study has shown that these infrastructural differences cannot simply be taken at face value in order to delineate residents' access. Focusing on the level of infrastructure alone without sufficient monitoring is perhaps where the problem of 'access', as both a theoretical and quantifiable concept, principally lies. Indeed, this is not a criticism of sector strategy, as monitoring water point functionality is an extremely challenging and resource-intensive task. However, the reality is that far less people are being served through formal water outlets than is being reported through official mediums such as MDG output reports and the WHO and UNICEF JMP. Functionality is a huge problem and the case of *Woreda* 7 offers strong evidence of this fact. *Woreda* 7 residents consistently articulated how the water tank is not filled frequently enough; community water points are often non-functional including one that has not worked for over a year; and piped household connections are subject to similar technical outages on top of the citywide rationing policy in place. The result is that domestic strategies employ a plethora of different sources (see Figure 36), whereby the services of informal water providers have to be utilised at a similar if not greater frequency than formal outlets.

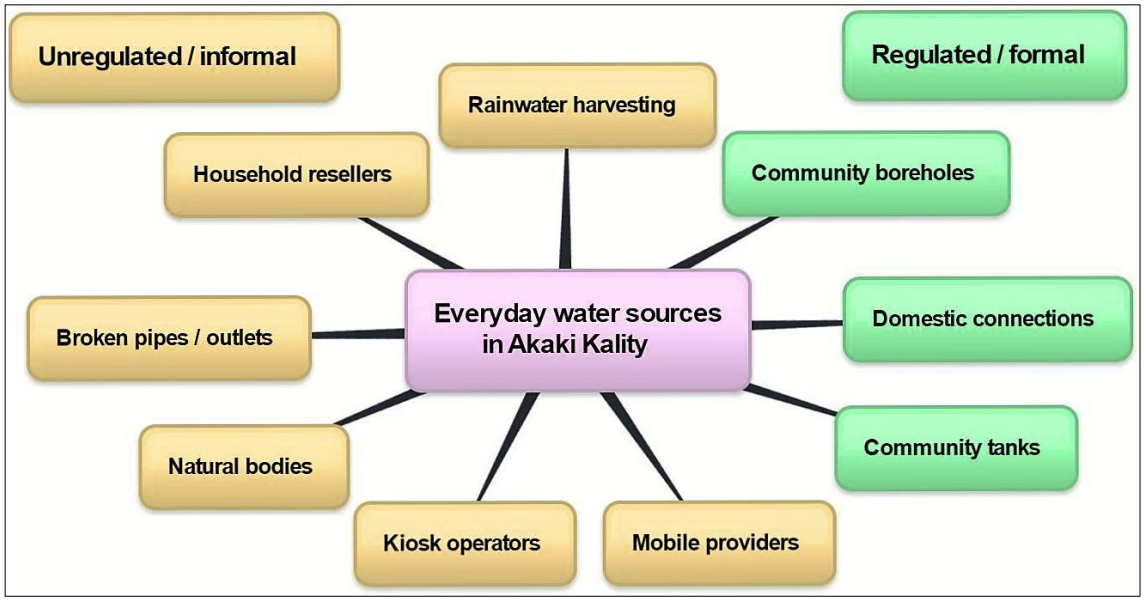

Figure 36: Water sources used by Akaki Kality residents

Why this is a problem if residents always have access to water through one form or another will become clear. The first reason is because the urban water authority in Akaki Kality understands *Woreda* 7 to be fully served and that the residents there have sufficient access to water through these formal, improved water sources. Representatives from the water authority also attested to the fact that no plans to develop the infrastructure in *Woreda* 7 currently exist, with the focus shifting more towards "*other communities in Akaki Kality ... that are lesser served*" (AKWSA, 11/03/15). This suggests that authorities are either not privy to, are unable to tackle, or are unmoved by the true extent of the situation in *Woreda* 7, and that these functionality issues will be ongoing. The wider implication of this is that many communities across the globe – such as *Woreda* 7 in Akaki Kality – are likely reported to have sufficient access to water through formal means, thereby painting a much rosier picture of progress than in practice. To play devil's advocate, it makes one wonder whether the need to report positive progress in line with global targets therefore actually undermines the effort to achieve universal water itself. The situation is far from resolved in *Woreda* 7, yet the 'box is ticked' in terms of implementing a water network and authorities, at least for the time being, have moved on.

The second problem with the fact that non-functionality is seldom taken into account when discussing access to water is that there seems to be double standards in play. Urban water authorities in Akaki Kality, and across the globe for that matter, appear somewhat forthcoming to report progress in 'water access' for its inhabitants but fail to recognise or rather publicise that informal water providers are ensuring that access in reality is sufficient. After all, informal water providers ensure that even those in communities recognised as being formally unserved – such as *Woreda* 10 prior to the erection of the water tank – have water access, at least continuously if it cannot be deemed reasonable because of the price. The subsequent questions I pose here then relate to the value of the term 'access to water' in its current form and the affiliated proxy guidelines, as utilised in official global targets such as the MDGs and more recently the SDGs.

The fact that residents of *Woreda* 7 are officially deemed to have access to safe water, yet in reality they would be unable to make it through each week without the services of informal water providers, suggests that these unregulated actors need to be recognised. It is incidental whether this comes in the form of an extension to the 'access to water' concept to include informal providers as a viable water source modality, which would perhaps render current global access statistics significantly more accurate, or through an inquest into how 'access to water' is officially measured, which would lead to a reappraisal and reduction of existing access rates. The point is that informal water providers are absolutely pivotal in ensuring low-income communities do have continuous access to water, whether this is supplementing formal supply modalities or acting as the sole provider in communities where no formal infrastructure exists.

