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BETTER WATER AND SANITATION FOR THE URBAN POOR

Good Practice from sub-Saharan Africa

Water Utility Partnership for Capacity Building (WUP) AFRICA

Renforcement des capacités partenariat eau et assainissement AFRIQUE

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Foreword

This Good Practice document is part of an initiative by the Water Utility Partnership (WUP) to document those policies, initiatives and activities that are considered to represent 'good practice' in the delivery of water and sanitation services to the urban poor by water utilities in Africa. These practices show sustainable and innovative ways of getting services to low-income communities. The document was developed from case studies undertaken in nine countries in sub-Saharan Africa over a two-year period.

The project was undertaken against the background of rapid urbanization in Africa, which currently has the fastest rate of urban growth in the world. It is expected that, by 2025, the continent's urban population will have grown from 300 million to 700 million, or from 30% to 52% of the total population.

In big and small urban settlements alike, low-income settlements account for 40 to 70% of the population. Often unplanned and illegal, these settlements share a common problem of inadequate access to basic services such as safe water and adequate sanitation. Poor environmental health and hygiene are chronic features of these settlements, contributing significantly to rising morbidity and mortality rates.

The project was based on the premise that, in some countries, utilities and other service providers (NGOs, communities, the private sector and municipalities) are already undertaking innovative approaches improving water and sanitation service delivery and increasing hygiene awareness in low-income/informal settlements. However, these approaches are often carried out on a piecemeal basis and requirements for scaling up are not well understood, developed or documented.

This project therefore aimed at developing a better understanding of the conditions necessary for water and sanitation services to reach low-income communities. It sought to build on the knowledge and experience of the various actors currently involved in delivering or supporting these services. The WUP worked in partnership with utilities in Zambia, Côte d'Ivoire, Nigeria, Ghana, Malawi, Ethiopia, Senegal, Tanzania and Mali to document and disseminate information on current good practice in the provision of water and sanitation services to the urban poor. The project reviewed the conditions that foster the acceleration and sustainability of private sector, NGO or community-based efforts, and documented the appropriate institutional and regulatory framework for building partnerships between utilities and small-scale or community-based initiatives.

Given the above trends and the fact that poverty alleviation is high on the agenda of most governments in Africa, it is clear that the challenge of delivering water and sanitation services to low-income communities requires a collaborative approach that draws on the knowledge and experience of utilities, communities, governments, the formal and informal private sector, and external support agencies.

We are convinced that this document will prove a vital tool for utilities, NGOs, governments, municipalities and others who are concerned with the challenge of increasing access to water and sanitation by the silent majority - poor people living in informal settlements. We trust you will make good use of the document.

Dennis D. Mwanza
Managing Director
Water Utility Partnership

Acknowledgements

I would like to warmly thank all those who have played a role in bringing this document to its conclusion. In particular, thanks are due to the staff of the water utilities in Addis Ababa, Lusaka, Abidjan, Dar es salaam, Accra, Blantyre, Kano, Dakar and Bamako who made the WUP 5 project possible; the focal point in each utility who organized and managed in-country activities; the consultants who prepared the country case studies and the stakeholders who participated in the various workshops that laid the foundation for this document.

This document would not have been possible without the assistance of the European Commission and the Water and Sanitation Program who provided funding and organizational support for WUP 5; the staff of WSP-Africa who played an invaluable supporting role; the staff of the World Bank's Water and Urban Unit, West Africa; and finally the members of Water Utility Partnership and Union of African Water Suppliers who initiated WUP and provided the idea for the WUP 5 Project.

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Mukami Kariuki
WUP 5 Project Manager

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Acronyms and Abbreviations

AREQUAP-CI	Association des revendeurs d'eau dans le quartiers urbains populaires du Côte d'Ivoire - Association of water resellers in urban squatter settlements, Côte d'Ivoire
AFTES	French Association for Underground Works
BWB	Blantyre Water Board
CBO	Community-Based Organization
CFA (FCFA)	Communaute Financiere Africaine Franc
CREPA	Regional Center for Low Cost Water and Sanitation, Burkina Faso
CWSC	Chipata Water and Sewerage Company
DCC	Dar es Salaam City Council
DMWS	Durban Metro Water Services
DSSD	Dar-es-Salaam Sewerage and Sanitation Department
EDM	Energie du Mali
ESAs	External Support Agencies
FDE	Fonds de developpement de l-Eau - Water Development Fund
FNE	Fonds National de l'Eau - National Development Fund
GDP	Gross Domestic Product
GHC	Ghana Cedi
GWCL	Ghana Water Company Limited
IHA-UDP	Integrated Holistic Approach Urban Development Programme
IRC	International Water and Sanitation Centre, Delft, the Netherlands
JICA	Japan International Cooperation Agency
KASEPPA	Kano State Environmental Planning and Protection Agency
KfW	Kreditanstalt für Wiederaufbau German Development Bank
km/h	kilometers per hour
KSh	Kenya Shillings
KUDB	Kano Urban Development Board
KW	Kilo Watt
LSL	Lesotho Loti
LYDEC	Lyonnaise des Eaux Company - Morocco
MCA	Manus Coffey Associates
MASAF	Malawi Social Action Fund
m^3	cubic meters
mm	millimeters
NGO	Non Governmental Organization
NWF	National Water Fund
NWSC	National Water and Sewerage Corporation, Uganda
₦	Nigeria Nairas
ONAS	Office National de l'Assainissement du Senegal
ONEA	Office National de l'Eau et de l'Assainissement, Burkina Faso
O&M	Operations and maintenance
PHP	Philippines Peso
RDCs	Resident Development Committees
Rs.	Indian Rupees
SBEE	Sociéte Béninoise de l'Electricité et de l'Eau
SDE	Senegalaise des Eaux
SEEG	Société d'Energie et d'Eau du Gabon

SEWA	Self Employed Women's Association
SIBEAU	la Société Industrielle Beninoise D'équipement et d'Assainissement Urbain
SODECI	Societe de distribution d'eau en Côte D'ivoire
SONELEC	Société Nationale d'Eau et d'Electricité, Mauritania
SONES	Societe Nationale des Eaux du Senegal
SSIP(s)	Small Scale Independent Provider(s)
SUMA	Universal service and environmental fee
TREND	Training, Research and Networking for Development, Ghana
TShs	Tanzania Shillings
UAWS	Union of African Water Suppliers
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Centre for Human Settlements (now UN-Habitat)
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USV Benin	Benin Union of Sewage Entities
US$	US dollars
VIP	Ventilated Improved Pit (latrine)
WDF	Water Development Fund
WHO	World Health Organization
WSP	Water and Sanitation Program
WSS	Water supply and sanitation
WUP	Water Utilities Partnership
WUP5	Water Utilities Partnership Project number 5
ZAR	South African Rand
ZMK	Zambian Kwacha


OK, YOU'VE 30 MORE MINUTES BEFORE I CLOSE THE TAP FOR THE DAY!
GADO

Credit: Gado

1 Introduction

This document outlines key lessons and challenges and identifies the principles of good practice.

What is the purpose of this document?

This document aims to:

(i) describe the **challenges** facing service delivery to low-income urban communities;

(ii) outline key **principles** that guide water and sanitation sector practitioners in the delivery of services to the urban poor; and

(iii) provide **tangible examples** from a range of sub-Saharan African countries to illustrate these principles and challenges.

How was this information compiled?

The information provided in each section of this document has been gathered through a comparative study of water and sanitation services in nine African countries. Based on the knowledge and recommendations of sector practitioners, this investigation (called WUP 5)[1] documented 'good practice' – examples of effective policy development and implementation in delivering water and sanitation services to the urban poor.

Who is the target audience?

This document is intended for practitioners in the water and sanitation sector, especially policy and decision-makers involved in the development and/or delivery of water and sanitation services to low-income urban communities. These actors may be associated with water supply and sewerage utilities, line ministries, municipal governments, non-governmental organizations, bilateral or multilateral institutions or the private sector.

What does this document provide?

The document is structured in 3 parts covering the key thematic areas – water supply service delivery, sanitation service delivery and overall policy. Each part describes a series of different actions that can be taken to improve service delivery to low-income communities, outlines key lessons and challenges and identifies the principles of good practice. Each chapter is illustrated with WUP5 case study material and, where appropriate, selected good practice from other regions has been used to supplement the illustrative material from sub-Saharan Africa.

The key to a successful strategy lies in the capacity to innovate and to adapt solutions to address local constraints and opportunities.

One of the main observations of the authors is that there is never just one solution to any particular problem. Within each country context, the key to a successful strategy lies in the capacity of practitioners working in the water and sanitation sector to innovate and to adapt solutions to address local constraints and opportunities. This document therefore aims to provide the reader with information and examples to support this localized approach, enabling practitioners to draw up a suitable course of action – one that is tailored to local circumstances but builds on regional experience. As such, the document is not intended to recommend specific actions or to prescribe specific practice or policy to be implemented by practitioners and policy-makers, but to provide a source of information for consideration.

[1] The WUP 5 project is described in detail in Chapter 2.

Photocredit:
Mukami Kariuki

2 Serving the Urban Poor:
An Overview of Regional Experience

2.1 A context of rapid urbanization and rising poverty

By 2020, it is expected that over 50% of the population in African countries will reside in urban areas.

In order to meet the millennium development goal, urban Africa will require about 6,000 to 8,000 new connections every day.

Africa has the lowest water supply and sanitation coverage of any region in the world. More than 1 in 3 Africans residing in urban areas currently lack access to adequate services and facilities. In the year 2000, coverage levels for water supply and sanitation were 62% and 60% respectively. Africa is also urbanizing faster than any other region. Between 1990 and 2025, the total urban population is expected to grow from 300 to 700 million;[1] and by 2020, it is expected that over 50% of the population in African countries will reside in urban areas.[2]

For those organizations and individuals charged with service delivery in urban areas, a key challenge will be keeping up with the rapid pace of urban population growth. According to the World Health Organization, in order to meet the recently established millennium development goal of 'halving the unserved population by 2015', urban Africa will require an 80% increase in the numbers of people served.[3] This objective would require, on average, about 6,000 to 8,000 new connections every day.[4] Political commitment to these goals, backed by resources and action, is essential if utilities are to prevent a widening of the gap between 'served' and 'unserved' households.

Given that most of the urban population growth is occurring in communities that are poor and settlements that are informal and unplanned, the task of reaching the unserved will become increasingly difficult. These informal settlements (often known as slums, low-income areas and squatter settlements) now house between 40% and 70% of the urban population and range from high density, squalid inner city tenements to spontaneous, peri-urban settlements lacking legal recognition. Some are more than fifty years old and others are the result of recent urban expansion. Using projections, and bearing in mind that conditions differ between countries and cities, almost half of urban Africans – about 300 million people – will be living in slums by 2020 unless current approaches to urban development change radically.

Regardless of their location and legal status, low-income settlements have several characteristics in common. Their residents often lack access to adequate and affordable basic water supply and sanitation services, lack adequate housing and have limited or no access to other infrastructure and services such as solid waste, storm water drainage, street lighting, roads and footpaths. Improving services in these areas is a practical challenge because of their haphazard layout, high density and/or difficult geographical and environmental conditions. As a result poor households are more vulnerable to natural disasters and are often exposed to multiple disease vectors associated with poor environmental health and sanitation.

[1] Water Utilities Partnership, Project Proposal, 1998; African Water Resources, World Bank Technical Paper no. 331, 1996; J.L. Venard, Urban Planning and Environment in Sub-Saharan Africa, UNCED Paper no. 5 (AFTES, World Bank) 1995.

[2] IBID.

[3] Global Water Supply and Sanitation Assessment Report,2000, WHO, Geneva.

[4] Water Utilities Partnership, Project No. 5, Abidjan Workshop, December 2001; African Water Resources, World Bank Technical Paper no. 331, 1996.

Despite the size and significance of these informal settlements in relation to the total urban population, utilities often play a limited role in serving the households that reside there.[5] While most utilities have made efforts to provide a basic level of service through public standpipes, these services are often unreliable, inaccessible and/or oversubscribed and as a result many low-income households choose to pay a higher price for water purchased through vendors or private water kiosks.[6] However, in the studies undertaken, many of these small-scale or independent providers indicated that policy and legislation explicitly prevents them from providing water and sanitation services to low-income customers. This is particularly marked in situations where the poor occupy illegal and hazardous land or reside in unplanned areas.

Many low-income households choose to pay a higher price for water purchased through vendors or private water kiosks.

Given the magnitude and scale of the problem, improving water supply and sanitation service delivery to low-income communities is a priority for most governments and utilities.

To achieve this increase, the 'business as usual' scenario is not an option. Concerted effort is required by all actors involved in service delivery to identify innovative solutions and appropriate mechanisms for reaching low-income urban communities. However, given their critical role in WSS service delivery, utilities will have to act as institutional anchors, working in partnership with municipalities, NGOs, CBOs and private providers. A reasonably efficient and financially viable utility is therefore a necessary condition for progress at scale, because with the exception of those served by independent providers, there are no examples of sustained progress in serving the poor without this condition being met. This conclusion, borne out by the findings of WUP Project no. 5, is discussed further in the following sections of this document.

2.2 Background to the Water Utilities Partnership Project No. 5

The purpose of the WUP 5 project

The Water Utility Partnership (WUP) for Capacity Building in Africa was established by the Union of African Water Suppliers (UAWS) and its partners TREND and CREPA,[8] with a view to building the capacity of utilities to improve water supply and sanitation service delivery in Africa. In order to fulfill this mandate, WUP established a series of targeted initiatives including Project no. 5 (better known as WUP 5) entitled 'Strengthening the Capacity of Utilities to Deliver Water and Sanitation Services, Environmental Health and Hygiene Education to Low-income Urban Communities'. The project was funded by the European Commission and managed by the Water and Sanitation Program – Africa.

The objectives of the WUP 5 project

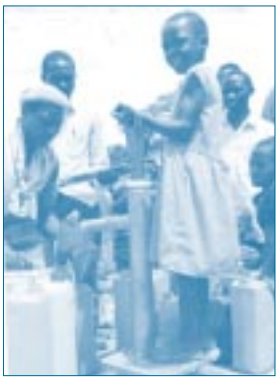
In 1998, the WUP 5 project set out to determine how low-income communities were being served. By drawing on the knowledge and unique experiences of utilities, NGOs, small-scale providers and community organizations, the project aimed to develop a better understanding of the key principles underlying 'good practices' – those policies and practices that have contributed to improvements in the water and sanitation services delivered to low-income communities. The knowledge and experience of a range of actors involved in delivering or supporting these services in

[5] The term 'utility' is used in this document to refer to the main entity (public or private) charged with providing water supply and/or sanitation services in the urban area.

[6] Households may choose to purchase water from informal providers for other reasons, such as flexibility.

[7] As noted by the UN with respect to the millennium development goals.

[8] Training, Research and Networking for Development (TREND), Ghana; and the Regional Center for Low Cost Water and Sanitation (CREPA), Ouagadougou, Burkina Faso.



Côte d'Ivoire, Ethiopia, Ghana, Malawi, Mali, Nigeria, Senegal, Tanzania and Zambia created the foundation for this document.

The approach to WUP 5 – activities and methodology

Working on the premise that all households have access to some form of water supply and sanitation service - be it different levels of service, delivered by different actors, from different water sources - WUP 5 organized a series of country consultations that brought together a wide range of stakeholders (including utilities, municipalities, line ministries, small-scale providers, NGOs and consumer representatives) to deliberate over critical issues and identify the key challenges of service delivery to the poor. As a part of this consultative process, stakeholders also identified those ongoing initiatives in the region that had improved service delivery to low-income communities. These practices were then documented thoroughly in a set of detailed country case studies (see Annex 1) each of which set out about thirty six practices and addressed different aspects of WSS service delivery ranging from policy development to water reselling.

Information gathered through these case studies was then used to compile this 'good practice' document and to establish a web-based toolkit that provides utilities and other actors with access to information, materials and tools to facilitate their efforts to improve service delivery to low-income communities.[9]

A majority of the good practices identified are spontaneous efforts of small-scale providers and communities.

The findings of WUP5

Although utility staff typically represented the majority of participants in all of the consultative meetings, a majority of the good practices identified by the stakeholders in each country were actually initiatives undertaken by small-scale providers and communities, often outside the context of utility or municipal projects. Many are spontaneous and demand-driven efforts promoted by private entrepreneurs and communities.

2.3 Key findings and lessons: How the poor gain access to services

[1] Low-income households access water supply and sanitation services through a broad range of service delivery arrangements (see Figure i). The nature of services available to them varies greatly from city to city and country to country. While in some urban centers utility or municipal services currently reach a majority of households (e.g. Côte d'Ivoire and Addis Ababa), in others, small-scale private providers are the predominant service providers (e.g. Mali and Mauritania).

The following **characteristics of low-income service delivery** were identified through the study:

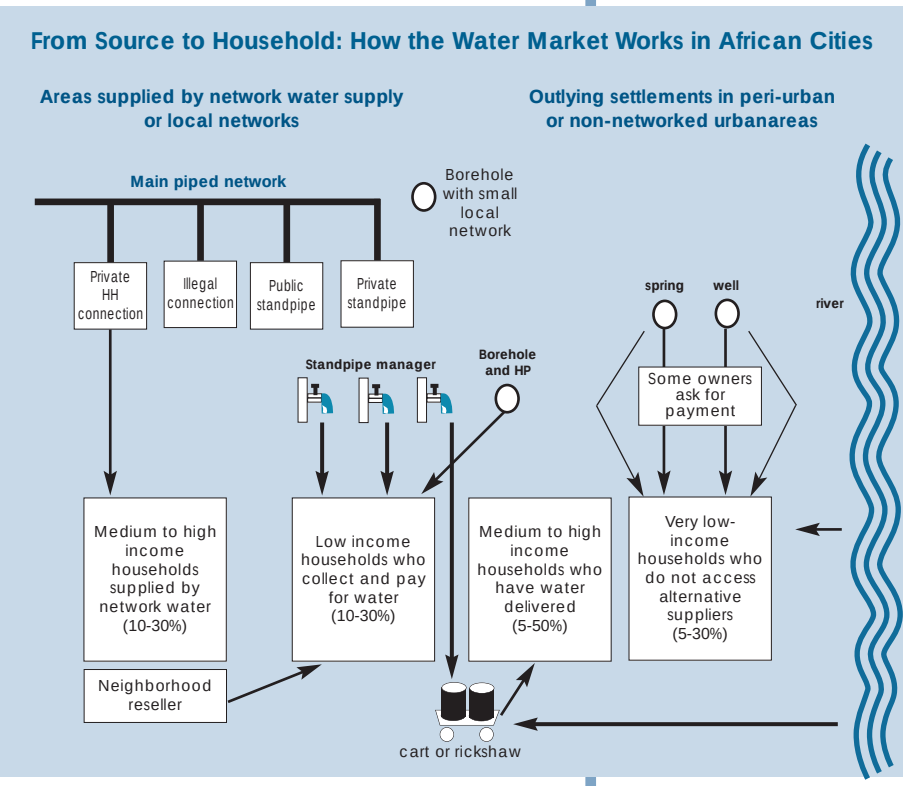
- Most low-income urban households purchase between 5 and 30 liters of water per capita per day.
- Many low-income urban households prefer to pay for water on a daily basis.

[9] WUP website: www.wupafrica.org

- Many low-income households rely on more than one source to obtain the water they need to survive. This may include point sources (wells and boreholes) and public or private outlets/kiosks connected to the piped network.
- A small and declining number still obtain water 'free of charge' from public standpipes.
- A majority of households purchase water from intermediaries including: landlords (through yard taps), community or private outlets/kiosks or vendors who deliver door to door on a daily basis.
- Due to the prevalence of on-site sanitation systems in sub-Saharan Africa's urban centers, small-scale providers play an important role in the delivery of these services.
- Pit latrines are the predominant form of on-site disposal reaching up to 80% of the population in many large urban centers, however waterborne on-site systems such as septic tanks are also used.

Figure i

From Source to Household: How the Water Market Works in African Cities



Source:
Collignon and Vezina, 2000

[2] There is a need for review and reform of relevant **policies and strategies** to focus attention on the needs of low-income communities and to create an enabling environment for service delivery. The multi-sectoral nature of the problem requires a collaborative approach that involves key stakeholders in identifying constraints and in developing a framework for action.

[3] Lack of demonstrated **political will** has contributed to the lack of appropriate policies and strategies. While voters in low-income settlements are significant in numbers, their strength as a unified voting block does not translate into a

development agenda that addresses their needs. Although a growing number of countries are developing strategies to address poverty, further advocacy work and technical support will be required to translate growing awareness into action.

[4] Inappropriate **institutional arrangements** and unclear organizational mandates greatly hinder service provision. This applies to utilities, local authorities and other water supply and sanitation agencies. Service delivery institutions require clear strategies and actions for reaching low-income households. Furthermore a lack of inter-agency coordination (particularly between governmental and non-governmental organizations) leads to duplication of effort, contradiction or inconsistency. This is most notable in relation to sanitation.

[5] Inadequate or inappropriate **human resource capacity** in both the utility and local authorities has contributed to low prioritization and limited knowledge of the issues involved in service delivery to low-income households. In addition, weak **management** practices are evident in the lax enforcement of regulations as well as the noticeable lack of attention and support to community-based initiatives.

[6] Given the complexities that often surround the delivery of water supply and sanitation to low-income communities, the **involvement of users or communities** in the planning and management of services is urgently needed. Although poor consumers are often perceived by utilities as being ignorant and apathetic, in many instances they have proven able and willing to help bring about change that responds to the needs they define. The misuse of utility facilities (e.g. vandalism, illegal connections) and non-payment of bills can only be addressed with their participation. Poor organizational capacity and lack of legal status marginalizes many community groups, and may be further undermined by **political interference** in decision-making.

[7] Across the continent, the **informal or unplanned** nature of many low-income settlements is perhaps a bigger constraint to service delivery than land tenure, and remains the key bottleneck to service delivery in all countries. While the actual nature of the service problem differs from country to country, haphazard layout, lack of road access, high densities and overcrowding are also closely associated with the difficulty of service delivery to these areas.

[8] Limited availability of internal and external **financing** for extending services to informal or unplanned areas is a further constraint. Most utilities direct their resources to formal or planned areas as financing agencies are not willing to risk their resources in informal or unplanned settlements. Inappropriate payment arrangements, pricing policies and tariff structures, combined with socio-economic factors such as low and/or irregular incomes, have further compounded the problem. This has led to a general perception that service delivery to low-income settlements is a loss-making activity.

[9] Finally, **communication** between the utility and low-income urban communities on a wide range of issues (e.g. planning and design, operation and maintenance) is not given sufficient attention, and/or inappropriate **information** channels/messages are used to reach low-income communities. The development of effective strategies to sensitize the public on key issues (such as paying for water, raising hygiene awareness, reducing vandalism and misuse of facilities) is uncommon and public or customer relations programs are not tailored to users in low-income areas.

Figure ii

Water and Sanitation Delivery to Low-income Settlements: Key Problems

	Zambia	Côte d'Ivoire	Nigeria
Legal and Policy	• Strategy for regularizing peri-urban settlements is not comprehensive in terms of scope and content	• No common policy or strategies in place for low-income settlements between utility and Govt	• Lack of adequate policy to address peri-urban issues and lack of a clear regulatory framework
Institutional arrangements	• Sector agencies do not have clear institutional mandate to provide services resulting in overlapping roles • Local organisations (community) lack legal standing	• Lack of dialogue and coordination between main actors further complicated by the use of inappropriate approaches and tools	• Lack of co-ordination between government, NGOs, donors • Low government prioritization of service delivery to low-income areas and reluctance to use alternative approaches to service delivery
Utility Management	• Inadequate capacity for dealing with low-income water and sanitation leads to piecemeal and inconsistent approaches across compounds and no backstopping for community managed water supplies	• Leaders often not competent to deal with community problems • A lack of follow up on action taken by the various parties • Private companies may experience difficulties delivering a public service	• Lack of qualified personnel in agencies • Lack of knowledge on socio-economic conditions of communities in peri-urban areas • Lack of enforcement of regulations • Lack of proper supervision of activities
Community Participation/ Management	• Community participation not an accepted approach • High opportunity costs to voluntary work • Inadequate community management structures which are affected by low levels of literacy, low exposure to formal management practices and high levels of illness	• Poor community participation in WSS • Lack of organised institutional structures and poor organisational ability/ management skills • Inadequate community management of stand posts	• Inadequate involvement of communities during planning • Lack of co-operation from individuals and from self-help initiatives/across communities • No community efforts to contact concerned agencies
Spatial planning and demographic	• Unplanned nature of settlements, inadequate space for latrines, overcrowding, lack of regular lay-out • Incorrect population figures	• No development allowed in illegal settlements, areas are not accessible	• Fast growth of the community - demand outstrips supply • Lack of accurate population statistics • Lack of environmental management and town planning • No effort to upgrade settlements by Government

Water and Sanitation Delivery to Low-income Settlements: Key Problems

	Zambia	Côte d'Ivoire	Nigeria
Resources	• Poor funding position of Councils and donor conditions on funds • Insufficient incentive to pay for water • Different tariffs applied for the same good, tariff setting not based on full cost recovery • Lack of effective collection for payment	• Problems sourcing financing options particularly to carry out work in marginal areas • Heavy taxation on the water sector	• Insufficient funds for water and sanitation in low-income areas • Lack of targeted financing from government • No framework for including funding assistance from philanthropists
Political Interference	• Community has no "voice" • Community is poorly represented		• Politicians influence locations of infrastructure • Lack of political will
Socio-economic	• Low and irregular incomes of residents • Inability to pay for services at all times • Low literacy levels of residents	• Low capacity to pay for the services • High rental costs • Lack of affordability for household meters	• Poverty, low-incomes • Illiteracy, ignorance, lack of education • Cultural diversity makes self-help activities difficult to organize
Communication, Information and Education	• Communication breakdown between utility, community and government • Poor information • Limited consultation of other actors • No hygiene awareness programs carried out by utility	• Understanding of water, sanitation and disease links is poor • Lack of communication between utility and the community • Inappropriate channels used for sensitizing people • Inappropriate means for hygiene education	• Lack of awareness of how to use services • Limited community effort to report problems to utility • Low public enlightenment on water usage and bill settlement
Operation and Maintenance/ Service provision	• Lack of sanitation facilities • Limited technology choices • Contaminated water sources • Overcrowding/ overloading services • Low service levels/ Insufficient water supply • Water from shallow wells contaminated by pit latrines • Lack of stormwater drains • Leakages • Poor quality of water	• Waste water drained into streets and gutters • Septic tanks sludge dumped in streets • Inadequate water impairs work on hygiene awareness • Water rationing - water from barrels is often conserved for days • Wells for water supply are close to cesspools • No basic infrastructure • No spare parts for standposts • Unplanned installations in precarious areas • Low water pressure in some areas	• Lack of planning/ poor maintenance • High energy and maintenance costs • Contaminated water supply - infiltration from drainage/refuse • Inadequate power supply and frequent interruptions • Illegal connections • Lack of appropriate waste disposal • Improper planning of extensions from water distribution systems • Lack of planned network to peri-urban areas

Note:

* 20-23 April 1998,
** 28-30 July 1998,
*** 3-6 May 1999
Problems identified by stakeholders consulted in each country

Source:

Kariuki, 2000; Iliyas and Sani, 2000; Collignon, et al, 1999; Taylor et al, 1998

In conclusion, delivering an effective service to the urban poor requires efforts to balance technical, institutional, social, financial and economic constraints and requirements. With regard to technical aspects, attention must be paid to the appropriateness of the technology chosen for the consumers in question. Standards may need to be revised and specifications adjusted to deliver an output that responds to local needs (e.g. flow rates, quantities and materials). Institutional issues include: identifying the right actors and delivery arrangements; creating incentives for extending services to poor consumers; and establishing a suitable regulatory framework. Efforts should be made to address social aspects by ensuring that an accurate assessment of consumer demand is available, by consulting with users on the type and level of service desired and improving overall convenience (such as distance/proximity, time, price and volume requirements).

