Discussion paper

WaterAid

# Access for the poor and excluded

## Tariffs and subsidies for urban water supply

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Front cover image:
**Lasida Mohammed, 12, collecting water from a communal water point in the city of Tamale, Ghana.**

Inside front cover image:
**Longeza Naupota, 20, buying water at a kiosk in Lilongwe, Malawi.**

# Contents

# Executive summary

**This paper considers how tariffs and subsidies can be structured to increase access to sustainable, affordable water supplies in urban areas, especially for the world's poorest and most marginalised people.**

Access to safe water is a human need and basic right. And yet, roughly half of urban dwellers in sub-Saharan Africa and South and South-East Asia lack access to clean, safe, affordable water. The reasons are often financial, with poor people unable to afford connection fees. Meanwhile, utilities often lack the funds to invest in extending water networks into un-served areas, and incentives to do so. Legal barriers such as lack of land tenure, and physical barriers such as the difficulty of laying pipes in crowded urban slums, also stand in the way. As a result, the urban poor often pay many times more for their water from alternative providers because they are excluded from the official water network.

Tariff and subsidy design has a key role to play in ensuring that everyone, however poor or socially excluded, is able to gain and maintain access to safe and affordable water. This paper aims to demystify tariffs and subsidies and demonstrate how they can play this role. It does not provide a universal template for the design of tariffs or subsidies for water supply, but presents a beginner's guide to the major types and the challenges and opportunities each presents.

Tariffs and subsidies are used to cover the costs of water supply. Where costs are recovered from users, the system of charges for water consumption is described as a tariff. Use of public funds or the transfer of funds from one group of customers to another is a subsidy. Tariff and subsidy mechanisms can be used in combination to achieve a desired policy outcome. Based on existing literature and WaterAid's own experience, this paper assesses the pros and cons of different arrangements.

Tariffs can help make water affordable for those people who already have a water connection. However, local patterns of water usage need to be understood to build service regimes that are pro-poor. Subsidies can support consumption (*maintaining* access) and also connections (*obtaining* access in the first place). Subsidies can be made from customer to customer (cross subsidy), from government directly to customer (direct subsidy outside the tariff) and from government to customer, via the utility (direct subsidy within the tariff).

Many tariffs incorporate a quantity-based subsidy, and charge additional units at higher rates based on the assumption that poor people can limit their use of water to obtain the lower price. However, in practice, many poor people lack the metered connections required for this to be feasible, or are unable to reduce their usage if

they have large families or share facilities with neighbours. Beyond price, the methods and timing of billing can make payment difficult for poor people.

WaterAid's research and experience indicates that where certain fundamental principles, which govern the process of tariff and subsidy design and the wider reforms, are respected, tariffs and subsidies can help achieve equitable and sustainable water services. Official policy must recognise that the urban poor are viable customers and that one size does not fit all. To this end, tariff and subsidy design process must promote equitable access, pricing and payment methods as well as efficient targeting.

Tariffs and subsidies alone cannot overcome the problem of the poor's lack of access to an affordable, sustainable water supply. Reforms beyond the water sector are needed to overcome barriers such as the lack of tenure. There is also a need to improve the regulatory framework. Utilities need incentives to ensure they listen to and prioritise the needs of the poor as viable customers, for example by tying public financial support to specific pro-poor objectives and performance. Given that universal access to services provided by utilities is, in the medium term, unlikely, alternative providers of water also need to be recognised and regulated.


**Many of the urban poor consume less than 20 litres of water per day; the quantity defined as the basic minimum by WHO.**

## Section 1

# Introduction

**WaterAid believes that water and sanitation services should be equitable and sustainable. Tariff and subsidy design has a key role to play in ensuring this becomes a reality.**

Access to clean, safe and affordable water continues to be denied to half the urban-dwellers in Sub-Saharan Africa, and just under half of those in South and South-East Asia.[1] The urban poor often pay many times more for their water from alternative providers because they are excluded from the official water network by high connection costs or other barriers such as lack of land tenure.

Service providers, meanwhile, are often caught in a vicious circle whereby underinvestment leads to poor service levels, resulting in low willingness to tolerate tariff increases among current customers, and a lack of funding available to invest in extending services to unserved communities.

A well designed tariffs and subsidies regime should provide a bridge between the interests of poor and excluded people and those of the service provider. Equitable access and sustainable service should be in the interest of service providers as well as the unserved poor. The provision of equitable access would help develop a wider customer and revenue base – essential for commercial viability, sustainable services, and capacity to extend services to the unserved.

In addition, policy makers are likely to be influenced by at least two other concerns; economic efficiency and environmental protection. Poorly designed subsidies can distort markets, reduce economic efficiency and, economists argue, have a negative effect on the equitable allocation of goods and services. Tariffs and subsidies that do not encourage any sense of the value of water can result in high water use that jeopardises the raw resource for both humans and ecosystems. While these concerns are important in many contexts, this paper will focus primarily on tariff and subsidy design for equitable access and sustainable services.

