



Case Study: Water Kiosks

How the combination of low-cost technology, pro-poor financing and regulation leads to the scaling up of water supply service provision to the poor

1. Introduction

In order to achieve the MDGs for water supply in Zambia, an additional 2.85 million residents of low-income areas need to gain access to safe and reliable water. During the national stakeholder consultation process that followed the MDG process, the Zambian government and cooperation partners emphasised that, in order to reach this goal, about one million more people should be served by mid-2011.

Water Kiosks, where formal water providers supply safe water at affordable prices, have proven to be an appropriate and efficient solution, providing water to a large number of residents in urban low-income areas. Implementation of this low-cost technology is facilitated through multi-donor basket funds that provide pro-poor funding to commercial utilities (CUs), implementation support and post-implementation monitoring.

A water kiosk is an outlet through which formal water providers deliver safe and reliable water at affordable prices to residents of low-income areas.

German Development Cooperation (GDC) is supporting water sector reform processes in many countries in Sub-Saharan Africa. The approach taken typically includes the decentralisation and commercialisation of water supply and sanitation (WSS) services, taking into account the needs of the poor in particular. One example of best practice implementation is the case of Zambia. Now, with the support of German Development Cooperation, the successful concept of water kiosks is being adapted and transferred to other countries in Sub-Saharan Africa. The multiplication of the concept goes hand in hand with professional partnerships and the exchange of experiences between development partners in the different countries. Kenya is adapting the concept and setting up a large number of kiosks while a pilot project is currently running in Tanzania.

Photo: Water kiosk in Zambia



2. The Case of Zambia

Key Facts Zambia, 2008

POPULATION (2008 FIGURES)	10.7 million
URBAN POPULATION AS % OF TOTAL POPULATION	43 %
URBAN POPULATION WITH ACCESS TO SAFE WATER	68.6 %
URBAN POPULATION WITH ACCESS TO SANITATION	34 %
WSS SERVICE PROVIDERS FOR URBAN AREAS INCLUDING LOW-INCOME AREAS	11 commercial utilities (CUs), local authorities (LAs), private schemes
URBAN POPULATION SERVICED BY COMMERCIAL UTILITIES	92 %
REGULATORY FRAMEWORK	National Water Supply and Sanitation Council (NWASCO)
APPROXIMATE NUMBER OF KIOSKS IN ZAMBIA FUNDED THROUGH THE DEVOLUTION TRUST FUND – DTF	300
AVERAGE % OF HOUSEHOLDS IN LOW-INCOME AREAS USING WATER KIOSKS, IF AVAILABLE	70 %
AVERAGE NUMBER OF CUSTOMERS PER KIOSK	1500
APPROXIMATE COSTS TO GAIN ACCESS TO SAFE AND RELIABLE DRINKING WATER (COMPRISING INVESTMENT COST FOR WATER KIOSK, NETWORK AND DTF MANAGEMENT, INCLUDING TECHNICAL ASSISTANCE)	EUR 5–10 per resident
APPROXIMATE COSTS FOR 20 LITRES OF WATER AT THE KIOSK	EUR 0.01
WATER CONSUMPTION AT WATER KIOSKS	20 litre/capita/day

2.1. The challenge: A large number of households are not served in low-income areas; informal services, often unsustainable, are used instead

As in many other developing countries, since the 1990s Zambia has experienced large-scale migration to what are often informally-built, low-income urban areas. This increase in the urban population has not been matched by adequate developments in WSS services. The following key problems have to be addressed:

- The majority of the residents can not afford to pay for and maintain a household connection. Houses in low-income areas are often rented out to more than one family. The owner of the property refuses to install a metered household connection, fearing that the water bill would not be paid.
- Often, the physical infrastructure for the central water supply can not be extended into low-income areas due to the high density of housing.
- Water supply by informal WSS service providers is as much as 10 times more expensive than regulated service provision by formal water providers. The quality of the water supplied by informal providers is often poor, posing a tremendous health risk from water-borne diseases. In addition, informal water providers rarely offer a regular water supply, which can threaten even minimal water needs.
- Existing public standpipes are poorly maintained due to their inferior technical design, lack of ownership, a high level of vandalism and the lack of an appropriate management concept.
- Poorly maintained sewerage pipes and leaking water networks cause water pollution and are a serious health hazard.