These shifts in approach should be captured in well-considered and resourced policies, strategies and business plans which provide utilities and other service providers with the mandate and incentive to improve service delivery to the urban poor. The challenge is to develop a comprehensive strategy that ensures that solutions are formulated to suit local circumstances and that the approach explicity directs service to the poor.

Photocredit:
Mukami Kariuki

INCREASE ACCESS TO IMPROVED **WATER SUPPLY**

Part One

Credit: Gado

3 A Private Connection: The Ultimate Water Supply

In sub-Saharan Africa the rate of household connections is chronically low, between 2 and 7 connections per 100 people.

The primary goal of all water supply utilities is to provide their customers with a 'private' connection to the piped water supply network. For many public officials, policy makers and politicians, a household or yard connection (hereafter referred to as a private connection) is considered the most satisfactory way to meet a number of key objectives, including for instance:

- public health objectives – by ensuring better quality and access;
- commercial objectives – by facilitating cost recovery and revenue generation;
- social objectives – by improving access for the poorest and enhancing security and safety; and
- environmental objectives – by enabling better demand management and water conservation.

Despite the general consensus that the target should be a 'private connection for all', in practice, this goal has eluded many utilities. Among sub-Saharan African capital cities the rate of household connections is chronically low, but varies significantly – from less than 2 connections per 100 people in Bamako, Nouakchott and Port-au-Prince, to over 7 connections per 100 people in Dakar. A comparison of connection rates is provided in Figure iii. In relation to low-income households however this type of estimate does not always provide an accurate picture of service coverage and access, as private connections are often shared by multiple households living in a common compound such as a yard, block of flats or neighborhood. Furthermore, as utility performance declines, households with a private

Household Connection Rates in Urban sub-Saharan Africa

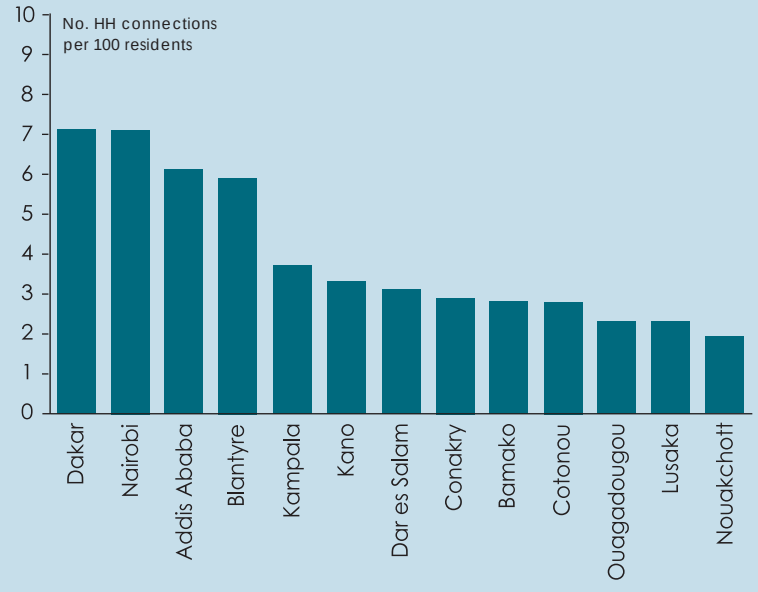


Figure iii

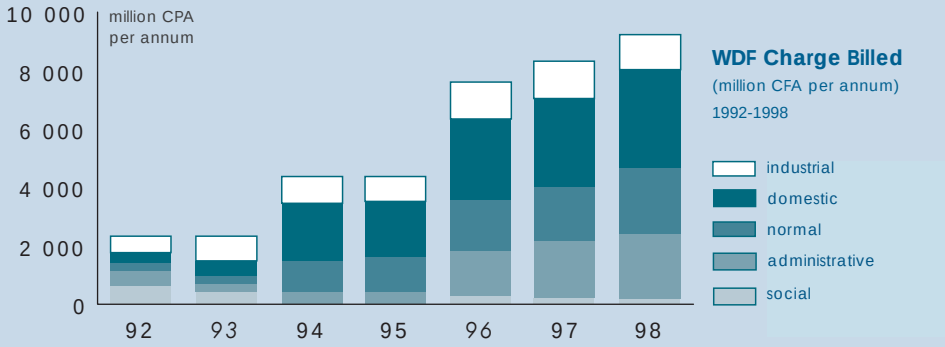
Note:
Access to a connection does not guarantee a safe and reliable supply. Intermittent and/or irregular supply are common problems facing many utilities (e.g. some parts of Nairobi receive water only 3 days a week).

Source:
Data drawn from water utilities primary sources, including SODECI, GWSC, EDM, SEEG, SBEE, SDE, DAWASA, NWSC, KNSWB, LWSC, Nairobi Water Board, SONELEC, ONEA, AAWSA (1998 – 1999).

Box 1

Reaching the Poor through the Water Development Fund in Côte d'Ivoire

In Côte d'Ivoire, a Water Development Fund (WDF) surtax was first levied in 1987 to provide financing for urban public water supply, and a National Water Fund (NWF) surtax was established to repay loans incurred by the sector. As a result, for the past decade, consumers have financed the primary investments in the sector (subsidies for connection, renewals extensions and new installations) through their contribution to these funds - generated through a charge on the volume of water billed by the utility. Customers from the "normal" and "industrial" bands are the main contributors. Recent tariff revisions have increased the charge some fourfold since the beginning of the 1990s.



WDF Charge Billed
(million CFA per annum)
1992-1998

Billing band	volume billed %	contribution to WDF %
Social	28	5
Domestic	27	19
Normal	9	22
Industrial	13	36
Administrative*	23	18

WDF Charge Billed 1992-1998

* The recovery rate of billing in the administrative sector is low. These figures indicate what this contribution would be if bills were paid.

The following table indicates the distribution of expenditure (1992-1998). Through connection subsidies and new installations (e.g. vending points), part of this investment has facilitated access for poorer groups .

	CFA	US$	%
Total collection WDF (million)	**37 102**	**51.5**	
Connection subsidy	14 386	20.0	39
Renewals	5 403	7.5	15
Network expansion	10 482	14.6	28
Other (drains, DE, contingency.)	6 830	9.5	18

WDF Account
cumulative period
1992-1998

(estimated from the no. of subsidized connections)

Where the funds go

About 40% of the WDF charge is utilized for connection subsidies but because the subsidy is accessible to most users, it does not specifically target low-income households. The lack of any disaggregated data makes evaluation of the impacts of the subsidy difficult but households in areas with limited networks, where distances from the mains are significant, do not benefit from the subsidy (the cost of extending a connection beyond 12 meters is paid by the user). The connection subsidy, which represents 90% of the CFA170,000 (US$240) cost of a connection of less than 12m therefore fails to provide an acceptable price threshold for poor households.

A further 28% of the WDF is used for network expansion. This amount is currently increasing as new centers are added or network expansion occurs within existing centers. New urban centers, mostly small towns, include many low-income households who benefit significantly. In low-income areas within larger urban centers, closer access to the network enables potential resellers to engage in competition and thus lower connection prices. In Abidjan, a new surtax, that has collected CFA1 billion (US$1.43m) to date, was added to the WDF in 1996 for sewerage services. These services do not, however, reach the majority of low-income households.

Note:
Exchange Rate
US$1 = CFA 700 (2001)
Source:
Primary data from SODECI

connection may receive an intermittent or irregular supply. A private connection does not always mean service is adequate at all times.

At the same time, some service providers are experiencing a decline in the level of coverage they are providing through the piped network. They are simply unable to increase the delivery of safe and adequate water supply through private connections. This trend seems to have arisen for a variety of reasons, including the rise in urban poverty and the increasingly informal nature of African cities. Key constraints (discussed in detail below) include affordability, insecure tenure, the unplanned and ad hoc nature of settlements, as well as inflexible technical standards, poor management, inappropriate policy and inadequate legislative frameworks.

As a result of this, there has been growing recognition and acceptance of the need to focus efforts on low-income households – those who constitute the majority without access to a private connection. It is now important to prioritize the actions to be taken and to (systematically) identify and remove those constraints that block the provision of water supply to low-income urban households. In each context, a range of policy and practical changes must be considered – changes that may result in very different solutions. For instance, in the case of Côte d'Ivoire illustrated in Box 1, 'a private connection for all' has become the official policy and strong financial incentives are being developed with private operators to ensure this is achieved. This is also illustrated in the expansion mandate of the private operator in Buenos Aires in Argentina.[1] Alternatively, in the case of Durban, South Africa, illustrated in Box 2, efforts are focused on providing a range of technical options to enable access (to some form of service) to be significantly improved.

The following discussion elaborates on some of the measures that can be considered to increase the access of low-income households to private connections. These include:

- extending the piped water supply networks into informal and unplanned settlements;
- enabling low-income households to afford the upfront costs of a connection;
- removing administrative and legal barriers;
- setting the price of water at a level that is affordable to low-income households;
- developing appropriate mechanisms for managing payment.

The two primary arguments against network extensions are the illegal status and haphazard layout of many low-income settlements.

3.1 Extend the network into informal and unplanned settlements

The majority of households without access to a household connection are those living in informal settlements – and the majority of these are low-income. In Dar es Salaam, Lusaka and Blantyre, an estimated 70% of the city is informal and in Nairobi it is estimated that 55% of the population reside in informal settlements that lack adequate network infrastructure. In order to access the services they need, many of the non-poor have taken their own initiative, extending pipework for several kilometers to a single dwelling, or combining efforts for mutual benefit. However for the poorest households, the problem is more difficult to solve. It is unlikely that they

[1] In both cases, difficulties in targeting services to poor households have been experienced

Box 2

Low-pressure Water Tank Systems in Durban, South Africa

Outside view of ground tank

Internal view of new facilities

Durban is South Africa's second-largest industrial hub and one of the country's fastest-growing urban centers. Much of the city's population of three million lives in areas that were previously black townships with separate administrative bodies under the old apartheid system. These areas have poor infrastructure and many have traditionally had inadequate water supply and sanitation service provision. They have now been incorporated into the city jurisdiction, alongside urban areas with full conventional reticulated water supply and sewerage systems. However, addressing the resulting imbalances in the provision of water and sanitation services and quickly reaching the large number of unserved, poor households are major challenges for the city.

Extending water supply services to the poor

Durban Metro Water Services (DMWS), the department of Durban Metro which deals with water supply, sanitation and solid waste, has developed 360,000 metered water connections. However, it is estimated that 155,000 households (500,000 people) in the city lack household connections. They rely on standposts, many of which were inherited by DMWS from the previous provincial administration, or are not served by piped water at all, and use surface water such as streams. There are also an estimated 10,000 to 20,000 illegal connections to the piped system.

In order to reach its low income customers, Durban Metro Water has expanded the range of service options to include: conventional full-pressure system, semi-pressure system with ground tanks, semi-pressure roof tank system, and standposts. Two interesting innovations are the low-pressure systems (roof tanks and ground tanks) which can be installed at a lower installation cost than conventional systems, use small diameter, low pressure pipes, inexpensive valves and fittings, and manual labor.

Semi-pressure system with ground tanks

Water is reticulated using small diameter (less than 50mm) plastic piping (polypropylene, HDPE or high impact uPVC), which is laid at shallow depths along the roads or tracks in the area to be served, 'snaking' where necessary to avoid obstructions. At suitable intervals a metered manifold box is installed, from which 20 households can be connected. The household itself pays for a feeder pipe, usually 12mm, from the manifold to a 200 liter tank, and digs the trench from the manifold to the dwelling. The pipe work is supplied, laid and connected by DMWS. The tanks are either installed on the ground on plinths made of concrete-filled used car tyres, or on metal stands, and can be installed either inside or outside the home, according to the householder's preference.

Many householders plumb the tank to supply water to fixtures within the house. Originally, a water bailiff, a local resident employed by Durban Metro Water, turned on supply to the tanks for a short period of time each day, just long enough to allow them to fill, but now this is done electronically. Each tank is provided with a float valve to stop it from overflowing when it is being filled, and an outlet valve to prevent it from being emptied while it is being filled. Each household is thus provided with 200 liters per day, in line with current South African water policy, which dictates that every household must be provided with 6m^3 of water every month. Durban Metro Water has made the decision not to bill households for this level of supply, so the 6m^3 monthly consumption is free of charge.

Source:
Brocklehurst, 2001

can afford the options currently open to them and it is likely that a number of other constraints will stand in their way.

The first step in a strategy to improve access to private connections should be to facilitate the extension of network infrastructure into those informal or unplanned areas

that are currently without network services. The two primary arguments against network extensions are the illegal status and haphazard layout of many low-income settlements that have evolved without formal planning. These are discussed in turn below.

Box 3

The Role of Tenure in Improving Access to Water Supply: a Comparison of Ethiopia and Kenya

Secure tenure plays an important role in determining whether poor households have access to water supply and sanitation. In countries such as Ethiopia where most households have secure tenure, the **utility is not restricted** in its provision of services. The utility has managed to extend services to an estimated 90% of the population through a combination of service options including standpipes, yard and house connections – they are not restricted by building codes or unachievable standards. It is interesting to note that many of the mud and wattle structures occupied by poor households are owned by the Ethiopian Government and as a result poor households are tenants of the government and eligible for a service.

By comparison, in Kenya where a majority of low-income households live in informal settlements and households lack formal tenure, the utility has often restricted its supply of water to the boundaries of the area to be served, leaving it up to **private entrepreneurs** to establish water kiosks at their own cost (and risk) by drawing long pipelines into the settlement. In Kibera, a settlement in Nairobi of up to 500,000 people, more than 1,000 private connections have been installed. These pipelines stretch up to 1 kilometer from the nearest utility main. Increasing security of tenure is a key step that governments can take to avoid inefficiencies and improve access to water supply to poor households.

Source:
Simie, 2000

Extending networks to informal settlements

Many service providers, both private and public, justify the lack of service delivery in informal areas because settlement took place illegally or in a haphazard manner and may not then have been recognized. They argue that the lack of secure tenure or lack of compliance with building codes and standards makes any intervention in these areas problematic and risky. Unclear legal status increases the possibility of eviction or demolition of the settlement (including the infrastructure).

Yet, in many of these cities, electricity or telephone services are being provided in informal settlements where water connections are said to be illegal and impossible. This may be justified from a practical point of view: electricity and telephone networks are installed overhead, thereby limiting physical works and the facilities and infrastructure can be moved or removed quite easily if necessary. More critical however is the concern amongst authorities that if pipes are installed in areas without legal status, their permanence may be seen as providing a stamp of approval or some degree of legitimacy to the residents.

Evidence also suggests that, in practice, the main barrier to the extension of public services in informal settlements is not the irregularity, but the lack of political will. In many cases, the failure to extend services is a result of rigid or outdated policy and legislation, as well as a lack of official recognition of the magnitude and scale of the problem. In some countries such as Ethiopia, Tanzania and Nigeria, security of tenure is not a major constraint, and there are limited administrative or legal restrictions that prevent the utility from extending the network to most communities. In other situations, such as in Kenya and Côte d'Ivoire, the lack of secure tenure is a significant

blockage, one of many administrative and legal barriers constraining improvements in the access of low-income households (see Box 3).

Authorities should make efforts to address security of tenure constraints by direct and indirect action. This may include:

- Facilitating some form of immediate tenure that may stop short of full land title. (A full form of title may be laborious to arrange and a less contentious form may still give residents and utilities the comfort that occupation is guaranteed for a fixed period of time (e.g. the right to occupy the land for 10 years).

Box 4

Low-cost Standards for the Urban Poor in Manila: Water for the Community

Responding to the need for alternatives for reaching the poor, one of the Manila concessionaires has developed a system for water delivery in densely-populated, hard-to-reach slum areas. In Bayan Tubig ("Water for the Community") systems, an underground water line carries water to the perimeter of a slum neighborhood, and is then extended above ground – partially covered, attached to a wall, or lying on the surface. The line connects to a **battery of meters** from which each homeowner makes their own plastic connection using small diameter pipes running from the main to households on the surface or along walls. Maintenance responsibility for the plastic pipes lies with the customers. Community-based organizations and NGOs play a role in intermediation and mapping of the network.

Estimates suggest that the Bayan-Tubig connections have **reduced water costs** for poor families by up to 25%; a figure that explains the popularity of the scheme despite what are, for poor families, relatively high costs up to PHP4,850 (US$97). To make the scheme more affordable, the concessionaire has introduced an interest free repayment scheme over a period of 6 to 24 months. The program had provided water connections to 19,000 poor households by the end of the year in which it was initiated (1999) and to the end of 2001 had served more than 50,000 households.

One of the reasons that the private operator uses such lower cost service solutions is that the concession contracts do not contain restrictive standards for what constitutes a connection, do not disallow third party provision, and allow the concessionaires to add households served through such initiatives as Bayan Tubig to the "covered" population for the calculation of compliance with **coverage targets**. The Bayan Tubig project illustrates that in an enabling contracting environment the private sector operators will seek innovative solutions to make water supply more accessible and more affordable for the poor.

Note:
Exchange Rate
US$1 = PHP 50.00 (2002)
Source:
Extract from Rosenthal, 2002

- Agreeing in principle that all consumers should be provided with access to water supply regardless of their location and that the service provider be given the mandate to work with any community to design and deliver an appropriate service.
- Allowing the service provider to modify their traditional approaches and procedures to make service provision feasible in the short and medium term (e.g. by permitting pipes to be laid for an agreed period, laying pipes above ground (as illustrated in the case of Manila in Box 4), or laying pipes on private land (as illustrated in the condominial systems of El Alto described in Box 5).

Extending networks in unplanned settlements

Laying piped water supply networks also requires a certain amount of planning (or order) in the layout of the settlement. While this ensures that construction and operation is feasible and efficient, the absence of a planned layout should not pass

as an argument against network extension – just as the lack of land tenure should not constrain provision in informal settlements. It is of course inevitable that underground piped systems are more difficult to install where the layout is somewhat haphazard and it is therefore necessary to consider alternative options that suit the local conditions. Some of these will be similar to those solutions proposed to overcome the constraints of informality, such as laying pipes above ground and/or through private land. Municipalities have attempted to address the unplanned nature of low-income settlements in a range of ways. In conjunction with residents and resident's associations, some municipalities have established intermediate planning measures as part of an overall urban development project. These measures have enabled municipalities (e.g. Man, a town in Côte d'Ivoire) to agree the layout for water supply lines, drainage and other urban infrastructure and to set aside uninterrupted public space for this purpose (as in a service corridor).

Laying Lines in Private Space: the El Alto Condominium System in Bolivia

Box 5

In a conventional network system, every household acts as an individual user and is provided with a connection to the main pipework located in every street. In the condominial system introduced in Bolivia, one network runs through the whole block with **a communal connection to the main network**. These systems reduce the cost of in-house water and sewerage connections by using smaller pipe diameters, fewer pipes and burying them in shallower trenches that run under plots, rather than on main streets where they would be damaged by heavy vehicles.

While the utility is responsible for the mains network in El Alto, it was envisaged that the **maintenance** of pipes running through private property would be the responsibility of individual households in the community. Evidence from a recent study commissioned by WSP indicates that savings of up to 40% were achieved by involving the community in construction of both the water and sewerage systems.

Community participation and social intermediation may have contributed to an increase in the rate of connections by creating a higher level of acceptance among households than in other areas where no community participation was involved. Twice as many households receiving hygiene education were likely to install a bathroom than those who did not.

Source:
Extract from Foster, 2001

Some municipalities have established intermediate planning measures, others have agreed on temporary facilities.

Other municipalities have formed agreements with the main service provider that will allow independent and intermediate providers to establish temporary facilities – either through a temporary permit/license or moratorium. These options are discussed further in Chapter 5. In the context of Manila, the Philippines, illustrated in Box 4 above, the contract does not specify the particular methods to be used by the operators and has enabled significant improvements to be achieved through a concentration of meters installed at the periphery and plastic pipes laid above ground within the settlement. In Port-au-Prince, Haiti, the installation of piped water supplies in shantytowns was permitted as part of a network connected to temporary fiberglass overhead tanks. In Ouagadougou, Burkina Faso, 25 stand-alone water points (pumping stations with boreholes supplying a tank and standpipe) were designed so that they could be moved when demand changed[2] and in Durban, it has been agreed that services will be provided in temporary settlements and moved if and when it becomes necessary.

Financing network extension to low-income settlements

Obtaining the agreement necessary to extend networks into informal settlements is

[2] Some were, in fact, repositioned after a few years. See for example the case study on Port-au-Prince, Haiti, prepared by Cisse as an input to the 10 country study on SSIPs, WSP, 1998

an important first step, but it does not, in itself, remove the bottlenecks associated with improving access for poor households. Network extensions require significant investment and financing may need to be identified for laying or upgrading primary, secondary and tertiary systems as well as improving production and storage facilities.

Apart from the general lack of resources and poor financial management, financing may be constrained by a number of other factors. In most cases, informal settlements do not contribute to the tax base (as property taxes and levies cannot be collected) and these areas may not then be considered when decisions are made about the allocation of resources. Financing of extensions may be limited by the utility's own revenue generation potential. Formal investment is often targeted at planned areas where legal status is clear and investment risks are low. While risk is normally linked to the informal nature of settlements, it may also be linked to a perception that poor households will not pay for services and the utility will therefore not recover its costs. In cities such as Kano, Nigeria and Addis Ababa, Ethiopia where land tenure and legal constraints do not create blockages, the utilities have financed 100% of the costs of network expansion and standpipe installation in informal settlements.

In several cases (Côte d'Ivoire, Burkina Faso and Senegal), utility revenue is enhanced through a specialized sector fund. The Water Development Funds (WDF) developed in Côte d'Ivoire and Senegal, for instance, are based on a water consumption tax levied on consumers in the higher tariff blocks. In Abidjan, the main service provider, SODECI, has utilized the fund to implement a connection program that has benefited households in all areas including low-income settlements.

The water development funds are based on a water consumption tax for consumers in the higher tariff blocks.

Apart from the utility's own revenue stream, important sources of financing in the countries investigated often comes from donors and NGOs and specialized sector funds. Some utilities enter into cost-sharing arrangements with households applying for network connections to facilitate the extension of services into low-income settlements. In Ghana, the utilities share costs with residents' organizations, providing up to 50% of the capital cost (see Box 6). Other utilities such as Lusaka and Blantyre do not finance extensions in informal settlements directly but they often depend on the municipality, residents, donors and/or NGOs to finance community projects in these areas.[3]

Developing appropriate standards and flexible delivery mechanisms

In most countries, a key constraint to network extension is the inflexible nature of the technical standards established by the government and/or the main service provider. Although these standards are intended to improve the quality of construction (materials and workmanship), high technical specifications are often unattainable in informal settlements due to the cost, the haphazard layout and/or difficult geo-physical characteristics.

Most operators also have a set menu of service options and classify their customers into a narrow range of categories: domestic, commercial, industrial, governmental institutions. The majority of utilities consider domestic customers as a homogeneous group – as though they are all alike. Many restrict households in unplanned areas from obtaining household connections and provide standpipes or kiosks instead. Furthermore, they apply a standard set of rules and procedures regarding applications, connection payments, deposits, etc (derived from western standards) to all types of customers that are eligible for the service, regardless of settlement patterns and incomes. As the standard package is tailored for medium and high-

[3] Funding from donors are typically grants for predefined projects in specific communities. They may be channeled through governments or NGOs. (Kariuki, 2000)

Cost Sharing Arrangements between Users and the Utility in Accra, Ghana

Box 6

Accra, like all other large African cities, is experiencing rapid growth. Its population increased from 1.2 million to 2.2 million between 1984 and 1999 (an average growth of 3.2% a year, well over the national rate of growth of 2.6%). In Accra, it is estimated that the urban poor number around 800,000. While 80% of "well-off" neighborhoods have connections to the public supply, this figure falls to 16% in low-income neighborhoods. As the public water supply does not reach all areas, a large part of the city is supplied by water tankers.

Price of water according to supplier	($/m^3)
Social tariff GWCL (0-45m^3/month)	0.39
Normal tariff GWCL (46-70m^3/month)	0.78
Tanker trucks	1.6 - 2.1
Sale price of resellers	3.2 - 4.4

Communities split network extension costs with utility

Water supply in the city is currently the responsibility of the Ghana Water Company Limited (GWCL), a financially independent company owned by the State. In 1998, GWCL supplied 123,000 customers in Accra and surroundings, of which 111,820 were domestic customers. This amounts to about 5 connections for each 100 residents.

Due to its limited financial resources, GWCL introduced a cost-sharing arrangement which allows communities to obtain a network extension faster than they would otherwise have done had they waited for the utility to include this in a network expansion program. Communities currently share capital costs (around 50%) with the utility or other customers. Funds are collected up front by community organizations (often established for the specific purpose of improving water supply). Some community groups now have the legal status and registration which enables them to enter into contracts with the utility.

An example: a local Resident Association negotiates its service

One example of this arrangement occurs in an area known as Christian Village, an unplanned area with 5,000 inhabitants. In 1990, a group of residents established a local Residents Association. The association took the initiative to meet with GWCL and a nearby brewery to negotiate an agreement to increase the size of a new main line being laid so that a branch line could be extended into the community. Despite the fact that a meter was installed, the community is charged a flat rate for water consumed. New members must pay the cost of their connection and monthly fees are paid to the association. The association now has 92 members connected to the community network. Each paid an average of ¢136,000 (US$40) per connection toward the capital cost and contribute and contribute on a monthly basis to water and maintenance costs.

Approach spreading to over 20 communities

This cost-sharing arrangement makes network extension easier for GWCL. The approach has been extended to over 20 communities in the Accra area – although arrangements differ from one community to another. It also enables the community to subsidize costs for low-income households within the area. The arrangement has helped to improve relations between existing residents. In some communities new customers are expected to contribute to the initial cost of the extension, by repaying a joining fee that offsets the capital cost incurred by the initial members. In practice, this repayment is difficult to obtain as the member share is often informal (according to the cross-subsidy applied).