The task of monitoring or quantifying the scale of an unregulated and increasingly underground operation is undoubtedly fraught with challenges, perhaps more so than the monitoring of formal water point functionality, but the continued exclusion of informal water providers from official access figures and publications is ultimately deceptive. This study has also shown that the service these unregulated actors oversee could be considered to fall within the remit of the UN's accepted proxy guidelines for access to water. The water they sell is often acquired from an improved source but is simply being redistributed (otherwise it is either treated manually or comes with a quality warning); the distance from household to source is often effectively within the specified one kilometre, as mobile providers either deliver jerrycans directly to the consumer or residents collect from a nearby household water reseller; and the necessary 20 litres per capita per day to qualify as 'reasonable access' can only be achieved in Akaki Kality *because* of informal water providers. Although the price of water may also need to feature in order to differentiate between the various echelons within 'access', we slowly begin to add a bit more meaning and depth to the concept of access to water. The existing guidelines for water access rates and calculations are indeed inherently more simplistic and administrable, but could render recent statistics to be several orders of magnitude from the truth, thereby undermining its value as an indicator.

The final aspect associated with 'water access' that this study appears to have comprehensibly challenged is its portrayal as a dualistic concept. Residents of low-income communities are widely depicted to either have access to water or not, whereas this study has shown access to be a far more fluid concept, which must also be the case in other contexts and perhaps in terms of other resources. The much-reported figure that approximately 663 million people are currently without access to an improved water source (WHO/UNICEF JMP, 2015) is therefore not only highly underestimated primarily due to the issue of non-functionality and the measurement proxies that fail to yield a realistic representation, but it would be difficult to assign a figure even if more accurate information were to become available. Quantifying water access to reflect reality would more than likely have to take the form of a range rather than a single integer, or perhaps even a disaggregated series of figures and addenda, in order to highlight the dynamic nature of water access.

We have seen, quite comprehensively, the extent to which households in Akaki Kality oversee a flexible and often complex water sourcing strategy. Multiple sources – essentially ranging along a continuum from the very formal to the entirely informal (see Figure 37) – are employed simultaneously to minimise the impact of potential non-functionality and quality issues. This means an individual household's access to water continuously shifts along a similar continuum, perhaps ranging from strong access or plentiful source options to periods of limited availability. I have refrained from using the term 'no access' intentionally here, as residents consistently alluded to the remarkable adaptability and resourcefulness they display in order to avoid finding themselves without an immediate avenue to water. In times of relative water scarcity within a given locality, households will prioritise certain water-related tasks in the domestic environment to maximise the value of its reach, but of course having no access *could* happen in theory. In essence, water access simply cannot be portrayed as the 'this or that', 'all or nothing' representation that seems to currently exist.

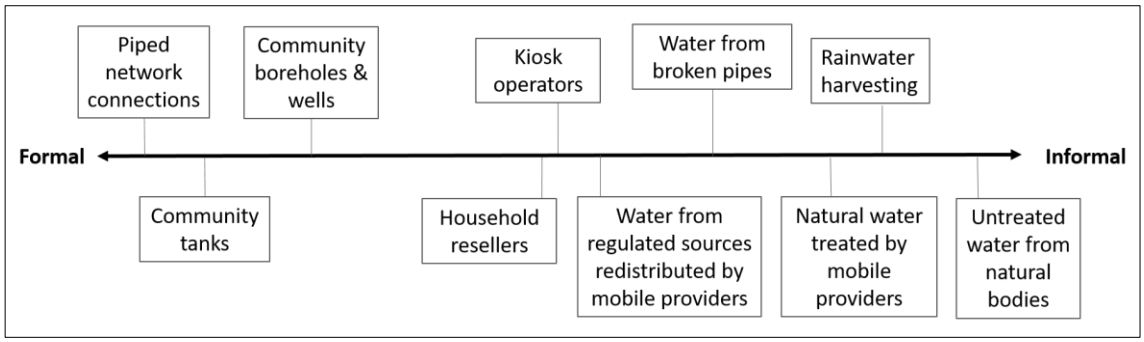

Figure 37: Formal-informal continuum of water sources in Akaki Kality

Towards citizenship [and informality]

The premise of this shorter final sub-section concerns a finding that was not directly identified in this study's original research questions, but nevertheless emerged as an interesting point of discussion throughout. It relates to the idea of citizenship and subsequently informality; specifically how water informality suggests that service access as an indicator of citizenship can be unlocked to encompass more than just formal modalities. In turn, this challenges the relevance of the formal-informal dichotomy I have had to maintain throughout this thesis for the purpose of analysis. The so-called informal water domain appears to be fundamentally engrained within urban society in the context of Addis Ababa, and thus needs to be recognised and supported alongside currently regulated channels in order to improve *actual* coverage.

In firstly discussing the relationship between citizenship and water informality, I refer back to Hordijk's (2005) three-pronged portrayal of citizenship as: a socio-political right; an act of agency and practice; and a relationship of co-governance between citizens and authorities. Residents consistently alluded to the idea that informal water providers make them feel like valued customers and citizens, and ultimately allow them to realise their human right to water at times, particularly when formal channels cannot fulfil this duty. Having continuous access to water – which is only possible because of informal providers, irrespective of its higher cost – in turn fosters a sense of agency or that one can act as a citizen. In other words, water certainty represents the foundation from

which urban residents can go about their everyday lives in Akaki Kality, and it is the collective actions of unregulated water providers that in part facilitate this feeling of worth.

The idea of citizenship as a relationship of co-governance in this context, meanwhile, implies that citizenship can be inherently fluid and partial in practice. Unregulated water access does not present Akaki Kality residents with the potential to make decisions alongside authorities; Hordijk's final aspect of citizenship. Service-based citizenship along these lines requires the authorities to engage with, rather than denounce, water informality. Nevertheless, informal water providers still appear to offer low-income populaces at least a sense of partial citizenship in reality, so perhaps it is indeed ignorant or at least over-simplified for commentators to suggest otherwise. In addition, this study has shown that the issue of informality is the antithesis of a closed issue, meaning a co-governing relationship between authorities and the unregulated water sector may well arrive in time once the importance of the latter gains recognition. Water informality can thus be considered a key tenet of citizenship, just as it is across the entire urban service provision landscape.

