

# TANZANIA CASE STUDY

**STRENGTHENING THE CAPACITY OF WATER  
UTILITIES TO DELIVER WATER AND  
SANITATION SERVICES, ENVIRONMENTAL  
HEALTH AND HYGIENE EDUCATION TO LOW  
INCOME URBAN COMMUNITIES**

## DAR ES SALAAM WATER AND SEWERAGE AUTHORITY

### FINAL REPORT (June 2000)

#### Practices

- 1 Part 1 Utility Bulk Water Services To Public Kiosks: Arusha Kiosks Study
- Part 2 Public Kiosks: The Case Of Mtwara
- 2 Part 1 Community Managed Pipe-Distributed Water Kiosks: Kijitonyama Community Water Project
- Part 2 Community-Managed Water Supply System: Tabata Community Water Supply Scheme Case, Dar Es Salaam Case
- 3 Regulation Of Cesspool Emptying Services By The Dar Es Salaam City Commision: Dar Es Salaam City Commission Waste Management Department
- 4 Vendor Managed Water Services From Sales At Yard Taps: The Case Of Vingunguti

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**TABLE OF CONTENTS**

<b>CHAPTER ONE</b> .....	<b>1</b>
<b>CONTEXT OF THE PRACTICES</b> .....	<b>1</b>
A: General Information .....	1
B: City Level Information .....	2
C: National Level Information.....	6
D: Service Providers in Candidate City .....	12
E: Consumer Information .....	15
F: Support Functions .....	17
ANNEXES .....	18
<b>CHAPTER TWO</b> .....	<b>19</b>
<b>CASE STUDIES</b> .....	<b>19</b>
Practice 1 .....	19
Part 1 .....	19
References .....	31
Community Managed Pipe-Distributed Water Kiosks .....	45
Kijitonyama Community Water Project.....	45
Protocol 4.Outstanding Issues .....	55
Protocol 5.Lessons Learned/ Conclusions .....	56
<b>PART 2</b> .....	<b>58</b>
TABATA COMMUNITY WATER SUPPLY SCHEME CASE, DAR ES SALAAM CASE.....	58
Protocol 1 .....	58
Protocol 2 .....	63
Process And Approach.....	63
Protocol 3 .....	66
Protocol 4: Outstanding Issues .....	68
Protocol 5. Lessons Learned /Conclusions .....	68
Relevance for the proposed project outputs e.g. advocacy tools specific guidelines.....	69
<b>PRACTICE 3</b> .....	<b>70</b>
Regulation Of Cesspool Emptying Services By The Dar Es Salaam City Commission .....	70
Dar Es Salaam City Commission Waste Management Department .....	70
<b>PRACTICE 4</b> .....	<b>80</b>
Vendor Manged Water Services From Sales At Yard Taps.....	80
<b>THE CASE OF VINGUNGUTI</b> .....	<b>80</b>

## CHAPTER ONE

### CONTEXT OF THE PRACTICES

#### A: GENERAL INFORMATION

**Table I: General Information Table**

ITEM	VALUE	PERCENTAGE
<b>Population</b>		
Total	31.0 million	100.0
Rural	24.5 million	79.0
Urban	6.5 million	21.0
Growth rate	na	2.8
<b>Urbanization</b>		
Pop. of Dar es Salaam	3 million	9.7
Urbanization level	na	6.6
Towns/Cities	20	na
<b>Pop. Below Poverty Line</b>		
Urban	3.25 million	50.0
Rural	19.6 million	80.0
<b>Vital Statistics</b>		
Life Expectancy	48 years	na

na = not applicable

Source: World Development Indicators, 1999 and Own computations.

## POPULATION

The population of Tanzania is estimated at 31 million (World Development Indicators, 1999; 1997 data), with 79% of the total population living in the rural areas and the remaining 21% of the total population living in urban areas<sup>1</sup>. The growth rate of the population is 2.8% per annum while the urbanization rate is 6.6% (IRA, University of Dar es Salaam). The population of the largest city which is Dar es Salaam is estimated at 3 million people. The population growth rate of Dar es Salaam is 4.8% according to 1988 estimates by (JICA) and the rate of urbanization is projected at 7.1% in 2002 (IRA, University of Dar es Salaam)

<sup>1</sup> Urban center is defined as the concentration of economic activities in spatial limited area. These economic activities include industrial, commercial, social and recreation activities. Minister for Land and Urban Development is responsible for designating an area as urban center.

## **NUMBER OF TOWNS AND CITIES**

Considering only Mainland Tanzania there are 19 towns and 1 city. Towns include Arusha, Bukoba, Musoma, Mwanza, Moshi, Mtwara, Lindi, Kibaha, Iringa, Mbeya, Dodoma, Songea, Mpanda, Kigoma, Tabora, Singida, Shinyanga, Morogoro, Tanga, and the city is Dar es Salaam. The rest are trading centres known as rural growth centres.<sup>2</sup>

## **POPULATION BELOW POVERTY LINE (%)**

Tanzania is one of the ten poorest countries in the world. About half of the Tanzanians today cannot acquire the daily consumption necessities of life by international standards, the vital statistics of its population are rather low, and human capabilities for self-sustenance underdeveloped. About 50% of the urban population live in absolute poverty consuming less than US\$1 each a day. This high degree of poverty in urban areas has been exacerbated by the high rate of rural-urban immigration. The immigrants from the rural areas are young people seeking for employment in towns but the opportunities for such employment are limited to the extent that most of them remain unemployed for long periods of time. On the other hand poverty is more severe in rural areas where hand-hoe and rainfall-dependent agriculture is the main economic activity. In this case about 80% of the total population in rural areas live below the poverty line.

## **LIFE EXPECTANCY**

According to 1999 World Development Indicators the life expectancy for both men and women in Tanzania is 48 years (1997 data) a drop from 50 years according to the 1980 data. The low life expectancy results from many factors principally high prevalence of HIV/AIDS both in urban and rural areas and the high levels of poverty especially in rural areas (World Bank, 2000).

## **URBAN LOW-INCOME POPULATION**

The population in urban low-income areas ranges from 60% to 70%. Given the total population living in urban areas of 29% of the total population in Tanzania, this is to say that about 5.4-6.3 million out of 9 million people living in urban areas live in low-income areas. This includes those who live in areas which receive little or no attention at all as far as water and sanitation services are concerned. These areas are usually unplanned although may be legally recognized residential settlements.

## **B: CITY LEVEL INFORMATION**

### **DAR ES SALAAM**

The population in low income areas in Dar es Salaam is 1.8 million which is equivalent to 60% of the total population of the city.

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<sup>2</sup>Rural growth center is defined as a center within agricultural land with characteristics resembling urban area and can be planned or unplanned. Population in urban low income areas of the country

## **COMMUNITY STRUCTURES AND HOW THEY FUNCTION**

### **FORMAL**

Tanzania has a formal community structure which resembles the one inherited from socialism but based on the form of Local Government Authority. The lowest level of structure is ten-cell which actually contains ten to fourteen, and the leader for this structure is called ten-cell leader or “mjumbe”. The second level is “mtaa’ or harmless and this is led by six committees. Then we have ward with a Ward chairman and Ward Executive Officer, followed by division led by and a Division Chairman and Division Executive Officer. From division, here follow the district, region and lastly the Government.

### **INFORMAL**

There also informal community structures. These structures are informal in the sense that they are not in the line of Local Government structures. These are informal community based organizations for religious, development, recreational activities, etc. Examples of these groups include TDF for Tabata Development Trust Fund, KIJIKO for Kijitonyama development activities, SWAMECOS for Solid Waste Management and Environmental Conservation Society which deals with garbage collection in Kijitonyama areas and many others.

## **AGENCIES RESPONSIBLE FOR PROVISION OF WATER AND SANITATION SERVICES**

The agency responsible for provision of water and sanitation services in Dar es Salaam is the Dar es Salaam Water and Sewerage Authority, DAWASA.

DAWASA is a governmental water utility, which was created by merging the parastatal National Urban Water Authority (NUWA) and the former Dar es Salaam Sewerage and Sanitation Department (DSSD) of the City Authority. NUWA a governmental institution was established to supply water to Tanzania urban centers under the Ministry of Water. It was an autonomous body, but with a subsidy from the government. DSSD was a semi autonomous department and was established in the early eighties to operate and maintain the sewerage system and also to provide pit-emptying services for on-site sanitation users. Since it was not fully autonomous the department could not commercialize its activities nor could it review its service charges to meet escalating operational costs

The newly established DAWASA which has taken over DSSD functions, is autonomous and has got a Board, which makes for easier decision-making on matters pertaining to daily operations of the Authority.

DAWASA levies charges on water supply and sewerage services it renders by way of flat-rate ex-post consumption bills that it issues to its customers periodically. Pit-emptying services are pre-paid so are solid-waste collection and in some cases electricity services.

Where vendors deliver urban environmental services, pre-payment is mandatory for all categories of consumers irrespective of socio-economic status. Vendors are rendering two types of urban environmental services in the city of Dar es Salaam. These are:

- Water supply
- Solid waste collection

### **WATER SUPPLY**

Where Vendors are to supply water, they use 20lts plastic containers or buckets. They carry these containers in push-carts that load up to 10 containers per trip. The rate charged per container varies depending on the distance from the water source to the point of delivery. The rate varies between Tshs. 50/= to 200/= per 20-litre container.

### **SOLID WASTE COLLECTION**

Many people living either in planned or unplanned areas turn to vendors with push cats for their solid waste collection needs. In the city center, some people continue with the vendor-supported services that emerged in the periods when the solid waste collection service from the municipality was very poor between mid-eighties and early nineties. The solid waste collection and disposal services in the city started improving in 1994 when the municipality privatized delivery operations. The vendor charges vary between TShs. 500/= to 1000/= per collection per domestic customer depending on the negotiations with the client.

### **SANITATION**

#### **LIQUID WASTE**

Both private operators and the appropriate department of DAWASA provide pit- emptying services. The charge vary between Tshs.10, 000/= to 25,000/= for private sector services and TShs.25, 000/- for utility provided services. In the case of the unplanned settlements where there is no accessibility for emptying trucks, "frog men" dig pits adjacent to the full one into which they manually empty the fresh sludge. Sometimes the MAPET technology that employs a hand-pushed small vacuum tank to empty sludge from pits is used. This service costs TShs. 500/= per trip of sludge. The advantage of the MAPET is that it can be used in congested unplanned areas with motor vehicle access routes. Some few years ago there was an idea of constructing transfer stations where the small containers could empty the sludge for the big trucks to suck and discharge in the dumping sites. The aspect of transfer stations was implemented only in few areas, the rest of the neighborhoods with similar problems continue to dig pits adjacent to the existing ones for purposes of disposing of sludge.

## **SOLID WASTE**

The case of solid waste there is a growing strategy whereby CBOs and/or community-based NGOs to collect the waste from their areas where such areas are inaccessible to ordinary trucks. The CBOs and NGOs usually start as informal self-help groups formed to resolve small development issues, upon which they grow into fully-fledged community organizations capable of attending to serious development issues.

The CBOs and NGOs are supposed to transfer the waste collected to designated dumpsite. Trucks from private providers periodically collect wastes from the more affluent planned areas that accommodate mainly medium class residents. Beneficiaries are required to use plastic bags to store their wastes till the day of collection. The Health officers are supposed to check to ensure that every resident in the city has got a container for solid waste management.

## **TARIFF POLICY**

The water supply tariff is stepped such that low-income areas pay a lower rate as compared to the medium and high-income earners. Commercial and industrial consumers pay the highest tariff.

Where vendors or water tankers supply water, consumers pay service charges directly to the supplier. There are few cases where people have developed personal water sources like shallow wells. This category do not pay anything to the water utility; instead they sell water to other residents. The amount collected is meant for the operation and maintenance of the water system.

There are several areas where the utility has recently dug and equipped deep bore holes that serve communities within the vicinity of the water sources. Another category is that of drawing water from the neighbors, some pay and some are given free of charge and this depends to whom the water is fetched from.

## **ACCESS TO SANITATION IN LOW-INCOME SETTLEMENTS**

Sewers service less than 5% of Dar es Salaam residential area with septic tanks and pit latrines covering the rest of the city's residential space. The number of actual population served by technology type is not readily accessible but it is estimated that sewerage services are available to less than 6% of the total city population.

Sewerage coverage in terms of areas served the following is the list of benefiting wards:

- Central Business District (CBD) including Kariakoo and Upanga;
- Some few residential areas namely Mikocheni, Msasani and Tazara staff quarters;
- Small parts of industrial area namely Ubungo, Pugu and Mikocheni industries and
- Institutional areas such as University of Dar es Salaam, Lugalo Barracks, Mgulani Police Barracks and the Air port.

It is estimated that 75% of Dar es Salaam City is covered by unplanned settlements whereby the main means of human waste disposal is pit latrines. Septic tanks and cesspits serve a small part of the unplanned settlements. In 1970s it was estimated that about 2% of the population in Dar es Salaam live without any form of sanitation. They may be going to the neighbors or to the bush.

## **C: NATIONAL LEVEL INFORMATION**

### **LEGAL AND REGULATORY FRAMEWORK**

Various acts and regulations that guide the provision of water to low income settlements are as follow:

#### **WATER ACT**

Dar es Salaam Water and Sewerage Act, 1981, Act no. 7 of 1981

This Act among other things provides for the functions of DAWASA and these are:

- To secure the continued supply of water in Dar es Salaam for all lawful purposes
- To develop and maintain waterworks in the city or waterworks outside the city but connected to the city's water supply distribution network.
- To promote the conservation and proper use of water resources in the city.

#### **WATERWORKS ORDINANCE, CAP. 281**

This Law provides for and regulates the supply of water to the public. The water authority is empowered to supply water to any premises on application being made by the owner or occupier thereof. The occupier or consumer is liable for payment of service rendered by the Authority, of which non-payment of water charges will lead to disconnection of water supply.

The Law also provides for penalties for offences done by any person.

- It is an offence for any person to tamper with or willfully or negligently injure waterworks or any public fountain, OR unlawfully draw off, divert or take water from any catchment area from which the waterworks are supplied OR pollutes or causes risk of pollution to any such water.
- It is offence to misuse or waste any water supplied.
- It is an offence to use water other than for purpose supplied.
- It is an offence to bath, wash in any part of the waterworks or catchment are used by the Water Authority for supplying water.

#### **WATERWORKS RULES AND REGULATIONS:**

##### **WATERWORKS ORDINANCE CAP. 281 RULES**

##### **WATERWORKS (WATER SUPPLY) (DESIGNATED AND DECLARED AREAS) RULES, 1997**

Before any water of the Authority is supplied to a consumer, the consumer has to make an application to take the supply of water in accordance to the terms and conditions and at the charges prescribed and applicable to the purpose for which the water is required and in respect of which the consumer has agreed to pay for charges.

The water supplied by the Authority shall be charged for and supplied at the price and upon terms and conditions as may be fixed by the Authority. When any consumer is supplied with an un-metered supply of water by the Authority, such consumer shall be charged at a flat rate per month, irrespective of the amount of water consumed which rate shall be fixed by the Authority.



- Provides for application for supply of water, price of water, terms and conditions of water supply. First schedule to these Rules provides for a form of application
- Provides for restriction of non-domestic purposes. Prohibits the use of water for watering a garden, recreation ground, road or pathway; for washing motor vehicles watering bricks, etc.

### **THE WATER UTILIZATION (CONTROL AND REGULATION) ACT, 1974.**

The Water utilization (General) regulations, 1997.