As a part of this process there has been some discussion between community associations and GWCL to clarify responsibilities and ownership. Some associations demand full management control over new extensions and would like to refund GWCL the full cost of the extension, install a bulk meter, resell water to their residents, and maintain the pipes and connections. Several would like GWCL to charge a preferential rate or at most the social tariff without any volume limitation. Such systems seem to be workable, as GWCL already has such an arrangement with tankers' associations, to which it sells bulk water at ¢1,500 (US$0.44) per m^3. Even though this is slightly more expensive than the social rate of ¢1,320 (US$0.39) per m^3, it would be more advantageous than the sliding scale. GWCL has already informally accepted such an arrangement for extensions in some unplanned areas.

Note:

Exchange Rate

US$1 = ¢ 3,400 (1999)

Ongoing urban water supply reforms are expected to lead to a public- private partnership for the delivery of water supply services to Ghana's urban centers in the future.

Source:

TREND, undated

income customers living in formal/planned areas, it is often inappropriate or out of reach of those residents who live in informal settlements, especially those who fall below the poverty line and/or share a water meter or water point with several other households.

Standards should be flexible and adapted to local circumstances in order to provide a basic level of service that responds to the needs of the target population and addresses local constraints. In Ouagadougou, Burkina Faso the main service provider, ONEA, has introduced an intermediate standard for peri-urban areas. This comprises medium-sized pipes connected to standpipes that can then operate at full-pressure. Although this intermediate standard does not initially include private connections, it is intended that the network be upgraded gradually to respond to demand. The case of Manila in the Philippines, discussed in Box 4 is again a useful reference. As the private operator's contract allows for innovative solutions to be used, the proposal adopted includes above ground pipes in informal settlements where other alternatives are not feasible. This option has enabled the operator to provide a temporary service that is easy to install, affordable and creates an improved level of service for the consumer.

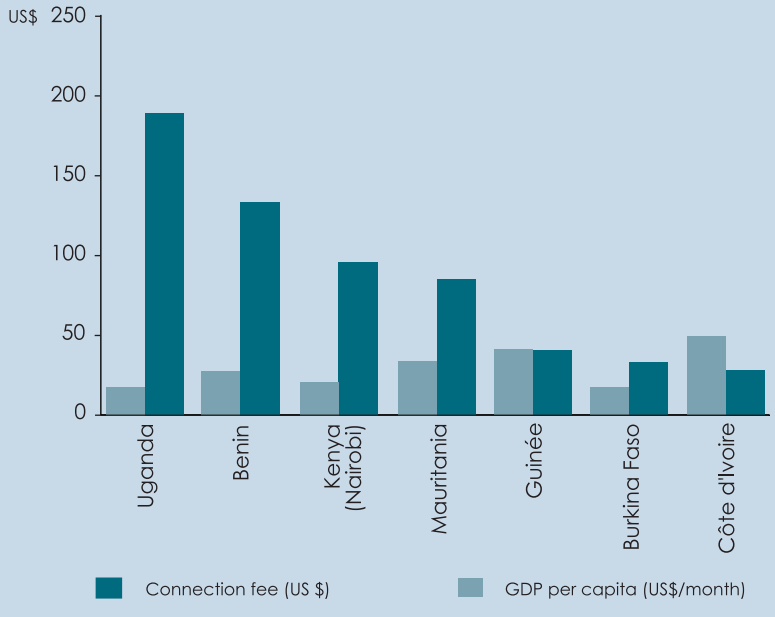
Standards should be flexible and adapted to local circumstances.

3.2 Lower the price of a private connection

The price of a new connection also constitutes a significant barrier for low-income households. This initial payment to connect to the network, which includes the standing charges and deposit, may well be equivalent to several months income for low-income households whose first priority is to satisfy daily needs. As a large number of low-income households earn income on a daily or weekly basis, most are unable to save sufficient funds to cover the substantial up-front connection costs charged by the utility.

Figure iv

Comparative Connection Costs in sub-Saharan African Countries



Source:
Primary data collected from water utilities.
GDP per capita data from World Bank, 1997

Lowering the price threshold for a connection should be at the heart of any strategy to increase network coverage.

The high relative cost of connections can be illustrated by comparing GDP per capita and connection costs in a range of sub-Saharan countries (see Figure iv). For instance, in Benin, the cost of a connection is five months GDP and is four months GDP in Kenya. However by definition, the low-income have incomes that are lower, sometimes significantly lower, than the average GDP and this comparison does not fully reflect the vast disparity between costs and incomes. Connection costs vary from US$200 in Kampala, Uganda to US$50 in Ouagadougou. When compared to the cost of a connection in Buenos Aires in Argentina in the mid-nineties (US$1000) these appear low. However for the majority of the urban poor who live below the US$1 per day poverty line, the costs of connecting to the network push this option outside their reach.

Lowering the price threshold at which the poor can access a connection should be at the heart of any strategy to increase network coverage. This is particularly important in those contexts where a significant proportion of households already have a private connection. For example, in Abidjan, 70% of households have a private network connection and extension is therefore a viable option but for the remaining 30% of households, many of whom reside in unplanned areas where subsidized rates do not apply, the high cost of the connection constrains access.[4] Where coverage rates are low however, the first priority may be to develop a network of standpipes or water kiosks as an intermediate strategy and shift towards private connections over time.

Subsidizing the cost of a private connection

Making subsidies work – making sure they reach those who need them most – is an ongoing challenge.

In 2002, the base cost for a private connection was between US$150 and US$200 but the actual cost of a connection depends on the metering (whether a water meter is supplied or not) and the distance between the mains and the house (or yard). In many informal settlements, where access is limited, the distance from the network distribution lines is a major problem. In some cases distances are over a kilometer and the cost of additional materials and labor is being passed on to the customer.

The most common means of lowering the 'access threshold' to a connection is to subsidize the cost. It is clear however that making subsidies work – making sure they reach those who need them most – is an ongoing challenge to the authorities and utilities responsible. A strategy for subsidies will address:

- the level of the subsidy to be provided to the household;
- the criteria for targeting the subsidy at particular areas/households;
- the mode of financing the subsidy; and
- the number of households that qualify for the subsidy.

[4] The main constraint is insecurity of tenure and haphazard layout as discussed earlier.

Connection Costs in Côte d'Ivoire

Figure v

	Normal (US$)	Subsidized (US$)
Cost of connection up to 12 m	+/- 227	0
Advance on consumption	23	23
Standing charges	4	4
Meter fitting	13	0
Total	**267**	**27**
Reconnection cost	48	48

Note:
Exchange Rate
US$1 = CFA 700 (2001)

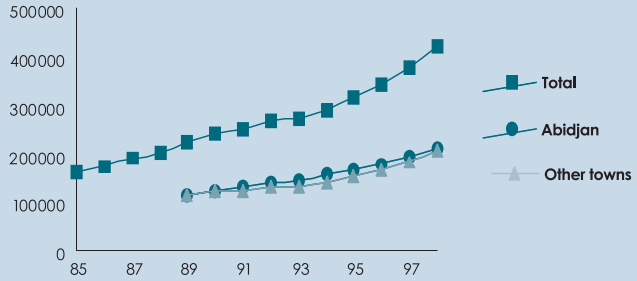
Source:
Primary data collected from SODECI, 1998

Box 7

Subsidizing Low-income Consumers through Tariff Reform in Côte d'Ivoire

In Côte d'Ivoire an approach to cross-subsidies was introduced with the aim of maintaining the financial equilibrium of the water sector and simultaneously promoting access to the utility water supply. The subsidy was firstly applied across all towns – thus enabling consumers in all locations to obtain water supply at the same tariff. Secondly, a subsidy was introduced between different categories of consumers through a progressive (sliding scale) tariff. This scale means that large consumers pay part of the cost of delivering water supply to small consumers, and contribute to the basic capital investments of the sector.

Out of the 544 urban centers in which SODECI works, only 7 realize a profit. Abidjan – which enjoys favorable hydro-geological conditions (groundwater source) and whose population size and density create economies of scale in water distribution and customer management – is the most profitable. Other centers are less well endowed and have production costs double those in Abidjan: in 1996, Abidjan represented 52% of SODECI's customers, 66% of volumes billed, 50% of all income and 60% of all water produced.



Change in number of customers
1985-1977

The sliding tariff (see below) is designed to enable the creation of a Water Development Fund (WDF) to finance connections for low-income households and other priority investments. The tariff includes a basic charge, a surtax that contributes to the WDF and a surtax that contributes to the National Water Fund (NWF). The subsidy provided by this tariff scale makes it possible to provide a large subsidy for the first 6m³ consumed per month thus making a basic service (about 30 liters per day per person for a family of 6 persons) accessible to those households connected to the network.

Band (m³/month)	SODECI tariff	Charge WDF	Surtax NWF	**Total**
Social (0-6)	160	10	14	**184**
Domestic (7-30)	220	54	12	**286**
Normal (31-100)	220	197,5	46,5	**464**
Industrial (>101)	220	228	85	**532**
Administrative	220	57	119	**390**
Public standpipes	175,5	45,5	95	**311**

Water Tariff
(from May 1996)
CFA/m³

However some households do not reach the minimum volume for billing (3m³/month) and others (large households and those buying from water resellers) do not benefit as their consumption rate falls in the higher band of tariff

Note:
Exchange Rate
US$1 = CFA 700 (2001)

Source:
Primary data collected from SODECI

Subsidy level and amount • The level of subsidy and other charges should be affordable and should be set at an amount that is sufficient to ensure that the applicant will then be able to pay his bills – and it should be higher than the cost of reconnection. In Côte d'Ivoire, for instance, an applicant pays an advance on consumption and a standing charge (resulting in a connection cost of only US$27 – 10% of the unsubsidized cost of US$270). A large subsidy or exemption from all payment can have adverse effects and often leads to high rates of disconnection. In the case of Côte d'Ivoire, illustrated further in Figure v below, rather than pay for reconnection (at a cost of US$48), some consumers that are disconnected apply for a new 'subsidized' connection (using a different household member's name) instead of paying the reconnection fee.

Criteria for targeting the subsidy • While it is generally accepted that subsidies should be targeted to the poorest households, in some countries, there are no criteria relating to the applicants' income level and funding is often 'captured' by the non-poor. This is the case in Benin where 'social connections' are awarded on a first come, first served basis. It is also the case when fees do not reflect the real costs of the connection, as in Burkina Faso or Guinea, and the connection cost is therefore subsidized by other consumers or through losses incurred by the utility. In other countries, the criteria developed for targeting the subsidy have been inadequately framed and allow most consumers to benefit. In Côte d'Ivoire, over 90% of the 290,000 connections installed between 1986 and 1998 were subsidized. As a result in 1999, in an attempt to reach those most in need, the subsidy was redefined to focus on consumers requiring only 4 taps. This step also made it clearcut that the property developers were not eligible for the subsidy.

Although some utilities prefer to use income levels as a basis for subsidy targeting, these are difficult to set, seldom reliable and cumbersome to administer. This is particularly the case in those African cities where the majority of households are not able to gain access to a private connection due to legal or physical limitations and a large number of households are considered poor. One alternative is to target clearly defined areas within a city where poorer households live, as is the case in Senegal.

The mode of financing the subsidy • The source of funding is a crucial factor determining the efficacy and sustainability of the subsidy arrangement. While the cost of a connection may be financed as part of a donor-funded project, as in Senegal and Benin, this approach is unsustainable as financing is discontinued after the project ends. A more sustainable arrangement is established if subsidy financing is built into the tariff as a tax levied on households connected to the water supply. In this form the subsidy may be considered a credit facility, as the beneficiary will contribute to the fund once they start paying their water bill, thereby facilitating the connection of new subscribers. It is also possible to strengthen the 'social' dimension of subsidies by charging large-scale (domestic, commercial and industrial) consumers more for services. This is the case in Côte d'Ivoire where the subsidy is funded by a tax levied on consumers billed in the higher blocks in the tariff (see Box 7). Large consumers therefore finance the bulk of the subsidy when connection charges are below real costs.

At the other extreme, some arrangements require all consumers to contribute to connection subsidies, often achieved by periodically invoicing a fixed fee. This type of subsidy arrangement is less favorable to poorer households as they end-up contributing to the subsidy at the same rate as high-income households. In 1999, in Buenos Aires, for example, all new connections are subsidized by charging all customers a quarterly

universal service and environmental fee (SUMA) of US$3 to fund network expansion. This approach resulted in a one-off connection cost of US$120 to new users.

The number of households that qualify for the subsidy • A policy is only relevant and effective in meeting social objectives if the number of connections being subsidized is proportional to the customer base. In the case of Abidjan, Côte d'Ivoire, illustrated in Box 7, approximately 10,000 connections were made annually over a period of 15 years (increasing the connection rate from 5 to 8 connections per 100 residents). Because the criteria used by the utility to select recipients were quite broad, in practice the subsidy can assist all (low, middle and high-income) households, but in practice as it is only applicable in planned areas, many low-income households are not eligible and do not benefit from the substantial funding support available.

Establishing credit facilities to cover connection costs

Irrespective of susbidy arrangments, credit facilities can be an important way to provide additional support for low-income households wishing to pay connection

Box 8

Improving Access to Savings and Credit for the Urban Poor in Mumbai, India

An estimated 65% of Mumbai is covered with slums, accommodating 62% of the population. However slum dwellers use only 18% of the water supplied by the city and pay Rs.5 (US$0.10) on average for a bucket of water, which they buy from private water vendors. At the same time, 95% of them use public toilets for which they pay Rs.1 (US$0.02) per use, thus spending Rs.200-250 (US$4.30-5.30) per month on sanitation and about Rs.15-25 (US$0.30-0.50) per day on water.

Enabling the poor to save

Mahila Milan, a microfinance institution has partnered with organizations working with communities in Mumbai's low-income areas. Mahila Milan is a federation of women's collectives in Mumbai and 23 other cities of India, working under the umbrella of the National Slum Dwellers Federation. Mahila Milan's activities include supporting the needs of its members for both savings and credit and for accessing better housing and infrastructure.

The savings and credit activity was first initiated in order to create a crisis fund and promote regular savings by the women. However, over time, the women argued that even if they were successful in lobbying the government, and as a result were provided with land for their eventual relocation, they did not have the means to finance the cost of building adequate shelters and related infrastructure. Thus, the savings and credit program was further developed.

Financing neighborhood services

Fed up of waiting for an institutional source of credit for 'bridge funds' to finance more time consuming and complex infrastructure projects, the Society set up an internal fund for its members. Made up of donor grant funds and an interest component from Mahila Milan's savings, this centralized fund, called the Infrastructure Bridge Fund, is used to make lump-sum payments to authorities for infrastructure services such as water and electricity connections. Over time, the up front payment is repaid by community members that have benefited and returned to the Fund. Without access to such (relatively) large-scale 'bridge loans' it would take much longer for communities to pay for and access services such as housing, electricity and water which required sizeable front investments.

In addition to constructing 120 houses, one Mahila Milan society - the Jankalyan Cooperative Housing Society was able to improve access to water supply using financing support from the bridge fund. With Rs13,000 (US$277) from the bridge fund, the Society requested the municipality to provide common water stand-points supplying water for 22 hours a day. The total cost of connections was financed from the bridge fund and the individual contribution from each household of Rs.110 (US$2.34) collected by the Mahila Milan and repaid into the Society's bridge fund.

Note:
Exchange Rate
US$1 = Rs. 47 (2001)

Source:
Water Supply and Sanitation Program - South Asia, 2001

Credit facilities are an important means of paying connection costs.

costs. A credit facility may be extended to households by the utility or by another financing agency. This may take one of the forms outlined below.

- **Credit granted by the utility** The utility may provide credit in the form of a 'tax' on the price of each cubic meter consumed, to be repaid by the consumer in proportion to their consumption. This levy is paid for an agreed period (for example 24 or 36 months) or until the agreed connection costs are repaid. Alternatively, credit extended by the utility may be repaid monthly (bimonthly or quarterly) through standing charges that allow households to repay the connection costs in addition to the regular bill.
- **Micro-credit institutions, commercial/community savings and loans systems** Micro-credit mechanisms exist in most African cities, although they are not commonly used for household water supply. The activities of the Mahila Milan in India (illustrated in Box 8) have been successful in providing households with credit facilities for household connections.
- **Project-based savings/loan systems for household connections** Some urban development projects set up specific opportunities for savings and loans (e.g. water supply connections). However, this type of structure is generally site specific and may not be sustained after the project is completed.
- **Advance payment arrangements** Some operators, such as the regional branches of SODECI in Côte d'Ivoire, allow applicants to spread the payment of connection costs over several months. The connection is then carried out when the total sum is paid. This arrangement is informal.
- **Payment in kind** A utility may also agree to accept part of the connection payment 'in kind'. In El Alto, Bolivia, illustrated in Box 5, consumers can pay in kind by contributing their own labor to undertake a specified quantity of work for the utility (e.g. digging trenches for secondary pipework not directly linked to their own connection in exchange for a free connection).

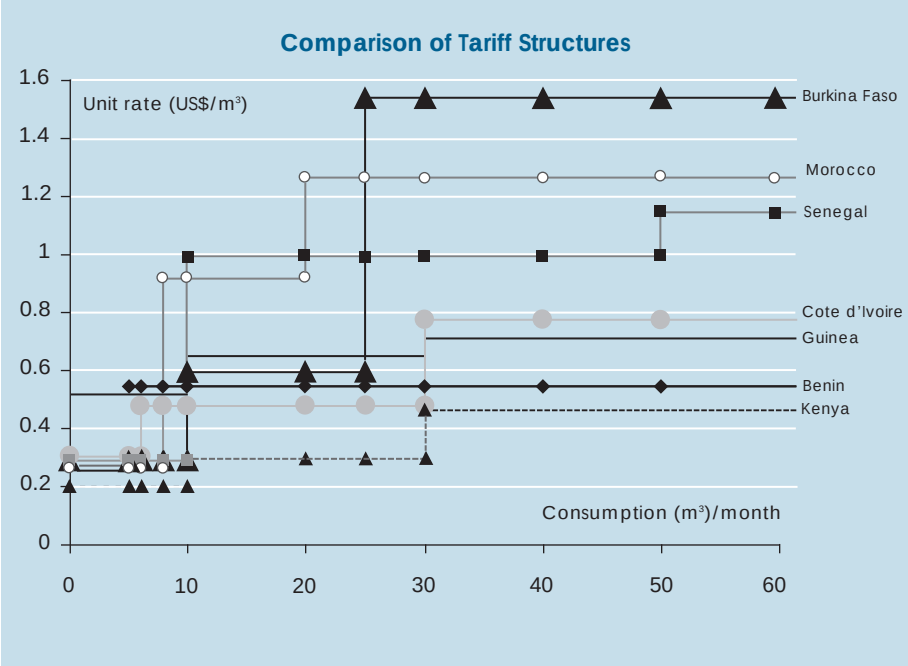
3.3 Remove administrative and legal barriers to a connection

Section 3.1 highlighted the particular access problems faced by residents of informal and unplanned settlements due to poor physical layout or lack of physical planning. Utilities often require that those households wishing to obtain a connection provide formal proof of ownership or occupation (a title deed or rental agreement). The lack of access to formal documents is often a constraint affecting the capacity of households to obtain household connections. Although these measures are intended to protect the utility from litigation and non-payment, they often constitute additional obstacles. In countries such as Tanzania, Ethiopia and Ghana where security of tenure is not equated with a title deed, and utilities have moved forward without the paperwork, additional problems have not generally arisen. Traditional tenure may in fact be a more secure form of tenure, and may also mean that a greater number of low-income households have legal standing. As discussed above, efforts to increase access to connections should focus on removing requirements for proof of ownership and occupancy, and minimize administrative procedures to obtain the paperwork (e.g. title deeds) are minimized.

In other cases, regulations are not tailored to suit the way low-income households live. One example of this arises when many low-income households share the same building or compound. Utilities may prefer each household in a shared building or compound to obtain a separate meter in order to avoid complicated technical arrangements and mixed responsibility for payment of monthly bills. Yet in the context of low levels of service coverage, shared connections enable many poor households to access a service and it is necessary for utilities to see the benefit in permitting (and catering for) them. In Nigeria and Ghana, shared connections are accepted practice and an effective delivery mechanism for low-income households. Where it is more common for communities to contribute towards the cost of distribution pipework, shared connections and meters are becoming an important means of improving access. Administrative procedures must recognize and not constrain this option.

Administrative procedures must recognize and not constrain the sharing of connections.

Figure vi



Note:
Acronyms refer to the respective water utility companies in each country

Source:
Data provided by water utilities primary sources (SBEE, ONEA, SODECI, SEEG, NWSC, SDE, LYDEC), 1997, 1998, 1999

3.4 Reduce the cost of water supply to poor households

Once connected, it is essential to ensure that low-income consumers are able to afford an adequate supply of water for their household needs. While ensuring that cost recovery targets are met, utilities should identify means by which low-income households should have access to a 'lifeline' supply at an affordable rate.

Households should have access to a 'lifeline' supply at an affordable rate.

Structuring tariffs to target low-income households

Consumption per connection does not equal consumption per capita. Progressive tariffs are commonly used in African countries, although the structure of the tariff varies significantly from country to country. In Burkina Faso, Senegal and Mauritania for instance, progressive tariffs are steep, penalizing high consumption users, while in others such as in Kenya, particularly in Nairobi, the gradient is less marked but the tariff includes numerous small blocks/steps making it difficult for a consumer to understand the basis upon which they are billed (see Figure vi).

In order to establish effective pricing policies it is necessary to consider the way the water is consumed in any given context.

Designing an effective tariff structure is an important means of improving access to water supply for low-income households. However, in order to do so, it is necessary to consider the way water is consumed in any given context. This might include consideration of the following factors.

- **The proportion of low-income households that have access to a private connection** If less than 40% of households in a service area have access to a private connection, the social block in a tariff is unlikely to have a significant impact on the target population. Low-income households that are not connected cannot enjoy the subsidy. Instead, as is the case in Mali, the benefits of such a policy are enjoyed by 'connected' households – all from higher income groups.

Contributions of Consumers to the Water Development Fund in Côte d'Ivoire (1992-1998)

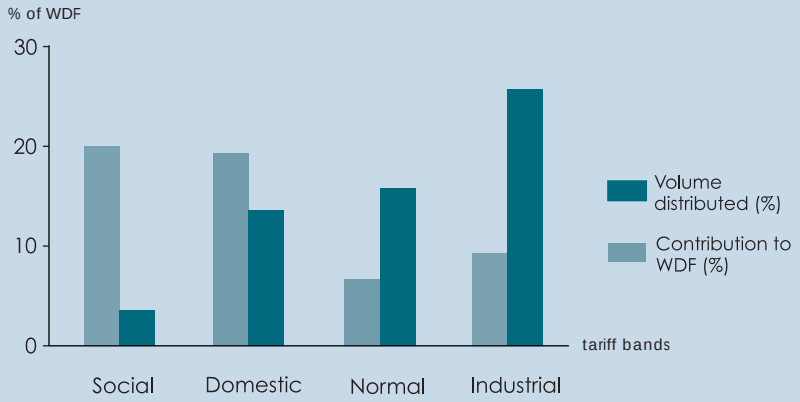


Figure vii

Source:
Primary data collected from SODECI, 1992-1998

- **The number of low-income households sharing a connection** Households sharing a connection often do not benefit from a social block and are penalized by the rising block tariff. As the social block typically designed for an average middle-income household, the total volume consumed by a group of households is likely to be significantly higher, pushing their consumption into a higher tariff block. Similarly, households that sell water to their neighbors are also billed in the higher tariff blocks. To avoid this, utilities in Ethiopia, Ghana and Tanzania charge a flat rate for common area (multi-household) connections; and in Nairobi a bulk rate is charged per cubic meter for water purchased by kiosks. In Durban, consumption on a shared connection would easily exceed the 6m^3/month provided free of charge for a single household. Customers sharing a common compound or building are thus able to apply for several private connections in order to benefit from the tariff policy.
- **The levels at which the tariff blocks are set** The effectiveness of a cross-subsidy can also be measured by the level of financial transfers between blocks. Increments between blocks in the tariff are particularly high in Burkina-Faso, Senegal and Mauritania. When the blocks in the tariff are not synchronized with

consumption patterns, the majority of consumers may fall into the social band because the amount of water provided is above the basic requirement for an average household. Alternatively, the cost of water in subsequent bands may be so high that it forces those who would normally have consumed water in the higher bands to look for alternative sources. The tariff should be sufficiently progressive to allow adequate transfers from one band to another.

- **The proportion of water sold in higher tariff bands** In order to establish a cross-subsidy from high consumption (typically better-off) to low-consumption (typically poor) customers, it is necessary to ensure that a sufficient number of customers are consuming in the higher blocks of the tariff. Where the number of low-income consumers far exceeds those in other categories, the tax burden on the small number of customers that consume at higher tariffs may become too onerous. In the case of Côte d'Ivoire illustrated in Figure vii, 9% and 13% of the water consumed between 1992 and 1998 respectively was invoiced in the 'normal' and 'industrial' bands, thus contributing 22% and 36% to the WDF. Similarly, in Durban in South Africa, where the utility provides all consumers with a lifeline supply free of charge, it then accounts for the cost of this water in the higher bands of the tariff.
- **The proportion of the social block allocated to the monthly standing charge** Providing a subsidized 'social block' is only effective as a strategy for targeting low-income households if the fixed part of the bill (such as the standing charges, the rental of meter or the minimum consumption level) is minimized and thus represents only a small sum within the block. Alternatively, this amount could include a fixed and adequate allocation of water of less than 3-4m^3 per month for the social block to function effectively. In Guinea and Tanzania, for instance, fixed charges represent the majority of the subsidized tariff band and the likelihood of low-income consumers benefiting from the social band is low.

Establishing a flat rate for small or low-income consumers

Most utilities aim to install meters on all or most connections. However, due to meter tampering, faulty meters (caused by intermittent supply or poor water quality), inadequate maintenance, or even as a matter of policy and economy, some utilities charge fixed or flat rates for a large number of their customers. In Accra for instance, about 40% of households pay a flat rate for their water, irrespective of consumption.

Figure viii

Domestic Flat Rate Charges in Kano, Nigeria

Domestic Customer Categories	Tariff US$/month
House with single tap - 1 family	3
House with single tap - multiple households	4
House with water system reticulation	5
Special compound (high cost residential areas)	15-50

Source: Iliyas and Sani, 2000

Although flat rates are often perceived as resulting in high levels of unnecessary and wasteful consumption, the use of a flat rate may be appropriate when connection costs are high (a minimum of US$30 for the meter, plus connection, pipe fitting and

The use of a flat rate may be appropriate when connection costs are high and consumption levels are low.

meter installation), and consumption levels are low (i.e. when the costs of meter reading, billing and management do not justify installation of a meter).