2.2. Progress: The reform of the Zambian water sector – Commercialisation of WSS services and regulated provision

Zambia's National Water Policy and its key sector principles were adopted in 1994. This formed the basis for the implementation of a water sector reform which were passed into law with the Water Supply and Sanitation Act (WSS Act) in 1997, and which have resulted in a new institutional framework. One of the cornerstones of the Zambian water sector reforms is the commercialisation of urban WSS services. The local authorities, which are legally responsible for WSS services, were encouraged to delegate this function to regional commercial utilities (CUs). Presently, around 92 percent of the urban and peri-urban population live in the service area of one of the eleven CUs.

Since 2002 Zambia has been implementing a Poverty Reduction Strategy (PRS). The WSS sector is recognised as an important component of the PRS, with particular emphasis on water supply and sanitation for low-income areas. Overall, the Zambian WSS strategy has a strong pro-poor focus. If effectively implemented, it would significantly address the basic needs of poor communities – not only in urban areas – and release their energy for productive socioeconomic activities.

At the same time, the constitution of Zambia obliges the state "... to provide clean and safe water" (Constitution of Zambia, 1996, Part IX, Article 112(d)) which thus contributes to an enabling environment for a successful sector reform.

2.3. Solution: Water kiosks – A catalyst for low-income, urban water supply, small-scale trade and awareness-raising

Effective solutions are needed for unreliable and unsafe water supply which has many negative impacts on public health, and which limits economic development in densely populated and low-income areas. To this end, Zambia has developed a system of water kiosks operated by formal water providers. This is an effective approach to the provision of safe water at affordable prices; the kiosks supply a large number of residents in low-income urban areas, usually within five minutes walking distance. The price for 20 litres of safe water from Zambian water kiosks has been fixed at the equivalent of about EUR 0.01. This is the same as the lowest price charged for water supplied through a house connection. The price of water at kiosks is usually cross-subsidised from the sale of water to individual households and from commercial connections. To ensure that the price of the water matches the rate set by the National Water Supply and Sanitation Council (NWASCO) – Zambia's water sector regulator – the kiosk is obliged to display the water tariff.

In addition to its supply of safe, affordable and reliable water, a water kiosk provides other benefits. The design of the kiosks includes space to display information and sensitisation materials, such as bulletins from the CUs. There is also space for posters on HIV/AIDS prevention. Moreover, the kiosks are equipped with shelves, which means they can be used by the operators to pursue other commercial activities. The kiosk operators often sell health products, such as condoms and soap, as well as groceries. There are also cases of kiosks being operated by tailors who set up their workshop inside. This all helps to ensure that water can be sold at an affordable price while the kiosk operators earn sufficient income to make the kiosk an attractive business. Around 50 percent of the water kiosk operators are women, which makes this small-scale trade a particularly good activity for the promotion of income generation for women.



3. The Water Kiosk Concept

3.1. Appropriate, low-cost technology for supplying water to low-income areas

There are not many technically feasible options for service provision to low-income urban areas because the funds are lacking for any large-scale rehabilitation and extension of existing central water supply systems. Also, there is only a limited ability to pay for such services. Therefore, efforts to achieve the MDGs for water need to focus on low-cost technology, such as public outlets embedded in a fixed-roofed housing structure. Depending on the number of customers expected to use the kiosk, two or three water taps, which can be used simultaneously, are typically installed. All water kiosks are metered to allow proper accounting for the water supplied by the formal water provider.