## Box 1: The ideology behind financing water supply

Design of tariffs and subsidies is influenced by an ideological debate about how the costs of water supply should be met. Throughout the 80s and 90s, the rallying cry at one extreme was for 'full cost recovery', meaning that all costs should be recovered from user fees, with no subsidy paid to the service provider. Water was considered as an economic good, which should be provided according to market forces. The opposite extreme held that water, as a human right, should be paid for entirely by public finance.

A more pragmatic middle ground has been reached, which acknowledges that there are important concerns, for example demand management and economic efficiency, which are best addressed through some element of user fees. At the same time, former proponents of full cost recovery now admit that equitable and sustainable access will not be achieved without some public finance.[2] Even in developed countries, subsidies from the tax-base have a role in supporting water service providers, especially for major investments. In low-income countries, transfers (such as Official Development Assistance, largely derived from taxes in donor countries) remain an essential source of finance as well as taxes.

Section 2

# Barriers to access

**Below are the main barriers that exclude the urban poor from access to water and sanitation services. The first three can be tackled through improved tariff and subsidy design. The remaining barriers need to be addressed through institutional, legal and regulatory reforms (see Section 4).**

### 1 The vicious circle of lack of affordability for the unserved poor

High connection fees leave the unserved poor reliant on local private providers who supply water by the tanker, cart or bucket. At the end of this unregulated supply chain the cost per litre is often many times that charged by the official utility.[3] The cost is not just financial. Lower quality water means a cost to health, while reduced convenience carries a time-cost.[4] Such costs ultimately trap the poor in water poverty, unable to access the health, dignity and increased productivity that clean water brings.

### 2 The vicious circle of underinvestment by utilities

Historical underinvestment by many utilities has resulted in poor service levels. As a result, existing consumers are unwilling to accept tariff increases, and revenue remains low. Service providers are left struggling to meet operation and maintenance costs, let alone the costs of expanding the network and bringing service to a huge pool of potential customers; largely the unserved poor.

### 3 Utilities' perceptions of the urban poor

Equitable access to water and financially sustainable services may be viewed by service providers as difficult to reconcile, because the urban poor are not viewed as viable customers. The way tariffs (alongside associated fees for connection) and subsidies are designed and implemented can help address this misconception.

### 4 Lack of legal tenure

A particular problem for the urban poor is lack of secure land tenure, especially in slums. Utilities are often prohibited by the authorities from providing services to slums, due to a fear that the services would be tantamount to an endorsement of an illegal settlement and would encourage its growth. This politically charged problem requires flexible solutions. In slums in Bangalore, identification and ration cards have come to be accepted in lieu of tenure,[5] while in Ahmedabad, Gujarat, temporary tenure has been granted.[6] In Dhaka, Bangladesh, an understanding that such services do not equate to an approval of tenure has been reached.


**In the slums of Dhaka, Bangladesh, thousands of people lack access to an official water supply. Unofficial water points such as this one, fed by an unauthorised and unregulated network, are common.**

### 5 Challenging physical environments

Poor urban communities present challenges for engineering and implementation. Individual household connections may present technological challenges in dense, unplanned slums. In Nigeria many peri-urban settlements are unplanned and challenging to lay pipes in, or of a temporary nature, discouraging network expansion to these predominantly poor neighbourhoods.[7] In such situations, alternative delivery arrangements such as public taps and water kiosks may be appropriate interim solutions, that can themselves provide a method to target subsidies to the poor ('service-level targeting', see below).

### 6 Fragmented institutional responsibilities

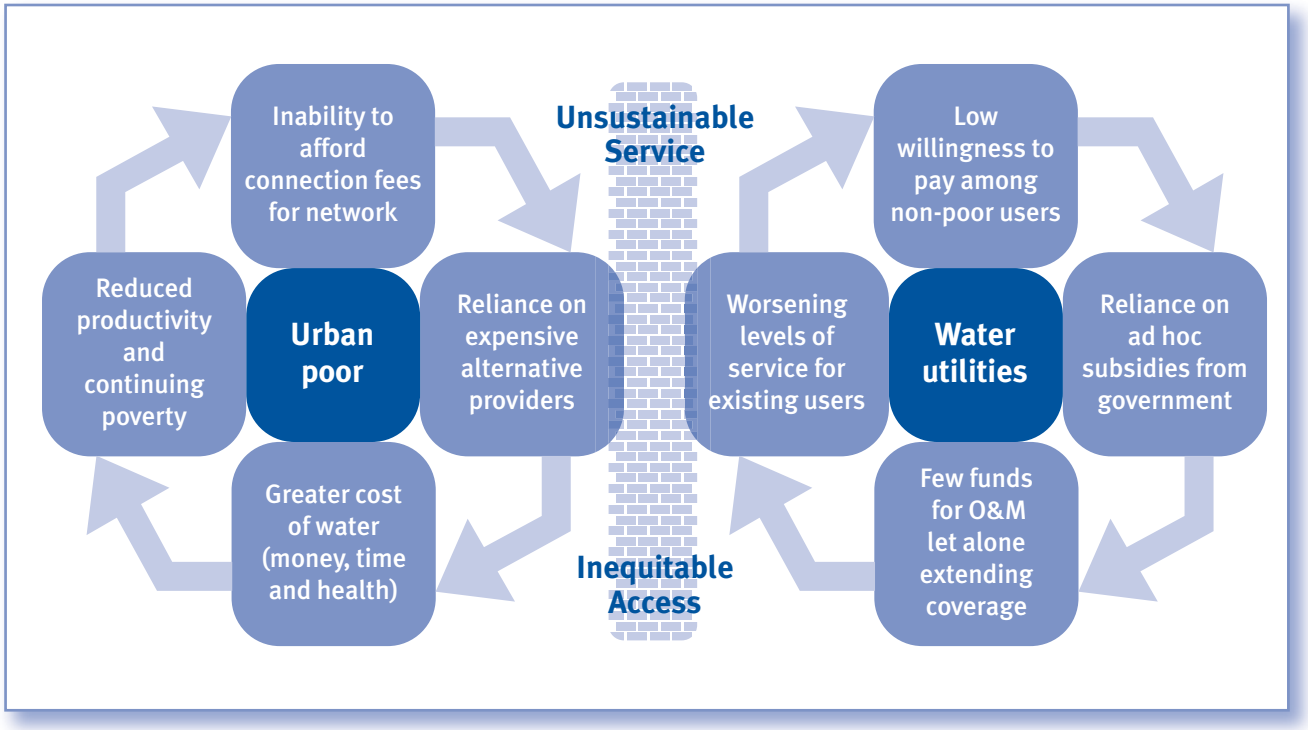
The allocation of responsibilities for urban water supply is often confused, with the same institutions holding responsibility for service provision, regulation and protecting the poor (through subsidies and other means). A partial separation of these roles can help improve service levels, and overcome problems such as political interference in tariff setting.[8] In some countries, politicians make promises to keep tariffs low even for those who can afford to pay, without proper consideration of the implications for the sustainability of services.[9] Uganda's public National Water and Sewerage Corporation (NWSC) is now run on commercial lines. By allowing the board and management to operate more independently its autonomy has been a significant factor in its turnaround.