This leads me on to raise the concluding empirical reflection and the myth of the informal realm as being a disconnected subordinate. We have seen how low-income households in Akaki Kality oversee complex domestic water strategies, in which informal modalities are employed at least on a par with their formal counterparts, if not to a greater degree. Formal and informal worlds therefore consistently overlap and interconnect within everyday routines in the case of water access, which in itself is inherently fluid in reality. These points firstly challenge the connotations of the term 'informal' as being a secondary or inferior sphere to the formal. They secondly challenge the value or perhaps the accuracy of maintaining a formal-informal water dichotomy moving forward. Informality implies abnormality, or at least processes that are removed from a normal, formal realm. This fission is simply not representative of the reality within the everyday urban waterscape. Rather, the formal and the informal must instead legally coexist and fuse towards a greater synergised end than the sum of their parts.

Chapter Eight – Conclusions

This final chapter concludes the thesis by critically encapsulating the research findings and drawing out their implications on wider society and policy. The conclusion will therefore employ the three overarching research questions outlined earlier as a structural basis:

1. Is the 'access to water' concept a representative indicator in the measurement of global water injustice?
2. What is the significance of informal providers in the supply of water to low-income communities?
3. How do low-income consumers utilise, prioritise and strategise water within the domestic environment?

8.1. Access to water

Although 663 million people across the globe are formally classified as being without access to an improved water source, the access to water narrative conveys optimism in line with widespread progress. The progress made towards improving global water access has indeed been promising and is not something this thesis aims to belittle. Rather, it has sought to contextualise water access on the ground, convey the widespread realities of inaccess that still persist, and ultimately provide a small-scale insight into the value of official monitoring statistics.

It is no exaggeration to suggest that the water situation in Akaki Kality and the wider Addis Ababa region appears to comprehensively challenge the accuracy of such statistics. Addis Ababa as a whole is idealised to have an impressive water coverage rate, however this study has shown how water point non-functionality, obstacles in connecting to the piped network, and the subjectivity of progress monitoring combine to fashion a somewhat bleaker everyday urban condition in actuality. The significant gulf that subsequently exists between the formal perception of the local waterscape and

how the realities on the ground unfold in practice is alarming. Similarly, the nature of water access figures and their associated narratives appear to promote a misconceived way of interpreting access as a binary concept. It is these key findings and their implications that will comprise this initial concluding section.

Firstly, water point or network non-functionality (combined with the cyclical citywide rationing policy in place) induces a profound effect on the urban population. For residents of low-income communities such as the two research sites in Akaki Kality, public water points commonly represent their principal and sometimes only formal source. In central and comparatively more affluent city locations, where the majority of stakeholder respondents in this study reside, there is a similar quotidian dependence on the piped water network. The key finding is the regularity at which these formal service infrastructure modalities are either non-functional or offer intermittent supply, whereby it is not uncommon for one of these scenarios to emerge multiple days every week. Moreover, this is not just an issue confined to consumers and communities regarded as occupying the lower echelons of the socio-economic continuum, but instead appears to be a citywide issue.

The significance of these points extends into the socio-economic domains of everyday life and beyond. Living with a consistent uncertainty over water supply induces a distinct influence on everyday routines, health and mental wellbeing, household finances, and access to employment and education services, with strong cross-cutting themes of gender and wealth. In other words, women, young girls and poorer households in general suffer or are affected most along these lines. Formulating and administering household water strategies to cater for water insecurity can be a complex but vital task, the responsibility for which largely falls on women and young girls in the context of Ethiopia. This therefore further adds to the domestic workload, which can in turn limit the scope for female household members to enter gainful employment or acquire sufficient education.

For households in general, averting the daily prospect of water uncertainty requires additional time, effort and of course money. This is the case across the entire urban

waterscape, but the value of these three commodities is particularly critical in marginal environments where issues of non-functionality are perhaps more pronounced. The more expensive services of informal providers frequently need to be employed to ensure a sufficient volume of water is secured each day, which is detrimental to precious disposable incomes. Meanwhile, overseeing such strategies requires a dedicated level of input from the consumer. The result is that everyday routines are dictated by water to a considerable extent in trying to maintain mental and physical wellbeing, both of which can be harmed if daily water requirements cannot for whatever reason be safely met.

The second key issue that undermines the water access concept in Addis Ababa, specifically low-income communities in Akaki Kality, are the obstacles in connecting to the formal piped network. A common debate within the sector concerns the affordability of water and the willingness of consumers to pay for it, in which it is often surmised that low-income consumers situated in informal communities are not willing to pay the price of formal water. The findings from this study fervently and quite comprehensively render this premise as a myth, when in fact low-income consumers regularly pay far more per unit through informal channels. There is no evidence of unwillingness to pay these higher prices let alone formal water prices, which simultaneously debunks the idea of any sort of 'inability'. After all, consumers repeatedly emphasised the precedence and indispensability of water. The question of affordability instead came into play with regards to the unmanageable, inflexible, lump-sum connection charges consumers are often required to pay.

The way of life in Akaki Kality and other informal communities around the world is embodied by the idea of the everyday. That is to say many informal residents will satisfy needs on a day-to-day basis or with short-term plans in mind, as part of a complex marginal cost decision-making process. A significant one-off outlay for a water connection – which can reach astonishing sums in Akaki Kality based on the fortune of dwelling geography in relation to the existing piped network, as well as the accessibility of the underlying geology – is not viable in such a delicate financial milieu. The majority of residents in Akaki Kality prefer continually paying up to 28 times the amount for

informal water than they do from formal sources as and when they need it, particularly in light of the network outages in the region. This way, the financial strain is not so great for that day and the days following. For those that do wish to pay the connection charges, it is often not possible due to the insecurity of land tenure. Water provision in Addis Ababa is therefore far from being pro-poor and the result is an unjust system that sees low-income households routinely pay significantly more than those with greater disposable incomes. It is imperative for authorities to take these issues into account and administer flexible, context-specific policy.