The structural design of the water kiosk is not only crucial for its acceptance by the residents in the service area, but also for the successful and sustainable operation of the kiosk. The income generated from the sale of water might be enough to cover a provider's costs although it is insufficient to keep the kiosk operator motivated. Therefore, provision is made for the kiosks to be used for additional income generating activities, such as selling other goods (e.g. the design includes shelves and adequate space).

The number of water kiosks built in a certain area is determined by assessing the potential income for the kiosk operators. This must take into consideration the number of customers, their average daily consumption, and their ability and/or willingness to pay. Using these criteria ensures the sustainability of the system and allows the water provider to cover the operating and maintenance costs of the kiosk. The resulting distances from their homes (in general not more than five minutes walk) makes the kiosks easily accessible for all residents. Involving the community in selecting the sites for kiosks has been shown to improve their sense of ownership and prevent vandalism. Water kiosks are usually located on public ground, which makes it easier for the CU to replace kiosk operators if they are found culpable of misconduct.

Space is available in the kiosk to display posters on HIV/AIDS prevention. Moreover, the lockable type kiosks allow the operator to pursue other commercial activities and gain extra income.

Additional infrastructure is planned, such as storage tanks and

pipes to connect the kiosks to the central water network, which will cater for those who want and can afford individual household connections.

The technical concept of the kiosks is regularly reassessed and further improvements are made. Currently, the feasibility – including financial viability – of using pre-fabricated kiosks is being explored.

3.2. Commercial utilities as implementing and operating organisations

The water kiosks are owned by the commercial utilities, which carry full responsibility for their construction and operation. The operation and maintenance of the installations are therefore integrated into the utilities' daily workflow.

Crucial to the operation and maintenance of the water kiosks on the ground is the establishment of a so-called 'peri-urban unit' which helps keep the focus firmly on serving the poor. Each CU's peri-urban unit consists of a director, a PR assistant and a community service assistant, as well as the cashiers/kiosk operators and the plumbers. Peri-urban units introduce the necessary measures, guidelines, procedures and sanctions to assure the proper functioning of the water kiosks. They also monitor water kiosk operation, collect the money paid by customers and remunerate the kiosk operators. The main challenges are to achieve success through close monitoring of the kiosk operators and the services they provide, and regular collections leading to high collection efficiency.

The management of the kiosks and the supervision of the operators are the responsibility of the peri-urban units of the CUs. The day-to-day operation of the kiosk, however, is delegated to a water kiosk operator, preferably a woman, who has been recruited with the consent of the community. The kiosk operator is not an employee of the CU but works on a commission basis and signs a contract with the CU stipulating the rights and responsibilities of all parties.

Kiosk operators receive approximately 30 to 40 percent of sales as commission. Because the sale of water only provides them with a small income, it often needs to be

supplemented through the sale of other goods at the kiosk.

A kiosk system can only achieve all the stakeholders' objectives if the relationship between the CU and the kiosk operator is good. This means that the CU has to supervise the kiosk operators. Supervision implies:

- establishing a presence in the peri-urban areas and visiting the kiosks and the kiosk operators on a regular basis
- listening to the complaints and proposals made by kiosk operators and their customers
- applying sanctions and replacing kiosk operators who do not pay their bills
- making sure that kiosk operators are closely supervised. This is important because it is only through their presence and regular supervision that the kiosk operators will understand that water supply to low-income urban areas is a priority of the CU and that the rules and guidelines mentioned in their contract have to be followed.

THE WATER KIOSK MANAGEMENT CONCEPT:

The following points outline the main elements of a water kiosk management system. Some details may vary and should always be tailored to the specific environment of the water service provider in charge.

- The water kiosk and related infrastructure are owned by the formal water service provider, which is also fully responsible for operation and maintenance.
- Each water kiosk is managed by a kiosk operator contracted to the CU.
- The kiosk operator is monitored and controlled by the peri-urban unit (PUU) of the CU. One employee of the CU is responsible for the supervision of all kiosk operators in a specific low-income area. The CU (PUU) visits each kiosk at least once a week at the outset, and thereafter once every two weeks.
- The kiosk operator sells water at an affordable set price, as stipulated by the water sector regulator NWASCO.
- The kiosk operator deposits all the cash he or she has collected. Cash can be deposited at a pay point of

the CU or remitted to the PUU. Each time a deposit is made the kiosk operator is issued with a receipt.