The fixed/flat rate system can be elaborated by utilities applying a range of different rates to customers according to their standard of living. Indicators (such as the number of sinks and toilets, the plot size and location and the number of households sharing the connection) determine the rate at which a customer is charged. In the case of Kano, in Nigeria, illustrated in Figure viii, domestic connections are billed using a flat rate system. Rates are set at predetermined levels for a number of domestic categories (based on income levels) but commercial and industrial customers are metered. While this system can be useful and remove the need for expensive metering, this kind of usage assessment may become, or be perceived as being subjective and result in disputes with customers.

Whenever a flat rate is used, utilities should also establish measures to limit consumption to reasonable levels. In Durban, flow restrictors were installed on household connections that were billed flat rates. Demand management programs, illustrated in the case of Durban in Box 2, have been established to build consumer awareness of the need for conservation and have been carried out in several African cities with support from the Water for African Cities project managed by UN-Habitat.

The key pricing policy issues for serving the urban poor are discussed further in Section 7.3.

3.5 Develop appropriate payment mechanisms

To ensure that low-income households stay connected, payment arrangements should be designed to help households pay their bills when they have the money on hand rather than on a bi-monthly basis as is common in most countries. Low-income households are remarkably effective at controlling finances on a daily or weekly basis, but have difficulty dealing with longer billing periods that do not correspond with the timing of their income (daily, weekly, or irregular). This requires them to make payments that have accrued significantly over several weeks. The monthly and bi-monthly or quarterly payment period may suit middle and high-income users that are paid on a monthly basis but this is rarely appropriate for low-income users. It places significant strain on household budgeting and expenditure.

In order to discourage late payment or non-payment of bills, utilities often implement enforcement procedures such as: (i) levying a penalty; (ii) disconnecting the defaulter; or (iii) terminating the supply and retaining the customer's deposit. Households with financial difficulties, even of a temporary nature, are therefore heavily penalized. This is particularly demoralizing for low-income households and unnecessary if simple alternative measures could have been employed to allow them to remain connected.

Despite these difficulties, many countries and cities continue to implement a relatively infrequent billing regime and have not introduced any measures that would assist low-income households to make their payments. Currently, billing is carried out on a bi-monthly basis in Senegal, Mali, Cameroon and bills are issued on a quarterly basis in Côte d'Ivoire. In Nairobi, where billing is carried out on a bi-annual basis, low-income consumers note that infrequent billing is a key reason why they default on payments (and are subsequently disconnected).

Accordingly, a number of approaches should be considered to facilitate improved payment. For instance:

Flexible payment arrangements • In order to reduce disconnection rates and ease the burden on low-income households, greater flexibility in the approach to payment should be introduced to enable households to pay their water bills in a manner more suited to their household budgeting and expenditure. Efforts should be made to investigate what options are relevant to the local context, for instance:

- increasing the frequency of billing;
- allowing several smaller payments against a single bill; and
- introducing intermediate billing based on consumption patterns (and thus removing the cost of meter-reading and management).

Pre-payment arrangements • Pre-payment arrangements can be established to encourage consumers to restrict their use to what they have paid for. In South Africa, pre-payment meters are being tested on a large scale. Results have been mixed with initial lessons indicating that technological solutions alone may not be sufficient (several of the meters have been vandalized and others re-programmed to supply water free of charge).

Payment arrangements should be designed to suit the requirements of low-income households.

In addition to pre-payment arrangements based on electronic card systems or more simple tokens, it is possible to introduce measures that allow consumers to make more frequent payments through banks and savings institutions. While deposits (of any kind) act as a form of prepayment and alleviate the need for penalties as a means of enforcing payment, the upfront deposit may form yet another barrier for a low-income household (without them having defaulted) as it requires them to make a lump sum payment that may be beyond their means.

Favorable payment terms for accumulated arrears • Other mechanisms that can assist low-income customers include efforts to negotiate friendly payment terms for accumulated arrears. In particular, by allowing consumers to pay outstanding bills in installments, low-income households can remain connected and spread payments into periods when they are more financially stable. For instance, low-income households may be more able to pay at particular times in the year due to the seasonality of their work. Although it is currently informal, some regional branches of SODECI in Abidjan allow installment plans in small towns.

Easier access to payment centers • Establishing local payment centers in low-income areas may also facilitate payment by improving proximity of payment sites to customers. Typically low-income households live in marginal areas on the periphery of cities and utility payment centers are located a significant distance from the residence or place of work. Paying bills may mean taking time out of work. More careful consideration of the constraints that low-income households face (especially when they are trying to make payments) is likely to lead to better cost recovery.

Improving billing accuracy • Reducing wastage and the losses incurred through leakages is also an important means to improving rates of payment. Understandably all households are unhappy to pay for water they did not consume. Customers in low-income areas may receive bills that reflect malfunctioning installations (such as taps, appliances and meters, due to infrequent or poor maintenance). In unplanned areas where networks may have been installed by customers using sub-standard

materials, leakage and wastage are currently the primary causes of high bills, leading to non-payment and disconnection. Initiatives include network infilling programs that enable households to replace 'spaghetti' pipelines with more reliable and closer connections, more frequent meter reading, increasing customer awareness, facilitating checks and repairs and carrying out demand management and water conservation programs.

Photocredit:
Mukami Kariuki

4 Standpipes: An Evolving Approach to Public Water Supply

Many low-income households that are unable to afford a household connection must rely on public water points, commonly known as standpipes or standposts. As noted earlier, irregular and unpredictable incomes, caused by unemployment or seasonally varying wages, are a primary characteristic of low-income households. Consequently, in many instances, standpipes and other arrangements allow them to purchase the amount of water they can afford, as and when they need it. The standpipe often provides much-needed flexibility that can be critical to their livelihood strategies. Common throughout Africa, standpipes therefore constitute a key element of any strategy for improving water supply to low-income communities.

Standpipes allow the poor to purchase the amount of water they can afford, when they need it.

Public standpipes are typically installed by utilities in low-income areas, and financed either directly by the utility, by local authorities or through grants from central government, donors or NGOs. They differ from private kiosks in that the infrastructure is installed and owned by the utility even though it may be leased to a private operator for management purposes.[1] In many countries an emerging alternative to the standpipe is **resale** from a private or domestic connection located in a residential compound nearby. While most of these connections are installed for a single household unit, many operate as yard connections serving multiple households either within the compound or in neighboring compounds. Although initially offering free water in many cities, standpipes now charge US$0.40 to US$1.00 per m^3. These alternatives are discussed in turn below.

4.1 Manage public standpipes better to serve the poor

The evolution of public standpipes

Standpipes are a long-standing delivery mechanism in many African countries. Until the 1980s, standpipes that dispensed 'free' water were a common way of getting water to low-income households. Political ideology determined who paid for this water. Some independent utilities would bill government but in many public utilities (e.g. municipal water departments), neither the state nor the user was invoiced for the water consumed. Over time, the inability to recover costs resulted in growing utility deficits and eventually to the decline of free public standpipes as a key component of delivery to low-income households.

In Benin, Ghana and Cameroon, the 1980s saw the systematic removal of standpipes due to a change in policy; and in Sao Tomé and Madagascar they were removed due to the lack of adequate cost recovery. In other cities, such as Nairobi, consumer preference for more reliable and accessible private water kiosks gradually led to the elimination of the public standpipe as a primary means of public water supply (see Chapter 5). Approximately 30% of households in Nairobi now rely on water kiosks, while in Blantyre, 70% depend on community-managed standpipe facilities.

[1] Privately installed and managed water standpipes or kiosks are discussed in Chapter 5.

In the 1990s, payment for water at standpipes became more common. In some countries the transition from 'free' standpipes to 'paying' water points was well defined, as in Togo, where payment for water from standpipes came into effect after 1999. In several countries standpipes have been replaced by resale from a (private or yard) connection (e.g. Ghana), but in many other countries (such as in Burkina-Faso, Ethiopia, Mauritania, Niger and Nigeria) standpipes managed on 'commercial terms' under delegated arrangements are still the primary means of supplying water to low-income households. In a few cases, such as Kano, Nigeria, commercial and non-commercial systems exist side by side. Some free standpipes have been retained to allow low-income users a limited quantity of water (measured in jerry cans). Water vendors and households wishing to use more than the prescribed amount are required to pay a fee at commercial standpipes.

Utility-owned and managed standpipes

Some utilities develop and manage a network of standpipes with their own revenue (or with funding from other public sources). These standpipes are clearly the utility's responsibility and operation and maintenance tasks are either handled directly or delegated to other actors. Experience suggests that these management arrangements are a key factor determining the performance of standpipes. Several management options have been tried with varying degrees of success. The two main options are: (i) salaried standpipe attendants; and (ii) delegated management (be it to local administrative officers or local leaders, the community or private operators). The success of these models is often linked to three main factors: the level of convenience to the customer, the institutional arrangements for management and the incentives for cost recovery.

Management arrangements are a key factor determining the performance of standpipes

Salaried attendants recruited by the utility • Although it is increasingly uncommon for utilities to hire staff to man standpipes, the practice is still adopted by some utilities and departments such as in Ethiopia in the utility in Dire Dawa and in most Cape Verde municipalities. Experience shows that there is limited incentive for a salaried employee to either maintain prices at the level set by the utility or to ensure (much less improve) cost-recovery. Some utilities, municipalities, associations and committees responsible for standpipes therefore provide commissions (or bonuses) to standpipe attendants as an incentive to improve and adapt their service. In Zambia for instance, attendants are paid a fixed wage plus a commission on water sold, while in some West African countries, commissioned attendants are given financial incentives to remain open in the evening to serve women who are unable (for religious or cultural reasons) to visit the standpost during the day. In several cases such as in Ethiopia and Zambia, staff are required to manage standposts on a rotational basis, particularly if commissions are paid on some, but not all, standpipes. This limits the risk of misappropriation and avoids any inequality in remuneration between standpipe attendants.

Delegated Management Arrangements in Arusha, Tanzania

Box 9

Public kiosks in Arusha originally provided free water services through standpipes managed by the utility. These standpipes were located along main roads within the public space defined by the road reserve. As costs were not recovered from these points, the facilities received little maintenance from the utility and as a result, the scheme collapsed in 1990.

A new system of **public standpipes managed by neighborhood representatives** known as "mtaa leaders", was introduced in 1993 as part of a water and sanitation rehabilitation program funded by a KfW grant. The revised approach placed the management of the individual kiosks in the hands of the mtaa. Operators are hired by the mtaa leader to sell water to the public from metered standpipes installed by the utility. The operator is required to take daily returns to the mtaa leader who banks the daily collections and submits monthly returns to the ward executive officer for each kiosk under his control. The utility retains responsibility for O&M financing up to and including the water meter and the ward development committee responsibilities start at the meter and end at the tap.

The public water standpipes provide a level of water services that responds to the **socio-economic needs of the peri-urban communities**. The utility sells water to the standpipes at TZH 3/- (US$0.003) and the kiosks retail it at TZH 10/- (US$0.01) per 20 liter jerrican. Most of the standpipes surveyed actually charge TZH 20/- (US$0.02) per can and the profit margins provide sufficient commercial incentive to sustain this practice. This arrangement is not without problems. One of the key problems encountered is the non-payment of utility bills by mtaa leaders. This has led to the disconnection of about 40% of the standpipes. Also, as socio-economic circumstances improve in peri-urban areas, residents have obtained private yard connections and started selling water in competition with the public standpipes.

The introduction of private kiosks has improved access for low-income consumers but has also led to the closure of some mtaa-managed standpipes. Many wards are now seeking to privatize the standpipes in order to improve efficiency, demonstrating that, through an evolving process, **improvements in management** arrangements for public water points can result in better access for poor households.

Note:
Exchange Rate
US$1 = T Sh 800 (2000)
Source:
Wandera, 2000

Management delegated to local leaders and water committees • Faced with a growing number of problems in the management of standpipes, several utilities (such as in Arusha illustrated in Box 9, Blantyre and Addis Ababa) have handed over the responsibility for operating and maintaining standpipes to local leaders, local authority administrators or water committees. This arrangement has had its share of problems, as the inefficiencies in utility operations have not been eliminated simply by transferring responsibility to another often less experienced and capable operator. Although there was an expectation that institutions operating closer to the community would be more effective in handling these systems and ensuring that social concerns were addressed, in reality the performance of these organizations has been poor. Poor performance is often the result of political interference, inexperience in financial management, lack of incentives and weak accountability mechanisms.

Management delegated to community organizations • Partnerships with local community-based organizations are an increasingly common arrangement for the management of standpipes. In Zambia, Senegal (see Box 10) and Mali, communities are given the opportunity to apply for management responsibility and identify a manager(s) who will be contracted by the utility, municipality, or directly by the community. In several cases, the community retains oversight and has a contract with the relevant party. While community organizations have proven to be better managers of

standpipes than local leaders, experience varies across the region and depends on the degree of organizational ability and management capacity in the community.

Management contracted out to private managers • Utilities are becoming increasingly aware of the need to ensure that standpipe managers have a commercial outlook that promotes efficiency and cost-recovery. Several are now leasing their installations to private operators and selling them bulk water. Efforts are increasingly being focused on procedures for awarding these contracts as past experience suggests that the process to date has not always promoted transparent selection of standpipe managers. This is particularly the case where the municipality is involved in choosing the manager but does not assume any liability when they fail. This is illustrated by experiences in the cities of Arusha, Tanzania, Blantyre, Malawi and Addis Ababa, Ethiopia.

Box 10

Community Management of Standpipes in Dakar, Senegal

The water supply to Dakar (and some 50 other urban areas) is provided by Sénégalaise Des Eaux (SDE), a private company with a 10 year lease contract (1996-2006) to the Senegalese National Water Authority (SONES) to manage and deliver water services. At the end of 1999, 1900 standpipes were in operation, serving 500,000 customers in Dakar. Given the limited number of household connections, standpipes are considered an essential element of the urban public water supply strategy, especially in crowded or new neighborhoods. This is because, for a relatively modest investment, standpipes have enabled the utility to respond to demand from households with low or irregular incomes (for small quantities of water).

A strategy for reaching low-income communities

As the procedures and practices of SONES and SDE for dealing with household connections were not considered appropriate to poor neighborhoods - where community rather than individual solutions must be applied - in 1999 SDE and SONES entered into a partnership with ENDA, an NGO experienced in 'social engineering', to design a strategy for reaching low-income consumers.

The strategy developed requires the active involvement of the community, through organized management committees that enter into lease agreements with SDE. Community commitment is an essential element of the strategy because: (i) the local population is required to contribute 25% of the cost of the standpipes and the associated network extensions; and (ii) poor installation of a standpipe can lead to it becoming unused. Local management committees represent the local people in each area where an extension was planned.

Contracting to selected management groups

The day-to-day management of standpipes is entrusted to women's groups or self-help groups following a competitive selection procedure undertaken by the local management committee. To qualify the applicants must live in the area targeted by the installation and be of 'sound character'. On signing the agreement, a deposit of CFA 30 000 (US$54) is paid as a guarantee or an advance on future consumption payment. The contract with SDE is entered in the name of the chairman of the local committee who supervises on a day-to-day basis and maintains responsibility for finances.

The role of a supporting NGO

In addition to helping to form or strengthen the local management committee, ENDA is also responsible for installing the system under supervision of SONES and SDE. The NGOs also provide training for standpipe operators in management, maintenance, and hygiene and provide back up support for a period of 6 months following installation.

Note:
Exchange Rate
US$1 = CFA 560 (1999)
ENDA is an international NGO based in Dakar which undertakes a variety of development activities in the welfare or informal sector. Through the Water for People Programme, Enda is acting within the SONES priorities in undertaking community connections and installing standpipes in marginalized areas.

Source:
Primary data from SDE, 1998

In other countries (such as in Mali, Guinea and Niger), private managers are selected from existing customers who have proven their effectiveness as service providers. Competition is also being used to improve performance and service delivery. In Togo, a bidding system was jointly organized by the municipality (the owner) and utility (the main operator) as a means of selecting standpipe managers.

Mechanical standpipes and water vending machines • The use of coin-operated or electronic card-operated standpipes that dispense a given volume of water is not very common in sub-Saharan Africa. Vending machines are a useful tool for controlling the price of water and reducing management costs incurred by hiring standpipe managers. They are also considered a preferable alternative where there are high security risks (e.g. unsafe conditions for attendants) and where there is a substantial likelihood of misappropriation of funds by attendants. Electronic pre-payment cards/vending machines are currently in use in South Africa (as mentioned in Chapter 3) and are being introduced in Uganda and Ghana.

Coin-operated standpipes called 'yacoli' are in use in Côte d'Ivoire. Originally designed to be operated without a full time attendant, the yacoli or vending machine is now run by an attendant who may run several water points simultaneously. The introduction of an attendant has several benefits. Overall, mechanical systems are often less flexible and therefore less customer-friendly. Customers note that yacoli often take a long time to fill containers, and utilities note the high costs of maintenance.[2] In an effort to meet customers needs, attendants may by-pass the coin-operated delivery mechanism in order to fill containers of varying size and shorten filling times. However they are also relatively expensive, approximately US$2,500 for a yacoli standpipe in Côte d'Ivoire, which is three times more than an ordinary standpipe and ten times more than a domestic reseller's connection.

Tokens, monthly payment cards and other non-mechanical payment systems • As an alternative to pre-payment vending machines, some utilities have introduced tokens, tickets or monthly cards as a means of improving cost recovery (see Box 11 on the token system in Chipata town in Zambia). In addition to controlling the handling of cash, these systems also allow tariffs to be set at a unit rate that is lower than the smallest coin. Depending on the nature of the arrangement, the production, distribution and collection of tokens can increase management costs (which must then be reflected in the price of water). Unsurprisingly, they may only be justified for small water supply systems.

[2] Yacoli are also relatively complex and often require the services of expert technicians from the utility

Box 11

The Token System in Chipata town, Zambia

A token system was introduced in Chipata town in Zambia following a decision to introduce commercialized public standpipes in Mchini compound (prior to this water had been provided free of charge). The token system was introduced with the aim of improving **commercial operations** and improving **user participation** in water supply management. Standpipes are run by attendants, paid a salary and commission for token sales by CWSC. Each token buys 20 liters of water and consumers purchase tokens as and when needed. All standpipes are metered and readings are used to assess tokens sold and revenue collected. Records indicate that 93% of metered water is sold. Attendants are required to maintain environmental hygiene at the standpipes.

Source:
Taylor et al, 1998

Lowering the price of water from standpipes

In order to lower the price of water from public standpipes it is necessary to consider the measures that will increase the number and distance between water points and provide incentives for those operating them.

Increasing the number of providers by encouraging competition • In areas where standpipes are the predominant or only form of water supply the standpipe owner/manager is often given the exclusive right to sell within a fixed catchment area. Although this approach is frequently promoted by utilities – who see it as a means of reducing investment costs while providing access within acceptable distance – it is also favored by standpipe managers and resellers who logically seek to limit competition (and may get together with fellow providers to form cartels).

Lack of competition may work against low-income households as they suffer the inconvenience caused by long distances, longer queues and higher prices that result from a shortage of supply. However, a larger number of standpipes does not necessarily mean lower prices. The case studies illustrated that in Dakar and Bamako, the cities with the greatest number of standpipes, prices were not necessarily cheaper. Standpipe managers compensate for low sales turnover by increasing the margin on the price of water.

Providing financial incentives to those who sell large volumes • Given the large volumes that they dispense, tariffs should also be structured to accommodate a flat or bulk rate for standpipe supply. In Burkina Faso, where there are few private connections, the utility provides large flow standpipes (medium diameter, high pressure) and standpipe managers sell an average of 20m^3 per day. Standpipes are also sufficiently spaced to ensure competition, permit lower prices while at the same time providing an incentive for managers.

4.2 Promote domestic resale to reach those without connections

Increasingly, householders with a private connection are selling water to their neighbors. In some cities this practice, described in this document as 'domestic reselling' supplies up to 50% of households (and 80% of low-income households). It is particularly prevalent in cities, such as Cotonou, Benin and Accra, Ghana, where standpipes have been shut down without an alternative arrangement (such as a water kiosk or vending machine) being put in place. It is also common in cities where the distance between standpipes is too great, or the ratio of standpipes to people too low. This is the case in Abidjan, Côte d'Ivoire and Conakry, Guinea.

Domestic reselling has grown in response to customer demand. Households with private connections are often prevailed upon to sell water to neighbors.[3] As they operate on commercial terms, domestic retailers are able to offer more convenient 'opening hours' and provide more flexible payment mechanisms than public standpipes. They are often located close to those households (within the same lane or neighborhood) and may even provide customers with credit facilities. In many cases such as in Kampala, Uganda and Yaoundé, Cameroun consumers prefer to pay more for the convenience offered by a nearby domestic retail point, than to queue for water that is free to them at a public standpipe.

Domestic resellers are able to offer a more convenient service and payment mechanisms.

[3] In some cases, the connection may have been obtained illegally. (see Box 12).

Yet domestic reselling is not without problems. Those that can afford connections are often the better-off, less vulnerable members of the community, and although many households are pushed into supplying water to their neighbors, domestic reselling may increase their leverage within the community. While some reselling arrangements are mutually beneficial, others are exploitative and can lead to high tariffs and political maneuvering affecting low-income households.

Regularizing the domestic reselling of water

Reselling of water by households with private connections is often explicitly prohibited by utilities, which have the exclusive (legal) right to sell water within their service area. In Ghana and Togo, although it is not prohibited, the practice of domestic reselling may be frowned upon or discouraged by the utility. In a number of countries however this policy is changing. In the case of Abidjan in Côte d'Ivoire described in Box 12, the utility has begun to recognize the need for alternative arrangements for reaching low-income consumers, resellers are given special contracts allowing them to sell water from a tap or kiosk in their compound.

Utilities or authorities rarely contest this practice of reselling water at the household level.

While it might not be strictly legal, utilities or authorities rarely contest this practice of reselling water at the household level. It is generally accepted that removing this option would have an impact on a large number of users who have no other access to an acceptable water supply. Prohibiting this practice may also place households that have a private connection at loggerheads with their neighbors – who may continue to exert pressure on them to provide the service. It may also create conflicts with utility or municipal staff – who may resort to collusion or corruption to keep certain retailers in business.

Reducing application costs and improving conditions for domestic reselling

Recognition of domestic reselling could:

- encourage resellers to be more professional in their approach;
- reduce the risk to resellers - by making their investments more secure; and
- enable the utility to reduce the number of illegal connections/reduce the level of unaccounted for water.

The decision to authorize domestic resale should be accompanied by a review of local constraints to ensure that the service can be provided at a reasonable cost. Experience to date suggests that there is an emphasis on measures that control, and perhaps hinder, rather than enable or promote resale (e.g. higher application fees and deposits, ineligibility for subsidies). Operating conditions often mean that any additional costs incurred by the domestic reseller are passed on to their consumers, further penalizing unserved households.

For instance, in Côte d'Ivoire, where resale has been explicitly authorized, resellers are excluded from the benefit of a subsidized connection (approximately US$250) as that would be considered to be a public subsidy for a commercial activity. The utility also requires a deposit (about US$300, equal to the cost of 12 months consumption) to reduce the risks of non-payment. This limits the number of resellers and subsequently limits competition.

Box 12

Approved Resellers in Abidjan, Côte d'Ivoire

In the early 1980s in Côte d'Ivoire, the utility SODECI and the national government made a decision to address the growth in the unauthorized resale of water (mostly obtained through individual illegal connections). This had become an important form of supply to the poorest people, especially those without a household connection or access to a public standpipe) as many of these illegal connections were made in informal settlements not reached by the utility. The decision was made to provide resellers with a permit authorizing them to sell water. They had to apply to the utility and covert to formal connections. This move had several objectives, reducing illegal activity and improving revenue collection. In 1983 the utility launched a campaign for authorized vending points.

In practice, the total volumes distributed by approved resellers are low and the impact of approved resellers has been limited to less than 5% of the total population. Authorized vendors only provide about 1% of the total resale and the volumes sold are on average, only 40 - 50m³ per month. See table.

Approved resale figures

	1994-95	1995-96	1996-97
Number of approved resellers	1,034	933	869
Volumes billed ('000 of m³)	648	505	465
Average per reseller	627	542	536
Total volumes billed ('000 of m³)	60,603	80,436	86,303
% of volumes billed to approved resellers	1.1	0.6	0.5
Population served (15l/d/p)	118,500	92,500	85,000
% of total population Abidjan	4.8	3.6	3.2

The corresponding turnover is also low, from CFA35 000 - 50 000 (US$50-70) per month. After deducting the water bills from SODECI, CFA15 000 - 20 000 per month, (US$20-30), the gross margin is quite low at CFA17 500 - 31500 per month (US$25-45), to be shared between the reseller and his technician. Furthermore, prices charged by the approved resellers are often the same as those charged by illegal resellers (who are obviously not billed by the utility). Despite this, business is good as resellers meet the demand of households with low or irregular incomes, particularly in underserved areas where there is little alternative.

Insufficient incentive for resellers

Other than the benefits to SODECI, the campaign to legalize reselling did not have any direct benefits for resellers as the terms they received were the same as those of domestic consumers. This is unfortunate as resellers already finance major extensions in neighborhoods. It might also have the effect of limiting competition which might contribute to higher prices thus making the service less accessible to the poorest people.

As is the case for all individual consumers, the vendor was required to provide a title deed, or landlord's permission - for rented premises, which is difficult at best for those in unplanned neighborhoods. Secondly, as installation of water meters is only permitted where legal right of way exists, the reseller is required to invest heavily in the cost of extending the network between the meter and their vending point often in a haphazard manner - losses incurred due to leaks in the system are inevitably billed by SODECI. Resellers are also subject to the normal tariff scales, and are therefore charged in the higher band in the tariff if they consume more than the average vendor (i.e. over 50m³/month). As a result the campaign to convert illegal connections into approved resellers carried out by SODECI did not make substantial gains. In Abidjan, the number of approved resellers dropped from 1 585 in 1983, to 869 by the end of 1997.

Despite the mixed results of this experience, in countries where resale is at best tolerated and at worst banned, and where there are few public standpoints, the recognition of resellers is critical. Recognition and appropriate contracting arrangements should be key aspects of a public water supply strategy that aims to reach the poor.

Note:
Exchange Rate
US$1 = CFA 700 (2001)
Source:
CREPA, 1999

Establishing appropriate arrangements for domestic reselling

Domestic reselling also means that utilities deal with fewer customers buying larger quantities of water – a benefit for customer management. Efforts should therefore be made to focus on cost recovery, while at the same time encouraging appropriate behavior (e.g. fair pricing) by domestic retailers. In a manner similar to the strategy toward standpipes outlined above, if policy makers take into account the incidence of domestic reselling, it is clear that efforts should be made to formalize (and regularize) the practice and to develop mechanisms aimed at improving the level of service provided to the neighbor-customer. Measures could include:

- reviewing the tariffs applied to domestic resellers – rising block tariffs penalize the high consumption that stems from reselling and thus results in high unit rates for those households consuming water from the same meter;
- shifting policy and regulatory provisions to legalize this practice and thereby reduce the risk associated with the reselling role including formalizing the service delivery by establishing contracts with resellers;

AREQUAP-CI: an Umbrella Body of Authorized Vendors in Côte d'Ivoire

Box 13

AREQUAP-CI, is the umbrella body of authorized water vendors in Côte d'Ivoire whose primary objective is to **obtain recognition** from the Ivorian water utility (SODECI) and improve working conditions for its members. Among other issues, the association is lobbying for: an appropriate tariff regime, lower deposit amounts, shorter billing periods, and protection from unfair competition by illegal vendors. AREQUAP-CI would like to evolve from an informal sector association to a professional one.