The Regulations attempts to control, regulate and licensing of ground water, usage. The applicant upon application for abstraction and use of ground water shall :

- Submit data and information collected during the ground water exploration and drilling activities.
- The quantity and quality of the water abstracted
- The area of activities in the basin
- The purpose for which the water will be used for i.e. domestic or commercial or industrial or any other use.
- This regulation also protects water sources as it provides that, “no human activities shall be conducted within 200 meters of a river bank or within 500 meters of the shoreline of a natural lake (inland lake), dam or reservoir (water intake)”.

## **POLICY FRAMEWORK**

### **WATER SUPPLY POLICY**

Policy Statement says: Water resources shall be recognized as a finite, economic good and has value in all its competing uses. In the effort to alleviate poverty of its population the government develop programs to harness this abundant resources for various uses. When there are conflicts among water uses, water use to meet urban and other social water demand shall take priority. The Government shall establish programs to conserve, protect and harness water resources. The Government shall establish mechanism for analytical framework with the aim to shift from a water resources sector based approach to integrated water resources management approach. The Government shall ensure that programs for systematic monitoring of the quality and quantity of groundwater and surface water are established.

The Government shall ensure that the existence of disadvantaged and vulnerable groups in the community is identified and recognized in the provision of water and sewerage services in urban and per-urban areas. The guiding factor is that, the aggregate cost shall provide for full cost recovery through subsidies from able users. Kiosks shall be constructed by entities on loan and shall be managed by the groups. The pipe connections shall be constructed by entities on loan and cost shall be distributed over a period of time paid through the monthly bills at agreed tariff. Further, the groups shall be provided with a wider range of options so that they can choose the level of water service for which they are willing to pay. Fee schedule can also be structured so that customers receive a limited amount of water at low cost and pay a higher fee for additional water. Fees set in this manner shall correspond to efficiency prices for incremental consumption even as they provide low base rates that benefits the poor. However the schedule in aggregate shall provide for full cost recovery.

## **SANITATION POLICY**

Policy Statement says: The Government shall ensure that environmental sanitation is given emphasis. In the poor and peri-urban areas individuals shall be required to construct pit latrines and septic tanks within their premises in accordance with urban laws/by-laws. Facilities for waste water removal, disposal and treatment shall be established by respective Local Government.

Sewerage systems are expensive to establish, they shall be implemented in phases. Septic tanks with soak-away pits shall be used in developing medium and low density and ventilated improved pit latrines (VIP) shall be used in developing areas and unplanned settlements.

## **POLICY ON ENVIRONMENT SERVICES**

Policy Statement states: To sustain development and the existence of mankind, the Government shall ensure that agenda 21 of UNCED is fully implemented. The Government in collaboration with other actors shall take a strong role and shall institute appropriate mechanism for the conservation and protection of environment. Water development shall be geared towards improving the environment and shall be expected to adversely affect the quality of water resources in particular and the environment in general. Mechanism for monitoring and collating of domestic and industrial waste water discharges data more effectively shall be established.

Regulatory framework shall be established and pollution control laws shall be enacted and enforced. Mechanism shall also be explored to introduce financial and tax incentives to industries for the establishment of pollution control facilities. The Government shall also explore mechanism of imposing penalty to water polluters.

The major environment impact derived from provision of adequate potable water within reasonable distance and provision of sanitation services are decrease of water and sewerage related diseases, poverty eradication, more time for economic and recreational activities and hence improvement of health and general welfare of the society. Communities shall be made aware of the importance of personal and household hygiene. This includes use of pit latrines and washing of hands after defecation and proper handling and storage of water for domestic use. Pit latrines in urban areas shall be constructed at minimum safe distance from water sources. Likewise minimum depth of water wells in urban areas shall be 30 meters.

The Ministry of Health, Ministry responsible for water and entities shall collaborate in setting up water and waste water quality monitoring mechanism to ensure that water for domestic uses and waste water are properly treated to the required international standards.

## **POLICY ON FINANCING ARRANGEMENTS**

### **NATIONAL**

Policy Statement says: The Government shall make the necessary efforts to mobilize local financial resources for capital works. The Government shall continue to provide subsidies until such time that the entities have developed financial and management capabilities. The Government shall create a conducive environment (financial) in order to attract private sector

participation as a means of improving the efficiency and attracting capital. To ensure that the tariff remains within the capabilities of all customers, the Government shall continue to subsidize the capital costs of major rehabilitation and expansion.

## MUNICIPAL

Facilities for waste water removal, disposal and treatment shall be established by respective Local Governments. Management of sanitation systems are still run by the urban Local Government Authorities but are to be handed over to entities in the future.

## COMMUNITY

Policy Statement says: In poor and peri-urban areas, communities shall be fully involved and that they shall be required to effectively participate in all stages of project development and pay for the set tariffs. The Government shall ensure that community participation is firmly based on belief and democracy. Community user groups shall be empowered to own and manage small water schemes, kiosks and/or stand posts. The communities shall enter into agreement with appropriate entities so that the entities constructed kiosks, wells, on loan and the cost shall be recovered at a given period through the agreed tariff.

The entities shall undertake the responsibility of educating the communities on the essence of cost sharing and full cost recovery policies, proper water use and water sources conservation and personal and household cleanliness. Entities shall focus on the problems of poor access to services provided at the community level. Entities shall ensure that the services are sustainable, reliable and that they are affordable to the poor communities.

## INSTITUTIONAL ARRANGEMENTS

**Table 2: Matrix for Institutional Arrangements involved in Water and Sanitation Services to Urban Low Income areas.**

Institution/actor	Roles	Responsibilities	Functions
MoW	Designing policies and strategies	Management and regulation of UWSAs	Provision of subsidies and Staffs to UWSAs
DAWASA	Provision of water and Sanitation services	Collection of water bills	Installation of new connections and Maintenance of equipment
DCC/Municipal	Provision of sanitation services-solid waste	Collect revenue from the service	Supervision of the private sector participants in the service
Private sector		Charging fee for their service	Fetching water and selling to consumers Emptying pit latrines and Collection garbage

## TECHNOLOGY CHOICE

### WATERWORKS (WATER SUPPLY) RULES, 1997.

- The pipe shall not be laid so as to pass into or through any sewer or drain or any manhole connected therewith or into or through any septic tank, refuse pit or ash pit.
- Pipes shall not be laid or allowed to remain in contact with any foul soil or with any injurious material.

#### Depth of pipes:-

- Every pipe laid in connection with water supplied by the Authority when not beneath the building shall be laid at a depth of not less than 60 cm below the surface of the ground and in the case of any pipe laid under any road, street or pavement or in any other situation where it is exposed to risk of damage shall be laid not less than 90 cm below the surface of such road, street or pavement or shall be protected to the satisfaction of the Authority.

## WATER SUPPLY

Policy Statement says: Realizing that the Government does not have sufficient resources to provide all the people with reliable water supply to the highest technological level, focus shall be made to the provision of services in stages starting with minimum service level of a kiosk where per capita consumption is not more than 25ld-(25 liters per capita per day).

Given the importance of water to basic life functions and survival, appropriate and equitable safety nets shall be introduced in the design and management of urban water supply services to ensure minimal survival supplies to the poor and vulnerable groups. This shall however, be designed within a broad context of sound commercial and sustainable operations. The Government shall ensure the use of solar powered pumps, hand pumps and rain water harvest from roofs shall be encouraged particularly in the peri-urban areas.

## SANITATION SERVICES

Policy Statement says: The Government shall ensure that environmental sanitation is given emphasis. In the poor and peri-urban areas individuals shall be required to construct pit latrines and septic tanks within their premises in accordance with urban laws/by-law. Facilities for waste water removal, disposal and treatment shall be established by respective local Governments.

Sewerage systems are expensive to establish, therefore they shall be implemented in phases. Septic tanks with soak away pits shall be used in developing medium and low density areas and ventilated improved pit latrines (VIP) shall be used in developing areas and unplanned settlements.

**Table 3: Urban Environmental Sanitation Status**

Type	Coverage	Accessibility	Reliability	Quality
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Water Supply	20%	20%	80%	Good
Drainage	0.1%	0.1%	75%	Good
Solid Waste Management	5%	5%	50%	Fair
Liquid Waste Sanitation	2%	2%	72%	Good

Source: UNDP, Dar es Salaam Sustainable Development Program.

The percentages refers to the coverage/accessibility/reliability within the total population living in urban low income areas of the Dar es Salaam city.

## **DRAINAGE**

The area that is served by a drainage system is only 0.1% of total inhabited area, which is mostly the CBD, Kariakoo, Upanga, industrial and some institutional areas. The drainage systems in other planned areas no longer work due to lack of maintenance. The road reconstruction program has rehabilitated a lot of drains along the reconstructed road network and as a result it is expected that the percentage served by storm drainage systems will rise. The reconstructed channels are more permanent and it is expected that they will continue to be cleaned by the communities residing along them. The level of community participation in environmental sanitation is now very high due to the sensitization, which has been conducted since the beginning of the Sustainable Dar es Salaam Program.

## **SOLID WASTE MANAGEMENT**

Solid Waste Management (SWM) in the city of Dar es Salaam is privatized since 1994 when one contractor was awarded a contract to serve 10 wards in the city center for demonstration purpose. The exercise was successful and 45 more wards have also been privatized to more than 58 contractors who range from CBOs/NGOs to medium income companies since 1997. Resulting from the privatization approach about 45% of the waste generated daily is collected and transported to the dumpsite for disposal.

In most cases the CBOs and NGOs collect wastes from unplanned settlement which, have accessibility problems. Push-carts are used to transfer the waste to points where big trucks can access collection to the dumpsite. It is the medium-income contractors who service planned areas where accessibility is not a problem.

The method used involves the contractors passing at a fixed time along the streets with an alarmed truck/lorry, so the residents takes out their wastes upon hearing the alarm. For the case of unplanned settlements, the CBOs or NGOs move door to door to collect the waste.

The contractors are responsible for both waste collection & disposal and refuse charge collection (RCC) from the areas they deliver the service.

## **LIQUID WASTE MANAGEMENT**

About 90% of the liquid waste generated is haphazardly disposed off while only 10% is collected and transported to the treatment plant. The areas served by septic tanks and some few pit latrines, which are accessible when full, are emptied by either trucks from the private operators or the DSSD department.

## **D: SERVICE PROVIDERS IN CANDIDATE CITY**

### **TYOLOGY AND SETTLEMENTS PATTERNS**

Generally about 75% of the population in the City of Dar es Salaam live in unplanned settlements. The unplanned settlements in Tanzania do not represent areas of low income earners only, medium income people also reside in such areas due to lack of plots for development in planned areas. Thus there are unplanned areas with all services such as water, solid waste collection and electricity. What lacks in such areas is proper sanitation infrastructure either off site or on-site but accessible for emptying when full as well as good drainage systems.

Low-income earners occupy some of the unplanned settlements and in such areas the urban environmental situation can be classified as tragic in terms of sanitation, housing condition, congestion and the health status.

Health status in planned areas is much better than in the unplanned low-income areas. This can easily be explained by the fact that most of the people living in planned areas have a better income, and due to the reduced congestion situation transmission of diseases is also reduced.

The natural birth growth and population growth rates due to immigration appears to be higher in unplanned settlements as compared to the planned areas although there is no data to support this position. The rate of congestion in unplanned areas especially those of low-income earners is much higher compared to their counterpart planned areas. The increased housing congestion and high population densities prove this argument.

### **UNPLANNED ILLEGAL/LEGAL**

There is no data regarding the actual percentage of the legal or illegal unplanned settlements. But there are some few legal unplanned settlements as they are officially recognized, the houses are numbered and they pay property tax to the authority concerned.

An interesting situation with Tanzania is that, being legal or illegal or unplanned cannot prevent an area from being connected to urban social services such as water and/or electricity provided the primary infrastructure is accessible. It is not clear why this is so but indications are that weak enforcement of the relevant regulations might have a lot to do with this situation.

### **UNPLANNED/ILLEGAL**

These are typically settlements that are located along river valleys. These settlements are therefore affected by high ground water table such that the sanitation status is very poor. The conditions become more alarming during rainy season when floods affect people residing in valleys to the extent that some even loose their lives.

## PLANNED/ LEGAL

About 25% of the people reside in legal planned urban areas. Such areas include. Mikocheni, Msasani, Oysterbay, Kijitonyama and so on. Service delivery in such areas is better than in unplanned settlements though not all of these areas have reliable services. There is no exact data as to what percentages receiving reliable services especially in terms of water supply and sanitation.

Areas like Sinza and Kijitonyama where there is high water table problem, sanitation situation is not good although the pit emptying service is now improved. The problem lies where the people are required to empty their pits more than twice a month. In such cases it becomes very expensive and people just let the sewage to overflow as run off in the backyard.

**Table 4: Service Providers Matrix**

<b>Service Providers /Institution</b>	<b>Roles</b>	<b>Responsibilities</b>
MUNICIPAL COUNCILS	Regulation of the private operators also provision of service	Preparation and enforcement of by-laws & other regulations. Ensuring O&M of the pit emptying trucks
PRIVATE SECTOR	Provision of reliable service: Pit emptying, water supply through bowser	Collection of service charges
UTILITY AGENCIE	Provision of reliable service: Electricity-TANESCO; Water/ Sewerage-DAWASA; Telephone-TTCL etc.	Collection of service charges
VENDORS/FROGM	Provide service to Beneficiaries (water supply, Solid waste collection and Manual pit emptying)	Ensuring O&M of their Equipment
NGOs	Sensitize community to play their role	Technical support provision

## UTILITY PERFORMANCE

**TABLE 5: OVERALL UTILITY PERFORMANCE AT PRESENT**

<b>UTILITY PERFORMANCE INDICATORS</b>	<b>DSM</b>	<b>ARUSHA</b>	<b>MTWARA</b>
Production (m3/d)	273000	40000	5000
Coverage (%)	60	88	83
Water availability (hours)	20	20	14
UFW%	53	35	55
% of water production billed	88	67	67
Collection rate(%)	54	63	66
Average tariff; lowest, highest (per m3), Tshs.	272-1760	DNA	250-1600
Average water bill-flat rate/month (Tshs)	1881	DNA	DNA
Number of connections	98000	10255	DNA
Number of public water points	DNA	4774	180
Metered-domestic (Tshs/m3)	272	150	215
Operating ratio (ratio O&M cost-revenue)	0.6	1.17	1.5
staff/1,000 connections	12.25	16	31
new connection fee	29000	21000	DNA
Prod cost of water delivery (Tshs 1000/litre)	700	53	115
Operational cost per water connection (US\$)	DNA	55.50	47.50

Source: Ministry of Water, Annual Report for UWSAs, 1997/98

## **PROVISION AND REGULATION OF ON-SITE SANITATION**

It was indicated earlier under technology choice that developers do provide any type of sanitation technology depending on their economic power. There is no regulation of the on-site sanitation, developers construct the way they think it will serve the purpose. Sometimes pit latrines are constructed right from the substructure to the superstructure. The low-income earners sometimes may construct the substructure and not the superstructure. The super structure may be made of grass, corrugated iron sheets, banana leaves, pieces of tins or sacs.

Developers may consult private contractors for the construction, the DSSD Low cost unit or Buguruni VIP Unit for the construction of a pit latrine. These two units are governmental and they provide advice on design of VIP latrines and can even construct facilities if payments are made to them. There are few NGOs such as Plan International who are also trying to assist poor communities in construction of latrines.