- The kiosk operator has to pay the CU according to the monthly meter readings. The kiosk operator receives a commission (a percentage of the revenue) for every cubic meter of water sold. This figure also includes a pre-determined percentage of overall sales, which the CU calculates for technical losses.
- The kiosk operator may sell other goods at the kiosk with the exception of some products such as meat, fish and certain chemicals (specified in the contract).
- The kiosk operator has to keep the kiosk clean and report damage and poor water quality to the CU.
- The kiosk operator must be present during the opening hours, which are agreed upon with the customers.
- Customers are allowed to use very small quantities of water free of charge in order to clean their buckets or containers. Very dirty containers may not be cleaned at the kiosk.
- The community, the Residential Development Committee and other Community Based Organisations are involved in the implementation of the kiosk system (localisation, selection of kiosk operators, sensitisation and prevention of vandalism) but they do not handle cash.
- When a kiosk operator is unable to settle the bill, he or she is given three days to pay the outstanding amount. If an operator is unable or unwilling to pay debts within this period, his or her contract with the CU will be terminated and the operator will be replaced.
- The CU ensures that all information regarding the kiosk operators payments, water bills, and debts are available at all relevant levels within the CU and integrated into the accounting system.

Professional training of kiosk operators, Zambia



3.3. Regulation: Setting clear and understandable rules for providing access to water for the poor

The National Water Supply and Sanitation Council (NWASCO), established in October 2000, regulates urban WSS service provision in Zambia. It therefore oversees the activities of the CUs ensuring that they comply with established national water standards. All those who provide WSS services other than for their own use are required by the Water Supply and Sanitation Act of 1997 to obtain an operator's licence from the regulator. Other key functions of the regulator include regulating tariffs, stimulating the efficiency of CUs using tariff-setting mechanisms – which helps avoid conflicts – and facilitating judicial appeals by the CUs or the regulator in order to resolve conflicts.

By promoting social tariffs using increasing block rates, NWASCO makes sure that the service provision targets the poor. During tariff negotiations, NWASCO can offer incentives to the service providers, such as adjustments to the tariff levels in certain brackets, to facilitate cross-subsidisation. This helps the CUs to extend service provision to the poor while still covering the operation and maintenance costs for water supplied by the water kiosks. NWASCO ensures that the tariff for the poor is set according to the kiosk customers' willingness and ability to pay.

Every year NWASCO publishes its Urban and Peri-urban Water Supply and Sanitation Sector Report in which the performance of the service providers is assessed and compared using a number of key indicators. This report also outlines in detail the quantity and characteristics of the water kiosk projects implemented by each CU, including the number of beneficiaries.

3.4. Stakeholder participation: Involving local communities and fostering management systems for better implementation of water kiosks

One of the foremost issues for ensuring sustainability is the acceptance of the water kiosks by the consumers in the target areas. Particular care is therefore taken to involve all stakeholders from a very early stage in the planning and implemen-

tation. Each CU establishes a task force comprised of all the stakeholders (the municipal council, the residents development committee (RDC), the residents, the health board, NGOs, the police etc.). The involvement of women and girls is seen as particularly important, as it is they who usually fetch water from the kiosks.

A step-by-step approach is taken to stakeholder participation, starting with data collection, community meetings, determination of zones (water kiosk catchment areas), "zonal meetings", kiosk localisation and the sensitisation of residents (drama groups, posters, announcements, media at the inauguration etc.), followed by the planning, designing and construction of the kiosks, as well as the training of kiosk operators—with preference given to women.