AREQUAP-CI was established in November 1998, on the initiative of several approved resellers in Abidjan. The association states that it wishes to **professionalize the sector** so as to improve the service given through city residents. This small group of founding members succeed in drawing in other resellers. In 2000 the association had 147 members, that is, one quarter of the approved resellers. Any resellers approved by SODECI can be a member of the association provided they pay a membership fee of CFA5,000 (US$7) and a monthly subscription of CFA1000 (US$1.5). The association is run by a management committee of eight members elected by its members.

The association, encouraged by its recognition togther with the lobbying talent of its President, soon became an **important voice**. Whenever there are meetings with SODECI concerning urban water supply, AREQUAP-CI ensures that its opinion and demands are heard. They are currently pursuing two important issues. The establishment of a tariff system (based on a bulk rate) that is appropriate for resellers. This is because resellers are at present subject to the "normal" tariff offered to domestic customers, and as they consume large volumes of water, their bills fluctuate greatly from one month to the next. The association also contends that billing on a quarterly cycle results in frequent disconnections for its members who are unable to save funds over this long period of time (some have no access to banking facilities, etc), and are unable to estimate costs because of these monthly fluctuations.

Note:
Exchange Rate
US$1 = CFA 700 (2001)
Source:
Any, 1999

- facilitating access through a connection subsidy in situations where the number of connections is small, standpipes do not exist or are too few in number;
- establishing a bulk rate for resellers such as the bulk price applied on kiosks in Nairobi or tankers in Accra;

- reducing risks for both parties by adjusting the billing cycle to sub-monthly or monthly (or more frequent) payments;
- facilitating appropriate payment mechanisms for resellers (e.g. allowing deposits to be paid in installments; allowing deposits to be indexed against average consumption rather than the more common practice of a fixed annual fee);
- encouraging competition between domestic resellers to set prices that cover costs but do not include unfair profit margins;
- monitoring the impacts on the poor, and especially on vulnerable households.

Finally, as domestic resellers are generally not recognized, they often do not have contacts with utilities and municipalities. AREQUAP-CI, an association of authorized domestic resellers in Abidjan, described in Box 13, is an exception that illustrates the benefits of recognizing the activity of reselling.

Efforts should be made to formalize and regularize the practice of domestic reselling.

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Hydroconseil

5 Intermediate and Independent Service Providers: Filling the gaps

Many communities rely on water supplied by intermediate or independent providers.

Private connections, standpipes and domestic reselling from the utility network may have limited applicability in many low-income situations in sub-Saharan Africa. Depending on local legislation, policy and institutional arrangements, some communities and individual households lack access to these options because they: (i) occupy marginal land; (ii) are located a considerable distance from the network; or (iii) occupy settlements formed in unstable or hazardous areas. The utility may be reluctant to get involved in service provision in any or all of these conditions. As noted in Chapter 3, other reasons include: (i) the risks associated with the lack of secure tenure (e.g. eviction or bills left unpaid); and (ii) the lack of safety for utility workers. Consequently, many of these communities rely on water supplied by another provider, be they or [1] In some countries the scale of alternative provision is significant. In Mali, for instance, 80% of consumers rely on some type of alternative provider.

Intermediate service providers typically include private providers or community-based organizations delivering water in unserved areas.[2] Intermediate providers generally obtain water from the network and either: install and manage network extensions or water points in unserved areas; or buy and deliver water direct to customers willing to pay them. Carriers or non-network providers might include water tankers, donkey/horse-carts and handcarts. The common characteristic of these intermediate service providers is that they purchase water in bulk from the utility and retail (distribute) to a group of their own customers.

Independent service providers are distinct from intermediate service providers because they are not connected to the utility network and may even compete with it. They generally derive water from alternative sources such as boreholes and then distribute via a network, through carriers or simply through a single supply point. As they compete with the utility within its service area, many independent providers operate illegally and are unregulated. As distinct from intermediate service providers, they may not have any links with the utility and the utility may see them as a competitor and actively work against them. In some cases, innovative utilities and municipalities do however work with independent providers as they seek to augment the utility's intermittent and irregular water supply.

The following sections 5.1 and 5.2 describe the types of bulk sale (intermediate service) arrangements that have developed throughout the region – efforts that take distribution forward where the network stops. First we explore those providers developing local networks linked into the utility system; and then in relation to those transporting water from a utility water point to communities. Section 5.3 describes those independent network providers that source their own water and the utility plays no role in the production and distribution cycle.

[1] The definitions for 'intermediate' and 'independent providers' are developed further in the text. In the sector generally there is no definitive usage of these terms, but we have tried to use them respectively to describe the service provided by those working as an extension of the utility and those working separately and in competition to it. The term 'alternative' provider refers to a service that is alternative to the main one provided by the utility. The term 'small-scale providers' is a broader term that includes intermediate and independent providers and domestic resellers.

[2] In this usage, 'intermediate' should not be confused with 'intermediate' technology – which implies a lower level of service. This may be the case in many instances, but the term is used here specifically for the service providers that 'mediate' between the utility and the end-user.

5.1 Work with local sub-network providers to improve service

The supply of water in informal settlements through local networks (not owned or managed by the utility but by a private or civil society actor(s) is increasingly recognized as an important means of getting water to low-income households. The utility typically installs a meter at the periphery of the settlement (on the nearest public land) and the service provider – an intermediate water retailer buying large quantities of water – takes responsibility for water distributed from the meter or the connection point.[3] Depending on customer demand, the connection may feed a small distribution network or simply supply an individual water point. As compared to standpipes, which are typically installed by the utility with internal revenue or grant financing, the intermediate provider typically pays for all costs beyond the connection point.

The intermediate provider typically pays for all costs beyond the connection point.

Network extensions into informal settlements may also be financed by donors, NGOs, or community members. In some cases, for instance in Blantyre, Malawi, the network extension is funded by the municipality with donor and NGO support. In those cases that are financed and managed by a private individual or group, the capital costs are recovered through the sale of water. Although most utilities that provide a special bulk tariff also suggest a retail price to operators/managers, it is difficult to control prices charged particularly when the cost of the investment is borne by a private investor.

Figure ix

Infrastructure and Investment Costs in Kibera, Nairobi

Village	Pipe Lengths (range meters)	Total Storage (gallons)	Investment Cost (range in US$*)
Gatwekera	3 - 1,680	13,800	60 - 1,812
Kianda	23 - 338	2,000	6 - 83
Kisumu Dogo	19 - 375	6,750	26 - 266
Lindi	8 - 750	3,000	1 - 1,239
Laini Saba	284 - 1,166	9,600	152 - 2,971
Makina	1 - 360	11,800	24 - 472
Mashimoni	5 - 294	4,200	2 - 198
Silanga	704 - 1,061	8,000	165 - 1,450
Soweto	101 - 523	4,500	128 - 883

Note:
Exchange Rate
US$1 = Ksh 62 (1997)

Source:
Kariuki and Mbuvi, 1997

Privately-funded network extensions may well be in the interest of the utility because it allows services to be provided to a large number of customers that would not otherwise be reached. Intermediate providers are often major customers providing the utility with economies of scale in term of customer management. The potential economies of scale fully justify a specific support programme for intermediate

[3] In most cases the meter is located at the connection point, but it may be located at the point of sale.

providers that are either private or community-based. In Port-au-Prince, the utility has set up a specialized unit to monitor and support the operations of 'water committees' established to install and manage networks in unplanned areas.

Intermediate providers are often more familiar with the needs of the low-income customers they serve.

Network extensions and water points developed by intermediate providers may be managed in a variety of ways. The following discussion considers the range of management arrangements from the voluntary arrangements of community organizations to the fully commercial enterprises of private operators. Whether they are community organisations / associations, water committees or private providers, intermediate providers are often more familiar with the needs of the low-income customers they serve. They are therefore often better placed to meet their demands and recover costs.

Community network extensions – voluntary operation and management

Community-based organizations often play a role in establishing network extensions. In many cases these community systems are initiated by a few individuals within the community who mobilize others to contribute to the capital costs of installing a network. In other cases, they are developed and implemented as part of a project funded by a donor or NGO (e.g. Wateraid, Dar es Salaam, Tanzania). Where NGOs or donors are involved, support may have included the development of community management arrangements and frequently builds on the models first established in rural areas. Box 14 provides a discussion on the problems of sustainability associated with this approach to managing supply in urban areas.

As arrangements for bulk water sale to community organizations are often carried out without adequate attention to the legal status of the community organization purchasing the water from the utility, issues such as ownership, depreciation, responsibility for routine maintenance, responsibility for renewal and rehabilitation of infrastructure are key determinants of outcomes. In Ethiopia for instance, there is no provision in the existing legal framework for the formation of organizations such as water committees and this lack of legal status often exacerbates or creates a lack of accountability. Often, routine maintenance is handled by the community using revenue generated from the system. However In some cases, the utility provides staff or technical assistance for maintenance either on a contractual or voluntary basis.

Although in a few cases community network extensions are developed with public funds (almost exclusively provided by donors and NGOs), they may also be financed entirely by the community (as in Kenya) and in some countries they are jointly financed by the community and utility (as in Ghana). Typically, long-term costs of community network extensions are not always well understood. In many cases, although the utility may assume legal ownership of the network, it may not transfer these assets into their accounting books (depreciation, etc.)

Community network extensions – commercial operation and management

In some instances, community-based self help groups are formed with the specific purpose of establishing and managing water points or small networks. In Kibera, Nairobi, for instance, a number of self-help groups have been created to address local water supply needs and now act as small-scale providers. Financing is provided by NGOs or generated within the group and the service is open to both the group

members and other residents in the area. The service they provide competes with private operators. Management is carried out on a commercial basis (specific arrangements vary from group to group) and the committee members are paid for their services (i.e. they receive an income from the standpipe operation and/or receive some other form of compensation).

Box 14

Community Management: Rural Models for Urban Areas?

Following the success of rural water committees and other community-based organizations in rural areas, NGOs and donors have tried to introduce rural community water supply management models in urban projects where some form of community management is envisaged. The participation of community members is voluntary, often initiated during a planning and implementation phase. The community may be expected to contribute finance toward the costs of capital investment and time toward the establishment of the scheme. Members are often required to manage the overall operation and volunteer attendants at taps.

While this approach has had some success, it is constrained by the particularities of the urban context. Urban communities are heterogeneous and less unified than rural communities and households. They are generally dependent on cash rather than a subsistence economy. Urban households must therefore spend their time on income earning activities and there is an opportunity cost of their working on unpaid community initiatives. While community participation is frequently successful in short-term inputs (participatory planning and implementation) it is less successful and unlikely to be sustainable as a long-term arrangement. It is likely that mechanisms will need to be established to adapt the management model from a voluntary to a commercial one as soon as the project has been implemented.

The problems of urban CBOs

In Zambia, several community associations acting as service providers on a voluntary basis encountered problems due to the constant turnover of membership. In Tanzania and Nigeria, some communal taps are still managed by community organizations but only offer a limited service, are not open to the general public and are thus accessible to only selected parts of the community. These systems often rely on one or two leaders to undertake the time-consuming work required to maintain the operation. In the cases of Mopti and Ségou in Mali, and Port-au-Prince in Haiti, this type of arrangement has evolved into a commercial arrangement.

Like those community organizations acting as commercial providers, many voluntary groups lack clear ownership and legal standing. They also lack accountability. Evidence suggests that organizations frequently lack skills and/or the ability to identify the auditing/accounting assistance they need. In some instances, the revenue collected from water sales is not passed on to the utility, but is used to cover a range of costs determined by water committees (including for instance payment for non-water related committee expenses). In many cases, due to the lack of a constitution, managers have adapted management practices to suit local or individual requirements; and elsewhere community management is compromised due to the struggle for power between community and political leaders.

Experience and legitimacy

It is therefore essential that organizations that manage services have a track record in implementing other public service activities. They must acquire recognition and legitimacy in the eyes of all stakeholders: the local people, the public authorities and the utility. In Zambia, community networks are now being managed by Resident Development Committees (RDCs). These RDCs have legal status (provided for in the constitution) and, with support from NGOs, have hired staff to manage the systems. In Accra, residents contribute 50% toward the costs of the network extension but the legal and financial foundations are not always in place. Although some communities have managed to recover part of these initial investment costs through joining fees charged to new-comers, others are unable to do so because the original residents have no legal standing.

Management of extensions may be carried out by self help groups that act more like small private firms.

In Port-au-Prince, the management of extensions in shantytowns is carried out by 'water committees' that are more like small private firms since just a few of the members take decisions and manage the systems in return for financial bonuses. The residents have some control over the committees in their capacity as customers rather than as members. Similar arrangements exist in Mopti and Ségou in Mali.

Community management arrangements are generally more permanent when a specific organization (such as a self-help group) is formed with the express purpose of buying water from the utility for retail to consumers than when community-wide organizations are responsible for managing the water supply on a voluntary basis. In many self-help community-managed schemes, technical management is entrusted to trained staff or professionals, hired for their abilities, remunerated and answerable to the users. In other situations however, accounting and financial management is left in the hands of voluntary workers and management is often inadequate as they lack technical skills and rarely have an appropriate level of familiarity with proper accounting procedures. This is particularly problematic where the volumes sold are large and the billing is infrequent.

Community network extensions – delegated operation and management

Communities delegate to private operators who often invest their own funds and have an incentive to provide a good service.

A less common service delivery arrangement occurs when communities responsible for local networks delegate the management and/or operation function to a private entity. As private operators often invest their own funds in the development of the system and expect to use this as a source of income, they generally have a greater incentive to provide a good service.

In cases where the installations are financed by the main service provider, the delegating authority (utility or municipality) remains responsible for renewals thus reducing the operator's responsibilities to a minimum. In such cases, operator selection should be carried out on a competitive basis, assessing commercial acumen. In the Bamako case illustrated in Box 15, responsibility for the piped system owned by the municipality has been delegated to a Water Users' Association. Through a competitive process, the association has leased the network to a private operator to operate and manage the water supply in the locality. To guarantee their performance, the operator had to pay a bond at the outset.

Private network extensions and facilities

Many private individuals also invest in and operate infrastructure and facilities. The location and actual design of private standpipes or kiosks is either carried out as a part of an expansion programme by the utility or the municipality or on the initiative of the applicant. In Nairobi, many water kiosks have been established through local private initiatives (the 'average' investment in these water kiosks is estimated at US$70,000). In Kano, Nigeria, the municipality has encouraged private investment in the construction of washrooms that also sell water for other uses.

In Côte d'Ivoire and Kenya, these private operators install 'tertiary' networks in the heart of unplanned or informal areas. Network extensions into these settlements typically start from the mains at the periphery of the area and are several hundred meters long. The location of the meter varies. In some cases it is placed at the outskirts of the settlement while in others, it has been placed at the water kiosk. There are more than 650 resellers in Kibera for instance. In many African cities, including Dar es Salaam, Nairobi and Abidjan, some extensions are more than one kilometer long.

Box 15

A Community Delegates the Water Service: A Lesson from Bamako, Mali

The district of Yirimadio is situated in the city of Bamako in an area that is not served by the Energie du Mali (EDM) public water utility. The population is estimated to be 11,000 inhabitants. The district receives its water supply from a private water provider, whose services were originally established through the Drinking Water Supply in the Outlying Districts of Bamako Project (funded by the French Development Agency). Two other private water suppliers were established in the Sebenikoro and Sikorori districts. Both are supplied by private boreholes (of which the ownership is unclear) and are connected into the EDM electricity supply network. The Yirimadio water supply feeds a 40m³ tank and 3 standpipes. The quality of the water is ensured by chlorination at the borehole.

Water user associations choose management arrangements

In each of the three districts a Water Users' Association has been established and is given the option to manage or delegate the management of the water supply. In Yirimadio, owing to the difficulties experienced in the community management of other services, the Association decided to find a delegated operator or "lessee".

The Yirimadio Association was aware that the process of selecting an operator was important to ensure the legitimacy and credibility of the Water Users' Association and the operator. The Association established accountable and transparent procedures based on objective criteria. They called a public tender for applications based on precise specifications which the applicants were required to meet. These included the sale price of water, the amount of the fee to be paid by the lessee to the Water Owners' Association and most importantly a bond of CFA500,000 (US$710) (to be paid on signing the contract).

The operation of the water supply is straightforward, as it is connected to the EDM electricity network and does not need an electrical generator (which is costly to maintain) or solar panels (which are costly to renew). When breakdowns occur, repairs are carried out by local repairman and spare parts are available in Bamako. But the management of the water supply requires business skills and candidates are judged on their entrepreneurial spirit. The Association has determined that the best indicator of this is the candidate's readiness to invest and willingness to pay the guarantee bond.

Efficient management makes service profitable

The profit and loss account of the Yirimadio water supply gives a good indication that the service is profitable. This has been achieved with a selling price that is half that charged by EDM standpipe operators (CFA500-600/m³ (US$0.70-0.85). In 1998-9 the operator's income was approximately CFA6 million (US$8,530) while payments to the association amounted to approximately CFA2 million (US$2,700). A key reason for this is that the lessee operating the supply is directly concerned with revenue collection and therefore makes sure that bills are paid and wastage is kept to a minimum.

To date, the tariffs set by the Regional Water Department have not been changed (nor has there been any request for an adjustment) and no major disputes have occurred between the operator and the Water Users' Association, or individual users. The operator appears keen to keep his customers happy and settle disputes quickly before they develop into conflict.

The success of the Yirimadio initiative suggests that further activities could be taken within the arrangement. This might include, for instance, building up a reserve to finance extensions and new facilities.

Water Users' Association responsibilities

- choose the lessee
- check adherence to specifications (water price)
- manage renewals and extensions of installations
- represent the interests of the users

Lessee tasks and responsibilities

- pay guarantee bond of 500,000 CFA
- recruit 3 standpipe attendants and station guard
- sell drinking water (quality set by regulations) to all daily, year long at 250 CFA per m³
- pay electricity, chlorination, wages of attendants, guards and other operational costs.
- pay a fee of 80 CFA per m³ produced.

Note:
Exchange Rate
US$1 = CFA 700 (2001)
Source:
Cisse, 2000

In order to develop viable businesses, many kiosks or private standpipes are equipped with tanks to extend the period of sale. This is more common in cities where supply is interrupted or limited by frequent water cut-offs, water scarcity and rationed distribution such as in Port-au-Prince, Nairobi and Accra. In most cities, these private networks/extensions are not formally authorized but they are tolerated. The investors

therefore bear the risk and often pass these on to the consumer in the form of higher prices. In Abidjan, where the municipality and SODECI place a limit on the number of standpipes permitted within a given area, illegal private connections have sometimes been demolished without compensation. A key factor in encouraging individual investment is risk mitigation. In order to reduce the element of risk (shorter cost recovery periods result in higher prices), it is essential that the investor be provided with some security for a reasonable period.

In recognition of the role these private investors play in extending the network to unplanned areas, the municipality and/or utilities could consider:

- providing written assurance (guarantee or temporary permit) to private investors who are willing to extend services in unplanned areas;
- extending guarantees to property developers (who can recover part of the investment from future consumers in these areas);
- developing commercial arrangements that enable and encourage private investment;
- delegating and/or leasing network extensions (to allow the utility to serve a large number of customers that it would not otherwise reach efficiently); and
- establishing a specific support programme to respond to bulk supply arrangements in a manner similar to that employed for large industrial and commercial customers.

5.2 Work with carriers and tankers to improve service

Water carters, carriers, hand carters – manual distribution

Water carriers provide a door-to-door service to their customers.

All over Africa and Asia it is common to find water vendors who collect or purchase water from communal or private network water points and then provide a door-to-door delivery service to their customers. They often provide water to communities situated a long distance from the network and to informal settlements where private connections and standpipes have not been installed. Owing to the low volumes (0.1-0.5m^3) transported daily by an individual carrier, the unit cost of this type of service is very high at US$2-5 per m^3. Yet, for many households these water carriers offer a convenient service, especially those households that prefer not to collect water themselves. They are often the preferred option for women who may not be allowed, for religious reasons, to fetch water from communal water points.

Some utilities have adapted their services to facilitate or directly promote this mode of distribution downstream of their networks, although most see it as a temporary solution until extensions are installed. This is the case in Mauritania, for example, where the utility, SONELEC, set up large-flow water points for carters to collect water for redistribution. In most other cities, vendors use standpipes and other facilities near to their customers (private connections, boreholes, etc). This has the effect of reducing the distance from the point to house and thus the price of the water supplied. Vendors prefer to use standpipes that are built for the purpose of supplying large volumes of water to reduce the time spent waiting for water.

Box 16

The Teshie Tankers Water Association in Accra, Ghana

In order to limit water theft from fire hydrants by tanker drivers in Accra, the utility supported the creation of tanker-owner associations and developed a means to supply these associations with bulk water through specially installed large flow hydrant filling points. The **tanker filling points are managed by tanker associations** (one per association), to which the utility, GWCL, sells bulk water, measured by the meter. Associations also ensure that tankers are sufficiently clean for the transport of drinking water. The bulk rate is US$0.45 per m^3 (virtually the production cost of water delivered). However, this rate is higher than the social band for domestic customers (GHC 1,880 per m^3 (US$0.40)), applicable from 1 to 27 m^3/month).

Several individual tanker operators initiated the establishment of the first association. The founding association has since been split into 3 separate associations, one of which is the Teshie Tanker Owners Association. As a direct result of the establishment of the association, a **growing number of tankers** have since formally entered the water supply market. In 2000, the main tanker association in Accra had a membership of over 100 tanker owners, while the Teshie Tankers Association has a membership of 24 tanker owners. The association offers improved conditions of service for tankers, including regularization of previously illegal operations, access to a reliable water supply and a favourable bulk rate through association service stations.

Through their membership in the association, the tanker owners:

- guarantee payment to GWCL for water consumed at the negotiated tariff – the association invoices its members according to volumes individually obtained and pays the invoices made out by GWCL.
- improve the service provided to the customers – by committing tankers to standards of cleanliness agreed with the utility.

Note:
Exchange Rate
US$1 = GHC 4,700 (2000)
Source:
Kariuki and Acolor, 2000

Water tankers – motorized distribution

Water tankers are likely to be the most expensive means of supplying water. Freight costs constitute as much as 75% of the price or at least an additional US$1-2 per m^3. Tanker services are typically offered to customers with large storage tanks such as households, construction sites or water kiosks and vendors. They are common in countries with growing middle and high-income households but where network supply is still very limited (e.g. Ghana, Kenya, Haiti, Tanzania and Mauritania). However, in some cities (e.g. Accra, Port-au-Prince, Addis Ababa, Luanda and Johannesburg), tankers are also used to supply low-income households. Water supply to tankers is often provided through overhead tanks constructed by the utility linked to a filling point or through a household connection / private borehole.

Water tankers are likely to be the most expensive means of supplying water.

In those cities where tankers provide water to a sizeable segment of the population, medium-term arrangements should be put in place to regularize and regulate the quality of this service. Efforts should be focused on reducing the distance between filling stations and consumers (to reduce freight costs) and improving customer access to information about the service and price. However, in the long term, tankers remain an expensive service and should not be seen as an alternative to the development of more affordable network services that reach a majority of the population. They are however a vital means of supplying informal settlements where land tenure remains a significant constraint. The role and development of tanker associations is discussed in Chapter 7 and illustrated in Box 16.

5.3 Enable independent water service providers

Utilities are gradually recognizing the efforts of independent providers.

In most African countries it is now common to find a wide range of actors involved in the delivery of water supply. In some situations they may be working 'alongside' the main service provider (or utility) and municipality with no contact or recognition, but in many cases, utilities and local authorities are actively building partnerships with other actors involved in providing services. As a result, over the past few years there has been a growing acceptance and recognition among utilities and municipalities of the efforts of independent providers. This recognition has led, in some cases at least, to efforts aimed at regularizing their activities in a manner that results in more accessible and affordable services for urban low-income households. The key issues concerning regularization are discussed in Chapter 7.

Recognition of the important role of independent providers is increasing but has not always been the norm. Independent service provision is often still considered contrary to the long-term interests and 'culture' of utilities. First, it draws attention to the deficiencies of utilities and their failure to create sustainable solutions for all urban residents. Secondly, it introduces competition into an environment that operates as (or is perceived as) a monopoly; and thirdly, it recognizes, and perhaps enables a private entity with a profit motive to deliver that which is often considered to be a 'public service' and a 'social good'.

Box 17

An Independent Water Supply System in Lusaka, Zambia

Chipata Compound is one of many unplanned settlements mushrooming around the city perimeter of Lusaka. Approximately 45,000 residents (6,500 households) live there in an unplanned settlement that was initially served through standpipes dispensing free water installed by the public water utility (Lusaka Water and Sewerage Company). Over time, the utility has proven unable to maintain the free service and has begun to shut down standpipes.

In 1997, at a cost of ZMK1,110 million (US$600,000) (provided primarily by the NGO, CARE), a **parallel piped water supply network** was developed from a borehole source, quite independent of the existing utility network. The water is distributed through 39 public standpipes and is managed by a Resident Development Committee (RDC) established voluntarily by the community with assistance from CARE.

Residents' associations manage water supply

RDCs replaced Ward Development Committees after the introduction of a multi-party system in 1991 and were intended to be non-partisan. Established under the Societies Act, RDCs have legal recognition. Moreover, their statutes enable them to own infrastructure developed within their jurisdiction and to directly operate and manage the service or enter into contracts with a provider. Their role is not limited to the water sector but extends to all development activities in the community.

Through a three-tier system of committees at zonal and ward level, the RDC is able to work with community members by consulting, planning and feedback systems regarding those development projects for which they are responsible. The RDC can also use these structures to collect contributions and report on financial matters.

Legal status promotes better management

Given its formal nature (achieved through legal status, constitution, regulations and democratic membership) Chipata's RDC was able to avoid many of the pitfalls associated with informal community organizations. The formalization process has ensured that the community management is not plagued by the high turnover of elected representatives, personalization of functions and resources, lack of proper financial management, transparency, discipline and professionalism found elsewhere.

Note:
Exchange Rate
US$1 = ZMK 1,850 (1998)
Source:
Taylor et al, 1998

Box 18

The Aquateros in Asunción, Paraguay

The Aguateros (independent water providers) operating in the city of Asunción started springing up 2 decades ago in rapidly growing neighborhoods of the city and then spread outward to increasingly difficult locations. Aguaterias fill the gap in the coverage of the publicly operated water service, mainly in peri-urban areas that might otherwise go unserved. They operate with little or no government regulation, supervision or oversight which affects Aguateros' (aguaterias' owners) decision-making and economics, financing and risk-taking. That this in turn affects their relationships with their customers is reflected in how the two groups rely on financial and political leverage. The way customers respond to poor service, for example, is by trying to shame the Aguateros in the press rather than filing formal complaints.