## **POLICY AND STRATEGY OF UTILITY FOR SERVING URBAN POOR**

### **SANITATION**

In regards to the sanitation the municipality has entered an agreement with private providers of pit emptying services to charge no more than TShs20,000- per trip to consumers who cannot afford more. In practice however the charges are negotiable and in most cases the consumers pay TShs. 10000/- per trip because of competition among the increasing number of private service providers. See separate case study on regulation of pit-emptying services. In the case of the unplanned settlements where there is no accessibility for the emptying trucks, "frog men" are used or MAPET technology. The latter, is small vacuum container, which is pushed like a push cat charging Tshs.500/= per container/drum. This can enter in the congested areas for the purpose of emptying the full pits. Some few years ago there was an idea of constructing transfer



stations where the small containers could empty the shit for the big trucks to suck and discharge in the dumping sites. The aspect of transfer stations was implemented in few areas, so other areas of the same nature without this facility, they just dig a pit near by the full one and transfer the material there. Frog men" also dig a pit nearby the full pit and the material of a full pit is either let to flow in the new pit by punching a hole in the old pit or by transferring the material in the new pit using buckets.

## WATER SUPPLY

The water tariff is such that low-income areas are provided with subsidized water services of the lowest service level through water kiosks. This is the case in practice at least in Arusha and in Mtwara. In Dar es Salaam however low income neighborhoods are assisted to gain access to water services through community-based initiatives that are funded through the Community Infrastructure Program of the Dar es Salaam City Commission. DAWASA is currently in the final stages of implementing the DAR ES Salaam Emergency Water Program an interim measure that aims at drilling and equipping some 300 bore holes in various parts of city to alleviate the acute water shortage. Some low-income groups of the city will benefit from this program under the current tariff policies.

**TABLE 6: WATER MARKET MATRIX**

	H/C	Stand posts	Kiosks	Hand Carts
Price (tariff) per m3 (Tshs)	272	272	272	**
Hours of service	20	20	20	DNA

Note: \*\* 20 litre bucket purchased at 20 Tshs at kiosks and sold by vendors to the customers at Tshs 100/= to 200/=

Source: DAWASA authorities

## E: CONSUMER INFORMATION

### WATER AND SANITATION COVERAGE IN LOW-INCOME AREAS

Low-income areas are essentially un-serviced by utilities. The water services available in low income areas exist through third party initiatives. These include vendor-supplied water services on push-carts, shallow wells belonging to more financially influential residents, and to a limited extent utility water connections in a few residences. These residences do sell water to neighbors and to vendors who subsequently deliver water to areas of shortage. Sanitation is typically by way of traditional pit latrines that are emptied by frog-men. Data on actual coverage, fees and numbers of people served per water point depend on the practice in force. Some of these details can be found in the case studies included in subsequent chapters of this report.

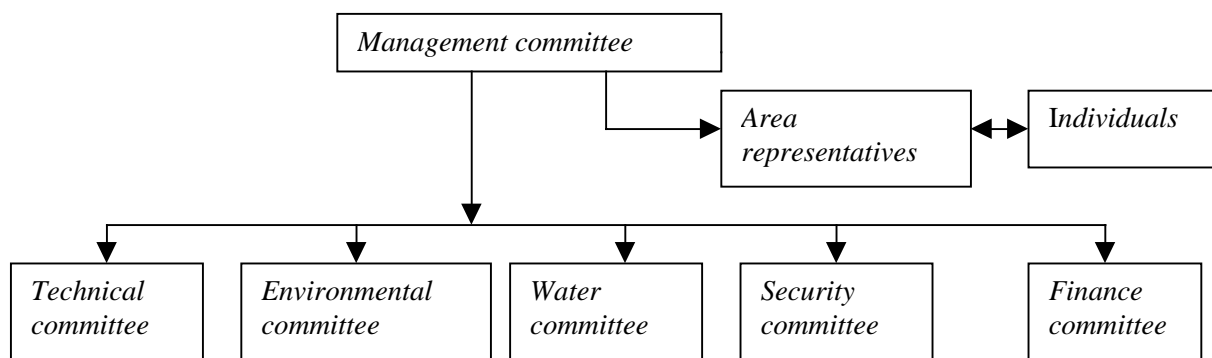
## COMMUNITY STRUCTURE AND ITS ROLE IN DECISION MAKING

### WATER SUPPLY

Water services from DAWASA or by vendors or from neighbors selling at yard taps are priced without consumer consultation. Neither does the community play any role in decision making or management of such services.

The case of community-based water services the consumers manage the water services through the various CBO committees. The beneficiaries are involved in decision making through these committees and their area representatives. They are also involved in the management of their water system in that, they take care of the whole system. They report vandalism and/or a problem areas for repair to control water loss.

### **THE COMMUNITY ORGANIZATION FOR MANAGEMENT OF WATER SUPPLY AND SANITATION SERVICES AND THEIR NATURE.**



The structure of community institutions for the management of social infrastructure services is shown above. Membership to the community organization is open to all adult members of the resident community upon meeting certain entry requirements like payment of membership subscriptions. All offices are elective and office-bearers are changed in accordance to the CBO's management constitution.

### **HEALTH INFORMATION**

Key diseases (ranking of water and sanitation disease) and environmental health and hygiene status: The main water and sanitation based diseases include; cholera, malaria and diarrhea, The areas affected by these diseases are those with water and sanitation problems e.g. in Feb 2000 the City of Dar es Salaam started getting cholera cases in several areas suffering from water shortage such as; Vingunguti, Buguruni, Kigogo, Kigamboni, Gongo la Mboti and Ubungu area.

## **F: SUPPORT FUNCTIONS**

### **RESPONSIBILITY OF CARRYING OUT HEALTH AND HYGIENE EDUCATION**

The Health departments of the Dar es Salaam municipalities together with the Ministry of Health are responsible for the health and hygiene education. There are several media programs prepared by either of the two. The delivery of the hygiene education by the Ministry of Health is to cater for the whole country while that delivered by the DSM municipalities is only for the DSM residents. Since such programs are aired beyond DSM boundaries the education can also be useful for the other regions. Any NGO participating in health and/or hygiene services delivery is expected to do so in collaboration with the City authority.

### **CO-ORDINATION**

In-case of NGOs these work together with the municipal health department, this means that, any NGO that would like to deliver hygiene education has to request for permit to do so from the authority and in this case then, the authority records who is doing what, where and when.

### **SANITATION PROMOTION**

The same Health department carries out promotion of sanitation in the city. The promotion exercise is intensified in periods when there are epidemics like cholera or diarrhea.

### **RESPONSIBILITY FOR PROMOTION, IMPLEMENTATION AND CONTROL OF SANITATION ACTIVITIES IN URBAN LOW INCOME AREAS**

Health officers and community workers do promote and control hygiene and public health programs, while the communities are responsible for implementation of the sanitation activities. NGOs usually provide financing for implementation of sanitation projects in collaboration with the CIP of the Dar es Salaam City Commission.

### **CHANNELS AND APPROACHES EXIST FOR THE UTILITY AND THE MUNICIPAL DEPARTMENTS TO REACH THE URBAN POOR**

The government has set a services delivery structure where by there are representatives from the level of homesteads comprising 'areas' which is the lowest level; to wards then to divisions through to districts and provinces and the line Ministry. There are several committees at each level and through these committees the urban poor are expected to access social services. The municipality also uses its community workers who work within the wards to ensure that services are made available to the urban.

The most effective channel so far employed to reach the urban poor is the community based approach of the Sustainable Dar es Salaam Project acting through the Community Infrastructure Project.

## **CO-ORDINATION OF THE ACTIVITIES OF NGOS WITH THE UTILITY AND MUNICIPAL ACTIVITIES**

NGOs work together with the municipal health department and the SDP meaning that any NGO that would like to deliver hygiene education or any other social services has to request for permission to do so from the authority and in this way the municipality records who is doing what, where and when. Coordination is achieved through regular coordination meetings with all stakeholders for the various initiatives.

## **OTHER SUPPORT FUNCTIONS**

In some few cases members of Parliament have been very useful to assist the urban poor.

## **ANNEXES**

### **CONTEXT FOR THE PRACTICE ANNEXES**

#### **Annex 1**

Economic Research. FRBSF Economic Letter No. 2000-05; February 25, 2000, 4pp  
Ref: <http://www.frbsf.org/econsrch/wklyltr/2000/el2000-05.html>

#### **Annex 2**

The Dar es Salaam City Council: Subsidiary Legislation, 93 pp

#### **Annex 3**

The United Republic of Tanzania: Ministry of Water  
Urban Water and Sewerage Authorities: Operation Guidelines, June, 1998, 12pp

#### **Annex 4**

Dar es Salaam Water and Sewerage Authority: Water Laws of Tanzania, 106 pp

#### **Annex 5**

Cap 101 - Sup. 59 Tanganyika: Townships - Chapter 101 of the Laws (Revised)  
(Principle Legislation), 1960, The Government Printer, Dar es Salaam, 117 pp

#### **Annex 6**

United Republic of Tanzania: Ministry of Water Development of Urban Water Supply and  
Sewerage Policy Component of the National Water Policy: First Draft ,April 1999, 39 pp

## **CHAPTER TWO**

### **CASE STUDIES**

#### **PRACTICE 1**

##### **PART 1**

### **UTILITY BULK WATER SERVICES TO PUBLIC KIOSKS**

#### **ARUSHA KIOSKS STUDY**

##### **DESCRIPTION**

##### **CONTEXT OF PRACTICE**

##### **WHAT LED TO THE INITIALISATION OF THE PRACTICE?**

Public kiosks in Arusha like other parts of the country originally provided free water services in line with the socialist policies that the Tanzanian government was pursuing at that time. The town council that was financed by government subsidies to sustain urban services to its residents managed the Arusha kiosks programme. In order to facilitate ease of access by utility operatives and on account of the fact that land within road reserves belongs to the central government these kiosks were located along access roads. Just like the rest of the water facilities the kiosks received very little attention in form of preventive maintenance and repairs were seldom satisfactorily completed to the extent that by the late 1980s the entire scheme had collapsed. By 1988 all the public kiosks in Arusha had fallen into a state of disrepair and most had been abandoned. The residents resorted to vendor supplied water that was sometimes collected from unimproved traditional sources. In 1993 the United Republic of Tanzania received a grant from the German government towards the rehabilitation of Arusha Water Supply. One of the project objectives was to improve access of clean water to poor residents of peri-urban areas at affordable rates. The present public kiosks were constructed as part of this rehabilitation programme. The service delivery concept of the practice is still largely public sector oriented although services are no longer provided free of charge as before because government has since withdrawn direct subsidies to public utilities.

##### **UNDER WHAT CONDITIONS DOES THE PRACTICE EXIST?**

Most of the residents of the peri-urban wards are low-income earners renting accommodation from house-owners that reside outside the neighborhoods. As such the landlords have little interest in the infrastructure development needs of the wards and yet majority of the tenants are too poor to afford the cost of private water connections from the utility. Under these conditions the cheapest means of accessing water services by peri-urban residents is purchasing small quantities from public water kiosks. Over the years however some of the residents have obtained private water connections some of which are selling water to neighbors in competition with the kiosks.

## WHAT IS THE PRACTICE?

The practice refers to the concept of the utility working with local administration structures to manage public water services that it provides at subsidized bulk tariff for resale to end-users at affordable rates. The practice operates two types of communal water facilities: kiosks that number 48 in total and a mixture of standpipes as well as domestic points that number 100 in total. All the facilities are utility owned but are operated by the various local administrative units acting through the various street chairpersons or *Waku wa Mita*<sup>3</sup> for day to day operation of the water sales. The ward executive officer the most senior civil servant in the ward is meant to collect and remit water revenues to the utility against monthly consumption bills for all the kiosks and other communal water facilities located in his/her ward. The more recent innovation is where a number of households come together and obtain a communal water tap for domestic use in their locality. These households collectively pay the utility's water bills at the end of each month by contributing an agreed amount of money towards the water bill. Another new important player who has since joined the water trade is households that sell water to neighbors at regular market prices. It is very difficult to document this aspect of the trade because house owners are unwilling to be interviewed as the utility considers the activity illegal and clandestine. However no action has so far been taken by the utility to discourage the sale of water by households probably due to insufficient evidence.

## TECHNOLOGY INNOVATIVE IDEA THAT DRIVES THE PRACTICE

The public water kiosks provide a level of water services that responds to the socio-economic needs of the peri-urban communities. The utility sells water to the kiosks at TShs.5/-<sup>4</sup> and the kiosks are expected to retail it at 10/- per 20-litre jerrican. The mark up is meant to cover operational costs with sufficient profit margin to sustain a commercial incentive for the practice. Apart from the preferential tariff the utility treats public water points as ordinary water connections that are liable for disconnection in case of delayed payment of bills. The Ward Executive Secretary signs a service contract with the utility that binds him to remit payments against consumption bills. The Street Chairperson who is an appointed neighborhood administrator is responsible for the day to day operation of the kiosks in the locality. The ward executive officer employs a kiosk operator that he directly pays a monthly wage from water sales. The chairperson supervises the day to day operations of the kiosk. Both the ward executive officer and the street chairperson are not remunerated for their roles in the practice. their services are voluntary and meant for the social well being of the residents.

## DETAILS OF O&M REQUIREMENTS OF THE PRACTICE

The O&M scenario is as follows:

All O&M needs of the practice up to and including the meter and the kiosk structure are the responsibility of the utility.

The Street chairperson is responsible for the operational needs of the kiosks located on the street of his/her jurisdiction. This includes maintenance of the service pipelines between the meter and

<sup>3</sup> Every ten households constitute an administrative unit. Once every five years each 10 households elect its leader who is known as the Ten Cell Leader or *Balozi Nyumba Kumi*. Ten such leaders work with Muku *Wa Muta* or street executive officer that is appointed by the government to supervise the social development activities of the street.

<sup>4</sup> The Foreign Exchange Rate is TShs 800 to one US Dollar.

the tap, replacement of worn out taps and supervision of the service delivery operations like ensuring that opening and closing hours are observed.

All water connections are fitted with meters. The utility reads meters and prepares consumption bills that are distributed for payment every month. The ward executive officer liase between the end-users and the utility on issues of service reliability and quality. The community kiosks are unmanned. They are protected and supervised through unwritten community rules, which include operational peer policing, especially by housewives who remain at home all day. For example a household that fails or refuses to contribute towards a monthly water bill is denied further access to the services until it clears the arrears and makes a deposit against future consumption. This is usually the ruling monthly household contribution.

### **A MATRIX OF THE STAKEHOLDERS, THEIR ROLES AND RESPONSIBILITIES**

The stakeholders of this practice are the utility as primary provider, the kiosk managers as secondary service operators and the residents as end-users of the service. The stakeholder matrix outlining the roles and responsibilities of the various players is given on the next page.

#### **STAKEHOLDER MATRIX**

<b>Stakeholders</b>	<b>Roles</b>	<b>Responsibilities</b>
Utility	Primary Provider Set tariffs Prepare bills Distribute bills Collect revenue	Provide Service. Monitor quality O&M support
Local Authority	Secondary Provider Appoint kiosk operator Supervise operations	Pay utility bills Collect revenue Remit revenue to utility
Consumer	End-user Purchase water at kiosks	Pay for the services

### **INITIAL COST AND FINANCING OF THE PRACTICE**

The kiosks were constructed by the utility through a KfW grant in 1993. No new kiosks have been constructed since. The initial costs of the practice are unknown since German Law prohibits KfW to release such information to the public. However the main initial construction costs can be estimated as follows:

- Cost of the kiosk building works-----US\$ 600.
- Cost of the pipe work and plumbing----- US\$ 150
- Cost of standpost or domestic point ----- US\$ 180

The total cost of the physical installations is therefore US\$ 55500. The rest of the setting up costs was administrative. These were in terms of inter-institutional consultations, mobilization and

detailing of neighborhood leaders to act as kiosk managers by the Ward Executive Secretaries. The utility trained the kiosk operators in meter reading skills and how to care for the kiosks. These costs are estimated at about 15% of the installation costs.