### 7 Lack of adequate regulation

Regulation has a role in increasing equitable access and sustainable service, ensuring fair prices and guaranteeing quality and safety. Regulation can be used to incentivise service providers to improve their commercial and operating efficiency, so reducing costs and ensuring fairer prices (see Box 3 on page 10). In Zambia, the regulator NWASCO (National Water Supply and Sanitation Council) has initiated Consumer Watch Groups, which represent consumers on tariffs and other matters, to ensure the poor have a meaningful voice in decision-making.[10]

Independent service providers are usually unrecognised by the 'official' institutions, although they often offer questionable quality of service at higher prices. WaterAid in Ghana has worked to raise awareness of this issue, in partnership with the Public Utilities Regulatory Commission, Ghana Water Company Ltd, and small-scale private providers.[11]

**Figure 1: The vicious cycles affecting the urban poor and water utilities, preventing equitable access and sustainable service.**



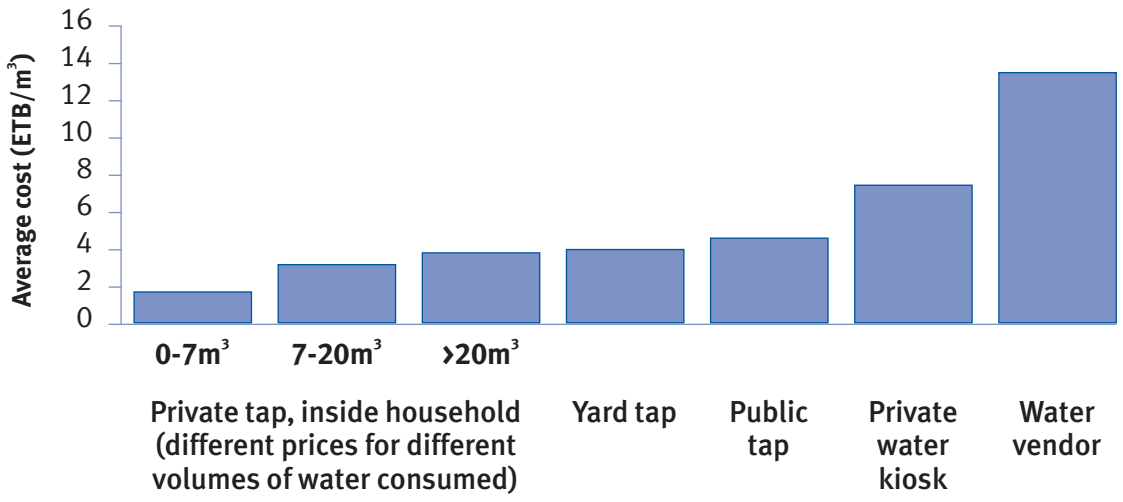
## Box 2: The impasse of water poverty in Addis Ababa

In Addis Ababa, the capital city of Ethiopia, water connection fees are unaffordable for most poor people, exceeding the median salary for government employees.[12] Consequently, the unconnected poor buy water from alternative providers, and have to pay considerably more than the official tariff for water (as shown in Figure 2 below).