It is estimated there were 400 Aguaterias operating in Asunción in 1997. These providers fell into three broad categories:

(i) small (vecinos) neighborhood systems with no employees and 5-40 connected households;

(ii) medium-size systems with one to three entrepreneurs who often build without first conducting proper studies;

(iii) large systems characterized by operators with 3-20 systems, sometimes connected to one another. Each system averages about 800 households.

Aguaterias are very entrepreneurial in nature – flexible and driven by incentives and trial and error. The majority, the "mom and pop" operations serving close neighbors, often begin without a business plan. Typically though, when large-scale Aguateros hear of a prospective location, they conduct a feasibility study of supply and demand to see if the location is viable. This requires that at least 300 households are willing to pay for water. They calculate the prospects for expansion (e.g. the number of nearby lots) since the presence of an Aguateria can generate its own growth. They also weigh the availability and cost of bringing water to the customers: a high initial investment in the water source will scare many Aguateros away.

The typical water supply system consists of one or more deep wells with a submersible pump, a ground-level reservoir, centrifugal motor(s) and a hydro-pneumatic tank. The distribution network consists of polyethylene pipes typically one or two inches in diameter. Some systems, mostly those built in the 1980s, use an elevated tank between the reservoir and distribution system. Commonly, there are 40 meters of pipes per household (with a maximum of 60 meters per household for the system to be viable).

Typically, the contract between the Aguateria and the user is for five years, the legal maximum allowed. Customers have the option of paying for connection fees in instalments (usually 10-24 months). The most common complaint from consumers arises when prices do not reflect service levels. The strongest factor affecting demand is whether a house is metered. The highly personalized nature of the Aguateros business permits a great degree of flexibility in the Aguateros' relations with clients. When customers find it difficult to meet payments the aguateros generally recognizes problems quickly and can find ways to work out solutions, accepting delayed payment plans and even canceling accumulated debt.

Source:
Drangaert et al, 2000;
Trayano, 1999

However, many local authorities and utilities now realize that the main reason for the growth in the alternative service market is their own failure to deliver an adequate public service. They have acknowledged that their continued ignorance about the nature and potential of these providers and the lack of recognition of these services, works against the very consumers that they aim to serve. As a result, a substantial number of municipalities and utilities (e.g. Lusaka, see Box 17, Addis Ababa, Dar es Salaam) are now supporting independent water supply arrangements within their area of service aimed at improving coverage in low-income areas. These include efforts to encourage and support independent providers generally and to extend their service delivery into unserved areas.

Independent water supply systems (production and distribution)

Most utilities expect to deliver water through a single network to all customers within their service area, thus achieving economies of scale and lowering the cost to the consumer. However, for a variety of reasons including inadequate supply, insufficient capacity and inadequate finance for upgrading and extension, some utilities or municipalities have supported or allowed the construction of independent water supply systems for production and distribution within their service areas.

The concept of independent distribution networks supplied by a borehole within the utility service area is generally considered unconventional. Although common in rural areas and small towns in Africa, this form of supply is less prevalent in urban Africa. Those that are found have often been allowed to develop as a solution to water shortages and they are invariably private or community initiatives. In Lusaka, Bamako, Addis Ababa and Dar es Salaam for instance, these independent initiatives are often funded and managed by donors, NGOs and CBOs. Elsewhere in Kenya, Paraguay (see Box 18), Uganda and Yemen privately installed independent networks are common.

As with the community-managed distribution networks discussed above, it is critical to clarify the legal status and ownership of the production and distribution facilities and infrastructure. Given that many arise in an emergency, the legalities of the network are rarely addressed at the outset and consequently legal status only becomes an issue at a later stage. In Burkina Faso for instance, the utility, ONEA, integrated several dozen independently owned and operated facilities into its own network without adequate dialogue over compensation. In order to promote and not dampen private initiatives, efforts should be made to protect investor/service providers in the event of expropriation, integration or demolition. At the very least, owners should be given time to amortize their investments.

Owing to the unregulated and ad hoc nature of independent systems, standards and specifications vary and often do not match those employed by the utility. This may need to be addressed to ensure water is of an acceptable quality and that independent systems do not create problems for the larger network supply. As many rely on borehole sources, convenient arrangements for regulating abstraction and water quality are essential.

Boreholes situated in the heart of urban areas are often subject to contamination from on-site sanitation systems. The installation of systematic and reliable chlorination systems that fight against bacteriological pollution may therefore be essential. In Bamako, Mali, some facilities have been equipped with continuous chlorination micro-pumps, while in Kano, Nigeria and Lusaka, Zambia, during cholera epidemics the local authorities have supplied free bleach or chlorine to households with on-site water points.

Where independent systems are deemed acceptable, standards and guidelines should focus on objectives.

Where independent systems are deemed acceptable, standards and guidelines should be developed to focus on objectives rather than methods and provide incentives to encourage investors to meet user demand. Some utilities (e.g. Blantyre) expressly prohibit borehole sinking in urban areas. Instead, they define and enforce standards and specifications for community networks connected to the utility network. As independent providers operate in parallel and in competition with the utility rather than as an extension of the utility (as is the case with intermediate providers), they should be regulated on the same terms as the utility.

INCREASE ACCESS TO IMPROVED **SANITATION**

Part Two

Credit: Gado

6 Improving Domestic Sanitation

Only 10-15% of the urban population in Africa are connected into the sewer network.

On-site sanitation is the main form of excreta disposal in most sub-Saharan African cities and will remain the most appropriate level of service for the urban poor in the medium term. Despite heavy public investment in sewerage systems in most primary and some secondary cities, typically only 10-15% of the urban population benefit from access to the sewer network. About 80% of the urban population depends on on-site facilities such as septic tanks and pit latrines which, unlike sewers, are usually the responsibility of households. The majority of poor households use communal or shared pit latrines, although a few urban centers (such as Accra and Kano) still have bucket latrines and in some densely populated settlements, the "wrap and throw method" or "flying toilets" illustrated in Box 19, are prevalent.

Despite the stated importance of environmental health and hygiene education as a means of improving sanitation, evidence from the field suggests that only a small number of utilities are directly involved in these activities. For the most part, municipal public health departments are expected to take up this role. Given that many utilities still are not responsible for sewerage, let alone sanitation, it is not surprising that they limit their involvement in hygiene activities. The Durban Metropolitan Water Supply and Sewerage Department is one of a few such programs in place (See Box 23). In Burkina Faso and Senegal, health and hygiene programs linked to on-site sanitation initiatives are carried out on a limited basis by separate departments affiliated with the utilities.

Box 19

The "Flying Toilets" of Kibera, Nairobi

With an estimated population of 500,000, the Kibera informal settlement is home to a quarter of the population of the City of Nairobi. The settlement covers an area of about 250 hectares resulting in a density of 2,000 people per hectare. This makes Kibera one of the most densely populated informal settlements in sub-Saharan Africa.

One of the key problems facing the Kibera community is inadequate infrastructure. This problem is compounded by the lack of a clear policy framework and effective programs for meeting the needs of the residents of informal settlements. Poor water supply and sanitation are among the most serious infrastructural deficiencies.

In 1997, a rapid assessment of community priorities carried out with 99 focus groups in each of the nine villages that comprise Kibera, identified **excreta disposal** as the **top priority** in 5 of the 9 villages. It is no wonder this is the case as there are few sewered toilets in Kibera and most households rely on traditional pit latrines. Community members consulted through the assessment pointed out that existing latrines are inadequate for the population: up to 150 people share a single pit latrine causing it to fill up quickly. The problem is further exacerbated by the limited access for exhauster services, rendering about 30% of the latrines unusable.

The shortage of pit latrines is also brought about by the **lack of space** for new construction and because landlords are unwilling to incur the additional expense. Due to the **scarcity of latrines** within the settlement, **excreta-filled plastic bags** referred to as "flying toilets" (otherwise known as the wrap-and-throw-method) are the most common means of excreta disposal for many households. A majority of the participants (69%) identified flying toilets as the primary mode of excreta disposal available to them.

Flying toilets were used to illustrate the scale and importance of the sanitation challenge at the Johannesburg Summit. An article prepared by Reuters noted that "you simply use a plastic bag then fling it as far out of sight as possible". A walk into any of the "scores of slum settlements" makes the "scale of the task for one African city alone seem staggering".

Source:
Mbuvi and Kariuki, 1997
Reuters, September 05, 2002

6.1 Promote good on-site sanitation

Financing improved pit latrines

Improved sanitation[1] is increasingly considered a priority for many poor households. Increasing densities and/or rising housing occupancy rates have fuelled demand for better sanitation services. Open space to build a second or third latrine is increasingly difficult to find and as the number of users of existing facilities is on the increase, latrines require more frequent emptying and maintenance. Despite increased demand, most local authorities have not provided financial support for on-site

[1] In this section, the word 'sanitation' is used in the narrow sense to mean human excreta disposal.

Box 20

Cost-sharing arrangements for financing household sanitation facilities in Ouagadougou, Burkina Faso

Ouagadougou, the capital city of Burkina Faso, has an estimated population of 900,000, which represents 60% of the total urban population. The annual growth rate over the past 25 years has been quite high, ranging from 4.4-9.1%. In 1991, 70% of the population used traditional pit latrines, 18% used improved latrines, 5% had built septic tanks and 7% were without facilities. There were a limited number of water connections (only 38% of households) and this, combined with poor sanitation services, resulted in the deterioration of health conditions. One in every four medical visits were attributed to water and excreta-related diseases.

Generating funds through a sanitation surcharge

In 1985, the municipality of Ouagadougou and ONEA (an autonomous public water and sanitation utility) introduced a sustainable financing arrangement for on-site sanitation. A key feature of this arrangement is the 'sanitation surtax' financed entirely by local resources. Through the surcharge, ONEA was able to generate funds CFA14 (US$0.02) per m^3, representing 4% of the average water tariff) for the construction of on-site sanitation facilities. By 1999, CFA 350 million (US$0.5 million) had been collected through the sanitation surcharge.

The 'surtax' or levy is added to the water bill collected by the water and sanitation utility, ONEA for the sole purpose of subsidizing improved household and public latrines. The tax is charged to all households and funds collected are then deposited into a dedicated sanitation account (established in 1995) managed by ONEA. Households receive financial and technical assistance for ventilated improved pits (VIP) and pour flush latrines, soakaway pits and improved bathrooms.

By 1999, a total of CFA350 million (US$0.5 million) had been collected and 20,000 sanitary facilities developed. All public primary schools have sanitation facilities financed by ONEA, benefiting about 100,000 children, and 206 artisans have been trained to assist households in the construction of their sanitation systems and to provide hygiene education.

Subsidizing on-site sanitation

The subsidy more or less covers the additional costs of the improved standard and the use of approved contractors, (i.e. about 20-25% of the total cost of a latrine). Technical standards provided by ONEA aim to keep costs moderate and construction is carried out by local masons, trained and registered by ONEA with support from local NGOs. Based on the success of this approach in Ouagadougou, it is currently being extended to Bobodioulasso, the second largest city in Burkina Faso.

Management of the fund poses the biggest challenge. Key issues include the transaction costs and management complexities of the sanitation subsidy mechanism, particularly if the design is labour intensive and staff are either: (i) required to check on qualifications of households applying for the subsidy, or (ii) involved in sophisticated and rigorous supervision procedures.

Note:
Exchange Rate
US$1 = CFA 700 (2001)

Source:
Ouayoro, 2000

On-site sanitation is the only viable option in the medium term for many low-income settlements.

sanitation facilities on a sustained basis as these are considered a household rather than public responsibility. As a result, the supply of sanitation services continues to lag far behind water supply on the public agenda.

Although the high densities that are common in low-income areas suggest that sewered systems would be the option of choice, the higher costs associated with developing, connecting to and using sewered systems, mean that this option is not accessible to most households in the short to medium term. On-site sanitation will therefore remain the only viable option in many low-income settlements in the foreseeable future. As households will continue to be responsible for developing and managing these facilities, access to finance will be a key factor in the drive toward improved sanitation for the poor. Efforts will need to focus on developing a sustainable financing and upgrading approach that provides households financial support, technical inputs, and the incentive to improve their sanitation facilities.

Access to adequate sanitation in sub-Saharan Africa is also complicated by existing institutional arrangements. A majority of utilities involved in water supply in sub-Saharan Africa are not responsible for either developing or managing sewerage systems and very few utilities are responsible for, or involved in, financing or developing on-site sanitation facilities. In most countries, sewerage systems are developed and managed by municipal authorities. Typically, they obtain investment financing from central government, cover recurrent costs through the water tariff[2] and achieve subsidies through local taxes. Municipal financing of public on-site sanitation facilities is common, and in some cases, this support has been extended to communal facilities in low-income areas.

Subsidizing household latrines

Subsidies for on-site household sanitation improvements are not common in sub-Saharan Africa, and certainly not as common as subsidies for the development of sewerage systems. In most cases, household sanitation subsidies are based on

[2] This charge is a % of the water charge and is collected by the utility as a part of the bill.

The Role of Micro-credit in Financing Sanitation Improvements in Lesotho

Box 21

The Lesotho project was initiated in 1980 as part of a wider urban development scheme. The program provided credit to households for investment in VIP latrines. The program was motivated by the household need for extended payment. In order to receive credit, households had to first dig a pit and provide a deposit of 30-40 per cent of the total cost. Loans were typically in the range US$50-300. Although the money came from the Lesotho government, the Lesotho Bank administered the loan since they had a better record on loan defaulters.

In 1990, 600 loans had been approved in response to 4,500 inquiries, 252 latrines had been built and 81 per cent of individuals had paid up. Close to 1,000 VIP latrines were actually built in the target area. The fact that 80 per cent had actually been built through private initiatives highlights the success of the promotion program and the availability of an affordable and acceptable sanitation option.

Key factors that influenced the success of the program included:

- affordable and acceptable latrine design;
- minimal direct grants or subsidies to householders;
- a comprehensive program of health / hygiene education, VIP latrine promotion;
- integration of the project into existing government structures; and
- strong coordination in policy and planning between different departments promoting improved sanitation.

Note:
Exchange Rate
US$1 = LSL 3.63 (1994)

Source:
Saywell, (undated);
see also Blackett, 1994

external or project financing, through urban development or water supply projects. This type of funding, like donor funding elsewhere, is generally not considered sustainable as it is fixed in scope and duration and is not easily scaled-up. Examples of good practice in delivering sustainable financing for on-site sanitation include sanitation surcharges on the water bill, as developed in Burkina Faso and illustrated in Box 20, and cost-sharing arrangements for financing communal facilities, as developed in Ethiopia and described in Box 22.

Subsidies for on-site household sanitation improvements are not common in sub-Saharan Africa.

Facilitating household access to credit

Access to credit from private sector sources is currently a more common means of facilitating improved household-level sanitation services. Although less prevalent in sub Saharan Africa, in a few cases, credit facilities for building, extending or improving housing (and thereby on-site sanitation facilities) are available through micro-credit institutions, commercial and/or community savings and loans systems. The latter may include informal credit systems, such as revolving funds (also known by local names such as the 'merry-go-round' system in Tanzania).

Managing communal or shared latrines

Communal facilities are common where many households live in shared quarters, yards or compounds, or in neighborhoods where there is limited space for constructing individual household latrines. Groups of households (or landlords) may pool their resources to build blocks of latrines shared by all the residents in the

Box 22

Communal Latrines in Addis Ababa, Ethiopia

In 2000, the population of the city of Addis Ababa was estimated at 2,640,000 . The majority of low-income households in the city live in houses owned and administered by the 'Kebele' (the smallest administrative units of the city administration) since the nationalization of property by the Government in the previous military regime. Many are mud and wattle structures.

Domestic sanitation in the city is mainly provided through pit latrines and septic tanks. According to the 1994 census, 75% of households in Addis Ababa had toilet facilities, however in congested areas, where the majority of the poor live, there is not enough space to build individual latrines. Residents in these areas therefore use communal latrines shared by between five and ten families. In some cases the figure is much higher.

The **operation and maintenance** of shared facilities is often difficult, all the more because the housing is occupied by tenants and this discourages investment and dilutes the household's sense of responsibility for maintenance of the facilities. Occasionally Kebeles assist users to service the latrines and collect contributions. In most cases, users attempt to organize the cleaning themselves and pay for the emptying of latrines.

Through a **project undertaken by an NGO**, the Integrated Holistic Approach Urban Development Programme (IHA-UDP), sanitation conditions in four Kebeles were improved for 42,000 people, i.e. 5,000 households, of which 76% did not have latrines. The NGO approach was based on building an enhanced sense of ownership and responsibility on the part of the users by delegating management of these facilities to them.

Each communal block consists of blocks of latrines, located in a public area, and made up of two to ten rooms. Each room is used by three or four households/households all of which have a key and take turns to clean the latrine. When a pit is filled up, all users contribute funding to get it emptied. Users also select a representative to deal with **general management of the latrine**, including the co-ordination of cleaning rosters and collection of money for emptying the pit by vacuum truck.

Source: Simie, 2000

defined area. In some cases, cost sharing arrangements are made with financing support provided through projects or NGOs. These latrines are often jointly managed (by the owners or tenants) under a variety of arrangements introduced by the NGO. In some cases, especially where clear ownership has not been established, this has led to the benefits being captured by landlords (who lock the facilities for the exclusive use of their own households) or by other actors (e.g. the street kids in Nairobi who have taken control of public sanitation facilities and now extort fees for their use).

The owner of a block of rooms or housing units may also construct latrines and pass on responsibility for maintenance of these facilities to the tenants. In some cases, the costs of pit emptying and other repairs are included in the rent (although this is contentious when services are not provided in a timely manner). More often, households are expected to jointly manage and maintain the latrine on a rotational basis and collect funds for emptying and rehabilitation when necessary. In general, public and NGO financing is more readily available for communal facilities but the lack of clear ownership remains a key problem that must be addressed at the outset.

6.2 Reduce barriers to network sewage

Subsidizing private sewerage connections

The cost of a sewerage connection is as prohibitive as a connection to the water supply, perhaps more so.

Sewerage systems in most sub-Saharan cities serve few people. They cover only a small fraction of the urban area and even where available, the connection costs are high and unaffordable for poor households (see Figure x). For those households within proximity of the sewerage network, the cost of a connection can be twice as much as a water connection. In addition, householders must then consider the cost of in-house installations (e.g. connecting toilets and modifying plumbing). Further, once connected, households also incur a wastewater charge that may represent over 50% (sometimes as high as 90%) of the water bill.

In some cases, such as in Abidjan and Durban where more than 40% of the dwellings in the urban area are connected to the sewer network, subsidizing sewerage connections is an appropriate aspect of a sanitation improvement strategy.

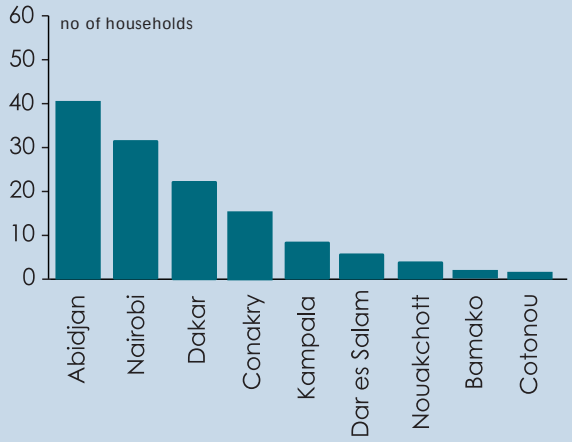
In Abidjan, the Sanitation Department at National Level and the utility SODECI[3] have instituted a subsidy for household sewerage connections, representing 50% of the cost.[4] This amount only covers the costs of the installation between the sewer and the manhole at the boundary of the property. The subsidy is funded by a 'sanitation fee' which also covers the cost of developing the sewerage network and public sanitation facilities. The amount of the fee depends on whether a household is connected, unconnected or cannot be connected due to their location. For households that cannot be connected, a lower fee is charged. The difference in charges between connected and unconnected customers is kept to a minimum in order to provide an incentive for people to get connected. The policy only applies to households in formal/planned areas within the city; those living in unplanned or informal settlements are excluded.

In Senegal, the subsidy arrangement for off-site sanitation is funded through grants provided by donors and not through an internal cross-subsidy arrangement.

[3] SODECI has recently entered into a lease contract for the management and operation of the sewerage network.

Figure x

Households with Sewerage Connections in sub-Saharan African Cities
(1996-1998)



Source:
Primary data from utilities (SONELEC, ONAS, SODECI) 1996-1998

Increasing access to sewerage systems for low-income households

Financing for in-house connections can be facilitated by utilities working in partnership with municipal authorities and local micro-credit/finance agencies. Efforts may also be required to reduce distances between plots or houses and the network. In many cities, the sewerage network is confined to better-off, formal and planned areas, and even here the rate of connections has been slow as households often already have on-site sanitation facilities in place. In some cases a compulsory connection policy has been instigated for households within a specified distance from the network. However, even in these areas, many households have not yet connected and/or utilities have not enforced the connection policy, as they are unable to ensure a regular water supply to their customers.

Affordability: a key constraint to the expansion of off-site systems

Even with a subsidy, the residual investment costs for households to connect to a sewer network remain high. This is because connection costs are themselves high, and where subsidies exist, these only cover a portion of the connection costs (approximately 50% in Abidjan)[4]. The additional costs of in-house installation must be met directly by the household. This is a serious burden for low-income people.

Low and constrained water consumption levels in poor households (as little as 10 liters per person per day) may inhibit the proper functioning of sewerage networks (see Box 23 on Durban Public Awareness and Hygiene Education Program). Households with budgetary constraints may be reluctant to connect to the network as they fear that it will lead to higher bills – a result of both the additional water consumed and wastewater disposal charges (typically 50-75% of the water bill). The lack of affordability may explain the behavior of some households in Abidjan, who have connected sinks and showers, but continue to use on-site sanitation facilities.

[4] i.e. US$110 out of the total cost of US$220. For water the subsidy is 90%, i.e. US$240 out of US$270 (and includes an advance of US$40 for consumption, standing charges and meter fitting, that does not have to be paid again for sanitation).

Public Awareness and Hygiene Program in Durban, South Africa

Box 23

In the mid 1990s, Durban Metro Wastewater Department experienced problems with blocked drains, leaking pipes and overflowing toilets as a result of household disposal of inappropriate waste material (newspapers, plastics, clothing items). This caused the system to malfunction and led to high maintenance costs for the utility.

A perception survey conducted within the area highlighted various issues, including a **lack of knowledge** of sewerage and stormwater systems and how they work. The Department contracted out the design of an **education programme** that included the design of a model sewer used to demonstrate function to students, design and dissemination of posters and leaflets, staging of street theatre at strategic public points and schools, the design and implementation of educational curriculum and a hygiene programme developed in consultation with the medical profession for women of all education levels.

The programme has been exceptionally successful with **operational cost savings** to the client amounting to approximately ZAR1.6 million (US$230,000) per annum which is a fraction of the ZAR 6 million (US$860,000) cost previously being incurred by the utility. As a result of the programme, costs of misuse and abuse to the system dropped significantly.

Note:
Exchange Rate
US$ = ZAR 6.96 (2000)
Source:
Gounden, 2000

An alternative: condominial sewerage systems

Given the need for significant invetsment and high operation and maintenance costs, conventional sewerage systems may be inappropriate in some situations. Alternative systems called "condominial" systems developed and tested in the Latin American region may provide more affordable services, especially in those areas where household water consumption is sufficiently high. Condominial systems are secondary networks built upstream of the main sewerage network and are often lower in cost than conventional systems. Investment costs are reduced through a combination of:

Condominial systems may provide more affordable services in those areas where consumption is sufficiently high.

(i) technical innovation – small diameter pipes laid in private property (often in backyards to reduce distances between houses); and

(ii) community participation – labor inputs and cost sharing arrangements with households. Lower operational costs are achieved by reducing the volume of water required to flush the system and delegating maintenance functions to connected households/neighborhoods.

This practice is used in Latin America, particularly in Brazil, where it was originally developed, and in Bolivia, where it has been replicated to improve access to low-income areas.[5] In El Alto, Bolivia, illustrated in Box 5, condominial systems are a key element of the privately operated utility's strategy to achieve its objective of connecting 65% of the population by the year 2001. In 2002, following several years of testing and refinement, technical standards were developed and adopted for use nationwide.

6.3 Improve management of and access to public sanitation facilities

Given the constraints mentioned above, a private connection to the sewer network is unlikely to be possible for many poor households in African cities for several decades to come. Yet at the same time it is clear that private sanitation

[5] Condominial systems are being tested in Durban and Johannesburg and shallow sewers have also been developed in Kumasi, Ghana.

facilities also have their limitations: growing densities exert pressure on land, making the installation of latrines more and more difficult. Under these circumstances, the development and improved management of public sanitation facilities may also be an essential component of sanitation strategies adopted for low-income areas.

Improving the management of public latrines through private operators

In the 1980s, poorly maintained public latrines were a common feature of many urban centers. Unable to afford the costs of upkeep, municipal authorities lacking the financial resources are gradually turning these over to the private sector through lease contracts. As a general rule, public toilets (usually latrines sometimes combined with blocks of shower facilities) are constructed and owned by the municipality or government with funding made available through projects and donors. These facilities are then leased to a private sector operator for an initial deposit fee plus a monthly or annual rent or lease fee (see Figure xi).

Public sanitation facilities may be an essential component of sanitation strategies in low-income areas.

Figure xi

Comparative Cost of Leasing Public Latrines

	Initial fee (US$)	Annual rent (US$)
Mali – latrines and showers	0	600
Nigeria – latrines and showers	250	10
Côte d'Ivoire	0	0

Source:
Cisse, 2000;
Iliyas and Sani, 2000;
CREPA, 1999

Fee structures are approved or set by municipalities or higher levels of government and users are charged under various different arrangements, including:

- **A cost recovery rate.** Cost recovery allows for funding of new latrines. Whether it is compared to the absolute value or the cost of the facility. It is more costly to the user as they are charged a commercial rate. This is the case in Bamako, Mali, where an annual rent of US$600 is charged per unit.
- **A token amount.** A small user fee encourages private participation even in less profitable low-income residential areas and simultaniously permits access to low-income residents. This presupposes, however, that the municipality can allocate other tax revenue or find grant funds for new facilities. This is the case in Kano, Nigeria.
- **No user charge.** In some countries such as Côte d'Ivoire and Kenya, facilities have been constructed and funded by an NGO and multi-lateral (UNICEF). There is no fee charged to users, nor is there a policy to promote public sanitation facilities.