## **RUNNING COSTS OF THE PRACTICE AND HOW THESE ARE FINANCED**

The running costs include the following:

- the portion of the utility's O&M expenses attributable to service delivery to the kiosks up to the and including the water meter. These are unknown by the utility because they are not separated from mainstream operational expenses. They are met out of the utility tariffs.
- The cost of maintaining the kiosk and the service pipe work from the meter to the tap. These undocumented by the wards.
- the wages of the operators that average TShs10000/- per month per operator; and
- The administrative expenses that are borne by the ward executive officers in managing the practice. The end-user service delivery expenses are met out of the balance of sales revenues after payment of water bills and operational wages.

## **PURPOSE**

The purpose of the practice is to improve delivery of water services in the peri-urban areas of Arusha Municipality at rates that low-income earners can afford and were able and willing to pay. The ward executive officers interviewed reported that whenever the utility services are interrupted residents are forced to fetch water from unimproved water sources.

## **WHO INITIATED THE PRACTICE?**

The practice was initiated by the utility in consultation with the municipality and local authorities with facilitation from KfW. As earlier mentioned the utilization of kiosks for public water services had existed before the practice was set up. However the KfW water project facilitated the revival of the kiosks from a more cost sustaining perspective with specific commercial incentives being applied in the process. The revenues accruing from water sales would be used to pay operators' wages and also used to defray some of the secondary service delivery expenses that would be incurred by the local authorities. The practice of utility installed communal water facilities that are managed by the local government administrative units at special tariff rates has been embodied in the national water policy of the Republic of Tanzania.

## **WHO IS RESPONSIBLE FOR MANAGEMENT OF THE PRACTICE?**

The utility manages the bulk water services to the meter of each communal water point (CWP) through its mainstream operational arrangements. There is no special administrative unit for the practice. However the officers who interface with this practice in their routine operations include the following: the Head of Water Production (Mrs. Koya), the Personnel and Administration Officer (Mr Matoi); and the Public Relations Officer (Mrs. Lyaruu). The ward development committee for which the ward executive officer is the secretary determines the management protocols of the water service delivery at CWP level. These include the following aspects:



- The street chairperson is responsible for water services from the meter to the tap and for the security of the kiosk structure.
- The chairperson supervises daily operational activities and is generally in charge of customer care needs of the services within the street.
- The wages payable to each kiosk operator vary according to the utility bill and to the collections made for each month. However the wages cannot go below TShs 10000/- per month. The operator may negotiate a bonus of up to TShs 5000/- when sales are good.
- To facilitate these negotiations the operator keeps strict records of sales and collections(see also IMPLEMENTATION).
- The ward executive officer is responsible for ensuring that the practice is sustained by payment of water bills demanded by the utility. He is also expected to liaise with the utility in case of prolonged service interruptions.

### **WHO ARE THE BENEFICIARIES OF THIS PRACTICE?**

The community benefits as end-users of the water services that are regular and reasonably priced at TShs.10/- in comparison to vendor supplied services that rise to TShs. 150/- during acute mains supply interruptions.

The ward administration is able to cost-effectively meet the social service delivery obligations to their constituents.

Utility benefits from this practice by retailing water to more users at marginal additional management load.

The kiosk operators are gainfully occupied and are paid wages, which they would not have otherwise earned if the practice were not set up in this way.

### **TARGET MARKET**

The target market principally consists of poor urban residents whose incomes cannot sustain monthly water bills associated with private water connections. The 47 kiosks and 100 stand posts were designed for 9 wards. During the 1997 census the population of each ward was estimated at an average of 7000 people. This makes a service ratio of 400 users per CWP. This is close to the Small Towns guideline of 300 users per CWP source. Furthermore residents with private connections are "clandestinely" supplementing the kiosks by selling water to neighbors thus decreasing the demand load on the kiosks. The service coverage as it stands appears to satisfy current demand because water vendors were not reported or noticed to be operating within the peri-urban wards of Arusha. The only handcart operators interviewed at kiosks reported that they are occasionally hired to transport water to commercial premises like bars and restaurants during periods of service interruptions. This is common during the dry season. Presence of regular handcart water vendors is the first indication of a chronic water shortage in an urban area. The kiosks are located along road reserves at an average distance of 700-500 metres from each other.

### **PROCESS AND APPROACH**

#### **TOOLS AND METHODS**

The kiosks were sited largely on a supply driven basis with no end-user participation. The ward executive officer signs service contracts with the utility for each of the kiosks in his ward. Under the terms of these contracts the ward is responsible for payment of water bills and supervision of

the service delivery operation in general. The utility can therefore sue the ward to recover unpaid water bills. Legal action has however not been taken against non-compliant wards probably because other government departments are also running large unpaid water arrears. The Ward Development Committee decides on management issues including tariffs, opening hours and wages for the kiosk attendants. The Ward Executive Officer appoints an operator resident close to the kiosk. The operator must be a family man of acceptable social character, basically literate and without prior convictions. The consumers pay for the services as they draw the water. The operator makes a record of the sales made and of the water consumed. Water is sold to the kiosks by the utility at TShs 3/- per 20-litre jerrican and the kiosks are supposed to sell to the end-user at TShs 5/- thus making a profit of TShs.2/-. However all the CWPs surveyed charged TShs 10/- per 20-litre container. The street chairpersons are required to make monthly financial returns to the ward executive officer for each kiosk under their control.

### **ELIGIBILITY AND ACCESS**

Eligibility to the practice by a ward takes the following conditions:

- The ward must have kiosks or standposts installed within its boundaries. Installation may be effected by the ward, a group of households or by the utility.
- The Ward Executive Officer must complete and sign a service application form in accordance with Rule 5 of the Waterworks Ordinance
- The utility connects supply to the kiosk upon receipt of TShs.600 as connection fees from the ward executive officer and service delivery is initiated.
- The micro-management of the service delivery operation at the CWP is the responsibility of the ward administration.
- The utility sends monthly water bills to the ward for the amount of water registered by the meter during that period.
- The Ward Executive Officer must pay water bills regularly in order to remain in the practice.

A private individual who is interested in operating a commercial water kiosk has to follow the steps outlined below:

- Obtains an introductory letter from the Ward Executive Officer upon a written recommendation from his street chairperson to the effect that he/she is a resident with known honest means of income,
- He submits the letter to the utility from where he obtains an application form that he completes,
- The form is endorsed by the Ward Secretary and returned to the utility for processing,
- The utility makes a demand note for a connection deposit of TShs 600 to the applicant,
- Upon payment of this deposit the utility connects supply which terminates at the water meter.
- An account is opened for the new water consumer by the utility.
- The applicant has to install the service pipe work from the meter to the point of sale.
- He/she may elect to sell the water from the standpost tap without necessarily building a kiosk.

## **IMPLEMENTATION**

### **HOW THE PRACTICE ACTUALLY WORKS IN PRACTICE AND WHO IS INVOLVED IN ITS IMPLEMENTATION**

Kiosk operators sell water to consumers on pre-pay arrangements and make daily returns to the street chairpersons. The chairperson in turn makes daily remittances to the ward executive officer. Typical CWP operations can be summarized as follows:

Kiosks open daily at 8:00 hrs in the morning with the operator taking the meter reading and submitting the data to the street chairperson for record.

Each consumer provides a 20-litre jerrican for which a charge of TShs 10/- is paid in advance before water is drawn.

The attendant collects cash for every quantity of water sold and makes a record of total daily sales for his own and the street chief's reference. The records are used at the end of the month by the ward executive officer and the street chief to reconcile the utility water bills with sales and cash receipts.

The attendant remits daily cash collections and the water sales records to the street chairperson after closing time at 17:00 hrs.

The following morning the street chairperson remits all cash collections to the ward executive secretary with the previous day's sales returns. Daily sales average TShs. 1800 to TShs. 2400

The ward executive officer banks the collections on the central ward account. Revenue from water sales is not separated from the rest of the council's revenues.

The utility reads the CWP water meter once every month and sends a consumption bill to the Ward for payment. Payment must be made within the time specified in the Waterworks Ordinance otherwise supply is discontinued until arrears are cleared.

### **WHO SET IT UP?**

The practice was set up by the utility in consultation with the municipal authorities. The utility did not involve the community in establishing the practice and as such implementation problems have arisen. See also section under ANALYSIS.

## **INSTITUTIONAL ARRANGEMENTS EXISTING FOR:**

### **MANAGEMENT**

The utility is responsible for the bulk supply service up to and including the water meter. The ward executive officers manage the practice using the street chairpersons as the site agents.

### **MONITORING**

The ward executive officers monitor the operation of the kiosks from monthly returns submitted by the street chairpersons. These are reconciled with the water consumption bills sent by the utility.

## **SUPERVISION**

The street chairpersons supervise the kiosk attendant to ensure that the daily as well as weekly returns tally with the meter readings. The street chairperson is personally responsible for discrepancies that may occur in the returns submitted to the ward executive officer.

## **ENFORCEMENT OF RULES AND PROCEDURES**

Utility rules like waste control at the CWPs and payment rules are enforced by the utility. Water services are usually discontinued if any rule is persistently broken by the CWR operations. The ward development committee enacts and enforces operational procedures.

## **FINANCIAL MANAGEMENT**

The management of revenue collection is exerted by the ward executive officer by applying the monitoring tools through the reports submitted by the ten-cell leaders. However revenue from water sales is treated as any income of the ward.

## **CAPITAL AND O&M FINANCING**

Utility is responsible for O&M financing up to and including the meter as well as the kiosk structures. The rest of the operational and maintenance needs are met from water sale revenue of the CWP.

## **RATIONALE AND PRINCIPLES**

### **WHY WAS THIS PRACTICE SET UP THIS WAY?**

The Arusha Water Authority maintains a deliberate preferential tariff policy for public water kiosks that aims to make water services available to the poorer residents of the municipality at fair prices. The cheapest means of "guarding against possible abuse of the water policy by unscrupulous individuals" was for the utility to forge a partnership with the local authorities to organize and to manage public water services in peri-urban areas of Arusha. Local authorities have a political responsibility of providing social services to their constituents. Hence the utility assumed that by involving them in the practice an effective regulatory mechanism would be automatically built into the service delivery equation. This assumption has ANALYSIS

### **IS THE PRACTICE CONSIDERED TO BE SUCCESSFUL? IF SO, AND WHY?**

The stakeholder Matrix for this practice is shown below:

#### **STAKEHOLDER MATRIX**

<b>Stakeholders</b>	<b>Stake</b>	<b>Verification</b>	<b>Evaluation</b>
Utility	Public Health	Accessibility Effectiveness	Successful
Operators	Employment	Wages	Successful
Consumers	Social convenience	Efficiency Reliability	Successful
Political Leaders	Socio-political	Popularity	Successful

## IMPACTS, EXPECTED AND UNEXPECTED

### UTILITY

The utility's intention was to make water available to peri-urban residents conveniently and at affordable prices. The practice was set up with 48 kiosks and 100 standposts making a total of approximately 200 CWPs. Out of these the following status pertains:

- No new CWP has been established by the utility or by the Wards.
- Of the 48 original kiosks:
  - 27 are operational,
  - 19 are closed; and
  - 2 were recently demolished to permit access for new pipe installations.

Of the 100 standposts:

- 14 have been providing free services since installation in 1993.
- 40 are close; and
- 46 are operational.

The reasons given by the utility for closure of these CWPs point towards management weaknesses at ward level. Some of these weaknesses are illustrated as follows:

- Poor or inadequate revenue collection arrangements by some WEOs permitted residents to draw water from kiosks on credit. When the utility bill would be issued the WEOs would direct the street chairpersons to collect the revenue demanded in equal amounts from the concerned households. Most households would understandably dispute this procedure on account of the uneven water consumption of the different families and would refuse to contribute the amount demanded. Eventually the supply to the kiosk(s) affected would be turned off by the utility. The Ward Administration on the other hand has no vote from the municipal council to finance water services for residents therefore the kiosks have remained disconnected up to this day.
- Inadequate supervision arrangements by the street chairpersons in some instances permitted operators to retain cash collections for long periods. This tempted them to start applying the proceeds towards personal needs. Consequently the operators failed to remit the collections when demanded and they eventually migrated from the wards when criminal proceedings by the authorities became eminent. The kiosk(s) concerned were eventually disconnected for non-payment of bills. They remain closed because residents had already paid for the services in full and no body is willing to meet the bill for the common good of the rest not even the politicians.
- Some kiosks were found to be in a state of disrepair and disconnection due to non-payment of bills, others were closed by utility due to excessive water losses resulting from lack of maintenance or due no sales resulting from lack of sufficient market to sustain operations. This occurs in neighborhoods where most residents have in the meantime acquired private water connections.

## **STATE PURPOSE INTENDED BY ORIGINATOR OF THE PRACTICE**

The purpose of the practice was to provide the low-income residents of peri-urban wards with access to clean water at reasonable prices. The ward executive officers were expected to organize the management of the kiosks in their wards and to collect and to remit revenues to the utility.

## **TO WHAT EXTENT HAS THIS PURPOSE BEEN ACHIEVED?**

- From public health perspective the purpose has been partially fulfilled. The residents of the peri-urban wards have reasonable access to clean water. However they are not benefiting from over 50% of the kiosks and the standposts that have since been closed. This may not necessarily mean that they are denied access but they may be paying more per unit volume than the utility intended if they were to be served from the kiosks. Purchasing from neighbors' means that the consumption drops as the price is 20/- instead of 10/-.
- The commercial objectives of the practice at the utility level are being pursued and to some extent they are being achieved but at a higher administrative cost than earlier envisaged. The utility deploys a lot of resources in the revenue collection effort especially because services are provided on credit.
- At the ward level the objective was social and it is partially fulfilled because residents have access to water services at varying levels of convenience and different prices.

## **TO WHAT EXTENT HAS THIS PURPOSE NOT BEEN ACHIEVED?**

- The utility has been forced to close down some of the kiosks and the standposts due to circumstances that were largely within the control of the ward executive officers and therefore could have been avoided. The residents in the respective areas have to walk longer distances in search of water services or pay more than the kiosk rates when they collect from neighbors. The revenue that would have accrued to the utility from the kiosks has been blocked and the income that the operators of these kiosks could have earned has been lost.
- On the other hand the operators are flouting the utility recommended prices to the extent that some residents interviewed felt that the prices being charged were too high. The utility cannot enforce their recommended prices due to lack of resources for monitoring.

## **INCENTIVES CREATED**

- Through this practice the operators are gaining useful basic water utility operational skills like meter reading and monitoring of water sales and consumption. These operators are now in a strong position to establish themselves in water retail businesses as small scale providers by running their own kiosks.
- Private individuals who have recognized the potential of the retail water trade as an excellent long-term business opportunity have started approaching the ward executive officers with requests for letters of introduction to the utility for permission to construct and operate public water kiosks. One ward executive officer reported having received 8 such applications in the

past one month, including one from a woman applicant. Action by the ward executive officers is slow due to bureaucratic inertia.

## **REPLICABILITY**

The provision of water services using public kiosks is a standard method of serving the urban residents who cannot gain access to private utility services. But the replicability of this practice in its present form is doubtful. It is not even recommended because of the heavy administrative load that it imposes on the water service delivery operation. The commercial interface between the utility and the consumers is essentially a transaction between two parties: the seller and the buyer. Third party involvement only attracts expensive and unnecessary frictional losses. In this respect the role of the ward administrative structures in this practice is counter-productive because the true stakeholders in the water services delivery equation are the utility as producer and the consumers as purchasers. The only linkage between these two stakeholders is the medium of exchange necessary to complete the demand and supply cycle. Hence even within the framework of the Arusha Water Authority the practice needs major reform in order to survive. So its replicability in the current format is out of question.