A survey[13] of 105 randomly sampled households in poor areas of Addis Ababa found 45% relying on public taps or yard taps (shared private connections). Officially, the rate for government public taps is equivalent to the lowest rate of the utility's stepped tariff for private taps. However, according to the survey, the cost of water at public taps was more than the highest rate of the tariff. A further 22% of households were using private water kiosks or water vendors; the average price charged by water vendors was found to be almost eight times the lowest rate of the tariff. Yard taps (private taps shared between several households) were also found to cost more than the top rate of the tariff, suggesting that poor people dependent on their neighbours are paying more than if they have their own connection. This could be because sharing pushes up overall consumption to the higher rate, but may also be because the households who own the taps are making a small profit by selling water on to their neighbours.

Higher prices reduce the amount of water which the poor can afford to consume, which has negative impacts on their welfare and opportunities. For more than 75% of households surveyed consumption averaged less than 20 litres per person per day (l/p/d), which according to the WHO is a "basic" minimum, sufficient for drinking and basic hygiene (hand and food washing), but not for bathing or laundry.[14]

**Figure 2: In Addis Ababa the poor pay more for water from alternative providers**[15]




At least two solutions could help to solve this impasse. First, regulatory oversight could be strengthened to help bring down the costs of alternative sources of water, and to increase the number of public taps.[16] Second, subsidies could be provided to the poor to obtain individual private connections.

Section 3

# Financing water for the urban poor

**This section introduces the basic types of tariff and subsidy. Where the costs are recovered from users, the system of charges for water consumption is described as a tariff (connection charges may be separated out as 'fees'). Any use of public funds to meet the costs of water supply, is effectively a subsidy:[17] subsidies can be given directly to customers, or to service providers to reduce the costs they pass on to customers. One group of users can also pay more, subsidising another group.**

## Box 3: Cost reduction and regulatory reform in Zambia

A sustainable service requires good cost recovery, ie the efficient collection of a tariff which all customers can afford. But the essential counterpart to cost recovery is reducing costs in the first place, through improved commercial and operating efficiency.

In Zambia, two different approaches have been used to improve efficiency, with varying results. The first is a process of commercialisation. A total of ten 'commercial utilities' have been created, taking over responsibility for management and operation of water services from local authorities, but retaining public ownership. Run as quasi-private enterprises, the aim to reduce costs has had limited success. Steep tariff increases initially have proved unaffordable for poorer people. By one estimate, between 20% and 60% of the population in different local authority areas are spending more than 3% of their income on water services (a commonly accepted affordability benchmark).[18] Despite these increases in tariffs, cost recovery for half the commercialised utilities is insufficient even to cover operation and maintenance costs, implying there is some way to go in improving efficiency.[19]

Regulatory reform has proved more promising. The regulator NWASCO employs a simple system of performance benchmarking to encourage efficiency improvements. Service providers are publicly assessed in relation to their own and each others' performance across a range of key indicators, including unaccounted for water, hours of supply, and the ratio of staff numbers to connections. This process is tied to tariff approvals, so that, in theory, the utilities must improve efficiency before increasing tariffs. Although it may be too early to judge how far NWASCO is driving efficiency improvements, it has certainly improved the quality and availability of information on water services in Zambia.[20]

# Tariffs

Tariffs can either be dependent on, or independent of, water consumption. There are advantages and disadvantages to the different ways in which additional units of water are priced (see Table 1). Often a tariff will combine elements of different designs, for example a fixed charge to cover fixed costs, together with an increasing block tariff, relating more to variable costs.

**Table 1: Advantages and disadvantages of tariff designs**

| Tariff design | Description | Advantages | Disadvantages |
|---|---|---|---|
| **Fixed charges** | Independent of water consumption, but can vary, eg with property value | No need for metering | Does not encourage users to be more efficient in water use |
| **Linear (uniform) rate** | Each additional unit of water costs the same amount | Can be economically efficient (if infrastructure is near capacity) | The poor may not be able to moderate demand |
| **Increasing linear rate** | Each additional unit of water costs more | Very effective at reducing demand | Can hit the poor very hard if unable to moderate demand, eg if households are large |
| **(Increasing) Block tariff (IBT)** | Cost of additional units increases (or falls) in steps | In theory allows poor households to keep consumption to within cheapest block (often a free, 'lifeline' block) | The poor may not be able to moderate demand |
| **Volume-differentiated tariff (VDT)** | Price of each additional unit is the same, but differs between customers on basis of overall consumption | In theory allows poor households to keep consumption low to obtain a low unit price | The poor may not be able to moderate demand |

A further important consideration for tariff design is how and when the price is paid by the customer. The traditional model of a regular monthly bill can be difficult for low-income households with irregular and uncertain household incomes. The same can apply to upfront, lump-sum connection fees. While instalment payment schemes for connection fees or local collection counters for tariffs may increase administrative costs, there is evidence that they can also improve cost recovery, particularly for the poor.[21] Box 4 on page 12 considers a new approach to the problem: pre-payment meters.

### Box 4: Prepayment meters in Uganda

In Kampala, Uganda, the National Water and Sewerage Corporation (NWSC) has established a dedicated 'Urban Pro-Poor Branch', with responsibility for coordinating and increasing the urban poor's access to the network. The 'branch' is advancing a new approach using prepayment meters to help the urban poor to access water and the utility to increase cost recovery.