The result of these two key findings on water access in Akaki Kality is an urban waterscape with a drastically different reality than the figures suggest. This leads us to the third finding, which concerns the subjectivity and unrepresentativeness of progress monitoring. Areas with a formal piped network or water point infrastructure can be classified as being served and therefore the inhabitants as having access, without taking into account functionality issues and connection obstacles. Exaggerated progress figures may indeed create positivity in the sector. However, falsely glowing portrayals of water access may simultaneously fail to precipitate the necessary mobilisation of resources in order to resolve the somewhat bleaker reality. This study contends that Addis Ababa cannot possibly have the close to universal coverage rate that figures suggest, or rather the coverage of infrastructure may well be in place but the water access offered by such mechanisms is significantly (and misleadingly) lower.

Water access figures can also be considered misleading in terms of their dualistic connotations. This study has shown the reality of water access to fluctuate along a continuum, whereby households acquire various volumes of water from multiple sources (both formal and informal) and perhaps for different consumption purposes. Seldom did respondents portray access to be a 'this or that', 'all or nothing', 'with or without' idea. Even in times of relative water scarcity or insecurity, access seems to be embodied by lower volumes, fewer available sources and stricter consumption priorities, or in other words somewhere along the lower echelons of the continuum. However, this version of water access of course embraces the informal domain, while Ethiopian and many other developing nations' policy currently does not. It is hoped this

detailed insight into water access can foster approaches that harness its dynamism and fluid tendencies. Until formal water access can be a guaranteed universal notion – which seems some way off – sourcing and consumption strategies will continue to be multifarious, diverse and flexible, incorporating the operations of the informal water market. Understanding water to this level of detail thus becomes central to the successful and sustainable attainment of many of the SDGs. After all, water underpins every aspect of everyday life in urban settings, particularly areas of marginal status in the city.

8.2. Informal water market

It is therefore clear that the informal water market is embedded within this dynamic interpretation of access. Here, I directly assert the significance of informal water providers as well as contend how they are truly perceived by those who engage with them on the ground everyday.

Perhaps the principal significance of informal water providers found in this study is the mitigating impact they have on human health. Health essentially underpins this entire thesis, as it does the work of the water sector in general. Water, after all, is needed to sustain life, and so understanding how to better provide clean water to all is the overarching goal of any such work. This study has shown that without informal providers, there would often be no alternative water source for urban residents in Akaki Kality or the wider Addis Ababa region. The result is that many households would therefore either be without water altogether or have to access their water from unsafe sources, both of which would severely impact upon consumer health.

Informal water providers are themselves widely depicted to be unsafe sources, however this research has comprehensively challenged this idea. It appears that the competition in the unregulated market, the duty of care acknowledged by its constituents, and the resulting willingness to please customers ensure they either provide safe water or quality warnings. In fact, a somewhat alarming finding was the identification of certain

formal water points by some consumers to be less safe than water from informal providers. This prompted several respondents to confirm they only use water from these unsafe formal sources for tasks that do not involve direct ingestion. Informal water providers thus effectively support the lives of urban residents, particularly those in low-income communities, and through their continuous operations indirectly prevent widespread humanitarian health crises.

In addition to the quality of the water, the quality of service offered by informal water providers also heightens their significance as alternative supply modalities. It became clear throughout the research how informal providers offer consumers flexibility, dependability and urgency when needed in the delivery of water. Such a service supports everyday life in Akaki Kality and to an extent the wider Addis Ababa region, where maximising time and marginal cost decision-making can be key tenets of quotidian domestic strategies. The majority of informal water providers also offer their consumers discounts or flexible modes of cost recovery, which again supports the daily uncertainty over schedules and finances. It is this personal and tailored approach employed by unregulated providers that essentially facilitates a better quality of everyday life for urban residents. Water becomes less of a central problem or issue to consider as a result, as the providers assume the responsibility of locating sources and calculating logistics when called upon albeit for a considerable price.

This leads on to the final element of this section and the perception of informal water providers. The previous points have dispelled the idea that the water informal providers supply is unsafe, while instead proposing that the quality of their all-round service is high. However, informal water providers unquestionably remain expensive and indeed unregulated. Nevertheless, the perception on the ground differs considerably from the narratives of ‘exploitation’ and ‘profiteering’ that exist in policy and literary circles on informal water providers. Consumers openly appreciate and depend on their services, and also acknowledge that the seemingly high prices are justified rather than exploitative.

With all of this in mind, it seems entirely paradoxical that informal water providers continue to be disparaged and criminalised in Addis Ababa and specifically Akaki Kality. They effectively redistribute the water to otherwise unserved urban locations without the financial might or economies of scale experienced by formal providers, at times using water that would otherwise be lost through broken pipes and leakage. They offer consumers a dynamic, customised and localised service in the absence of a reliable formal network, which perhaps would not currently be cost effective for formal providers to undertake. Authorities must begin to recognise the significance and prevalence of informal service providers by shifting their stance from one of condemnation towards collaboration. Supporting and harnessing the work of informal providers, or adopting a partnered approach with all stakeholders including informal providers, can potentially facilitate the extension of water access and coverage, improve efficiency, and generate a sequence of additional spin-off benefits across the urban WASH sector (Snell, 1998; Dangol *et al.*, 2010).

8.3. Domestic strategies

The informal water market is evidently key to the successful administration of complex domestic water strategies in urban Ethiopia, particularly Akaki Kality. However, the fact there is a need for domestic water strategies is a concern in itself. This final element to the conclusion draws out wider the implications from the findings in relation to such strategies.