3.5. The Devolution Trust Fund: Provision of pro-poor financing, implementation concept and technical assistance to CUs

The Devolution Trust Fund (DTF) was created in 2003 and operates independently under NWASCO. It is a multi-donor basket fund. The DTF is an instrument specifically designed to provide financing to the CUs to enable them to extend WWS services to low-income urban areas. At the same time it supports them in the use of appropriate, low-cost technologies for water supply and sanitation, and in establishing sustainable management systems.

In 2004/05 a detailed baseline study assessed the situation in all low-income areas of Zambia. With this reliable information base, NWASCO was able to set the CUs specific targets and also provide incentives for service extension into the most needy areas. Today, the DTF Strategic Plan allows for the prioritisation of project proposals in order to ensure the most efficient targeting of funds.

The DTF assists the CUs in constructing WSS infrastructure by providing detailed guidance and specific implementation concepts. It has issued binding guidelines for the use of DTF funds as well as for service provision to the poor (community participation, design, management etc.).

Close cooperation between the DTF and NWASCO guarantees a minimum service level and the sustainability of the systems.

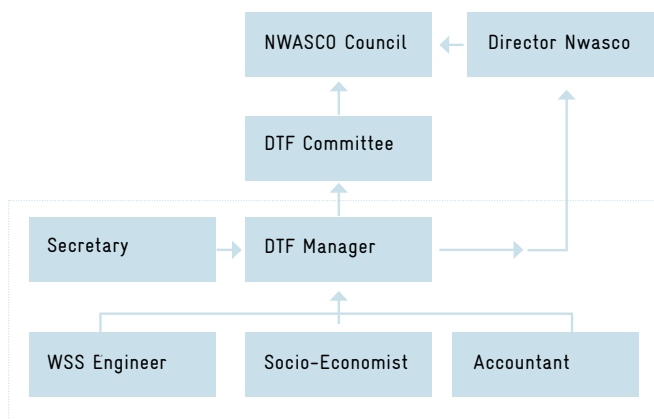


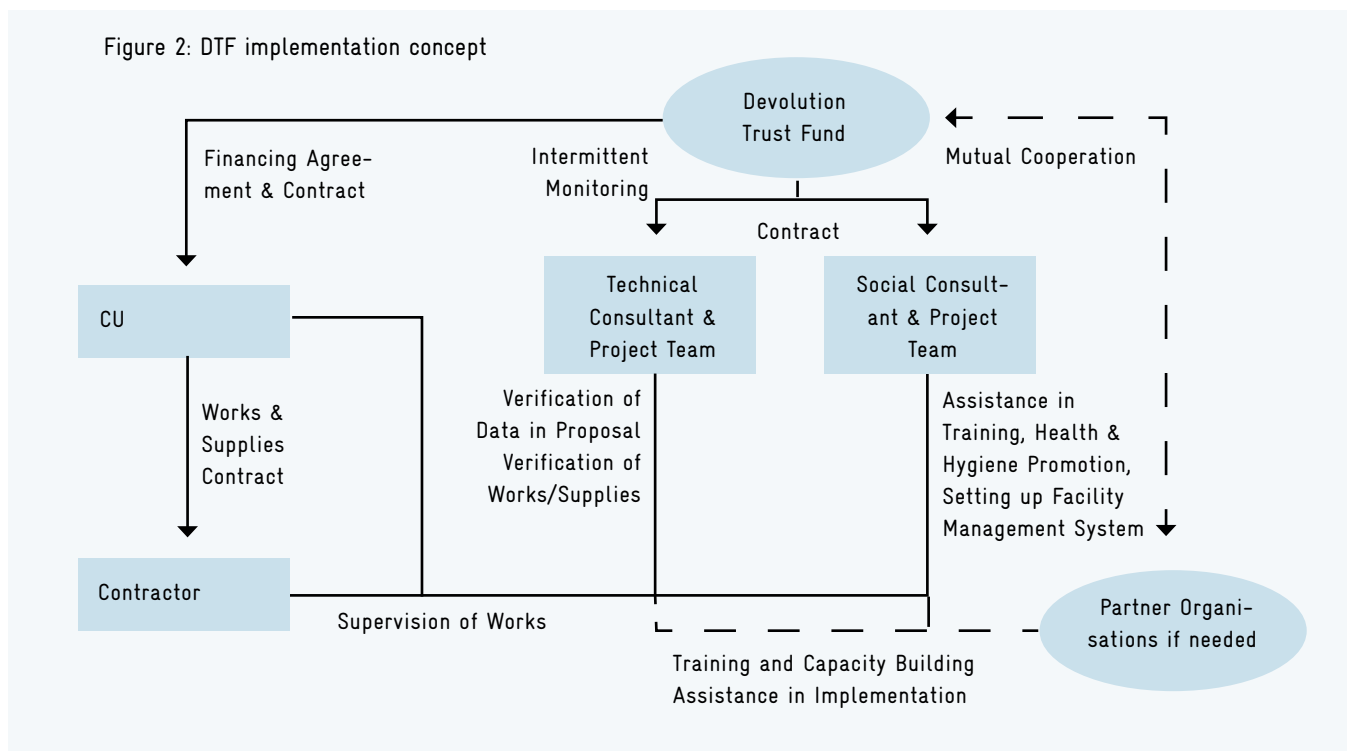
Figure 1: Organisational structure of DTF