This technology was highly controversial in South Africa, as demonstrated by the 2008 ruling by the South African High Court that prepaid meters in areas of Soweto violated citizens' right to free water.[22] There are legitimate ethical concerns that prepayment meters essentially penalise poverty, and may block access for those unable to pay during health and other emergencies.

However, the programme of prepayment meters in Kampala appears to be a genuine attempt to resolve the tension between equitable access and the maintenance of a sustainable service, by increasing cost recovery and avoiding disconnections for non-payment. Those using prepayment meters are charged a tariff of 867 Ugandan Shillings (USh) per cubic metre, the same 'social tariff' that is applied to public standpipes, which is 65% of the usual residential tariff. They are also exempt from a service fee of 2,500 USh per month. Tokens are obtained from vendors, who sign up with NWSC and receive 10% of the credited amount (generating local employment). The tokens can be used anywhere, allowing the transient poor and those without tenure to access water from any connection with a prepayment meter.

It remains to be seen whether efforts to increase cost recovery from poor users, through the prepayment meters, will be matched by equivalent efforts to increase billing and collection rates among the non-poor.[23]

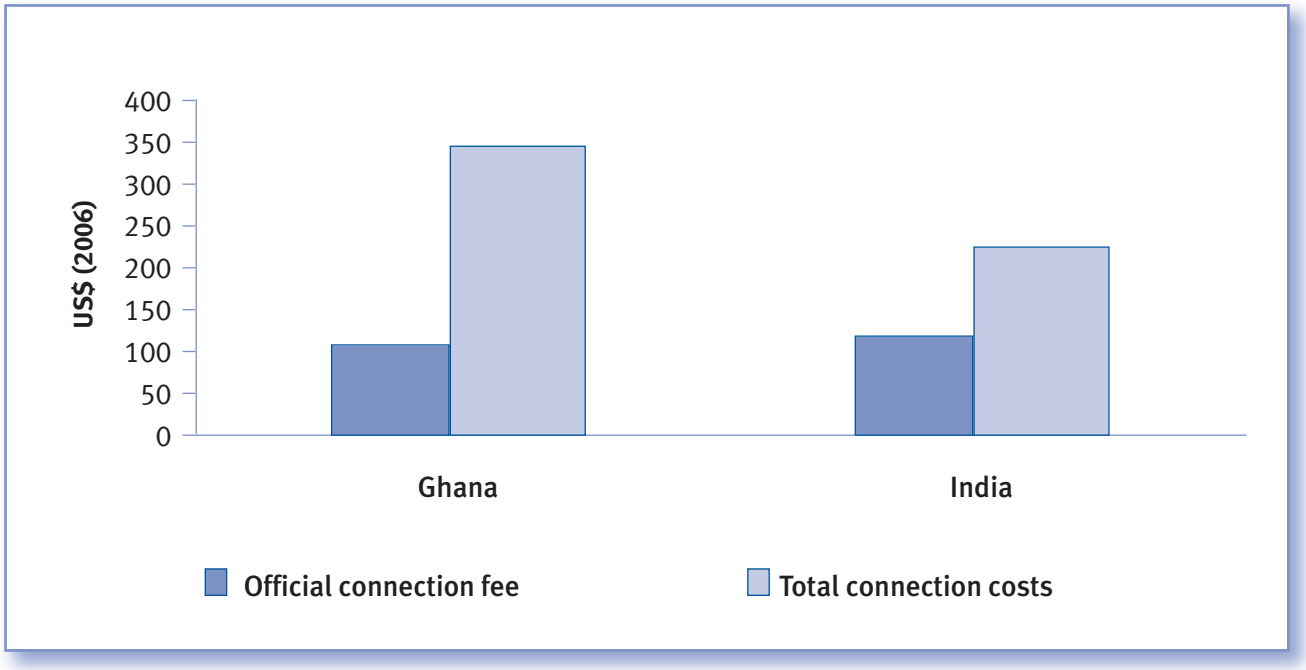
## Subsidies

### Connections and consumption

Subsidies can be directed towards consumption (*maintaining* access) and connections (*obtaining* access). Importantly, consumption subsides can't effectively reach the poor if they don't have connections. A major World Bank review[24] simulated the performance of connection subsidies (in the absence of sufficient real examples), and found their performance in reaching the poor was generally better than consumption subsidies. However, there was an important caveat that this would not be the case where the selection criteria for the subsidy were badly designed or the main network did not extend to a poor neighbourhood in the first place.

In Cross River State in Nigeria, WaterAid's research found that only those within four metres of the mains could take advantage of a connection subsidy. For the poor outside this area, the additional costs incurred for obtaining a connection could be up to seven times a monthly salary.[25] A similar pattern can be observed in Ghana and India, where pipework and additional costs greatly inflate the official connection fee for many users (Figure 3). It is this 'total' cost of connection, rather than the official fee, which must be considered in designing connection subsidies.

**Figure 3: In Ghana and India the real cost of connection can far exceed official connection fees**[26]




## Subsidy arrangements:

There are three main arrangements for subsidies (see Table 2 on page 14): from customer to customer (cross subsidy), from government direct to customer (direct subsidy outside the tariff) and from government to customer, via the utility (direct subsidy within the tariff). It is worth noting that all the tariff designs listed in Table 1 on page 11 can be used to achieve subsidy effects from non-poor to poor customers. For example, in theory an Increasing Block Tariff is essentially a cross subsidy: if poor customers reduce their consumption so that all the units they consume are charged within the cheapest block, non-poor, higher consuming customers pay more to make up the shortfall.