It is important to re-emphasise that Akaki Kality is an environment dominated by marginal cost decision-making, which is a key reason behind the pervasive and complex administration of domestic water strategies. They are designed to make somewhat limited household finances stretch as far as possible. However, the overarching cause behind the implementation of these strategies is of course the unreliable and sporadic nature of formal water access, as well as the policies surrounding connection charges and land tenure that inhibit many from accessing the formal piped network. If there was

an entirely dependable formal water outlet for low-income communities, the need to formulate household water strategies would ultimately disappear.

As it is, the level of knowledge and detailed understanding of local water issues within the communities is remarkable. Such insight has developed from years of managing domestic water needs alongside tight finances, and it constantly evolves in line with the dynamic waterscape. Considerations such as water quality, price, health versus risk benefits, necessary volumes, and financial budgets are all predominantly computed mentally by those in charge in order to determine which sources can be used for certain everyday tasks. So, although water is such a basic resource and human right, it still requires a time-consuming and intricate level of oversight in urban Ethiopia. Moreover, those with a more uncertain degree of access appear to be poorer households. For those situated in areas such as Akaki Kality, water can thus represent a key resource through which the perpetuation of poverty occurs, as greater time, effort and financial input are required to satisfy everyday water needs. This reduces the available resources to allocate towards productive tasks and the betterment of lives in general.

Despite the effectiveness of domestic water strategies in Akaki Kality for the most part, there are times when access will inevitably and unavoidably dwindle towards the lower echelons of the proposed continuum. This leads to the incidence of water prioritisation, an alarming reality that can have serious implications on health and quality of life in general. Naturally, households endeavour to satisfy the demand necessary for survival in times of widespread water point non-functionality, general water scarcity or household financial insecurity. Direct ingestion is the evident priority in such times, followed by water for food preparation and cooking. Meanwhile, sanitation and hygiene are immediately sacrificed, and it is this fact which can in turn impact negatively on health and quality of life. After all, water is so crucial for general hygiene such as handwashing in order to prevent sickness and diarrhoeal disease; the hygienic disposal of human waste; and for washing clothes and bodies, particularly so for women in coping with the culturally taboo matter of menstruation. These have all subsequently been highlighted as critical areas of future research.

The fundamental idea to conclude this thesis on is the fact that health underpins and facilitates everything we do as humans, while the provision of basic services simultaneously underpins health. Water is not a luxury item, and nobody would buy it if they did not have to or if it wasn't so indispensable for everyday existential tasks and ultimately survival. It is a basic resource and a human right, yet the localised insight into urban water issues provided by this thesis highlights how it still represents a significant – and perhaps the defining – social injustice in the world today. The prioritisation of differing qualities of water for certain domestic tasks; the prioritisation of water for drinking over sanitation and hygiene in times of uncertainty; having to pay such expensive sums for informal water; and even the existence of informal water providers should be the antithesis of urban reality in the 21st century. They all represent alarming departures away from the human right to water, which in turn has significant knock on effects in the fulfilment of other human rights and the SDGs that will help to steer international development efforts until 2030. Yet not only is this a reality, but it is also firmly engrained in the contemporary developing urban. The knowledge presented here on the local waterscape must therefore be harnessed towards the realisation of a brighter and equitable urban everyday.

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Appendix 1 – Fieldwork tools

A1.1. Interview schedule with stakeholder informants

Introduction

Informed consent
Overview of research
Name, position, contact details
How long have you been in this position?
What are your main activities/responsibilities?
What is the structure of this organisation/body?
What are its main activities as a whole?

Water supply situation in Addis Ababa/Akaki Kality

What documentation exists on the history of water supply in Addis Ababa/Akaki Kality?
What documentation exists on contemporary water supply in Addis Ababa/Akaki Kality?
How many people access drinking water from an improved water source in Addis Ababa/Akaki Kality compared to those who use unimproved sources?
What is the functionality level of water points in Addis Ababa/Akaki Kality?
What is the role, coverage and cost of the services offered by the municipality/utilities in Addis Ababa/Akaki Kality?
What is the role of NGOs in the supply of water in Addis Ababa/Akaki Kality?
What projects have taken place regarding self-supply? When? How many? What has this involved (funding, training, implementation, providing materials/resources)? Who was involved? What were the successes/difficulties?
What obstacles do urban residents face in accessing water through 'formal' channels?
Who, if anyone, is responsible/accountable for ensuring urban residents have access to water?

Informal water

How have the activities of informal water providers shaped service provision in Addis Ababa/Akaki Kality?
What are the prevailing policies or discourses of municipal authorities regarding the role of informal water providers?
What are the prevailing policies or discourses of NGOs and donors regarding the role of informal water providers?
How do these policies or discourses influence these operators? And influence the development of the water sector?
How does this organisation perceive the activities of informal water providers and the services they provide (positive versus negative; entrepreneurial versus survivalist; non-essential versus indispensable)?

Are you aware of any formal bodies that work with informal water providers to increase coverage?
Do you think there is potential to work with informal water providers in the future?

A1.2. Interview schedule with informal water providers

Introduction

Informed consent
Overview of research
Gender of interviewee
Age bracket of interviewee

Background

Geographical origin
Current place of residency
Reasons for moving
Household size
Sources of household income
Family background

Operations

How long have you been selling water?
Reasons for becoming an informal water provider
Reasons for working in Akaki Kality/specific *woreda*
Scope for selling water elsewhere
How to seek out areas of high demand
Capacity to grow with demand
Other income-generating activities aside from selling water
Typical working day
Working hours (daily, weekly, seasonality)
Pricing structure (price, rigidity, seasonality, water quality)
Investment profile
Cost recovery strategy (flexibility, barter)
Relationship with customers
Source of water used (diversity, seasonality)
Maintenance of water source
Quality of water for sale (testing, treatment)
How operations change in times of water scarcity
Network of informal water providers
Relationship with other informal water providers
Competition (politics, boundaries, efficiency)
Obstacles faced by informal water providers
Relationship and encounters with authorities/formal water suppliers
How have your operations / the selling environment / the sector changed since you started selling water?
Prospects for future

A1.3. Interview schedule with 'served' residents in *Woreda* 7

Introduction

Informed consent
Overview of research
Gender of interviewee
Age bracket of interviewee
Location of house
How many household members are there in total?
How long have you lived in this dwelling?
What brought you to Akaki Kality/*Woreda* 7?
What are the main sources of household income?
What is your household's monthly income?