Project selection by DTF uses a call-for-proposals approach which ensures that the CUs themselves define and implement the projects. The DTF concentrates on (i) the selection of proposals according to defined criteria, (ii) technical assistance during project implementation and (iii) monitoring the operation of the water kiosks after the projects are completed.

Close cooperation between the DTF and NWASCO is beneficial for both institutions as well as for the CUs. Information sharing, donor harmonisation, streamlining of activities and the sharing of experiences all reveal many synergies; this reduces operation costs for the relevant institutions and consequently for the consumers. This coordinated approach to a sub-sector-wide programme facilitates local ownership and secures funding from donors. Ultimately, the funds are delivered to where they are most needed.

Currently, the DTF is able to handle an investment volume of approximately USD 2.5 to 3.5 million each year. The partners in the basket fund are German Development Cooperation (represented by KfW development bank), DANIDA, the European Union and the Government of the Republic of Zambia.

Figure 2: DTF implementation concept



4. Impact

Since their introduction, DTF-supported water kiosk systems have provided access to safe water for around 500,000 people. Approximately 300 water kiosks and the related water supply infrastructure (e.g. bore holes, water pipes and water storage tanks) have been constructed. Water kiosk systems can be replicated on a large scale.

Water kiosks established with the step-by-step participation of the stakeholders and operated by the CUs as formal water providers are a sustainable option for providing safe and reliable water to low-income areas.

Cost savings can be achieved by standardising the concept. Institutional learning is ensured and repetition of mistakes is avoided.

Customer surveys have shown a satisfactory level of acceptance of water kiosks by the residents of low-income areas, and that consumption rates of safe and reliable water have significantly improved in areas where water kiosks are in place. On average, consumers collect 20 litres per capita/day from water kiosks.

All Zambian CUs are committed to the water kiosk concept and are able to implement the concept according to the DTF guidelines. They regularly submit project proposals to the DTF, and so continue to provide access to safe and reliable water in low-income areas which normally are economically less attractive to the CUs.

Over 50 percent of the kiosk operators are women, who can generate income for their families by selling water and other goods and services. As a result their living conditions have improved.

Water kiosks have been successfully designed for use by small businesses alongside the selling of water to earn commission payments from the CU.

Water kiosks promote HIV/AIDS sensitisation by offering space for posters on HIV/AIDS prevention. HIV/AIDS sensitisation is included in the planning cycle and stakeholder participation process.

The DTF is able to facilitate water kiosk projects on a large scale and is also developing and implementing additional concepts to promote the increased efficiency of the CUs as well as sanitation projects in low-income areas.