As with tariff designs, the different subsidy arrangements may be combined. For example, if there are insufficient non-poor customers to allow the service provider to break even using a cross-subsidy, the shortfall may be made up using a direct subsidy within the tariff.

Table 2: Advantages and disadvantages of water supply subsidy arrangements

| Type | Description | Advantages | Disadvantages |
|---|---|---|---|
| **Cross subsidy** | Some customers pay above the cost of supply so that others can pay less | May remove the need for public (government) support | Relies on sufficient non-poor customers; main targeting mechanisms are unreliable (quantity targeting, see below) |
| **Direct subsidy – outside tariff** | Government subsidises certain customers directly, whether earmarked for water services or general income support | Can be precisely targeted; allows utilities to set tariffs based on economic efficiency principles alone | High administrative costs involved in targeting recipients and disbursing subsidy |
| **Direct subsidy – within tariff** | Government subsidises utility; consumers pay below the cost of supply | Usually lower administrative costs than direct subsidies outside tariff | More commonly these are untargeted, ie all customers pay below cost of supply. Often an ad hoc response to help struggling utilities meet operations and maintenance costs, without encouraging efficiency or protecting poor people |

Direct subsidies within the tariff are often 'untargeted', providing a general prop to utilities to cover operation and maintenance costs without encouraging improvements in performance or increasing equitable access. In Dar es Salaam, the city's water and sewerage corporation receives about US$5 million in direct subsidies from the government annually. These are not necessarily passed on to the poor specifically, but rather go towards the general operation of the utility.[27]

It is possible to target direct subsidies within the tariff to ensure the poor receive the majority of the benefits. For example, the government might earmark its support to ensure the service provider passes on the saving to poor people in the form of reduced tariffs or fees. On the other hand, targeted programmes of public capital investment (eg for network expansion) could be viewed as 'direct subsidies within the tariff', as they go to meet costs that would otherwise have to be covered through the tariff.

## Box 5: Financing investment in Nepal

Often, required capital investment would not happen without public financial support, not least because existing users are unwilling and poor potential users are unable to finance these expensive capital costs directly.

Experience in Nepal presents challenges for deciding how and when to finance investment publicly because water resource development is needed. Water resource constraints severely limit equitable access: for the poor and non-poor alike there is a raw water shortfall of almost 50% in the dry season. A major pipeline to bring more raw water to the Kathmandu valley (the Melamchi Water Supply Project) has been in discussion for several decades. A US$137 million loan from the Asian Development Bank goes less than half way to meeting the full financing needs of the investment.[28] But disagreement persists over whether the financing gap should be met from tariffs or Nepal's limited public purse.

Recently proposed tariff hikes have resulted in an ongoing stalemate between the operator, Kathmandu Upatyaka Khanepani Ltd (KUKL), and the Tariff Fixation Commission (TFC). Proposals from the TFC to reduce the tariff hikes for poor users, and implement efficiency improvements, were rejected by KUKL. The performance of KUKL's management was questioned by parliament members and civil society organisations. But whether this will produce compensatory benefits by reducing the costs for poor people, either by greater cross-subsidies, or bringing in public finance for direct subsidies, depends on how the management and TFC resolve the issues.[29]


**Many of the poor without household connections in Kathmandu collect water from public taps such as this one.**

## Targeting

Perhaps the most complex issue in terms of subsidy design is targeting; identifying the poor and ensuring the subsidy reaches them effectively. One method of targeting has already been discussed: several tariff designs are effectively mechanisms for 'quantity targeting' of subsidies (see Table 2 on page 14). The pros and cons of this and other methods of targeting are explained in Table 3.

**Table 3: Advantages and disadvantages of water supply subsidy targeting arrangements**

| Targeting method | Used for... | Explanation | Advantages | Disadvantages |
|---|---|---|---|---|
| **Quantity (self selection)** | Cross subsidy | Cost per unit is designed so that lower consumption entails a lower unit cost (eg IBT/ VDT). Assumes poor customers can choose to consume less water | Relatively low administrative costs; can be operated through the tariff | The poor may be unable to choose to consume less (eg if they share a connection with neighbours, or have large families) |
| **Service level (self selection)** | Cross Subsidy (usually) | Low cost alternatives to individual household connections, such as yard taps or kiosks, are provided at reduced cost. Assumes the poor will choose the cheaper option | Can be a useful interim solution where authorities prohibit individual connections (eg for slum dwellers without legal tenure) or physical terrain makes extensive pipework unfeasible | Lower standard of service may reduce benefits in terms of convenience. Requires regulation of any third party supplier (eg kiosk operator) to ensure saving is passed on |
| **Geographical (administrative selection)** | Cross subsidy/ direct subsidy | All households within an area identified as low-income receive subsidy | Cheaper than other administrative targeting methods | Can be crude; even slum areas may have higher-income residents |
| **Categorical (administrative selection)** | Cross subsidy/ direct subsidy | Certain social categories of customer (eg pensioners or war veterans) identified | Cheaper than full means testing | Categories may not correlate to poverty/ vulnerability; requires accurate data on category composition |

| Targeting method | Used for... | Explanation | Advantages | Disadvantages |
|---|---|---|---|---|
| **Means testing (administrative selection)** | Direct subsidy/ cross subsidy | Targeted in relation to a number of variables – can combine geographical and categorical targeting with income tests | Can be very accurate | Significant administrative costs; may not be practicable if there is not a developed welfare system in place |