## **ASSESSMENT OF SUSTAINABILITY**

The practice in its present form is not sustainable in the long-term because of a number of factors:

- The first problem is brought about by the business concept applied in the design of the practice and therefore in the technology used for the kiosks. These kiosks are in permanent construction format and yet the retail water trade is necessarily in a state of flux. This is a fundamental conceptual contradiction because the retail water business is a function of the municipality's development process. It is therefore not surprising that kiosks are closing in areas where residents have since acquired private water connections. This could have been anticipated and the practice designed to respond accordingly. Ordinarily the kiosks ought to automatically shift to new locations where the market is at present rather than being closed.
- The next issue is related to the one above and it is to do with the basic strategy that the utility is applying in implementing this practice. Water retail trade is a trade and it ought to be treated as such. There must be a very clear dividing line between social service obligations and the commercial objectives of a utility organization and of its agents. In this regard the kiosk operations are safer if they are left to a private operator to manage with only essential end-user price regulation being exerted by the utility when and as necessary. In order to maintain sound financial returns the operator would have been compelled to be sensitive to market demands to the extent that he would have ensured that an essential number of kiosks were operational in all parts of the municipality that exhibit true market characteristics for retail water business. At the moment the practice is running on the basis of 'nobody's business' and it may not survive for too long in this format.

## **ARE THERE SUPPORT ARRANGEMENTS/EXTERNAL INFLUENCES/INPUTS THAT WHEN WITHDRAWN COULD RESULT IN THE EVENTUAL COLLAPSE OF THE SYSTEM?**

The support arrangements in form of the current "input" from the local administrative structures into the water services delivery operation if withdrawn would in reality improve the practice. The ward executive officers appear to have two major problems with this practice: The first one is an ego problem. As mentioned earlier the utility recommended retail price of water services at kiosks is TShs 5/- per 20-litre volume. There is no commodity of this value in the context of the Tanzanian economy. This realization plays havoc with the ego of most wards executive officers. One WEO interviewed wondered why the utility bothered to charge for the services at all if the price was that low.

Being the lowest government operatives with delegated state power who interface with the communities, ward executive officers have very busy work schedules. In this respect the additional burden of managing water retail matters is an inconvenience the WEOs would rather do without. Consequently they delegate most decisions to the street executive officers. But the street administration does not hold mandate for such responsibility. The result is that vital decisions remain pending for long and the practice suffers as a consequence.

Therefore if the "support" from the ward administrations were withdrawn the decision-making process would move to a more appropriate level or even to a more appropriate entity thus improving the management of the practice.

## **4. OUTSTANDING ISSUES**

### **EXTERNAL FACTORS NOT TAKEN INTO ACCOUNT IN THE DESIGN (E.G. ENTRANCE OF NEW ACTORS SUCH AS ILLEGAL WATER VENDORS; CHANGE IN THE POLICY, POLITICAL, SOCIO-ECONOMIC FRAMEWORK) THAT COULD POSITIVELY OR NEGATIVELY AFFECT THE PRACTICE**

- Non payment of utility bills by some ward due to poor management of individual kiosks that led to loss of revenue has resulted to disconnection of many of the kiosks. This was not anticipated otherwise measures to guard against it would have been made. There is very little chance of the utility ever recovering the arrears that the wards owe. Yet each year the figures continue to appear on the assets column of the utility's balance sheet thus distorting the utility's trading accounts.. The best that the utility can do is to write-off the outstanding amounts as bad debt.
- As socio-economic circumstances in the peri-urban areas improve more residents obtain private yard connections. These residents then start selling water in competition with the kiosks. Since the consumers find the yard sales more convenient being nearer and open most of the time including nighttime, they abandon the kiosks. This has led to the closure of some kiosks.



- The kiosks were installed without user consultations. Consequently some were located too far from residential settlements. Such kiosks have never sold a litre of water since construction and they remain closed. Fortunately they are only about three in total.
- The ward administrations are charging higher rates than the utility recommends. This affects individual consumption as it impacts affordability of the services. Inflationary pressures may well be responsible for this action because the recommended price can no longer support the wages of the operators.

## **5. LESSONS LEARNT / CONCLUSIONS**

### **WHAT DO THE KEY FINDINGS OF THIS PRACTICE MEAN/IMPLY FOR WATER AND SANITATION SERVICES TO THE POOR?**

- Water kiosks are a good means for increasing service coverage, particularly in areas where the utility is not able to provide connections. Lessons learned from this practice indicate that incomes from community managed kiosks can sometimes be diverted resulting in disconnection of supply. The arrangements for management of these facilities need to address the issue of supervision, monitoring and accountability.
- The market for water kiosks diminishes with the increase in private water connections in the peri-urban neighborhoods. This however does not eliminate the demand for retail water trade altogether because the need shifts to new areas where utility infrastructure has yet to reach. The business concept and implementation strategy for communal water facilities ought to be designed to appropriately respond to the urban development process.
- Retail water operations are commercial undertakings and as such are adversely affected by non-commercial institutional impositions. Lessons learnt from this practice emphasize the need to limit third-party interference in water retail transactions beyond price regulatory measures that must be kept within the constraints of the prevailing market forces.

### **RELEVANCE FOR THE PROPOSED PROJECT OUTPUTS E.G. ADVOCACY TOOLS, SPECIFIC GUIDELINES**

Please refer to the lessons /conclusions in previous section.

### **REFERENCES**

This should include references to documentation used and location of materials.

## **PRACTICE 1**

### **PART 2**

#### **PUBLIC KIOSKS**

##### **THE CASE OF MTWARA**

###### **1. DESCRIPTION**

###### **CONTEXT OF PRACTICE**

###### **WHAT LED TO THE INITIALISATION OF THE PRACTICE?**

The water services in Mtwara were first established in 1952 and up till recently the Office of the Prime Minister acting through the regional water engineer was responsible for service delivery. Historically communal water services in Mtwara were provided via public kiosks that were coin-operated. The management arrangements at that time were such that cash collected from user-charges was not made available for service delivery operations in a timely way. Consequently O&M and other support activities weakened to the extent that by the late 1980's all the kiosks had fallen into a state of disrepair and had therefore been disused. The collapse of the kiosks programme was only a small part of a wider social service delivery catastrophe. It is reported that the entire water supply scheme of Mtwara was affected such that the majority of the town residents had no access to any form of safe water services. They resorted to vendor supplied water services and to collecting from unimproved water sources like shallow wells. In 1989 the European Union provided financial assistance for the rehabilitation of water facilities in Mtwara. The works that resulted from this initiative included the construction and equipping of public water kiosks specifically for use by urban residents who would not be in a position to acquire private water connections. In order to avoid a repeat of the previous experience the utility decided to implement a management arrangement that would secure the long-term sustainability of these kiosks. On the basis of this consideration the practice of using agents to manage and operate public water kiosks on behalf of the utility was set up.

###### **UNDER WHAT CONDITIONS DOES THE PRACTICE EXIST?**

The population of Mtwara is estimated at 123000 residents. The utility operates 3200 private water connections. Given an average household size of 6 persons, the total number of consumers covered by this level of service is estimated to be about 19200 people only. The rest of the residents collect water from shallow wells, from kiosks or buy from neighbors with private connections. The utility received electricity for an average of about 15hrs per day during the first half of 1998.<sup>5</sup> Although the utility manages to pump an average of 5000m<sup>3</sup> per day the unaccounted-for-water at reported 55% of production is quite high. Therefore the water available for distribution to consumers is far short of the demand that the utility estimates to be in the

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<sup>5</sup> Source: Annual Report for Urban Water and Sewerage Departments/Authorities, July 1997- June 1998.

region of 16,000 m<sup>3</sup>. Water in Mtwara is therefore rationed with the various areas being served at different times of particular days for an average of about 5 hours. Under these conditions the market for retail water services in Mtwara is promising. However the demand for these services is not evenly distributed in the town to the extent that kiosks located in some areas are doing well while those in other locations have little or no market at all. Most kiosk agents are engaged in other supplementary petty businesses in addition to the water retail trade. The water retail agents do not own the kiosks yet no formal commercial relationship exists between the utility and the agents regarding the tenure of rental. Apart from the utility's requirement that retail agents pay for water services within a specified period upon demand most aspects of the relationship between the agent and the utility are informal and hence not clear. This situation puts the kiosk agents at a competitive disadvantage with respect to the households that also sell water to the public. For instance while the households are installing holding tanks to mitigate against the effects of erratic utility services the kiosks agents are unable to do the same owing to the unclear tenure of rental of the utility kiosks. The result is that the households are offering more reliable water retail services than the kiosks.

### **WHAT IS THE PRACTICE?**

The practice refers to the utility managing retail water services in Mtwara by delegating the operation of public water kiosks to private agents who sell water to consumers on its behalf for a commission. The utility owns 34 kiosks in total all fitted with consumption meters that are read once each month. The agents deduct the commission due to them at source and remit the balance of the water revenue to the utility against a formal consumption bill. Financial transactions between the agent and the utility are once monthly. The utility provides bulk water services to kiosks at TShs 5/- and the agents retail it to consumers at TShs. 10/- per 20-litre container which, is the recommended official retail price. The utility's Customer Records Officer (CRO) is responsible for administration of the kiosks programme. This includes meter reading, making sure that necessary repairs are carried out by the relevant department, and responding to agents' queries. The methods employed vary but they include verbally advertising the retail business to consumers who would inquire as to why a particular kiosk in their area was not providing services to residents. The subsequent agreement between the agent and the utility is also informal. Over the times however the water retail agency has acquired such an important commercial status to the extent that some of the kiosks are doing quite profitable businesses. Due to the stable financial benefits accruing from the water retail operation some of the agents have become so keen about the practice that they now oversee the daily kiosk activities personally. The average sales of profitable kiosks usually amount to 150 m<sup>3</sup> per month. This means the agent makes TShs 75.000 per month, which is 183% of the average wage of a utility operative.

### **DETAILS OF O&M REQUIREMENTS OF THE PRACTICE**

- The utility constructs and owns the water retail installations including the kiosk and the water consumption meters, which it maintains and repairs. Meters are read once monthly upon which consumption bills are issued by the utility to the water agent.
- Water is supplied to the kiosk by the utility in bulk at a tariff of TShs 250/- (equivalent to TShs.5/- per 20 litres) and the water agent retails it in 20-litre containers at TShs. 10/- each.

- The water agent is responsible for the security of the kiosk structure, the plumbing installations and for the water meter.
- The water agent keeps the kiosk and its related public water installations and fittings in a clean and hygienic condition.
- The utility replaces faulty water meters, fittings and pipe-work. However if the water meter is damaged either accidentally or due to vandalism or through negligence of the agent then the utility replaces it at the agent's expense.
- The utility issues the agent with a bill indicating the total water consumed as registered by the meter at a tariff of 500/- per m<sup>3</sup> (or TShs. 10/- per 20-litre quantity). The agent however pays the utility's bill less the 50% commission that is due to himself, which he deducts at source. The agent therefore pays one half of the amount on the utility's water bill for which he obtains a receipt.
- All agents are men and most operate the kiosks directly or assign this responsibility to unpaid family labour typically the wife or an older child. Hence the kiosk agents do not meet traditional personnel operational expenses while managing this part of the practice.

## **STAKEHOLDERS, THEIR ROLES AND RESPONSIBILITIES**

The stakeholder profile of the practice can be outlined as follows:

### **THE END-USERS**

#### **Stakeholders**

The residents of the peri-urban areas of Mtwara are the customers of this practice. As end-users the residents have a social stake in the practice in that it is the only source of clean domestic water services at affordable prices.

#### **Responsibility**

The end-users as consumers of the retail services have to provide the 20-litre containers, pay for services and transfer the water from the kiosk to their homes.

### **THE KIOSK AGENT**

#### **Stakeholders**

The kiosk agent as the water services retailer has commercial stake in the practice on account of the financial benefits that accrue from the trade. Hence he is interested in the long-term sustainability of the practice, reliability of bulk water services, and reasonableness of the utility trade terms especially those related to tariffs.

**Responsibility**

The responsibility of the agents is to secure the retail water installations, provide retail water services by observing user-responsible business hours and paying the utility water bills on time. They are also expected to report any system malfunction to the utility whenever necessary.

**THE UTILITY****Stakeholders**

Utilities as the primary water services providers are interested in increasing service coverage in order to enhance revenue collection. However this must be done in the most cost-effective way possible. In this respect the kiosks practice represents the easiest means of achieving this objective at the least management load. The utility therefore is keen to ensure that the kiosk practice meets the original aims on a sustainable basis.

**Responsibility**

The utility is responsible for providing portable bulk water services to the kiosks on a reliable and sustainable basis and to enforce affordable end-user tariffs. In this respect they are expected to read meters, issue consumption bills and ensure that revenue is collected while monitoring end-use water prices that are charged by the agents.

**INITIAL COST OF THE PRACTICE**

The cost of constructing the kiosks is estimated at TShs. 1.5 million. The initial administrative expenses associated with the practice included planning and siting the kiosks, promotion and advertisement of the retail trade, selection and appointment of agents. They also included training of agents to read, record and to interpret consumption data from water meters. This cost was not segregated from the mainstream expenses of the utility but they are estimated to be within the region of TShs. 150000/- per kiosk.

**RUNNING COSTS OF THE PRACTICE**

The running expenses of the practice include the following cost items:

- The commission paid to the agents by the utility,
- The O&M costs attributable to delivery of bulk services to the kiosks
- The office administrative and overhead costs for the practice like preparation of bills, responding to agents' queries and other management needs ; and
- The costs associated with field commercial activities like meter reading, delivery of bills and revenue collection activities typically disconnection and reconnection of kiosks.

The utility does not separate expenses related to kiosk activities from its mainstream financial records. However the portion of the mainstream utility operating costs that is attributable to the practice is about 7% of total cost load.

## **PURPOSE**

The population of the town of Mtwara is estimated to be 123000. These are served through 3200 connections. Therefore the number of residents that have no access to private water connections constitutes the majority of the urban population. These have to resort to communal water facilities like public kiosks or yard taps whose owners are willing to sell water to their neighbors. The practice therefore serves to facilitate water services accessibility to some of the urban residents who are too poor to afford individual water connections. In some cases the residents are simply not interested in private water connections because they are tenants of premises in which they have no long-term social interests.

## **WHO INITIATED THE PRACTICE?**

The practice was initiated by the utility. The initial approach was such that the utility would collaborate with the community administrative structures, specifically the water committees of the ward development councils to identify the kiosk agents who would then enter into a formal contractual arrangement with utility regarding the operation of the kiosks. In this way the committees would become guarantors of the agents in a formal contract that would be signed between the agent and the utility. Unfortunately the water committees were at that time not strong enough to fulfil this management responsibility thus compelling the utility to source the agents directly from the communities using informal methods. In hindsight the method that was eventually adopted by the utility appears to have turned as being commercially superior to the approach initially envisaged. This is because under the current arrangements the agents deal directly with the utility thus eliminating the administrative layer that would have been created by involving the water committees. Also compare with *Analysis* of Arusha Practice.

## **WHO IS RESPONSIBLE FOR MANAGEMENT OF THE PRACTICE?**

The utility is institutionally responsible for making sure that the practice works. There is no specific unit responsible for the practice in the utility however the Customer Records Officer (CRO) who works under the Business Manager directly supervises the kiosks' commercial operations including its customer services requirements. The technical manager meets the engineering needs of the practice. The CRO is assisted by a staff of 12 to undertake the following activities

- Meter reading and preparation of bills,
- Delivery of bills to the kiosks agents; and
- Disconnection of services from non-compliant agents.