Formal water

Approximately how many households receive piped water supply in this community?
(How long has your dwelling received piped water supply?)
What other formal water points are available in this community?
How long have these been available?
What is your opinion of the quality of *water* from these sources?
What is your opinion of the quality of *service* from these sources? (functionality, reliability, water pressure etc.)
How much do you pay for water from these sources?
Do these prices vary between seasons or for different people?
Who is responsible for maintenance? Do you contribute? Who makes the decisions?
What is your opinion of municipal providers/NGOs such as WaterAid?

Alternative/informal water

What alternative sources of water are available to your household?
Which of these alternative sources does your household acquire water from?
What is your opinion of the quality of *water* from these alternative sources?
What is your opinion of the quality of *service* from these alternative sources? (reliability; provider-consumer relationship; functionality; seasonality; water pressure; queuing times; volume of water; opening/operating hours etc.)
How much do you pay for water from these alternative sources?
How many households use alternative sources of water in this community?
Has your household acquired water from any other sources in the past?
Have there been any payment/fundraising systems adopted by community residents for water-related purposes?

Household water strategy

How does your household decide which alternative sources of water to use?

Who is responsible for sourcing/collecting water for the household?
How much time do they spend collecting water? How far do they have to travel?
Is your household's strategy for sourcing water flexible? What factors prompt/have prompted changes?
For what purposes does your household use water?
Does your household use water from particular sources for specific purposes?
Particularly in times of water or financial uncertainty, does your household prioritise certain domestic tasks?
Approximately what percentage of your monthly household income do you spend on water?
Which would you say is the principal source of water for this household?

A1.4. Interview schedule with 'unserved' residents in *Woreda* 10

Introduction

Informed consent
Overview of research
Gender of interviewee
Age bracket of interviewee
Location of house
How many household members are there in total?
How long have you lived in this dwelling?
What brought you to Akaki Kality/*Woreda* 10?
What are the main sources of household income?
What is your household's monthly income?

Water

What sources of water are available to your household?
Which of these sources does your household acquire water from?
What is your opinion of the quality of *water* from these sources?
What is your opinion of the quality of *service* from these sources? (reliability; provider-consumer relationship; functionality; seasonality; water pressure; queuing times; volume of water; opening/operating hours etc.)
How much do you pay for water from these alternative sources?
Has your household acquired water from any other sources in the past?
Have there been any payment/fundraising systems adopted by community residents for water-related purposes?
Since you have lived here, have there been any discussions/plans made by water authorities to implement a formal water network here?

Household water strategy

How does your household decide which sources of water to use?
Who is responsible for sourcing/collecting water for the household?
How much time do they spend collecting water? How far do they have to travel?
Is your household's strategy for sourcing water flexible? What factors prompt/have prompted changes?
For what purposes does your household use water?
Does your household use water from particular sources for specific purposes?
Particularly in times of water or financial uncertainty, does your household prioritise certain domestic tasks?
Approximately what percentage of your monthly household income do you spend on water?
Which would you say is the principal source of water for this household?

A1.5. Focus group thematic guide with community residents

- Obstacles faced by residents in accessing water (price of private domestic connection; distance of household to piped network)
- Water point functionality
- Informal water providers and the services they offer
- Household water usage/strategies
- Water affordability
- Community-level decision-making

A1.6. Financial diary template

Household information

Date	
Community	
Neighbourhood	
Location details	
Name of man who knows most about household finances	
Name of woman who knows most about household finances	
Name of person interviewed today	
Sources of household income	
In general, are you aware of all household financial transactions or just those made yourself?	

Household assets

Type of asset	**Asset**	**Quantity**	**Approx. cost at time of purchase** (Ethiopian Birr)	**Estimated cost if sold** (Ethiopian Birr)	**Who was involved in the decision to buy the asset?**	**How did you pay?** (savings, loan, gift, sold something)
Animal (cow, sheep, goat, donkey, chicken, other)						
Transport (car, motorbike, bicycle, cart, other)						
Electrical (radio, TV, mobile phone, car battery, solar panel, other)						
Machinery (pump, agricultural machinery, other)						
Other significant assets						

Financial services used

Type	**Service**	**Who in household currently uses it?**	**Who in household used it in past?**	**How does it work?**	**Why used?** (benefits) **/ Or why not used?** (drawbacks)
Saving (bank account, tontine, other)					
Loans (bank, micro-credit, friend, family, community scheme)					
Insurance (life, medical, funeral, employment; formal/informal)					

Income

Type of income	Description	Amount	Who was involved in creating this income?	In last year and/or last two weeks	Frequency of income	What was done with the money?
Paid employment						
Agricultural income (crops, garden produce, selling animals etc.)						
Other small businesses						
Remittances or gifts						
Other (dowry, renting or selling land, social or NGO welfare etc.)						