5. Challenges and Outlook

Besides the successful implementation of water kiosks and wide acceptance among the customers there are still some households that do not fetch their water at the kiosks. The reasons for this may be the distance to the water kiosk, especially in smaller towns with low population densities, the price of the water or the existence of alternative free water sources (e.g. shallow wells). Sometimes, poor hygienic conditions at the kiosks prevent consumers from getting water. Training for the kiosk operators and regular inspections by CU staff therefore remain important activities.

Important challenges remain in improving the communication between the stakeholders (CU, DTF, community, etc.) as well as addressing delays to technical work, and the sometimes poor quality of that work. Water kiosk operators often lack the necessary capital to purchase goods to sell at the kiosk to increase their turnover from non-water sales. In this, case micro-credits might bring an improvement.

Zambia's aim is to become a middle-income country by 2030. The DTF has therefore started to support new initiatives intended to increase the efficiency of water providers (e.g. reduction of non-revenue water and improvements in energy efficiency). Furthermore, together with its partners, the DTF has developed a sanitation concept which is currently being implemented. This also involves a comprehensive community participation approach (CPA), and it focuses strongly on technologies for decentralised, low-cost waste water treatment (DEWATS).



6. The Role of German Development Cooperation

The water kiosk projects are an adapted solution developed in partnership between German Development Cooperation and its Zambian counterparts.

German Development Cooperation (GDC) has been providing financial and technical support to the Zambian water sector for more than 20 years. This support has increased substantially since the adoption of the National Water Policy by the Zambian government in 1994.

Currently, GDC supports different Zambian water sector institutions to achieve the Millennium Development Goals (MDGs). While the main focus is on consolidating the results of the sector reform for urban WSS and especially for the urban poor, the

German government also supports rural WSS and the integrated management of Zambia's water resources.

As part of GDC, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH has, through its support for NWASCO, contributed to the establishment of an effective regulatory system, including the setting-up of NWASCO's sector-wide information system and a pro-poor tariff system. In addition to this, GTZ provides support for the operationalisation of the DTF and, at the service provider level, assists in the establishment and operations of the CUs.

The German support for the Zambian Water Sector is well harmonised with the national water policy and the concerted efforts of other cooperation partners.



7. Developments in Tanzania and Kenya: Cooperation between GTZ Water Programmes and the Adaptation of Concepts

In Tanzania, German Development Cooperation is supporting selected water utilities to adapt and implement the water kiosk concept in pilot projects. Knowledge transfer is being organised between Zambian and Tanzanian sector institutions. So far, Tanzania has no poverty-oriented funding mechanism for the water sector such as those in Zambia and Kenya. However, it is implementing a large volume sector-wide approach (SWAP), although it remains a challenge to ensure that funding is earmarked for service provision in low-income areas.

In Kenya, the Water Services Trust Fund (WSTF), which is similar to the DTF, was established as a corporate body under the Water Act of 2002. It operates through a basket fund arrangement supported by the Kenyan government and a number of cooperation partners. The WSTF's mandate is to help finance the provision of water and sanitation services to under-served, low-income rural and urban areas. With support from German Development Cooperation, it began doing this in 2008. Based

on the experiences acquired in Zambia and benefiting from the close cooperation between the different GTZ water programmes and with the DTF, the tools and concepts were adapted to Kenyan conditions and then underwent further development. With funding of EUR 15.5 million from KfW and the European Commission (EUWF), the WSTF intends to provide 1.4 million people with sustainable access to safe water and more than 100,000 people with access to individual household sanitation facilities. The first call for proposals for commercially run Kenyan water utilities was launched in February 2009. The WSTF will also fund the establishment of public facilities, each of which will consist of a water kiosk, two toilet blocks and two shower blocks. These facilities will be built in low-income urban areas, in busy public places such as markets and bus terminals. WSTF is also assessing the viability of using prefabricated kiosks and prepaid meters. Local social and demographic conditions might require the introduction of yard taps or simplified kiosks.

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