**Water kiosks, such as this one in Antananarivo, Madagascar, can prove an adequate low cost alternative to household water connections.**

An important distinction is whether targeting requires supervision ('administrative selection') or can be left to consumer behaviour ('self-selection'). The performance of targeting can be measured in various ways, such as the number of poor people missed by a subsidy (errors of exclusion) or the number of non-poor people receiving a subsidy (errors of inclusion).

A major review of subsidies for urban water and electricity, conducted by the World Bank,[30] raised questions about the effectiveness of the most common way in which water consumption is subsidised: quantity targeted cross-subsidies, usually in the form of an IBT. The review compared subsidy targeting methods in terms of their 'benefit incidence' – the share of the subsidy received by poor people, relative to the proportion of poor people in the population as a whole. The study showed not only whether a subsidy was 'regressive' in its benefit incidence (ie benefiting the non-poor over the poor), but also why. All the quantity-targeted subsidies reviewed were found to be regressive, even when the size of the reduced-price blocks was adjusted. Low access rates among the poor were found to be at the root of this – poor people lack not only the connections, but also the meters, necessary to take advantage of a consumption targeted subsidy.

But even if access rates are improved, the consumption patterns of poor people do not guarantee that they can keep within the cheaper blocks or rates. Water consumption does not vary significantly with income, even where there is the deterrent of a quantity targeted subsidy to discourage high consumption.[31] Large household sizes and shared connections are two reasons for this.

In areas of low coverage it may necessary to prioritise subsidies for connections, although the cost of consumption is still a concern. The World Bank review found means testing to be the best performing targeting method for conventional consumption subsidies, but also likely to incur the highest administrative costs. In Chile a system called the *ficha CAS* is used to determine eligibility for government support for a range of services, including water supply. By integrating a means-tested water subsidy into a wider social protection scheme, overall administrative costs are reduced.[32] However, the level of administrative capability required for effective pro-poor means-testing might raise questions as to the feasibility of this model in some low-income country contexts, where institutions are weaker.

Connection subsidies have generally been better targeted than consumption subsidies, even without the assistance of means testing, or geographical or categorical targeting. A 'universal' connection subsidy, where all unconnected households are eligible, is more likely to reach poor people for the simple reason that non-poor people are more likely to have connections in the first place. But while consumption subsidies can only effectively target poor people if they are connected to the network, connection subsidies will only be effective where the mains network is in place in the first place. Significant investment may be required to extend the network to unserved areas.

Tariff and subsidy design involves a range of different choices, from tariff type, to subsidy arrangement, targeting method and the balance of subsidy between connections and consumption. There is no universal template, and the process must be tailored to specific contexts, often requiring revisions in response to specific challenges. Box 6 on page 19 contrasts two different contexts, and the different approaches taken in each.

## Box 6: Tailoring tariff and subsidy design to context in Tanzania and Uganda

In Dar es Salaam, Tanzania, a three-tier subsidy system has developed, benefiting different categories of customer. A two-block IBT for domestic customers (with a further cross subsidy from commercial customers) only reaches the wealthy, who already have connections. A "First Time Connection Fund" (financed from those already connected) was designed with the poor in mind but mainly reaches the middle classes. Finally, a system of subsidised kiosks is intended to reach the poorest for whom connections are still out of reach. WaterAid's experience on the ground indicates that only 15% of urban Tanzanians have private household water connections[33] and the kiosk system could play a major role in addressing the coverage gap temporarily.

Additional context-specific reasons recommend the use of kiosks. First, some tenants have expressed a reluctance to make any household improvements which might increase their rent.[34] Second, for some unplanned areas household connections will require not only significant investment, but new technological approaches in laying the pipes. Finally, other alternative sources are very expensive; vendors, such as water-carters, can charge ten times the official maximum rate when the utility's supply is off-line.[35]


**A water carter in Dar es Salaam, Tanzania.**

Although it looks good on paper, the kiosk system has been problematic. WaterAid in Tanzania estimates that 85% of kiosks are connected but not yet operational (due mainly to erratic water supply), 10% are partially functioning or not yet connected, while the 5% of kiosks that are connected and fully functioning tend to be in areas with a high number of household connections already. The kiosks are generally paying the commercial tariff to the utility, rather than the lifeline tariff (the lowest block of the IBT) which was originally promised to them. Consequently, they invariably charge the maximum permitted rate to their customers, or risk running at a loss.[36]

In Uganda, the Global Partnership on Output-Based Aid is attempting to incentivise the public utility (NWSC) to extend the network to certain poor areas in Kampala. Connections are provided by the utility on a demand-led basis, as households in the designated areas still have to pay a nominal connection fee (10% of the full amount).[37] A subsidy is paid to NWSC for each connection it makes under the scheme, but only once the connections have been verified as functioning and in use throughout one billing cycle.[38]

The innovative, output-based structure is appropriate in this context but NWSC is unique among public utilities in Sub-Saharan Africa in having the financial security or credit rating to raise short term funds to finance the network expansion and connections in advance.