Expenditure

Type of expense	**Description**	**Amount** (Ethiopian Birr)	**Who was involved in the decision / who made final decision?**	**In last year and/or two weeks?**	**Frequency of expense**	**How did you pay?** (savings, loan, gift, sold something)
Medical (consultation fees, traditional / modern medicines)						
Food (staples, extras)						
Household (fuel, clothing, phone credit, electrical goods, house repairs, other)						
Agriculture (seeds, fertilisers, land payments, labour, animals)						
WASH						

Social expenses (marriage, baptism, other)						
Community expenses						
Gifts to others						
Transport						
Education						
Tax (national, local)						
Pleasures (tea, coffee, cigarettes, alcohol)						
Other expenses						

Shocks and unexpected events

Type	**Description**	**Approx. date**	**Amount lost or expense incurred**	**What was the response taken?** (savings, loan, gift, sold something)	**Who was involved / decided the response?**	**What was the impact on household finances?**	**Recovery** (how, time-length)
Climate (flood, drought)							
Agriculture (crop failure, illness / death of livestock etc.)							
Income loss (job loss, business failure)							
Illness, injury or death (income loss)							
Departure of household member (divorce, relocation)							

Social expenses (funeral)							
Community expense							
Damage or theft of property							
Other significant shock							

Other factors

Are there any important items of income or expenditure that we have not discussed / are in-kind rather than monetary-based?	
Do you have any other ways of managing money that we have not discussed yet?	
Are there differences in the responsibilities of men and women for paying for different things?	
Are there differences in the ways men and women manage money?	
What is your most common need for a lump sum of money?	
What is your most common way of getting together a lump sum of money?	
Are there other ways that money flows between the people in the household and community groups than those that we have discussed?	
Further comments	

Appendix 2 – Research activities

A2.1. List of semi-structured interviews with stakeholders

Pseudonym	Stakeholder	Date(s) interviewed
AfD	Action for Development	05/03/15
ActionAid	ActionAid	22/05/15
AAM-1 AAM-2	Addis Ababa Municipality	18/03/15 19/05/15
AAWSA	Addis Ababa Water and Sewerage Authority	22/05/14
AAWA	Addis Ababa's Women's Association	19/05/15
ADV	Addis Development Vision	06/03/15
ADAA	African Development Aid Association	22/05/15
AHA	African Humanitarian Action	21/05/15
AKWSA	Akaki Kality Water and Sewerage Authority	11/03/15
AMREF	AMREF	10/03/15
CARE-1 CARE-2	CARE	05/03/15 22/05/15
CA	Christian Aid	21/05/15
Concern	Concern Worldwide	18/05/15
DfID	Department for International Development	20/05/15
EDA-1 EDA-2 EDA-3 EDA-4 EDA-5	Emmanuel Development Association	20/05/14 21/05/14 05/03/15 03/04/15 20/05/15
IWMI	International Water Management Institute	11/03/15
IRC	IRC WASH	20/05/15
MoWE	Ministry of Water and Energy of Ethiopia	12/03/15
MoWR	Ministry of Water Resources	12/03/15
OHCHR	Office of the High Commissioner for Human Rights	18/05/15
Oxfam	Oxfam	22/05/15
Quest	Quest Consult	17/03/15
Save	Save the Children	21/05/15
Habitat	UN Habitat	18/05/15
UNDP	UNDP	18/05/15
UNICEF	UNICEF	18/03/15
WA	Water Action	13/03/15
WaterAid-1 WaterAid-2	WaterAid [UK]	07/03/14 06/11/15
WAE-1 WAE-2	WaterAid Ethiopia	08/05/14 14/05/14

WAE-3 WAE-4		19/05/15 19/05/15
WB	World Bank	09/03/15
WHO	World Health Organization	09/03/15
WV	World Vision	21/05/15

** All took place in Ethiopia unless otherwise stated in brackets*

A2.2. List of semi-structured interviews in *Woreda* 7

Pseudonym	Gender	Age	Date
A1	F	45-54	27/10/14
A2	M	45-54	27/10/14
A3	F	18-24	27/10/14
A4	M	35-44	27/10/14
A5	F	65+	27/10/14
A6	F	25-34	28/10/14
A7	M	18-24	28/10/14
A8	M	65+	28/10/14
A9	M	25-34	28/10/14
A10	F	25-34	29/10/14
A11	M	45-54	29/10/14
A12	F	35-44	29/10/14
A13	F	35-44	29/10/14
A14	F	55-64	29/10/14
A15	F	45-54	30/10/14
A16	M	18-24	30/10/14
A17	F	55-64	30/10/14
A18	M	65+	30/10/14
A19	M	65+	30/10/14
A20	M	55-64	31/10/14
A21	F	45-54	31/10/14
A22	F	25-34	31/10/14
A23	M	35-44	31/10/14
A24	F	18-24	01/11/14
A25	M	45-54	01/11/14
A26	F	35-44	01/11/14
A27	M	25-34	03/11/14
A28	M	55-64	03/11/14
A29	F	55-64	03/11/14
A30	F	18-24	03/11/14
A31	F	25-34	03/11/14
A32	M	35-44	04/11/14
A33	F	55-64	04/11/14
A34	F	35-44	04/11/14
A35	M	25-34	04/11/14
A36	F	35-44	05/11/14
A37	M	55-64	05/11/14
A38	F	55-64	05/11/14
A39	M	18-24	05/11/14
A40	F	18-24	05/11/14
A41	F	25-34	06/11/14