## **BENEFICIARIES OR USERS**

### **CONSUMERS**

The consumers of the retail water services are benefiting from the practice in terms of utility monitored prices that are lower than those charged by the private connection holders. Three consumers interviewed all indicated that they face serious difficulties whenever utility services at the kiosks are interrupted. The private connection holders sell water at twice the price at the practice's kiosks.

## **AGENTS**

The kiosk agents benefit from the practice on account of the financial returns accruing from the water retail trade. They are not required to make any capital or operational investments in the practice. They are required to pay the utility bills on time in order to continue receiving the bulk water services. The agents running kiosks in areas with regular utility services and are located in high population density neighborhood report sales that are 150m<sup>3</sup> per month. The revenue from this level of consumption is TShs 75000/-. The average employee in the utility earns TShs. 42000/- per month.

## **TARGET MARKET**

The total population that would ordinarily have benefited from this practice if its coverage were adequate is about 90000 people. But owing to inadequacies in service delivery, poor siting of kiosks and market pressure exerted by water sales from owners of private connections the number of operational kiosks is only 17. Under normal water supply conditions, meaning uninterrupted flow at a pressure of 10 metres a kiosk that opens for about 12 hours ordinarily supplies an average of about 200 consumers per day. But the water supply in Mtwara is available for about 6 hours a day. This means that the number of people served by each kiosk in a day is 100. Hence the practice serves 1700 people. This practice has been in existence since 1994 and it is being applied in varying implementation formats in all the eighteen water authorities in Tanzania. However the practice in its present format is being applied in Mtwara and in Mbeya.

## **2. PROCESS AND APPROACH**

### **TOOLS AND METHODS**

- The utility originally intended that to qualify for water retail agency one would have first and foremost been a resident landlord of a candidate kiosk area. The utility however found that most landlords were not really interested in running public kiosks. So they abandoned this approach and the eligibility requirements were relaxed to permit any interested person to apply for kiosk agency.
- The utility closes water supply to a kiosk that is available for letting out to an agent. This action prompts the concerned residents to inquire from the utility as to why the services are not available from their kiosk upon which they are informed that an agent is needed to manage the kiosk before services can be restored.
- The residents then spread the utility's requirements in the neighborhood until a prospective agent comes forward to make inquiries at the utility about the conditions for the retail business. The CRO explains the conditions of access to the prospective agent who then completes the service application forms. The utility then records the personal particulars of the agent upon which the keys to the kiosk are handed to the applicant.
- The agent is required to pay the monthly utility bills within 14 days of receipt of the water bill. Failure to abide by this requirement results in the disconnection of supply to the kiosk.

Persistent delays in remittance of utility revenue results in the agent being summoned to the utility's offices to offer an explanation. If the explanation is unsatisfactory then supply is promptly disconnected upon a subsequent delay and the agency arrangements revoked by the utility.

#### **WHAT LEGAL INSTRUMENTS ARE IN FORCE E.G. MANAGEMENT CONSTITUTIONS, LEGAL REGISTRATION?**

- The national water policy requires utilities to subsidize services to domestic consumers by charging a higher tariff to consumers who use water for commercial and industrial purposes. This policy permits the utility to apply a bulk water tariff to services related to public water kiosks.
- The Water Ordinance of 1949 (amended in 1997), Article 24 permits the utility to recover arrears by distress if necessary, for services rendered to consumers who then fail to pay for such services. The utility has however never applied this approach possibly because of the protracted legal procedures required.
- The payment tool in use for payment of bulk services to the utility is cash upon issuance of a water bill. The end-users of the practice pre-pay to the agent for the retail services at the kiosk.

#### **IMPLEMENTATION**

##### **DESCRIBE HOW THE PRACTICE ACTUALLY WORKS IN PRACTICE AND WHO IS INVOLVED IN ITS IMPLEMENTATION**

- The agents ordinarily operate kiosks directly or through designated members of their families. When constant utility services are available kiosks open for business at 7:00 hrs and close at 19:00 hrs everyday.
- Due to water rationing however kiosks can only open when the utility services are available in their locations. This is ordinarily between 7:00hrs in the morning and about 13:00hrs in the afternoon everyday.
- Consumers are required to provide containers of standard capacity in measures of 20,30 or 40 litres. About a third of the consumers have only 10 litre containers. The agents charge a standard fee of TShs 10/- per 20-litre quantity. However the same fee is applied even for the 10 litre containers. Consumers are aware that they pay more per unit volume in this way but they explain that they have no choice since they do not own 20 litre containers.
- In all cases only women and children collect water from the kiosks unlike in Arusha where young men are seen purchasing water for delivery to commercial premises like bars and hotels. There are no water vendors in Mtwara.
- The containers are filled and payment is made '*taslim*', a Kiswahili expression that means cash upon delivery. The agent retains the daily collections at his discretion.



- The utility reads meters once monthly and issues consumption bills accordingly. The agent pays 50% of the amount on the bill for which an official receipt is issued. The rest of the billed amount is the commission that the agent deducts at source.
- Payments to the utility are required within 14 days of issuance of consumption bills. The utility reports that most agents usually pay the bills immediately.

## **INSTITUTIONAL ARRANGEMENTS EXISTING FOR :**

### **MANAGEMENT**

The Board of Directors set the policies that govern the practice acting from advice provided by the managing director. The CRO looks after the commercial aspects of the practice while the Technical Manager is responsible for the engineering and service delivery issues of the bulk supply services.

### **MONITORING, SUPERVISION AND ENFORCEMENT OF RULES AND PROCEDURES**

The CRO acting with assistance of the meter readers monitors, supervises and enforces rules and procedures of the practice including financial management and O&M financing on behalf of the utility.

## **RATIONALE AND PRINCIPLES**

### **WHY WAS THIS PRACTICE SET UP THIS WAY?**

The national water policy requires all public sector water providers to make special service delivery provisions to cater for the poor in society. The provisions have to be both in terms of end-user facilitation and also in the commercial arrangements. In this respect Mtwara Water & Sewerage Authority seeks to meet the water demand requirements of the peri-urban residents of the town through public kiosks. In order to reduce the operational costs associated with the management of retail water operations the utility decided against sending their own staff to operate the public kiosks. The approach whereby an agent would operate the kiosk on behalf of the utility at a commission was considered to be the most cost-effective in several ways. The concept of paying a commission to an agent introduces a commercial incentive to the extent that the agent would try to sell as much water as possible in order to earn a large commission. This motivates the agent to keep the kiosks open for business as long as possible thus permitting wider service coverage. The practice is almost self-monitoring when the agent is required to pay for consumption recorded on a meter. He cannot for example afford water losses that would lead to excessive run-off from the taps. All kiosks inspected were diligently conserving water by guarding against unnecessary water losses.

## **ANALYSIS**

### **IS THE PRACTICE CONSIDERED TO BE SUCCESSFUL? WHY?**

#### **THE UTILITY**

The utility considers the practice successful because it compels a sense of responsibility by the agents as they are paid a commission that is directly proportional to the volume of water sold. The practice also ensures effective service delivery to the targeted consumers at a minimal management load to the utility.

However about half of the kiosks constructed are not operational. The utility blames this state of affairs on two constraints:

- Lack of interest in water retail business by the established regular traders tends to compel the utility to deal sometimes with individuals with such low managerial skills that they are unable to control the retail trade operations to the extent that they fail to pay the utility bills.
- The private water connection holders out-compete the kiosk agents by installing holding tanks and therefore being able to offer more reliable retail services. The kiosks in areas with many private water connections are therefore closed due to lack of market.

The utility reports a serious shortage of kiosk agents at the moment.

#### **THE AGENTS**

The agents whose kiosks are located in areas of favourable conditions like constant water services and high population of residents in rental accommodation are doing profitable water retail business. These consider the practice successful. However some agents are not so lucky because the utility services in their areas are not regular. As a result their customers have since switched to the private connections holders whose services are cushioned from irregularity of utility supplies by the holding tanks that the individuals have installed. These agents have no reasons to consider the practice successful. Those who have found alternative means of earning a living abandoned the kiosks. The ones who still continue with the retail trade under these conditions are doing so as a last resort.

#### **THE CONSUMERS**

The consumers consider the practice successful. The four consumers interviewed indicated that apart from the frequent rationing the water services are reasonable in terms of price and in adequacy. The rationing of water forces them to re-schedule other important activities in order to collect water when it becomes available at their kiosk. They were satisfied with the arrangement of an agent as opposed to a utility operator running the kiosk on account of the fact that the agent is one of their own since he resides among them. They felt socially closer to the agent because he is able to open the kiosk at odd hours if need arises an act that they did not expect from a regular utility operative. All kiosks customers interviewed stated that they only purchased water from the private connections holders as a last resort whenever supply from the kiosk was not available.

## **IMPACTS, EXPECTED AND UNEXPECTED**

- In the design of this practice the utility aimed at ensuring unhindered access to public water services at reasonable prices. This expectation has been realised in certain respects in that where the utility services are stable the kiosks are providing retail water services to all consumers who demand it at the utility recommended rates.
- Some kiosks however were poorly located. They have little or no market since majority of residents has access to utility services through private individual water connections. These have since been closed and attempts by the utility to re-open them have so far been unsuccessful due to lack of interest by prospective agents.
- The utility tariff of TShs.10/- per 20-litre quantity of water translates to TShs. 500 per cubic metre of supply. This rate is three times the utility's domestic tariff. Therefore the expectation that public water services are subsidized by other consumer categories did not materialize.
- The practice targets the urban poor who constitute the majority of residents. However the actual number of people that benefit from this practice is very small, a maximum of about 2000 only. The expected service coverage has not been achieved.
- The majority of residents appear to be obtaining water from unimproved sources like shallow wells. This is because sales from the 3200 outlets of owners of private water connections cannot possibly account for the total un served demand of 101,000 people. Yet there are no vendor services in Mtwara probably because the economy cannot support the prices that are likely to be charged for this type of service. The health impact of this situation is likely to be negative.

## **ASSESSMENT OF REPLICABILITY**

This practice in its present format is replicable only in as far as the commercial arrangements between the utility and the agents are concerned. This is in respect to the idea of paying a commission to an agent who retails water on behalf of the utility as opposed to hiring operators or managing through the local administration structures. All the other key aspects of the practice need substantial reform in order to ensure that the practice achieves its basic objectives. The issues that need to be examined:

- All aspects of this practice like the siting of public kiosks should follow commercial considerations right from planning up to commissioning. For example it is not advisable to site and construct kiosks then advertise for agents to run them. The individuals who wish to engage in the water retail business ought to be sourced from the very beginning so that they assist the utility to determine the suitable locations for the kiosks.
- The kiosks ownership question needs to be resolved to permit clear tenure of operation so that agents gain confidence to improve the kiosks like installing holding tanks in order to be in the same operational position with the owners of private water connections.
- The retail water business in the towns ought to be harmonized with respect to trade terms. The private water connection owner who also sells water to the public is charged a domestic tariff of TShs 220/- and he charges 20/- per jerrican because he is under no obligation to charge utility recommended rates. Yet the kiosk agent pays TShs250/- per cubic meter and he can only charge TShs. 10/- per jerrican.

## ASSESSMENT OF SUSTAINABILITY

- The profit motive is an essential incentive for the agents who are running profitable kiosks to remain in the practice. Provided the total sales per month translate into a commission that can support the basic needs of the agent's family the kiosk will most likely remain open everyday and the agent will regularly meet his financial obligations to the utility on time. This is a key sustainability factor.
- The biggest constrain to sustainability is for the utility's failure to provide sufficient and reliable bulk water services to sustain water sales at kiosks at break-even levels. The minimum wage in Tanzania is given as TShs 42,000/- per month. In order for an agent to earn this amount he would have to sell at least 168,000 litres in a month. Only two agents are making sales in excess of this figure at the moment.
- Mr Siki one of the residents interviewed owns a private water connection and is a well-known regular water seller because the ladies interviewed at the public kiosk within the same neighborhood stated that they obtained their water from Siki whenever their public kiosk ran dry.
- The figures given by Mr.Siki indicate that he can only manage to sell 100,000 in a month. This figure is probably correct because his water bill for the previous month was TShs 22000/- at a tariff of 220/- per cubic meter. He reported that he never runs short of water. He is located in a valley, a high-pressure supply zone that is well endowed with utility water services.
- From the preceding information it can be seen that an agent cannot earn minimum wage selling water at a utility kiosk. The agents currently in this practice appear to remain there on account of the income from the supplementary trading operations they are engaged in or due to lack of an alternative income generating activity.
- The sustainability of this practice is therefore quite questionable especially on the income that the agents are earning from it.

## 4. OUTSTANDING ISSUES

### EXTERNAL CONDITIONS WHICH AFFECT THE PRACTICE

- 1 The entrance of the private connection holders into the practice is affecting the agents in more than one way:
  - The private water sellers are not regulated by the utility. Hence they sell water at TShs 20/- per 20-litre container. This is 100% higher than the utility recommended price of TShs 10/- per 20-litre quantity.
  - The private water sellers pay the utility's domestic tariff of TShs 225 per cubic meter or TShs 4.50 per 20-litre jerrican, which is just under 25% of what they charge the end-

users. The kiosk agents on the other hand have to pay 50% of their collections and yet their prices are half of what the private sellers charge.

- The kiosks do not have holding tanks which most private sellers have installed. This means the pattern of service delivery at kiosks depends strictly on the utility supply cycle. The private water sellers are able to cushion themselves from the utility's service interruptions by using the water in holding tanks as buffer supplies. Hence they offer more reliable services than the kiosk agents do.
- Under these conditions most agents would prefer owning private water connections that are more profitable than operate public kiosks. This unfair competition might explain why the utility has been experiencing difficulties in interesting people to re-open the closed kiosks as agents.

- 2 Public kiosks traditionally offered free water services. Therefore a lot of promotion was needed to convince the public that these facilities would no longer offer free water services. Even then it was not possible to run kiosks in some locations commercially so the utility closed them. Soon after closure the kiosks were vandalized. In Arusha kiosks found to face these circumstances are still offering free water services to avoid vandalism.

## **INFORMATION GAPS WHICH AFFECT THE ANALYSIS**

- The basis for the total number and location of the kiosks is not clear. Given the size of the un served population it is clear that many more kiosks would have been constructed, the budget permitting. The small number of kiosks and the fact that they offer unreliable water services in comparison to the private water sellers may account for the huge presence of the parallel retail market. It is difficult to evaluate this phenomenon without the baseline concept that was applied in the design of the practice.
- The water supply services in Mtwara are quite unreliable and for most areas almost non-existent for most of the time. However despite this serious shortage no water vendors were reported or even sighted in the town. This being a coastal town the surface water sources are likely to be too saline to be of any useful domestic purpose. Where do the majority of the residents get their water from?

## **5. LESSONS LEARNED/CONCLUSIONS**

- Public water kiosks that are managed by agents on behalf of the utility are an effective means of providing regulated water services to the urban poor. However it is important that water supply to the kiosks is reliable otherwise the public kiosks customers turn to alternative sources of supply that they consider more reliable leading to closure of the utility kiosks.
- Under conditions of unreliable and inadequate utility water services holders of private water connections take advantage of the retail water trade to make profits from the social hardships that the frequent interruptions in utility services creates for the poor.
- The income accruing from the sale of water from public kiosks is not adequate to support a minimum wage of the operators. The kiosk agents therefore have to supplement the water

retail operations with other retail businesses that they undertake within the vicinity of the water kiosk sites. Perhaps because the agents do not make any initial capital investments in the water retail business together with the fact that the running costs of operating a water kiosk are quite insignificant, they are quite happy to stay in the practice as a source of some side income.