Leasing public latrines to the private sector requires consideration of the following key issues:

- **Location** Sanitation facilities in markets or transport terminals are much more profitable than in low-income residential areas. Public authorities (national or local) can encourage private managers to take on services in low-income areas by:
  - offering them incentives (lower rents in less profitable areas);
  - establishing cross-subsidies with latrines in commercial-areas;
  - combining management of standpipes and public latrines;
  - offering a bulk rate for water supply; and/or
  - allowing the development of small businesses centers (e.g. telephone, fax, etc) alongside public toilets.

Box 24

Privately Funded and Operated Public Toilets and Washrooms in Kano, Nigeria

Kano is the third largest city in Nigeria, with a population of over 1.7 million. As in most large cities, the sanitation conditions are poor, mainly due to a lack of facilities in:

(i) congested urban areas without enough space for household toilets or communal latrines; and

(ii) business areas (markets, bus stations, car parks) particularly for devout Muslims who carry out their ablutions before prayers and for whom privacy in toilets and washrooms is a matter of importance.

Lack of facilities led to privately funded initiatives

In the 1950s, the municipality built and maintained some public toilets near the market in Kano. It soon became clear, however, that they were too few in number and users (market traders and their customers) were dissatisfied with their level of cleanliness. Some of the market traders applied for and obtained approval from the Government to build and run the facilities on a commercial basis.

In 1981, the Kano Urban Development Board (KUDB) encouraged the mobilization of private investors to increase the number of public latrines. However, where it was considered essential to have the facilities but no individual or organization had the financial resources to build them, the Board itself would do the installation and hand it over to interested individuals on a credit or lease basis.

Generally, privately-financed toilets are built on private land. Applicants have to complete an application form and provide evidence of land tenure (ownership or landlord authorization). Consultation with civic and community leaders is not required before construction however many applicants inform and mobilize residents and leaders as a marketing tool.

Standards and specifications

The Kano State Environmental Planning and Protection Agency (KASEPPA) has fixed standards and specifications for building designs and site selection (see insert), to avoid any nuisance or health hazard in the surrounding area. This includes:

- In the case of private funding, the owner must pay an annual fee of ₦800 (US$8) to the Government.
- Where the Government constructs a facility, the allottee (individual operators leasing from Government) must pay an allocation fee of ₦25,000 (US$250) and an annual rent of ₦1,000 (US$10)

There are currently 145 such toilets currently in place indicating that they meet demand and that the operation is profitable. By allowing such arrangements with private operators, the authorities have been able to improve the sanitation and hygiene service – setting up of public facilities that they would not have been able to install or manage. The Kano experience has been replicated far beyond the boundaries of Kano State, in, for example, Kaduna, Jos (in Plateau State), Katsina, Sokoto, etc.

Specification for site selection

i. A site should not encroach on a right-of-way;

ii. The site must be at least eight metres away from the road;

iii. The site should not cause traffic congestion or obstruct visibility;

iv. The site must not block access to any public facility, e.g. drainage;

v. The site must be at least five metres away from any existing structure.

Note:
Exchange Rate
US$1 = N 100 (2000)

Source:
Iliyas and Sani, 2000

- **Increasing competition** To reduce prices to users and improve the terms of leasing contracts, some municipalities call for tenders. In most cases however, there is no real competition between private applicants and no means of ensuring that leases will be provided to those who offer to reduce prices or a better service. Restrictions on competition should not be applied in such a way that they allow cherry-picking and exclude the poorest areas.
- **Profitability.** The duration of the contract must be sufficient to encourage managers to maintain the facilities and secure the loyalty of 'customers' without restricting competition. In Bamako, contracts are let for five years after which tenders are invited again but this process does not exclude the previous manager.

Encouraging private investment and management of public latrines

In several cities, the delegation of management to a private operator has been extended to include the construction of facilities. In some cases this is similar to a concession where the municipality takes the initiative and calls for private investment for pre-defined facilities in specific areas. In other cases, the private investor selects the location, applies for authorization from the municipality (and agrees to respect standards and specifications), builds and then operates the facilities.

In Kano, Nigeria, public latrines in markets and bus terminals are funded on the initiative of private investors. This is carried out according to standards set by the Kano State Environmental Planning and Protection Agency (KASEPPA) and the developer pays an annual fee of US$8 to KASEPPA (see Box 24).

Supporting pit emptying and disposal services

Utilities or municipalities that have responsibility for sewerage systems are often involved in activities relating to on-site sanitation through the development of sludge tipping sites and drying beds. In some cases they may also provide pit-emptying services. There is also a trend in some countries for public utilities and departments to promote private sector involvement allowing them to withdraw from their role in pit emptying and disposal services. Yet, many local authorities have not taken the necessary steps to deregulate the provision of this service, and thereby allow the private sector to offer a competitive and more reliable service to the general public. While public financing of this basic service (public institutions and emergencies) is being maintained for public health reasons, provisions should be made to ensure long-term financial sustainability. The same principle should be applied by CBO/NGO managed emptying services after grant funding comes to an end (e.g. Addis Ababa).

Many local authorities have not deregulated service provision to allow the private sector to offer a competitive and reliable service.

Private sector services in many urban centers have often developed informally in response to demand and more often than not prior to the deregulation of service provision functions by the municipality. There is currently a wide range of emptying services operating in the region. These range from manual latrine cleaners, used by most low-income households, to large volume suction trucks. For the latter, prices charged per trip range from US$10 to US$60, depending on location and distance from tipping point, volumes emptied, and the level of competition.

Competition and other operating terms play a key role in determining pricing of services. In Dar es Salaam, the municipality decided to open up the provision of emptying services to those licensed private operators who complied with a common set of rules and regulations intended to ensure fair pricing and proper handling of

waste. Because of the high level of competition, the tariffs charged have quickly stabilized at approximately half of the official recommended price and this was achieved without reducing the quality of service, or indiscriminate dumping of sludge. In other countries, administrative constraints lead to ineffective services (e.g. the price controls and restricted operating hours in Cotonou) or create a disincentive to private sector investment (e.g. inappropriate registration criteria, prohibitive fines and unrealistic requirements).

A role for manual latrine emptiers and appropriate technologies

Manual latrine emptying services are still widely used in many poor urban communities. They are often the only means by which a latrine can be emptied when limited access makes it impossible for exhauster services and affordability makes other options unreachable for a large number of low-income households.

Few technological options exist between manual and conventional emptying services. Innovations have generally been restricted to a few experiments, such as the "vacutug" found in Kibera in Nairobi and illustrated in Box 25. Most innovative or experimental initiatives are carried out by NGOs (as seen in the cases of Bamako, Nairobi, Dakar and Port-au-Prince) and managed by community organizations. Although successful on technological grounds, the vacutug has yet to be replicated on a wide scale.

Box 25

Vacutug in Kibera, Nairobi

In densely populated settlements, the option of abandoning a pit is no longer practical. Emptying pits is the only viable solution, but most existing pit emptying systems are unsuitable in low-income areas because of the physical conditions of the sites and settlements such as non-surfaced, narrow or steep roads, deep pits with solidified wastes and inaccessible latrines.

In 1996, UNCHS selected a consultant to develop and test a **latrine emptying vehicle** which could function in the prevailing conditions in informal settlements and would have a capital cost low enough to encourage the private sector to operate a service. At the same time it has to be designed for local manufacture and repair and affordable for the consumers. The 'vacutug' prototype was provided to an NGO in Kibera, Kenya where it has been on trial for the past 4 years. The trial illustrated the viability of the technology but also highlighted the importance of establishing **adequate institutional arrangements** and financial management systems as a basis for sustainability of the system.

The vacutug consists of: (i) a vacuum tanker which is fabricated from mild steel with a nominal volume of 500 litres (equivalent to 1 load) mounted on a steel frame; and (ii) a tug which comprises a small 4.1 kW petrol engine which can propel the vehicle at speeds of up to 5 km/h. When connected to the vacuum pump, it is capable of exhausting at 1,700 liters airflow/minute. The pump can be reversed to pressurize the tank to assist the discharge of sludge to the sewer or to raise it to discharge into a transfer tank. The vehicle is fitted with a motorcycle throttle and braking system and equipped with 75mm diameter PVC hoses connected to the tank.

Source:
Wegelin-Schuringa, 2001;
Alabaster, 2002

Further effort will be required to move to scale and expand the range of service options available to poor households. At the same time, it was necessary to examine the key issues and constraints for the private sector in delivering services using appropriate technology.

Increase access to dumping or tipping facilities

In low and medium density areas when a pit latrine is filled to capacity it is often closed off and a new pit is dug adjacent to it. After a safe period of time the sludge is excavated and buried elsewhere on the plot or in a nearby dumpsite enabling the latrine to be used again. This practice is common in all cities, but where densities are high, on-site disposal is becoming increasingly difficult. Indiscriminate disposal of sludge is a major environmental and hygiene problem in many cities. Lack of authorized or accessible disposal sites leads to unauthorized dumping of untreated sludge, either in rivers, open drains, in the sea or in open/public space within the city. The latter is particularly the case for manual cleaners without access to transport. Although this action is prohibited, there is often little alternative as efforts to develop tipping sites within proximity of service providers are not widespread. Extending access to authorized disposal sites should become a priority and a key component of a sanitation improvement strategy.

Box 26

Pit-emptying Services in Dar es Salaam, Tanzania

In 1996, the Dar es Salaam City Commission (DCC) responsible for sanitation in the city decided to **deregulate pit-emptying services**. Until then, under existing law, the Dar es Salaam Sewerage and Sanitation Department (DSSD) was the only organization permitted to provide pit-emptying services to the public. However DSSD was unable to meet the demand from a long waiting list of customers many of who had paid an advance equal to TSh 20,000 (US$25) per trip in 1995. Consequently, over several years, clandestine private operators began to fill the unmet demand.

The advent of the El Niño floods of 1996 led to an outbreak of cholera on an unprecedented scale in a number of areas of the city. This forced the DCC to look for alternative means for improving access to cesspit-emptying services. DCC therefore began to explore the possibility of **authorizing private operators** to provide this service.

In 1995, a study was conducted to determine the real cost of operating an emptying service within the city of Dar es Salaam. DCC organized a meeting with potential operators to discuss the findings of the study and agree upon a way to implement the approach. In the course of this meeting, it was agreed that private pit-emptying services would be licensed to operate provided that they complied with a common set of **rules and regulations** intended to ensure fair pricing and proper handling of waste by all actors.

These deliberations led to the establishment of a pit-emptying licence (at a cost of US$2) for operators that complied with the following conditions: (i) to charge a minimum fee of TSh17,000 (US$21.25) to eliminate price undercutting of public operators; and (ii) to maintain prices within the range affordable to customers (particularly low-income households). **Permission to dump waste** at the DSSD ponds was granted. However only organic waste dumping would be authorized and operators would only be allowed to discharge waste at the treatment plant specified on their individual permits. (Random dumping was clearly not permitted). A dumping fee of TSh3000 (US$3.75) per trip was payable to DSSD.

While at the start of the process in 1996, there were three known private operators operating without a permit, after deregulating the service in 1999, eight private operators applied for and received permits. The increase clearly shows that the activity is profitable, even in a **strongly competitive market**.

Competition has played a key role in the success of this practice. Private operators are now charging less than the initial minimum rate of TSh17,000 (US$21 in 1999). Rates range from TSh10,000 (US$12) to TSh15,000 (US$18) about 50% less than the former DSSD rates.

Note:
Exchange Rate
US$1 = TSh 800 (2000)

Source:
Wandera, 2000

The use of sludge to fertilize agricultural sites is often mentioned but is still relatively rare, except in Bamako. It is more common for waste from sewerage systems to be diverted before reaching the treatment facility to irrigate vegetables. This may adversely affect the sewer network function.

Public disposal sites managed by the sewerage utility

In developing sludge disposal facilities, it is necessary to balance financing with the need to control and regulate indiscriminate dumping.

In most municipalities, sludge disposal sites are managed by the utility or municipal sewerage departments, or a public or private firm. These may include special sludge drying beds or sludge tipping points linked to the sewer network. In developing sludge disposal facilities, it is necessary to balance financing with the need to control and regulate indiscriminate dumping. Two examples are of interest:

- In Abidjan, according to the terms of the sanitation lease contract, the utility (SODECI) manages five wastewater treatment facilities to which the truckers have free access. This service is financed through the sanitation tax collected on water consumption (see the discussion on subsidizing household latrines in section 6.1). Since the lease contract was established, the dumping stations have been improved and waiting times reduced.
- In Dar es Salaam, as part of the agreement authorizing private operators to provide pit-emptying services, stakeholders agreed on the conditions of a license, including a dumping permit. The terms include an obligation to discharge organic wastes at the authorized dumping sites on payment of a disposal fee (US$3.75 per trip) to the Dar es Salaam Sewerage and Sanitation Department, the department responsible for the management of the treatment plant (see Box 26).

Public disposal sites owned and managed by private operators

In Cotonou, the only sludge disposal/pre-treatment facility in the city is owned and managed by a private entrepreneur (SIBEAU). The facility was developed by SIBEAU in its capacity as a pit emptying service after its operations were hampered by the lack of public sludge disposal sites. The terms for the development and management of the facility were provided by the municipality, which established a rigorous sanitation policy and compelled all vacuum truckers (including those belonging to other operators) to discharge at that facility (at a price negotiated between the municipality and SIBEAU). As a result of this policy there is high demand for the service and the disposal facility is already operating above its design capacity.

Public–private partnerships of this nature should be encouraged as a component of a sanitation improvement strategy. In addition to providing an enabling framework for private investment, the municipality also provided a policy and regulatory framework that enabled the benefits of the facility to be extended to others. In this way they were able to meet defined public health and environmental objectives.

Part Three

INCREASE ACCESS THROUGH **PRO-POOR POLICY**

Credit: Gado

7 Policy does matter!

Developing Policies and Strategies for Improving Water Supply and Sanitation for the Urban Poor

Policy should be developed to explicitly target the urban poor.

In the context of increasing urbanization, rapid growth of informal settlements and rising levels of urban poverty, it is essential that utilities, national and local governments develop coherent policies for water supply and sanitation services that explicitly target the poor and policy must be accompanied by resources to get the job done. Policy should also be supported by strategies that spell out the roles and responsibilities of the various institutions involved at both national and local levels, define long and medium-term objectives and outline institutional and regulatory frameworks that recognize the role of intermediate and independent providers. Strategies should also promote the development of appropriate standards, contracts and other necessary tools for reorienting the business of delivering water and sanitation services.

7.1 Reform national water supply and sanitation policies

Policy should be backed by clear strategies and supported by the allocation of adequate resources.

In most countries, water is considered a basic right and addressing the needs of the poor is a stated objective of national policy. Despite this, policy statements on water supply and sanitation in a range of national policy documents (such as urban development, water supply, health, local government and environment) may be inconsistent and/or contradictory. Typically, policy is quite general, classifying activities as either urban or rural, and failing to address, in explicit terms, those factors that hinder service delivery to poor households in informal settlements. It is often assumed that the needs of the poor will be met in the same manner as other urban or rural residents. In practice however, this is rarely the case given the very different characteristics of informal, sometimes illegal, settlements. The lack of explicit reference to the particular needs of the urban poor in water and sanitation policies has led to a lack of clear direction (or mandate) for service delivery institutions and, as a result, past approaches that bring little benefit to the poor continue to prevail.

Compared with water supply, policies regarding sanitation are generally less detailed and many lack quantitative and qualitative objectives. Due to the multi-dimensional and diverse nature of sanitation services (detailed in Chapter 6) institutional responsibilities are often complex and difficult to structure and a wide range of agencies may be involved with varying roles and responsibilities. In Mali, for example, the stakeholders involved in urban sanitation include five central Government ministries (that have great difficulty in coordinating their policies and actions), local authorities, utilities/service providers (both public and private, large and small-scale), households and other civil society actors.

Policies should be supplemented by clear strategies that spell out, in specific terms, just how existing barriers will be removed and how business practices (rules, procedures, standards) will be changed to facilitate service delivery to the urban poor. In particular, outdated laws[1] should be amended to reflect policy shifts and to remove legal constraints to policy implementation.

[1] Some laws date back to the 1950s or earlier.

Several governments are now preparing peri-urban water supply and sanitation strategies at national or local level that specifically outline measures (including legislative and regulatory reforms) that are required to enable water supply and sanitation services to reach low-income communities living on the outskirts of cities. For instance, in Zambia, an extensive program of policy, legislation and institutional reforms was carried out during the 1990s. However because of the scale of the peri-urban problem, the Government found that it was also necessary to prepare a 'peri-urban' strategy that identified the specific measures to be taken by various Government agencies, including changes in legislation, regulations and standards and the development of specific financing mechanisms (see Box 27).

Box 27

A Peri-urban WSS Strategy for Zambia

In the 1970s, growth in Zambia was characterized by rapid urbanization. During this period, the pace of infrastructure development did not match the rate of urban growth and numerous unplanned and informal settlements (known in Zambia as peri-urban areas or compounds) arose in the city. 40–80% of the urban population in towns and cities live in these peri-urban areas without adequate water and sanitation services. The reoccurrence of water-borne diseases like cholera has been an annual reminder of the cost of the environmental degradation in these settlements. In this regard, local authorities have found it increasingly difficult to provide the required basic services such as drainage, water supply and sanitation.

To resolve this situation and other problems facing the water sector, the Government undertook **major institutional and legal reforms** in 1993. In addition, recognizing the importance and special requirements of peri-urban areas, the Government initiated consultations with a wide range of stakeholders to develop a comprehensive peri-urban water supply and sanitation strategy. The overall objective of the strategy was to reduce the incidence of water-borne and water-related diseases, by improving water supply and sanitation service delivery. The strategy identifies challenges (including regularization, cost recovery and financing), outlines the principles to be followed and also identifies the policy, institutional and legal constraints to improving services in peri-urban areas.

Source:
Ministry of Local Government, 2000

Reform service objectives, standards and levels of service

In the urban sub-sector, the objective of 'ensuring water for all' is often interpreted as a 'house connection for all'. This interpretation may be shared by utilities and urban households alike, both of whom associate improvements in water and sanitation services with access to piped water supply and waterborne sewerage. Anything less is often considered a temporary or intermediate measure. In practice however, alternative modes of delivery in poor areas are common and in some places they have become the rule rather than the exception. Despite this, little, if anything, has been done to adjust regulations and business practice. Rigid or inflexible service objectives often limit the options available to a utility for serving the poor effectively and immediately. Furthermore, standards that apply to middle and high-income households, be they related to technical design (e.g. way leaves) or quality of service (e.g. pressure or continuity), may make services too costly or a legal or administrative impediment. For instance, a standard width of a way-leave may not be possible in unplanned low-income settlements.

Inappropriate standards may make services too costly for low-income households.

In many countries, conventional waterborne sewerage systems are still considered the only acceptable sanitation option in cities. In practice however, the high investment and maintenance costs associated with conventional waterborne sewerage systems limits their applicability in low-income areas. Despite the lack of sewer networks, in some countries legislation and/or regulation prohibits the construction of pit latrines in urban areas and perhaps even contradicts other legislation that aims to establish appropriate standards for unplanned and informal areas. In Kenya, for instance, the Public Health Act prohibits the construction of pit latrines in urban areas but this contradicts the provisions in the Building Codes and Standards established under the Local Government Act.[2]

Appropriate technical and service standards are a critical element of any strategy to improve service delivery to the poor. Efforts should be made to increase the range of service options available to low-income households while ensuring that quality is not compromised. Regulatory frameworks must be adapted accordingly and, where appropriate, alternative regulatory arrangements should be linked to consumers and water vendors.

Intermediate objectives should be established in time bound agreements to serve settlements that may later be relocated.

Establish intermediate policy objectives for provision of basic services

While it is necessary to maintain a goal of 'household connections for all' in the long-term, the scale of the urban poverty problem therefore points toward the need for intermediate objectives. In the short and medium-term, a variety of service options may be considered and adopted – regardless of the legal or formal status of the settlement. Where necessary, intermediate objectives can also be established in time-bound agreements with relevant authorities (e.g. a moratorium on demolitions for a fixed period). In Ouagadougou, Burkina Faso, only a limited number of households have access to a piped water connection. In a bid to increase water supply in poor areas, the Government and utility (ONEA) embarked on an ambitious policy promoting the installation of standpipes. This led to a variety of water supply options being introduced into the city and an overall coverage rate of 84% (of which 59% was achieved through standpipes). In the case of Senegal, illustrated in Box 28, the private utility is required to carry out incremental improvements to meet intermediate service objectives.

[2] The Government is currently undertaking a comprehensive review aimed at streamlining such legislation.

Standpipes: An Intermediate Objective in Senegal

Box 28

In Senegal, the recently signed contract with a private utility includes intermediate service objectives and requires the asset-holding public company, SONES, to earmark a significant proportion of resources to provide incremental improvements through the installation of standpipes in the first phase. Standpipes may be converted to household connections as and when residents can afford the change. This policy is carried out jointly with residents' associations, that contribute to the capital costs, and with the assistance of NGOs.

Targets for urban water supply expansion by utility or CBO

	HH connections [i]		Standpipes [ii]	
	Liters per day per person	Service rate (%)	Liters per day per person	Service rate (%)
Dakar (and suburbs)	110	70	20	30
Main cities (population >10 000)	100	60	20	40
Medium towns (population 5 -10 000)	60	50	20	50
No. of users (per point source)	10		1,000	

Note:
i = 10 users / HH connection
ii = 1000 users / standpipe

Source:
Primary data collected from SONES, 1999

Box 29

Establishing Minimum Technical Standards in Blantyre, Malawi

Water supply in the city of Blantyre (population 520,000) is managed by the Blantyre Water Board (BWB), a parastatal organization. The existing city facilities are insufficient to meet the increasing demand for potable water. In particular, the unplanned (squatter) and peri-urban areas (representing 55% of the population) and the traditional housing areas are all underserved. Only 27.4 % of households in the city have house connections, the remainder rely on 80 public water points.

As the BWB cannot meet the cost of financing mains extensions throughout the city, communities are encouraged to raise their own funds (from their members, NGOs, donors and other funding agencies) in order to speed up the implementation of water projects in their areas. However, despite the benefits of this approach in increasing the rate of coverage achieved, the downside was that materials of varying quality and sub-standard workmanship led to leaks, wastage and lack of pressure. The lack of availability of spare parts and other problems exacerbated the situation.

Standardizing procedures and contract requirements

Although BWB had provided assistance for community projects on request, in order to rectify this problem and simultaneously maintain the benefits from community or NGO/donors financing extensions, the BWB decided to standardize procedures and play a more active role in the planning, implementation and monitoring of community initiated extension projects.

BWB now accepts group applications for water development in low-income urban areas and the following procedures have been established:

(i) on receipt of a request, BWB carries out an assessment of the feasibility of the proposed installation;

(ii) if feasible, BWB prepares a preliminary design and cost estimates;

(iii) the community finalizes financing arrangements with donors such as MASAF and UNICEF;

(iv) BWB prepares a detailed design, a bill of quantities, a cost estimate and specifications (work to be done, materials to be used etc);

(v) the donor, BWB, and the community draw up a contract for materials/works/costs. This tripartite contract stipulates the contract period and provides for supervision and a general commitment to accept adherence to standards and specifications;

(vi) independent agents/technical staff supervise the works; and

(vii) pressure tests and bacteriological quality analysis are required for approval of the installations and their connection to the public mains.

The contract stipulates that, in the course of installation, BWB is to supervise and inspect excavations, the setting out of pipework, civil works (valve chambers, standpipes etc), pressure tests and bacteriological analysis and, lastly, connections to the public mains. BWB also allocates responsibility for maintenance and the specifications to be followed. BWB insists on securing warranties for materials purchased from suppliers or local manufacturers. Contractors who do not meet specifications and standards are not paid.

Approach accepted and replicated

Five new area extensions (serving 183,000 people) have been completed adhering to these procedures. BWB takes total charge (directly or through appointed supervisors) of the technical aspects of the water development projects in unplanned communities. While there is some concern that the procedures may be too restrictive and limit initiative, it appears that, in practice, the standards and specifications are objective and accepted. Moreover, it is generally agreed that as BWB will operate and maintain the networks it is entitled to insist on minimum standards.

Source:
Chilowa and Chinsinga, 2000

Efforts should focus on developing greater acceptance of on-site sanitation solutions.

As the range of options for sanitation provision is limited and conventional sewerage systems are unlikely to play a major role in the short to medium-term, on-site sanitation will remain a solution for many urban areas in the years to come. Efforts should focus on developing greater acceptance of on-site sanitation and building this option into strategies for improving services to the urban poor. Where relevant, utilities and municipalities should take steps to support on-site sanitation by directly promoting on-site sanitation services and/or by offering financial incentives for improved sanitation facilities (see Box 21 on the initiatives in Burkina Faso). Enforcement measures may also be required to guard against the potential health risks associated with locating on-site sanitation facilities close to groundwater sources used for domestic purposes. Much work remains to be done in this regard.

For water supply the range of intermediate services should be expanded to include shared or yard connections, public taps or water kiosks and alternative service options that respond to demand (see Box 2 on the approach taken toward storage tanks in Durban).

Finally, intermediate objectives should be designed with long-term objectives in mind. In order not to constrain future household connection expansion programs, intermediate standards linked to specific design periods should be formulated and agreed. Minimum technical standards, that guide other actors involved in developing networks at community level, are an essential tool for enabling these independent systems to be integrated eventually into the city-wide network (see Box 29 on the minimum technical standards established in Blantyre).

7.2 Strengthen institutional policies, strategies and service delivery arrangements

Intermediate water supply services should incorporate options that respond to demand.

Institutional policy also plays a crucial role in facilitating service delivery to the urban poor. As there are numerous types of institutions involved in water provision (including regional utilities, municipal water supply departments and national public and private operators), the nature and characteristics of the laws and policies governing their operations varies greatly.[3] However, despite these differences the lack of specific institutional policy and strategy for reaching the poor is a common constraint.

Institutional mandate: setting priorities and objectives

Drawing on existing legal statutes, municipalities or utilities should develop corporate policies or business plans that articulate pro-poor objectives (such as coverage targets) and set down an approach (technical, financial, customer outreach) to delivering services to the urban poor. Once pro-poor priorities and objectives are defined, appropriate levels of financial and human resources must be made available. Institutional policy can also help to provide direction even when public policy gaps exist. For example, in order to reach consumers in informal settlements, the utility SODECI in Abidjan allows individuals to install connections at the nearest public points and develop standpipes at their own cost in informal settlements. SODECI has also adjusted tariffs and improved payment terms for authorized vendors (in response to demand).

Similarly when developing contracts for private sector participation in WSS service delivery, public authorities should take deliberate steps to develop pro-poor conditions of contract. These conditions should spell out legal obligations and

[3] These may have been established through acts of parliament, articles of incorporation.

provide utilities with the mandate (appropriate terms and financial means) to improve services for urban poor.