Section 4

# Guiding principles for successful implementation of tariffs and subsidies

**WaterAid's research and experience indicates that where certain fundamental principles are respected, tariffs and subsidies can help achieve equitable and sustainable water services.**

The first set of principles is focused on tariff and subsidy design while the second set covers wider reforms. Tariffs and subsidies alone cannot unlock the urban poor from their vicious cycle of water poverty, or service providers from their own vicious cycle of low and unstable income flows and commercial weakness.

## Principles of tariff and subsidy design

- City authorities and government policy makers, regulators and service providers should recognise that:
  - i **The urban poor are viable customers.** This is the first step in using tariffs as a tool to increase equitable access, and with it sustainable service. With the appropriate support in terms of flexible payment systems and well targeted subsidies, the poor can, and do, contribute to meeting the costs of urban water supply.
  - ii **One size does not fit all.** There is no single subsidy or tariff design that will guarantee equitable access and sustainable service in every situation. Context-specific responses to local opportunities and constraints are essential. These must be built on local data and understanding of where and how poor people live, and what their current and desired level of access to water is.

- A pro-poor tariffs and subsidy design must be based on the principles of:
  - i **Equitable access – *provide some for all, not all for some.*** Subsidies must focus on increasing equitable access in the first place, as well as securing it for the long term. This may mean accelerating access through subsidised investments to extend the network and provide connections for the poor. Where the urban poor lack connections to the official network, even the best-designed consumption subsidy will not reach them. Only in situations with high coverage does exclusive use of consumption subsidies to *maintain* access make sense. Regulated public taps and kiosks, made affordable with service-level targeted cross subsidies from non-poor customers, are an appropriate interim solution.

ii **Equitable pricing and payment methods.** Increasing access may require reforms to prices and the way in which payment is obtained from poor people. The latter goes beyond questions of tariff design (who pays what), to include how and when that payment is made. Alternative billing methods, from interest-free instalment payment schemes for connections, to prepayment meters for consumption, should be explored. People who have irregular daily or weekly incomes should not be made to pay monthly bills.

iii **Efficient targeting.** The complex factors that aid or inhibit targeting need to be understood. This would help to challenge the flawed orthodoxy that quantity targeted cross-subsidies (like increasing block tariffs) always help the poor. Targeting should be underpinned by transparent criteria. Approaches should be pragmatic, avoiding excessive transaction costs.

## Principles of supporting reforms

In many contexts, there is a need for supporting reforms to reach the poor:

- **Separation of legal ownership from the use of infrastructure.** Wider legal constraints need to be addressed to provide secure and sustainable access to water services for the urban poor. These constraints arise around land tenure and property rights – issues that go well beyond the usual reach of actors in the water sector. Collaboration with other urban services and sectors is essential for reform, but a flexible approach from water service providers can provide interim solutions.

- **A fair regulatory system** promoting accountability, transparency and participation

  i **Explicit pro-poor policy.** Building institutional mechanisms and policies that expressly target the poor, including pro-poor tariff and subsidy policies, can help to devise and deliver pro-poor services.

  ii **Separation of regulatory and operational functions.** Where they are performed by the same department or agency, responsibilities for regulation and subsidy administration may need to be separated from the operational side of service delivery and cost recovery. Regulatory functions should be administered by an autonomous body or unit, even if a fully fledged regulatory agency is not a feasible solution in the short term.

  iii **Giving the poor a voice.** Effective regulation involves listening to the concerns of the poor, both the served and un-served, and helping them to speak directly to service providers. Meaningful participation is essential for equitable and sustainable tariff and subsidy design.

  iv **Giving incentives to service providers.** Cost reduction through commercial and operating efficiency must accompany improved cost recovery. Regulation must provide incentives for service providers to reduce costs (whether through sanctions or rewards). At the same time, regulation should acknowledge the legitimate costs involved in service provision and ensure that they can operate autonomously from political interference, so as to protect the interest of the poor.

v **Incorporating alternative providers.** Dismissing or ignoring alternative service providers as exploiters of the urban poor means they will continue to charge higher prices and offer low quality service. Alternative water providers can be recognised and regulated by official service providers and authorities, so that they can play their part in bridging the supply gap.


**A communal water point supplies clean water from the Dhaka Water and Sewarage Authority in the slums of Dhaka, Bangladesh.**

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This publication is the first of a set of three WaterAid discussion papers on how to improve water and sanitation services to poor people. The set includes:

- *Access for the poor and excluded: tariffs and subsidies for urban water supply*
- *Water utilities that work for poor people: Increasing viability through pro-poor service delivery*
- *Tools and mechanisms for improving downward accountability in urban water service delivery*

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WaterAid

WaterAid transforms lives by improving access to safe water, hygiene and sanitation in the world's poorest communities. We work with partners and influence decision makers to maximise our impact.

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