## **RELEVANCE FOR WUP NO.5**

- Utilities like Mtwara Water and Sewerage Authority need to be assisted to recognize the commercial importance of their peri-urban consumers. Far from being a vulnerable group of individuals seeking assistance from the utility peri-urban residents constitute over 80% of the utilities markets. More importantly these consumers pre-pay for water services and pay several times the average domestic tariff as opposed to their more affluent contemporaries who obtain water services on credit. The commercial potential of this market is therefore quite tremendous but no utility appears to take a second look.
- It is imperative that utilities develop suitable institutional arrangements to capture and to retain this market on a pro-active basis. In this regard a peri-urban services department specifically geared for retail water services to the urban poor should be considered by utilities.<sup>6</sup>
- Following the advent of pre-pay technology the idea of manually operated kiosks is outmoded. It increases the cost of water to the end-user without improving the level of service. For instance the money being paid to the agents in Mtwara would be passed on to the consumer in reduced service charges if the kiosks were installed with pre-pay meters. The cost of a 20-litre jerrican would go down to TShs 5/-. This means that for TShs.150/- a resident would be able to obtain a full months' par capita consumption. Such reforms would encourage consumption and also increase service coverage.

## **PRACTICE 2**

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<sup>6</sup> When this suggestion is made to utility executives they always respond by saying that such a department would be redundant. 'Redundant' when dealing with 80% of the total market.

## **PART 1**

### **COMMUNITY MANAGED PIPE-DISTRIBUTED WATER KIOSKS**

#### **KIJITONYAMA COMMUNITY WATER PROJECT**

##### **DESCRIPTION**

##### **CONTEXT OF THE PRACTICE**

##### **THE PRACTICE**

The main source of water for the city of Dar es Salaam is the Ruvu River. This is supplemented by small quantities from Kizinga River at Mtoni. Water losses attributable to system malfunction as well as administrative weaknesses account for about 35% of production. The water services are grossly inadequate and in most areas very unreliable. Resulting from this inadequacy water services are rationed in most parts of the city including the ward of Kijitonyama. In 1996 the second rains that usually occur in the latter parts of the year failed. The ensuing drought acted to aggravate the already serious water supply shortage in the whole of Dar es Salaam.

Kijitonyama is located adjacent to the city's main Lower Ruvu trunk main an area with a relatively well developed secondary water distribution network. Prior to the 1996 drought most of Kijitonyama ward enjoyed a relatively reasonable supply of water and residents had as a result become very dependent on piped water services. Therefore when the water supply to the area deteriorated to only one day of supply in a week the residents found themselves in very serious problems indeed. The situation became particularly grave for the residents who could not afford to install holding tanks to store the water for long periods. These were the majority. The resulting water crisis led to a situation whereby:

- Vendor supplied water prices shot to TShs. 500/- from 100/- per 25litre container thus forcing residents to walk several kilometers in search of cheaper alternatives.
- The burden on women increased many fold as they are traditionally responsible for providing water to households.
- There was increased incidence of water borne infections as people resorted to the use of poor quality water for domestic household consumption.

The Kijitonyama community working through their local CBO, the *Kijitonyama Community Development Committee KIJICO*, approached the Community Infrastructure Project CIP of the Dar es Salaam City Council for assistance in terms of emergency project support to alleviate the water problem. KIJICO was in existence prior to the initiation of the water project. The CIP subsequently forwarded the request to Irish Aid and to the National Urban Water Authority NUWA for further action. As the water situation of Dar es Salaam was at the time perceived to be in a state of long-term crisis it was decided that the support to the Kijitonyama community would be implemented more on a relief basis as opposed to a full-scale development programme. The limited financial resources and also the understanding that the utility would one day re-establish regular water services drove the rationale behind this determination. The community

water system would at that time be available only as a stand-by facility in the event of service interruptions by the utility. On the basis of the subsequent consultations between the donors the utility and the community representatives, the community decided that an independent stand alone water supply system for Kijitonyama ward be installed in preference to connecting to the DAWASA water supply system. The process was to be a demand responsive one whereby the community would provide non-skilled labour for the required works.

The water system that was subsequently installed is based on two powered boreholes that deliver water into two elevated reservoirs from which it is distributed to 16 public kiosks that are located within Kijitonyama ward. All the monetary costs of the project were financed by Irish aid. The community provided unskilled labour inputs including trench excavations. NUWA provided technical advice and engineering support while the CIP was responsible for community mobilization and other soft-ware support needs of the project. The community development officer who was assigned to the project from the CIP still supports some operational activities of the community water supply services as part of a training programme to strengthen the management capacity of the community. The CIP is part of a larger development program within the DCC that is known as the Dar es Salaam Sustainable Program. It is a unique programme that is addressing the city's infrastructure problems by working directly and closely with CBOs to enhance their capacity to effectively participate in development programmes within their respective communities. The CIP adopts participatory approaches in its development strategies.

The practice therefore refers to the community organizing itself to obtain support of the utility working closely with a donor to establish an independent water supply facility. The quality of the water is monitored by the utility who regularly take samples for analysis. In order to ensure that the practice meets the needs of the beneficiaries on a sustainable basis the level of service is limited to off-premise supply only. In view of the limited quantities the CBO undertakes water conservation sensitization programmes aimed at educating its members on the importance of prudent utilization of water resources.

The community acting through an elected committee owns and independently manages the pipe distributed water supply system in Kijitonyama. The practice is run purely on community rules that are drawn from KIJICO's management constitution. A project coordinator hired by KIJICO and assisted by a cashier and 16 kiosk operators manages the daily operational needs of the water services. The coordinator is responsible to the chairman of the Technical Committee of KIJICO for monthly reports and related management monitoring purposes. However the CBO executive does not get involved in the daily operational routines of the practice, which are a responsibility of the hired staff. KIJICO is a legally registered community association under the Societies Ordinance of 1954. See copy of registration certificate attached, Appendix 1. The association runs on the basis of a Management Constitution that was enacted by the community.

The water services are retailed at TShs 1/- (equiv. US\$0.001) per litre that is pre-paid to the kiosk attendant prior to drawing the water. Apart from the initial support of preparing the technical designs and supervising the construction works the public utility does not interfere in the operational decisions of the practice like imposing tariffs or subsidizing the operational costs of the community water services. The water quality monitoring activities are carried out as part



of an overall utility management responsibility that does not require any formal arrangements between DAWASA and the water consumers.

## **THE INNOVATION**

The innovation is that the community, by using rules from their CBO constitution, is able to undertake traditional utility management activities necessary to sustain pipe-distributed water services for its members without backstopping from public institutions. This eliminates utility overhead costs, which in turn helps to maintain service charges to the end-user within affordable limits. The community has been able to figure out that owing to the relatively low yields of the boreholes the only level of service that the practice can sustainably support is collection from public water kiosk service as opposed to individual private connections. This action ensures service reliability while protecting the motors from dry-run damage usually caused by low water levels. House connections are however available from the parallel utility managed system. The practice was set up in such a way as to ensure that:

- The water sources are not abused by over exploitation,
- Water vendors from other areas are only permitted to draw water after the primary demand of the beneficiaries has been satisfied,
- Water services are equitably distributed within all neighborhoods of the ward; and
- The quality of water in storage does not deteriorate.

## **O&M OF THE PRACTICE**

- There are two boreholes supplying two reservoirs: one 65m<sup>3</sup> and the other 15m<sup>3</sup> capacity. The larger reservoir fills within 7 hrs of pumping and it provides 5 days of supply under prevailing consumption scenario. The smaller reservoir is filled and emptied daily. Total average daily consumption is therefore 28m<sup>3</sup>. There is a community office that is responsible for all O&M issues.
- All the water pumped from boreholes is metered at the reservoirs. The rate of pumping is controlled by automatic float switching mechanisms that ensure that the aquifer is not drawn-down too rapidly. DAWASA operatives regularly check the quality of the water at the reservoirs.
- The project co-ordinator Mr. Zaidi Mungereza is responsible for daily operations assisted by the office secretary also who doubles up as the finance administrator. There are sixteen metered community kiosks out of which only 4 are operational. The rest are closed due to lack of demand. An attendant runs each operational kiosk.
- The cost of water at the kiosk is TShs.20/- (equivalent to US\$0.025) per 20 litres or 1000/- (US\$1.25) per cubic metre. KIJICO intends to reduce this price by 50% in order to be in line with the prevailing water retail prices in the Ward. In this way the CBO hopes to boost sales by attracting back some of the original customers who have since switched to the DAWASA source of supply. Retail water prices in Kijitonyama are depressed by the increasing sale of water to neighbors by private water connection holders.
- A strong community preference for DAWASA supplied water is reported. This is thought to be mainly due to the low salinity of the utility water as compared to the supply from the boreholes. The other important factor is that as more residents acquire private water connections the option of

purchasing water from neighbors becomes more attractive than collecting from the kiosk because of reduced walking distances and the higher flexibility of access that the yard tap sales provide.

- The capital investment costs were US\$ 600000. The monthly net revenue from water sales is reported as TShs. 60000/- (US\$75). The attendants' wages that account for 20% of cash collections are TShs 12000/-(US\$ 15). The cost of power is TShs. 20000/- (US\$ 25); the staff wages and salaries are TShs.280000/-(US\$ 350) per month. Total expenditure comes to TShs312000/- (US\$ 390). Therefore the practice is making an operational loss of TShs.240000/- (US\$ 315) per month. The NGO Irish Aid currently meets 78% of the manpower wage bill. This assistance is due to stop in December 1999.
- At an average daily supply of 28m<sup>3</sup> the consumption would be 22m<sup>3</sup> after a 20% allowance for system losses is taken into account. This should yield TShs 22000/- (US\$28) per day. This works out at TShs 660000/- (US\$ 75)per month, all of it prepaid at kiosks. Theoretically therefore the water system is capable of meeting its operational expenses, make a return on the capital invested and still yield a modest profit, even at the very low consumption rates that are reported.
- The kiosks are fitted with consumption meters but the community has not yet been trained to read and interpret the consumption figures. The meters are reported to even be faulty. Hence the community has no means of verifying the revenue figures that are declared by the attendants. And that is the problem.

## MATRIX OF THE STAKEHOLDERS, ROLES AND RESPONSIBILITIES

The stakeholder matrix for this practice could be represented as follows:

<b>Stakeholders</b>	<b>Roles</b>	<b>Responsibilities</b>
KIJICO	Owners	Management
COMMUNITY	Users	pay for services
Irish Aid	Donor	Implementation
UTILITY	Backstopping	Quality Control

### KIJICO

The Kijitonyama Community Development Committee as initiators of the practice is the beneficiary of the water supply assets. Documents for legal ownership were not seen. The ownership arrangements would be in accordance with the financing agreement between Irish Aid the Tanzania government. Ordinarily this being a public water supply it would belong to the government of Tanzania through its local administration structures. The beneficiary and operators of the system are the residents of Kijitonyama acting through their development association. One consideration that led to the selection of Kijitonyama for project support by the CIP was the CBOs track record in community-based projects and their relatively good grass-root representation together with their healthy financial position. The CBO is therefore responsible

for the management of the water services and as such the operational staff report to KIJICO within the institutional framework of the practice.

## **COMMUNITY**

The community as beneficiaries of the practice is the end-user of the water supply services. They therefore have direct interest in the water supply system. In this respect they protect the facilities against vandalism and they are required to pay tariffs set by KIJICO in order to sustain the water supply services. At the management they mandate the various committees of KIJICO to oversee the operational integrity of the practice.

## **IRISH AID**

Following the 1996 water crisis the Tanzanian government has received increasing support of the bi-lateral and multi-lateral donor community towards the resolution of the Dar es Salaam water supply problem. Irish Aid, in playing its part indicated that its contribution would be channeled through the community infrastructure programmes, CIP. The stake of the donor therefore revolves around the successful implementation of the project. In this respect the donor facilitated the CIP to provide all the mobilization and other necessary software support for the successful implementation of the community based project. The donor continues to provide post-construction support to the community by meeting a significant portion of the operational wage bill.

## **UTILITY**

The public utility NUWA that later became the Dar es Salaam Water Supply Authority DAWASA is the agency responsible for provision of water supply services to the residents of Dar es Salaam. In this respect it is in the utility's interest for donors and communities to initiate actions that improve water services within the city boundaries. However the provision of these services ought to be in accordance with the technical standards of the utility and as such DAWASA was at hand to ensure that all engineering activities followed sound technical considerations. They provided the initial feasibility analysis and engineering designs as well as the supervision of the construction works. The feasibility analyses assisted the community to calculate the water tariff.

## **COST AND FINANCING OF THE PRACTICE**

The monetary cost of the practice was US\$ 600000 for the stand-alone borehole system. This excludes the cost of labour and of the land for project sites that were both provided by the community estimated at 5% of the cost of construction. The utility provided technical support to the community in terms of project planning and engineering design. The donors paid the utility for this input. The parallel DAWASA supplied and managed sub-network cost TShs.10 million (US\$ 12500). This parallel system is connected to the city's main reticulation network. The community contributed the whole of this amount and the mains extension was effected by DAWASA.

## **PURPOSE**

The practice began as an interim community initiative to improve water services to their locality by reinforcing the distribution network that supplied Kijitonyama. However due the acute water shortage that followed the drought of 1996, the independent borehole supplied system was installed as a standby facility to the DAWASA managed services.

## **MANAGEMENT OF THE PRACTICE**

The project coordinator assisted by the secretary of KIJICO who is also responsible for revenue collection and other cash-related functions undertakes the operational activities. The operational staff reports to the community development committee. The water kiosk attendants report to the operational staff.

The Kijitonyama community comprises an estimated total population of 13825. Of these about 1800 individuals are directly connected to the DAWASA system via 350 private water connections.

Thirty other borehole systems have been established in other parts of the city under the World Bank funded emergency water supply programme by DAWASA. These are run under different management principles from the practice under study.

## **PROCESS AND APPROACH**

### **TOOLS AND METHODS**

### **ELIGIBILITY AND ACCESS**

Kijitonyama Development Committee (KIJICO) is a community-based self-help association that was formed by the residents of Kijitonyama for infrastructure development and management purposes. KIJICO is a legally constituted CBO that is registered under the societies Registration Act. Membership to the association is open to all adult members of Kijitonyama community through payment of a membership fee of TShs.10000/- (US\$ 12.5). Membership to the association is a requirement for entitlement to the community water services. The association is run on the basis of a management constitution that was enacted by community. A copy of the management constitution is attached, Appendix 2. The borehole system only supplies public water kiosks. Users are required and expected to prepay for the quantity of water fetched from the kiosks. Revenue from each kiosk is remitted to the association offices at the end of each day. Each kiosk attendant is paid a wage equivalent to 20% of the amount he sells. KIJICO has however no means of verifying the data given by the attendants at the moment.

Residents requiring a higher level of service can only obtain it by connecting to the DAWASA supplied network. Access to the DAWASA parallel sub-system requires an initial contribution of TShs.60000/- (US\$ 75) per household to KIJICO for permission to connect to this 'community' network. Water supply from DAWASA is on the basis of the utility's standard service conditions where by the individual enters a direct service contract with the utility after obtaining the necessary clearance from the community as owners of the parallel system. The revenue that

accrues from this source of finance is ploughed back into the practice to finance part of its operational expenses.

## **COMMUNITY MOBILIZATION AND DECISION MAKING**

The approach for community mobilization is participatory through meetings that are called by the development association. Public meetings constitute the main tool for decision-making. However the requisite committees of the Association are responsible for detailed planning and implementation of the needed activities.

## **INSTITUTIONAL ARRANGEMENTS**

Operational management of the water supply is the responsibility of the Project coordinator with support of the rest of the operational staff. Water services are charged for at a tariff agreed with the beneficiaries and a finance committee exercises control over all water revenues. The financial controls and procedures are outlined in a Financial Management Document, FMD. A volunteer member of the community originally drafted this management tool. It was first discussed and agreed within the CBO and later submitted to the CIP for quality assurance before being adopted. A copy of the operational version of the FMD is enclosed, Appendix 3. The FMD assists the finance committee to carry out monitoring of the financial operations of the practice.