Defining the obligations of service providers in business plans or contracts (through performance standards or targets), increasing the level of responsibility and providing the operator with increased autonomy can contribute to the improvement of services for the urban poor. Where necessary, a specialized unit or skilled team (be they in-house or outsourced) focused specifically on improving service delivery to low-income areas should be established. Their role may be to:

- implement targeted WSS service delivery programs;
- monitor and measure outputs (such as the number of new connections in low-income areas, number of working standpipes, percentage of volume sold at bulk price to alternative providers, percentage of disconnections, etc);
- establish more effective interaction with low-income residents and intermediate or independent providers; and
- provide better understanding of the specific requirements of the poor and the design solutions that meet their needs.

Institutional mandate: exclusivity and definition of service area

Most utilities enjoy a monopoly status - they have an exclusive right to deliver a service within a given area (generally the whole city)- and many consider it critical to the commercial viability of the utility and the economies of scale necessary to

Box 30

Small-scale Providers of Water and Sanitation Services

Despite efforts to increase coverage over the past few decades, currently some 25% of the urban population of Latin America and at least 50% of the urban population of Africa are not connected to the official utility water supply networks. These households rely on alternative providers including small-scale private and community-based organizations that offer a wide range of services and sustain themselves without government resources.

Small-scale providers provide households with options

The entry of alternative service providers into the market creates choices and options for householders. They tailor their services to customers needs and survive only by offering services which customers are willing to pay for. Although the nature and scale of small-scale service providers varies widely across the continent, they may include: (i) water tankers; (ii) independent piped networks; (iii) bulk purchase/on-selling of utility water (e.g. water kiosks); (iv) sanitation services (e.g. septic tank emptying); and (v) operation and maintenance services (e.g. management of public latrines).

Constrained by lack of legal recognition

Small-scale providers are usually regarded with suspicion by utilities and municipalities. They are often not legally recognized and therefore operate illegally with little regulation and quality control. In some cases this ambiguous operational framework has led to collusion between providers, or with utility staff (e.g. creating a 'cartel'). Poor consumers may therefore end up paying more than they should for poor quality services.

Despite shortcomings, the small-scale sector has enormous potential for increasing coverage and access to services for the urban poor. Those governments who learn to regulate it without stifling its innovation and demand responsiveness will gain access to a large number of previously unserved communities.

In the short to medium term, it may be necessary to remove exclusivity clauses and permit alternative providers.

provide an efficient service. This exclusivity mandate is often spelled out in legal statutes or contracts. While exclusivity may help to meet financial objectives, in practice most utilities have failed to meet the needs of all consumers in their service areas and, as a result, a number of intermediate and independent service providers may operate alongside or in competition with the utility (see Box 30 on small-scale providers). While some utilities recognize this fact and endeavor to accommodate alternative providers, others try to enforce their monopoly even when they are unable to provide adequate service to the unserved or underserved (notably low-income people in unplanned or informal areas).

In some countries, given the scale of alternative provision, arrangements to accommodate small-scale providers are an essential part of a strategy that improves access to services. In the short to medium term, it may be necessary to remove exclusivity from legislation, contracts, terms and mandates. Consumers can then be given the choice to switch over to the utility network once it is accessible.

7.3 Revise financing strategies and pricing policy

Ensuring sustainable financing to extend services to the poor

A realistic and sustainable financing strategy is an integral part of achieving policy objectives and meeting targets for improved services to the urban poor. Access to financing for capital investments, in particular for network extensions and standposts in informal areas, may be constrained by policy, legal or regulatory factors. The use of external financing is often earmarked for formal or planned areas in contradiction of stated project objectives to extend services to poor households. Many external support agencies (ESAs) are reluctant to provide loan financing to support WSS improvements in informal settlements until they are formally recognized and/or regularized by Government.[4]

It is therefore more common for grant funding to be used to finance improvements in unplanned areas. Grants may be provided by different multi-lateral and bil-lateral agencies or NGOs. They may be made available to utilities or municipalities or passed on to non-governmental organizations that can work outside the formal administrative framework. Communities may also contribute towards financing of investments through cost sharing arrangements including contributions to capital investments in cash or kind (see Box 6 on community cost sharing in Ghana).

A financing strategy should establish clear rules to govern the allocation of resources.

A financing strategy that identifies various sources of external and internal financing and establishes clear rules to govern the allocation and use of these resources is an essential requirement for improving services to the poor. Internally generated financing drawn from a variety of sources (such as special purpose taxes included in the water tariff (see Boxes 1 and 20), added to municipal taxes, etc) can be used to enable the extension of networks in informal settlements, subsidize household connections or on-site sanitation facilities for the urban poor.

Pro-poor pricing policy: tariff structures and cross subsidies

Pricing policy is an important instrument for improving services to the urban poor. In addition to setting user charges for different categories of consumers, pricing policy may also be used to:

[4] In several cases, temporary permits/licences have been obtained by utilities allowing them to extend services, into unplanned or informal settlements for a specified period of time.

- improve affordability across a number of urban centers;
- raise financing for network extension;
- subsidize connections; and
- finance on-site sanitation.

Progressive or increasing block tariffs have been widely adopted by most countries in the region. As noted in section 3.4, many tariff structures include a subsidized social block targeted to poor consumers and a number of other blocks targeting domestic, industrial and other user categories. Although they share a similar objective, social blocks vary widely in nature. In Uganda, a 'social rate' is applied to the water bill for the first 3 to 10m^3 per month, while in Durban, 6m^3 per month is provided free to all consumers. The costs of this service are recovered through a cross-subsidy from customers who consume in the upper bands of the tariff.

Tariffs should help, not hurt, the poor.

Despite good intentions, social blocks designed to serve the poor do not always meet this objective. Many of the poorest households are either not connected to the network or:

(i) buy water second or third hand from vendors and standpipes/kiosks (at higher cost to the consumer because the vendor may be charged a higher band tariff);

(ii) buy water from a household with a private connection (that may also be charged in the higher blocks of the tariff); or

(iii) share a connection with their neighbor (and therefore consume more water than is provided for in the social block).

Social blocks are only effective in improving access of low-income people if: the number of poor households with a private connection[5] is significant (at least more than 40% of households individually connected); and monthly fixed charges are kept low (e.g. standing charges, rental of meter, minimum consumption invoiced) enough to enable the poor to afford the service.

Where a large number of household connections are unmetered, some utilities have established 'flat rates' for households that meet specific criteria. In Kano, Nigeria, flat rates for domestic premises are charged according to living conditions (e.g. number of households using the same connection, number of taps, etc.). In many other urban centers, however, flat rates are charged regardless of living condition and as a result, households with higher consumption levels receive a high level of subsidy.

In several cases, bulk rates are charged for water sold through standpipes and water kiosks to enable low-income consumers access to water at the lower cost (e.g. Côte d'Ivoire, Kenya, Senegal and Tanzania). Unfortunately, these subsidies may not reach the consumer as retail prices are often unregulated. In Accra, the utility allows a bulk rate for several water tanker associations, while in Lusaka and Port-au-Prince, in recognition of the importance of community networks, the utility sells water at a bulk rate for independent community-owned networks. These cases demonstrate that social issues must be balanced with the economic interests of the utilities and can lead to improved cost-recovery for the utility.

Cross-subsidies (between municipalities or urban and rural consumers) may also be used to improve affordability of both connections and user charges. Inter-urban

[5] In designing social blocks it is assumed that wealthier consumers (commercial, industrial and high income area) consume more water, and will therefore be charged for consumption at a level that allows subsidization of households with lower consumption

Pricing policies should be appropriate to the requirements and constraints of each city and country.

cross-subsidies are also prevalent in West Africa where it is common to find a single utility responsible for water supply to many cities and towns. Income from more profitable urban centers is used to subsidize smaller, less viable urban centers through a uniform tariff policy. In Côte d'Ivoire, this has allowed poorer households access to water at a more affordable rate. The utility, SODECI, provides water to 544 towns, of which only 6 make a profit and the remaining 538 post losses. By comparison, in Tanzania, each municipal water utility is independent and sets its own tariff and as a result, a number of utilities rely on central or local governments to subsidize inputs such as electricity.

Other charges – deposits, meter rentals and application fees

In addition to connection costs, many utilities levy other charges such as meter rents and deposits. As noted in section 3.4, these costs may present an additional barrier to disadvantaged low-income consumers who already have difficulty meeting the full cost of a connection. Although deposits are often requested as security against default, when set too high, they act as a deterrent to new consumer connections. In order to allow poor households access to a water connection, pricing policy should therefore aim to reduce the number of upfront charges and to spread the costs out over a longer period of time (see section 3.2).

Efforts should be made to design pro-poor pricing policies in relation to the specific requirements and constraints of each city and country and should build upon local research and knowledge. Tariff structures should be appropriate to the needs of customers while enabling the utility to remain economically viable. Where necessary, in order to facilitate sustainable financing for priority investments such as social connections, new government policy and legislation may be needed to introduce special taxes. Concessionary financing may be required to cushion the poor.

Financing of capital costs

The range of capital financing sources used for improving services to the urban poor includes grants and loans, taxes and revenues, as well as community and users' contributions, and NGO and private sector funds. In some cases several different financing sources are used under a wide range of financing arrangements (cost sharing, matching grants, labor swaps). Recent efforts to introduce public–private partnerships (PPPs) have been accompanied by the development of public subsidies targeted to low-income users. These are often achieved through out-based mechanisms that create an incentive for the private operator to design innovative solutions to reach the poor. A recent review[6] of PPPs highlighted the importance of public financing as a means of reaching the poor while ensuring the commercial viability of private sector managed operations.

Generally, users do not contribute directly to the major capital costs of networked services such as production, treatment plant, storage, primary and secondary lines. More often these costs are financed directly by the utility through internally generated revenue (collected from consumers) or by municipal authorities through taxation (collected from residents). In Côte d'Ivoire and Senegal, the Water Development Fund, discussed in Box 1, financed by taxes collected from large consumers provides for the bulk of internally financed investments, including some network extension, standpipe development and household connections (see Box 31).

[6] Stakeholder consultation on PPPs in Africa, Dakar, Senegal, 2000

Box 31

Financing Investment Costs

Most utilities view the financing of extensions in unplanned areas as high-risk. This perception is often based on their experience of standpipes that proved difficult to manage: in many cases water was not paid for, standpipes were vandalized, water was misused and the installation of networks feeding the standpipes enabled illegal house connections.

Given the perceived difficulty of recovering costs in these areas, grant financing from NGOs, communities and donors has become a key source of financing for water supply and sanitation services to the urban poor. However, in many of the projects undertaken with grant financing, **sustainability remains a concern**. Many have suffered from inappropriate institutional arrangements (poor incentive structures e.g. voluntarism, weak financial management), poor design (supply driven, inappropriate standards) and substandard construction. Much needs to be learned from the experience of small-scale providers who typically self-finance their capital costs and are able to offer a sustainable service.

Source: Kariuki, 2000

Cost sharing arrangements for the development of tertiary distribution networks are more common and in some cases this has extended to secondary networks. In several countries, community/private network extensions have been resourced by contributions, in cash and kind, from local households. In Ghana (see section 5.1), some communities have financed fifty per cent or more of the network extension costs. While in theory the utility is expected to take over the task of connecting new consumers once the network has been laid, in practice, this has not been the case.

The private sector also plays a key role in network development. Both small-scale providers and large-scale developers invest in network expansion. Although the inputs of the former are in some cases piecemeal and may even be substandard, the latter play an important role in network development. In Senegal, property developers often finance network extensions to increase the prices of plots, while in Côte d'Ivoire their investment is mandatory.

Efforts should be made to identify financing requirements and to establish mechanisms for mobilizing resources from a range of users (including community groups, NGOs and the private sector). Financing policy should take into consideration the needs of low-income consumers and be designed to facilitate access to connections (e.g. through social connection policies). Tariff structures should be designed to suit the conditions under which consumers' access water supply so that they do not penalize consumers who share a connection. Clear rules should be established regarding community contributions to ensure that ownership and responsibilities for operation and maintenance are clear from the outset.

Efforts should be made to establish mechanisms for mobilizing resources from a range of users.

7.4 Adopt a regulatory environment to serve the urban poor

Regulation is essential for defining how the delivery of water and sanitation services is to reflect policy and to ensure that utilities follow the conditions of contract. However, the function of regulation should not be limited to definition and enforcement of rules and standards. It must also promote or require that utilities improve their response to users' demand, and it must facilitate or encourage innovation.

Defining roles and responsibilities in regulation

Regulatory functions are often split amongst agencies at different levels. Most governments typically regulate water utilities responsible for network services from a national agency or ministry (e.g. an independent regulatory agency), while point sources, such as wells and boreholes may be regulated at either local or national level. Due to the multifaceted nature of sanitation, regulation is often carried out at many levels. Certain aspects of waterborne sewerage may be regulated by the agency responsible for water supply regulation, while on-site sanitation is handled at municipal level by health and/or environmental regulators. Where an independent regulatory body exists it may delegate some tasks to other competent bodies (e.g. water quality monitoring, etc). To date there are only a handful of independent regulatory agencies in sub-Saharan Africa. These agencies, in Mozambique, Zambia and Ghana, are relatively new and are still working out arrangements for improving their functions in relation to serving the urban poor.

Access to information for monitoring quality and levels of service is a key area of concern for regulatory agencies. As information on services to the poor is often particularly weak, the regulator may not have access to the necessary information to allow for effective monitoring. Adequate regulatory capacity is required (either in-house or outsourced) to enable periodic independent assessments. Where a regulatory agency does not have the skills or capacity, the collection of information regarding services to the poor may be done with the assistance of NGOs, and consumer or professional associations. The regulator should adapt standards to reflect local circumstances and set clear targets and indicators. Regulatory agencies should also be willing to share information with consumers and other agencies in a regular and transparent manner.

Promoting the role of consumers, consumer associations and community organizations

Whether customers of the utility or small-scale providers, consumers are directly affected by the quality of service delivery, institutional arrangements, pricing policy and other aspects of service regulation. Accordingly, consumer groups should be consulted and informed about new developments on a regular basis. Some utilities set up customer complaints registers and publish their contents with indicators of the time they will need to address these complaints. These mechanisms are often outside the reach of poor consumers who are not connected and therefore do not have a direct link with the utility. At a community level, whether or not they obtain a utility service, consumers who buy from vendors, kiosks, or other alternative providers could demand that small-scale providers comply with regulations if such regulations were developed. Top-down regulation should be minimized and self-regulation (see Box 16) encouraged to ensure fair competition.

In some countries (e.g. Togo), consumer associations play an important role in lobbying utilities to improve services to the urban poor. While organized associations at city or national level may not be common, community organizations at local level also undertake some of the functions that would normally be carried out by a consumer association, albeit in an informal manner and on a small (localized) scale.

Promoting competition and encouraging independent initiatives to improve access to services for the urban poor

A key task of the regulator is to ensure fair competition.

One of the main tasks of the regulator is to ensure fair competition and guard against monopolies and cartels. As noted in Chapter 5, despite the prevalence of small-scale providers in many countries, most utilities in Africa have exclusive (monopoly) authority to provide services within a defined area. However, since many municipalities and/or utilities do not serve all consumers within their designated service areas, where appropriate, regulation should facilitate private, NGO or community investment and encourage innovation in service delivery.

To enable this innovation, standards should not be restrictive and should be supported by the right incentives. For instance, in Ouagadougou, residents are encouraged to build improved latrines by means of a small subsidy. This subsidy does little to offset the extra costs of improved standards but encourages the recipients to take the first step. In Malawi, the Blantyre Water Board provides technical advice and guidance to NGOs and community organizations to ensure that minimum technical standards are met and that the facilities and network extensions installed through private initiative are sustainable over the long term.

Facilitating the emergence of professional/trade associations

Small-scale providers have only recently emerged as an important part of the water services industry. As a result, much remains to be done to put in place an appropriate framework for regulating their operations. Intermediate providers that purchase water from the piped water supply network should be regulated through a contract with the utility but may also regulate themselves through professional associations. Similarly, those that handle wastewater/sludge should be regulated by the municipal authority or utility (depending on the circumstances prevailing in the country - see Box 26 on Dar es Salaam pit-emptying services). Independent providers that work in parallel with the network (e.g. those with borehole based systems) may need to be regulated by a regulatory body along the same lines as the formal WSS utility.

The formation of professional/trade associations is a useful means of regulating practices. Tanker and vendor associations established in various countries such as Côte d'Ivoire, Nigeria and Benin, have enabled small-scale provider members to enter into dialogue with utilities improving the terms and conditions under which they work.

Trade or professional associations can help to improve the level of professionalism, but can also become cartels.

Trade or professional associations can help to improve professionalism and capacity building in the water and sanitation sector by:

- establishing common rules and procedures (and by promoting their acceptance);
- recognizing and protecting private investments; and
- creating a forum for dialogue between the authorities, the utilities and independent providers (too numerous to be handled on an individual basis).

In Ghana, the utility (GWCL) supported the creation of tanker-owners' associations illustrated in Box 16. These associations negotiated significant improvements for the tanker drivers and their customers, including:

(i) improved access to a reliable water supply by establishing filling stations (high pressure filling points that were set up by GWCL and managed by the association;

(ii) a preferential bulk price for tanker drivers purchasing large volumes of water;

(iii) agreement that the association regulate water quality and price (through the periodic inspection of tanker cleanliness and the requirement to display prices at the filling station).

However, associations can also become cartels and it is essential that associations of service providers devise methods to guard against collaborative action that works to the detriment of the customer. In Abidjan, 25% of approved resellers joined AREQUAP-CI in November 1998. Their aim was to establish a voice in issues that affected them: to improve their working conditions, to obtain proper recognition from the authorities and SODECI, and to obtain preferential prices. In particular, they sought special bulk rates, lower deposits and created a distinction between themselves and other 'illegal' resellers. They also requested that they be given a role, and therefore have some say over, the entry of an additional small-scale providers in the market. This attempt to limit further competition – through the action of a cartel – was not permitted by the utility (see Box 13).

Although less prevalent, associations of private sanitation operators also exist. In Benin, vacuum truckers established the Benin Union of Sewage Entities (USV Benin). However, while the initial idea of forming an association was sound, in practice it has also led to the establishment of a cartel. Since its establishment in 1995, USV Benin has had exclusive rights to license new vacuum truckers (none have been licensed) and the association has reduced competition by fixing tariffs and controlling prices offered by its members. Lessons can be learned from current experience in the formation of water tanker associations. There is obviously a key role for the public authority in Benin to regulate the sector and ensure fair competition.

Authorities should continue to regulate the activities of independent providers and also find ways of promoting and ensuring healthy competition.

Ultimately it must be recognized that trade associations are created to protect the interests of their members, not the interests of customers. Authorities should therefore continue to regulate the activities of independent providers and should also find ways of promoting and ensuring healthy competition. As the ultimate beneficiary and decision-maker, consumers also need to play a role in regulating the services of independent providers. So far the role of consumers has been limited to regulation-through-choice (a supplier of poor quality water is quick to lose his customers) but this could be expanded to an oversight role such as that carried out by the community in Yirimado, Mali (illustrated in Box 15). The regulatory agency can play an important role in ensuring that legal documents relating to association formation, service agreements and contracts, guard against the formation of cartels, promote competition and encourage the entry of new providers into the market.

7.5 Release bottlenecks in urban development policy

Water supply and sanitation service delivery should be framed within the overall context of urban development and governance. Planning for improved WSS services for the urban poor often requires the involvement of various stakeholders at municipal level and

may necessitate the development of a broad municipal policy and strategy under which the utility can operate. While, it is clearly not the role of the utility to design or formulate urban policy, in order to meet their own service delivery objectives, it is essential that utilities work with municipal and national governments to identify and eliminate the barriers constraining improved service delivery. Among the top issues to be addressed through dialogue with other actors at municipal level are: (i) the unplanned nature of low-income settlements; and (ii) the lack of secure tenure or proof of ownership/occupancy. Efforts should be made to establish clear rules in order that utilities are not constrained unnecessarily in delivering services to low-income communities.

Network extension in unplanned/illegal areas

Municipal regulations generally define conditions for laying networks within urban areas and a primary constraint to the development of water networks in many countries/cities is the lack of planning or development control. In most countries municipal (and utility) regulations state that networks can only be laid in formally planned areas, in a specified manner, according to an agreed set of rules.

The fate of unplanned and even 'illegal' settlements discussed in section 3.1 is mainly a political decision and can be solved through settlement regularization programs undertaken by municipal authorities or through intermediate solutions such as agreements that enable utilities to deliver services for a specified period of time. Some countries have undertaken far-reaching 'regularization' programs, and have removed most constraints (e.g. Burkina Faso in the 1980s). In Abidjan, some informal settlements have been earmarked for regularization to solve the problems of service delivery. In Tanzania, despite the fact that 70% of Dar es Salaam is unplanned or informal, the utility has no legal constraint to developing water supply systems in these areas.

Even when administrative or legal restrictions are removed, technical difficulties encountered in laying networks in unplanned areas need to be addressed. In some cities, new solutions have been tested and implemented. For instance, in Man, Côte d'Ivoire, the municipality and utility consulted with residents and agreed to set aside public access routes that residents would respect. In Port-au-Prince in Haiti, authorities accepted the installation of piped networks with standpipes and movable fiberglass water tanks in shantytowns (although they regarded them as temporary) and in Ouagadougou in Burkina Faso, 25 pumping stations (with an iron water tank and standpipe) were installed so they could be moved to make way for improved facilities when demand evolves.[7]

The installation of water supply and sanitation networks and facilities is often seen as a stamp of approval on an informal settlement (see Chapter 3 for further discussion). Where regularization is planned, improvements in water supply and sanitation may therefore act as a catalyst around which area-based planning can be organized. Some governments have therefore prevented the delivery of services to informal settlements that they do not want to regularize, even if these settlements remain where they are for long periods of time. Incremental improvements, such as those efforts in Manila illustrated in Box 4, should be made to tailor solutions to specific needs, and to agree on suitable planning horizons and service delivery arrangements for all consumers.

Land titles and occupancy certificates as security for a connection

In informal settlements, private water connections and, to a greater extent, sanitation facilities, create a heavy financial burden that many households may not be willing

[7] In fact some have already been removed. (Cisse, 2000)

to shoulder if there is a risk of demolition. Even where a connection is granted, households may not wish to make more than a short-term or temporary investment unless they have secure tenure, until public access routes are established (to reduce the cost of parallel lines) and until distribution networks are extended within proximity of their dwellings.

Slum upgrading programs are an important solution to insecure tenure. They provide households with access to other basic services (e.g. sanitation, refuse collection, power, roadways, schools, health, public transport) and enable residents to participate in planning for services at a community level. They also create a strong incentive for households to improve and maintain the services, infrastructure and facilities in their neighborhoods. However, given the scale of upgrading requirements in many African Cities (see Figure xii) the broader slum upgrading agenda should not be made a prerequisite for water supply and sanitation expansion programs. The financing requirements and programmes and the unresolved policy decisions regarding regularization could delay improvements indefinitely.

Estimated Growth of Informal Settlements Lacking Water and Sanitation Services

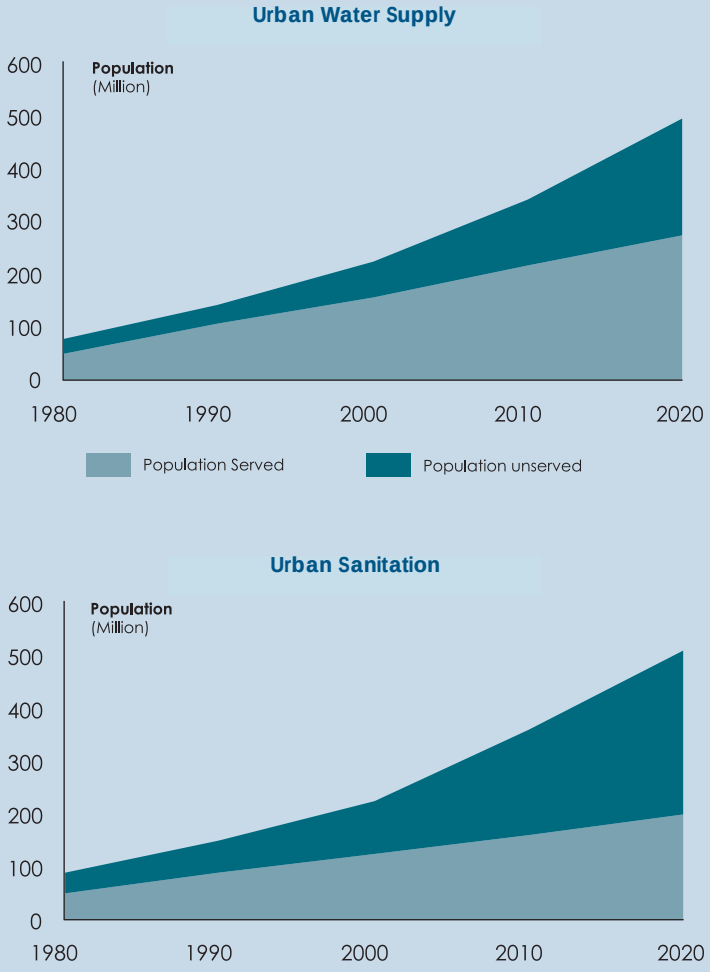
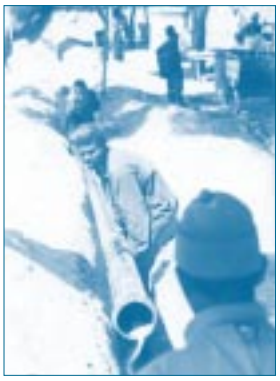


Figure xii

Source:
World Bank, 1996

In some cases, short to medium-term service delivery improvements may be needed before a comprehensive upgrading (or resettlement) programme can be implemented. This may be in the form of a simple agreement made between the utility and municipal authorities to suspend demolition for a given period. Under the Byan Tubig program in Manila illustrated in Box 4 and mentioned above, the utility has entered into a 2-year agreement with the municipality that allows the utility adequate time to extend services to households and recover the cost of extending networks into low-income areas.

As discussed in Section 3.1, regulations governing the operation of some utilities (and municipal authorities may also bar them from connecting households without official certificate of occupancy (title deed or lease, temporary occupation license, rental agreement), as this is considered a commercial risk. In order to provide services to residents of illegal areas, some utilities have introduced a deposit payment as a form of security. This arrangement is also well suited to cities or settlements where title deeds may not be available as traditional/customary land tenure is formally recognized.



Efforts should be made to waive restrictions related to tenure, titling, etc and find alternative methods for reducing the associated risk. A unit specialized in the management of low-income customers established within the utility (as proposed in Section 7.2 above) could help draw up relevant procedures and establish alternative measures to improve the access of low-income households to water supply and sanitation services.

A1

Annex 1: The WUP 5 Case Studies

Strengthening the capacity of water utilities to deliver water and sanitation services, environmental health and hygiene education to low-income urban communities

Renforcement des capacités des sociétés distributrices d'eau pour assurer les services d'eau et d'assainissement aux communautés urbaines a faibles revenus et pour contribuer a la promotion de l'hygiène et d'un environnement sain

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