A42	M	25-34	06/11/14
A43	F	18-24	06/11/14
A44	M	35-44	07/11/14
A45	F	25-34	07/11/14
A46	F	35-44	07/11/14
A47	M	35-44	07/11/14
A48	M	25-34	07/11/14
A49	M	45-54	08/11/14
A50	F	18-24	08/11/14
A51	M	18-24	08/11/14
A52	F	45-54	13/11/14
A53	M	25-34	13/11/14
A54	F	35-44	17/11/14
A55	F	45-54	17/11/14
A56	F	25-34	17/11/14
A57	M	45-54	18/11/14
A58	F	18-24	18/11/14
A59	F	65+	18/11/14
A60	M	18-24	18/11/14
A61	M	55-64	27/11/14
A62	M	35-44	27/11/14
A63	F	25-34	27/11/14
A64	F	45-54	28/11/14
A65	M	25-34	28/11/14
A66	M	35-44	28/11/14
A67	F	18-24	28/11/14
A68	M	18-24	29/11/14
A69	M	25-34	01/12/14
A70	M	45-54	01/12/14
A71	M	55-64	01/12/14
A72	F	35-44	04/12/14
A73	F	18-24	04/12/14
A74	F	18-24	04/12/14
A75	M	35-44	05/12/14
A76	F	45-54	05/12/14
A77	M	45-54	23/02/15
A78	F	25-34	23/02/15
A79	F	35-44	23/02/15
A80	M	25-34	23/02/15
A81	M	25-34	23/02/15
A82	M	35-44	24/02/15
A83	M	45-54	24/02/15
A84	F	45-54	24/02/15
A85	M	35-44	24/02/15
A86	F	65+	25/02/15
A87	M	45-54	25/02/15

A88	M	55-64	25/02/15
A89	F	55-64	26/02/15
A90	M	35-44	26/02/15

A2.3. List of semi-structured interviews in *Woreda* 10

Pseudonym	Gender	Age	Date
B1	M	45-54	10/11/14
B2	M	35-44	10/11/14
B3	F	25-34	10/11/14
B4	F	35-44	10/11/14
B5	F	45-54	11/11/14
B6	M	25-34	11/11/14
B7	F	35-44	11/11/14
B8	M	45-54	11/11/14
B9	F	25-34	11/11/14
B10	F	25-34	12/11/14
B11	M	65+	12/11/14
B12	F	55-64	12/11/14
B13	M	18-24	12/11/14
B14	M	25-34	14/11/14
B15	M	18-24	14/11/14
B16	M	35-44	14/11/14
B17	F	18-24	14/11/14
B18	M	25-34	14/11/14
B19	F	35-44	14/11/14
B20	F	25-34	15/11/14
B21	F	45-54	15/11/14
B22	M	55-64	19/11/14
B23	F	25-34	19/11/14
B24	F	65+	19/11/14
B25	M	35-44	19/11/14
B26	M	35-44	20/11/14
B27	F	35-44	20/11/14
B28	F	18-24	20/11/14
B29	F	35-44	20/11/14
B30	M	45-54	20/11/14
B31	M	55-64	21/11/14
B32	F	18-24	21/11/14
B33	M	25-34	21/11/14
B34	F	25-34	21/11/14
B35	F	55-64	24/11/14
B36	F	45-54	24/11/14
B37	M	25-34	24/11/14
B38	F	35-44	24/11/14
B39	F	25-34	24/11/14
B40	M	35-44	25/11/14
B41	M	25-34	25/11/14

B42	M	45-54	25/11/14
B43	F	55-64	26/11/14
B44	M	55-64	26/11/14
B45	F	18-24	26/11/14
B46	M	18-24	26/11/14
B47	M	35-44	02/12/14
B48	F	45-54	02/12/14
B49	F	18-24	02/12/14
B50	F	35-44	02/12/14
B51	M	45-54	03/12/14
B52	M	18-24	03/12/14
B53	F	45-54	08/12/14
B54	M	55-64	08/12/14
B55	F	55-64	08/12/14
B56	M	55-64	09/12/14
B57	F	18-24	09/12/14
B58	F	25-34	09/12/14
B59	M	25-34	11/12/14
B60	M	25-34	11/12/14
B61	F	45-54	11/12/14
B62	M	35-44	11/12/14
B63	M	45-54	12/12/14
B64	F	45-54	12/12/14
B65	F	55-64	12/12/14
B66	M	18-24	15/12/14
B67	F	35-44	15/12/14
B68	F	25-34	16/12/14
B69	M	45-54	16/12/14
B70	F	55-64	16/12/14
B71	M	55-64	16/02/15
B72	M	65+	16/02/15
B73	M	35-44	16/02/15
B74	M	18-24	17/02/15
B75	M	45-54	17/02/15
B76	F	65+	17/02/15
B77	M	65+	17/02/15
B78	F	45-54	18/02/15
B79	F	55-64	18/02/15
B80	F	25-34	19/02/15
B81	M	25-34	19/02/15
B82	F	45-54	19/02/15
B83	M	35-44	20/02/15
B84	M	45-54	20/02/15
B85	F	35-44	27/02/15
B86	F	18-24	27/02/15
B87	M	18-24	27/02/15

B88	M	55-64	27/02/15
B89	M	25-34	28/02/15
B90	F	35-44	28/02/15

A2.4. List of focus groups

Pseudonym	Participants	Location	Date
FG1	Five	*Woreda* 7, Akaki Kality	25/02/15
FG2	Five	*Woreda* 7, Akaki Kality	26/02/15
FG3	Five	*Woreda* 7, Akaki Kality	26/02/15
FG4	Five	*Woreda* 10, Akaki Kality	28/02/15
FG5	Five	*Woreda* 10, Akaki Kality	02/03/15
FG6	Five	*Woreda* 10, Akaki Kality	02/03/15
FG7	Four	*Woreda* 10, Akaki Kality	03/03/15
FG8	Five	*Woreda* 10, Akaki Kality	15/05/15
FG9	Five	*Woreda* 7, Akaki Kality	16/05/15
FG10	Five	*Woreda* 7, Akaki Kality	16/05/15

A2.5. List of participatory exercises

Type	Observation target	Location	Date
Participant observation	IWP-A4	*Woreda* 7, Akaki Kality	13/11/14
Participant observation	IWP-A10	*Woreda* 7, Akaki Kality	05/12/14
Participant observation	IWP-B3	*Woreda* 10, Akaki Kality	18/02/15
Participant observation	IWP-A1	*Woreda* 7, Akaki Kality	22/04/15
Participant observation	IWP-B6	*Woreda* 10, Akaki Kality	08/05/15