The technical committee provides the overall supervision of the practice, enforces rules and procedures and exerts operational management protocols. The capital cost financing is achieved through the CIP while O&M financing is the responsibility of the community although the donor Irish Aid is temporarily supporting a significant portion of these costs.

## **WHY WAS THIS PRACTICE SET UP THIS WAY?**

The main factor responsible for the way the practice was set up was the socio-economic profile of the community. Water resources considerations on the other hand played a role in limiting service levels to communal water points only.

The majority of the residents in Kijitonyama are employed full-time outside the neighborhood. They therefore may not be in a position to actively participate in the day to day operations of the water system. On the basis of this consideration and the need for full-time attendance to the water facilities, a squad of full-time employees manages the water supply services. The management of the community association affairs on the other hand is on voluntary basis.

## **ANALYSIS**

For each group of key stakeholders and for each of the indicators of performance analysis of the measure of successfulness and statement of the reasons why this is considered successful or not (e.g. for the utility efficiency is linked to best use of funds, while for the users it may be in terms of distance or waiting time), has been made. Thus the means of verification have to be adapted per stakeholder.

## **THE CONSUMERS**

As members of KIJICO the users have provided inputs and on this account they expected efficient services in terms of quality, quantity and convenience.

## **EVALUATION**

The two employees of the practice together with four users were interviewed and they all gave the impression that they considered this practice unsuccessful on account of the comparatively higher price charged for a lower level and inferior quality of service than the DAWASA managed supply. This is precisely because the two services are available in parallel and in direct competition to each other. This opinion is possibly due to the improved reliability of the DAWASA supply since the practice was established and also due to the fact that more residents have since acquired private connections from the utility network. The private connections holders do sell water to their neighbors thus reducing the market available to the practice.

## **STAKEHOLDER 2**

### **KIJICO**

Among its recent activities KIJICO have spent time and effort to establish this practice. The primary objective of this development effort was to provide water services to their members at affordable price. A secondary objective was to generate income through water sales.

## **EVALUATION**

The primary objective was achieved in that the practice was able to meet the intermediate community water needs when the utility supply was not reliable and was inadequate. On account generating finances for KIJICO through sale of water this practice is not successful.

## **STAKEHOLDER 3**

### **IRISH AID**

The objective of the donor was to provide emergency relief aid to KIJICO in support of their initiative to establish and manage a community water supply system.

## **EVALUATION**

The objective of the NGO of supporting the community to implement and manage a participatory relief water project in Kijitonyama has been achieved. On this account the practice has achieved its objective.

## IMPACTS, EXPECTED AND UNEXPECTED

### THE IMPACT OF THE PRACTICE AGAINST THE INTENDED OR STATED PURPOSE AND/OR OBJECTIVES; AND THE PURPOSE INTENDED BY ORIGINATOR OF THE PRACTICE

The purpose of the practice was to enable community organization KIJICO develop and manage an efficient water supply system to meet needs of the residents of Kijitonyama by improving accessibility to and reliability of water services at affordable costs.

### TO WHAT EXTENT HAS THIS PURPOSE BEEN ACHIEVED?

This purpose has been achieved to the extent that the management has increased water supply accessibility including developing a standby capability in the event of interruption or failure of DAWASA managed services.

### TO WHAT EXTENT HAS THIS PURPOSE NOT BEEN ACHIEVED?

This purpose has not been achieved in as far as collection of revenue for O&M of installed facilities is concerned. This can be verified from the fact that out of the 16 kiosks that were established by the practice 12 (70%) are not in use due to absence of demand. The following table of costs illustrates this problem. Number of kiosks in operation is 4.

ITEM	Cost (TSH.)
Monthly Revenue	60000.00
Cost of Power	20000.00
Attendants' Wages (20% of Revenue)	3000.00
Senior staff Salaries and Askaris' Wages	277000.00
Total Expenditure	300000.00
Cash Operating Deficit	240000.00

### WHAT WERE THE INCENTIVES CREATED BY THE PRACTICE?

There were negative incentives created on the following account:

- Water sales from kiosks restricted only to residents of Kijitonyama.
- Consumption meters are not read to reconcile sales with revenue. Hence supervision of kiosks operators is inadequate.
- Revenue collected represents only 20% of sales indicating possibilities of undercover financial operations.

How have these affected the outcome (e.g. competition or the lack thereof).

- The market distortions imposed on the water trade by denying service access to non-residents has led to low sales. Low sales result in low revenues to the extent that the practice is unable to meet its overhead costs and most of the operational expenses from its cash collections.

- The very low water demand has resulted in the closure of most of the kiosks. Curiously however this has not prompted the community management to re-evaluate their marketing strategies and permit non-residents to draw water from the operational kiosks
- Failure by the practice to apply meter readings to reconcile sales at kiosks with revenue is responsible for the wide discrepancies between consumption and cash collections declared by kiosk attendants.

## **ASSESSMENT OF REPLICABILITY**

### **THE POTENTIAL OF THE PRACTICE FOR IMPROVING SERVICES IN OTHER AREAS**

#### **HAS THE PRACTICE ALREADY BEEN REPLICATED ELSEWHERE?**

It is reported that similar projects are being initialized in Makongo, Mbezi in the Dar es Salaam area and in Mbweni in Bagamoyo. The World Bank is currently supporting DAWASA to drill and equip a total of 30 boreholes within the Dar as Salaam supply area. This practice offers one option that the utility is likely to consider for medium management of these discrete water systems.

#### **HOW WIDESPREAD IS IT?**

Community managed water supplies of this scale are not widespread in Dar es Salaam possibly due to the high investment costs needed for construction of engineering facilities.. This practice for instance is only reported in Tabata.

#### **BY WHAT MEANS DID IT SPREAD?**

The practice is spreading through several initiatives including the CIP a community infrastructure programme of the Dar City Commission supported by NGOs and DAWASA through the World Bank support.

## **ASSESSMENT OF SUSTAINABILITY**

### **SUPPORT ARRANGEMENTS/EXTERNAL INFLUENCES/INPUTS THAT WHEN WITHDRAWN COULD RESULT IN THE EVENTUAL COLLAPSE OF THE SYSTEM**

- The current revenue from water sales cannot meet the O&M apart from the energy costs and wages of attendants and some of the office security expenses.
- The donor is meeting the bulk of staff wages and salaries. It was reported that this support is due to stop in December 1999.
- Clearly when donor funds dry up the practice's operations that are dependent on this support will cease to be financed and therefore they will have to stop.



## **IS THERE OWNERSHIP, CONSENSUS OR COMMITMENT TO THE PRACTICE?**

The circumstances that compelled KIJICO to set up this practice have changed at least in the immediate term. The following changes have occurred:

- The reliability DAWASA water services appear to have improved;
- the socio-economic circumstances of a significant number of residents have improved to the extent that there are more private water connections now than before and
- therefore many residents prefer to meet their water needs by purchasing from neighbors and not from public kiosks.

Under these conditions the best that KIJICO can do is to maintain the water facilities of the practice in an operable condition to mitigate against service interruptions from DAWASA.

## **WHAT ACTIONS HAVE BEEN TAKEN, ARE BEING TAKEN WITHIN THE FRAMEWORK OF THE STAKEHOLDERS TO ENSURE SUSTAINABILITY (E.G. FORMALIZING PROCEDURES/REFORMING LEGISLATION, FINANCING STRATEGIES, TRAINING AND CAPACITY BUILDING, ETC)**

The Association is aware of the operational difficulties that lie ahead of the practice unless remedial action is taken to secure the financial position of the water supply system. The committee is currently reviewing options of reducing operational costs while at the same time enhancing revenues from water sales. One option that is likely to increase revenue collected is to institute mechanisms for supervising the kiosk attendants so as to ensure that all cash collected is remitted to the association. There is also need to harmonise the water management activities such that the price of the utility managed services are sold at its true value in relation to the supply from the practice. It may not be practicable to lease out the water facilities or even the kiosks at the moment because the DAWASA water services appear to have become more reliable in and around the Kinondoni Ward Kijitonyama is located.

## **PROTOCOL 4. OUTSTANDING ISSUES**

### **EXTERNAL CONDITIONS WHICH AFFECT THE PRACTICE**

Are there external factors not taken into account in the design (e.g. entrance of new actors such as illegal water vendors, change in the policy, political, socio-economic framework) that could positively or negatively affect the practice?

The single most important factor not taken into account at design of this practice is what was to be done with the water facilities when the reliability of the parallel DAWASA managed services improved permanently even as a back up system. The superior quality and lower price of the utility supplied water has tended to depress the retail price at which the practice can market its services. This is in addition to the fact that the majority of consumers prefer the DAWASA supply and have since switched to purchasing water from owners of private water connections. There is an imperative demand to harmonise the water trade in the Kijitonyama in order to protect the practice from collapse.

**ASSUMPTIONS, IF ANY, MADE AT THE START OF THE PRACTICE WERE PROVED TO BE WRONG - SUCH AS LEGISLATION IN PLACE WHICH IS NOT YET IN USE ETC.**

The water demand assumptions did not take the supplementary supply and subsequent competition from the DAWASA managed system into account. This has rendered trading of the water from the practice difficult; a situation that was not foreseen by the community at the time of designing the practice..

**INFORMATION GAPS WHICH AFFECT THE ANALYSIS OF THE SUCCESS OF THE PRACTICE**

The planning of the project did not include a cost-benefit analysis.

**ADDITIONAL INFORMATION WOULD HAVE BEEN USEFUL TO IMPROVE THE ANALYSIS OF THE PRACTICE, BUT WAS NOT AVAILABLE AT THE TIME OF THE STUDY**

The project document that was availed did not contain any baseline socio-economic nor water demand data that ought to have guided the design of this practice. In absence of such information it is not possible to accurately assess whether the system is over-designed or not. It is also not clear whether the output of the water facilities was designed to meet the peak demand of the Kijitonyama residents.

Furthermore if water consumption and revenue data had been regularly reconciled from meter readings and expenditure figures correctly recorded it would have been possible to assess the financial position of the practice. Data available does not permit any form of financial analysis.

**PROTOCOL 5. LESSONS LEARNED/ CONCLUSIONS****WHAT DO THE KEY FINDINGS OF THIS PRACTICE MEAN/IMPLY FOR WATER AND SANITATION SERVICES TO THE POOR**

The community water supply is under tremendous pressure from the DAWASA managed services despite the fact the latter is not as reliable as the former. Community preference is reportedly based on the superior quality of the utility supplied water. Lessons learnt from this practice indicate that improved socio-economic conditions raise community's water service level preferences to the extent that quality in terms of taste and convenience of access play a major role in determining the choice of service regardless of reliability of such service.

**RELEVANCE FOR THE PROPOSED PROJECT OUTPUTS E.G. ADVOCACY TOOLS, SPECIFIC GUIDELINES**

The outputs of this practice indicate the way of how not to design and manage water supply.

**ANNEX****Practice 2 - Part 1**

(Community Managed Pipe-Distributed Water Kiosks : Kijitonyama Community Water Project)

**Annex 7:** The Societies Ordinance (Cap. 337): The Constitution of the Kijitonyama Development Community (KIJICO), 20pp

**Practice 2****PART 2****COMMUNITY-MANAGED WATER SUPPLY SYSTEM****TABATA COMMUNITY WATER SUPPLY SCHEME CASE, DAR ES SALAAM CASE****PROTOCOL 1****DESCRIPTION****WHAT IS THE PRACTICE?****BACKGROUND**

The Dar es Salaam City Commission (DCC) used to operate a solid waste dump site off Mandela Road adjacent to the peri-urban suburb of Tabata. The Commission devised a standard method of disposing of this waste that was by periodically burning the rubbish whenever it accumulated. This dump-site was therefore a source of great inconvenience to the residents of Tabata in several ways; first the obnoxious gases that the decomposing organic matter produced and the smoke resulting from the process of burning the rubbish were a source of serious air pollution in the area. Secondly the rubbish would occasionally overflow to the main access road to Tabata making for inconvenient and dangerous access to the suburb. The residents in a bid to solve this problem, therefore decided to organize themselves into an anti-pollution pressure group that was known as the Tabata Environmental Development Fund. The specific aim and immediate purpose of the fund was petitioning the DCC to relocate the solid waste dump site away from this suburb. The community initiative succeeded and the dump-site was relocated. Principally driven by the positive impact of this community action a strong incentive for a formal and permanent organization for the management of similar affairs of common community interest emerged. Consequently the environmental pressure group gave way to a fully-fledged CBO that was named Tabata Development Fund.

**THE PRACTICE**

The CBO, with its own management constitution, has several objectives one of which, is the development and management of social infrastructure within Tabata on self-help community based approach. Irish Aid is the organization responsible for implementation of bilateral aid programmes on behalf of the Government of Ireland. Following the failure of the long rains in 1996 and the ensuing water crisis in the city of Dar es Salaam the Tabata Development Fund contacted Irish aid for assistance to solve the water supply services problems in the Tabata area. Resulting from this request Irish Aid working with the community that was assisted by the Community Infrastructure programme CIP of the City of Dar es Salaam and with DAWASA as the technical support organization, implemented the Tabata Community Water Project. The water supply system consists of four powered boreholes that supply 20 public kiosks. The water supply system was handed over to the community through its CBO the Tabata Development Fund. The community runs the water services through its CBO by means of employing staff who manage the system on a day to day basis. The services that are pre-paid at the water kiosks are charged at TShs 1/- ( US\$0.00125) per litre or US\$ 1.25 per cubic metre. An attendant mans

each kiosk that are all metered and a supervisor daily reads all the meters. Since the establishment of the scheme the water supply services in the suburb of Tabata have greatly improved. The CIP has continued to support the community in its capacity building efforts by providing a community development officer free of charge, to train the staff of the practice in utility management activities like meter reading, book-keeping, accounting, banking and auditing.

### **TECHNOLOGY OR INNOVATIVE IDEA THAT DRIVES THE PRACTICE**

The whole of the Tabata area had suffered from inconsistent supply and low water pressure long before the 1996 crisis. Evidence from assessments carried out in Tabata by the donor and the CIP during the crisis suggested that water was only available one day per week prior to the crisis. It was therefore unlikely that investing in the utility's rehabilitation programmes would automatically result into an improved supply for Tabata residents. A separate smaller community managed water system that would be dedicated to Tabata area was therefore preferred. This has turned out to have been a very good decision given the protracted unsatisfactory state of the DAWASA managed water services. The innovative idea that drives the practice therefore is the community management arrangement that is designed to ensure sustainable service delivery within the resource constraints of the dedicated water supply scheme.

### **DETAILS OF O&M REQUIREMENTS OF THE PRACTICE**

- The practice is based on a design average water output of 11600 litres per hour. This supply is extracted from 4 boreholes that deliver water to 3 overhead reservoirs of total storage capacity of 95 cubic metres. The reservoirs reticulate water to 20 public kiosks via a 5 km distribution network. No other level of service is permitted by the practice beyond the public kiosks.
- Automatic electronic level indicators that automatically switch the pumps off when the tanks are full control pumping from boreholes into the reservoirs. This occurs during off-peak consumption periods or when the attendants close the kiosks.
- The CIP continues to maintain a community development officer CDO at the practice's offices in Tabata. The CDO is initially in charge of the management of the accounting and record keeping operations of the practice as part of a training programme being provided to the operational staff of the practice.
- A technician who is the engineering supervisor and who also doubles up as a plumber carries out the engineering activities of the practice. There is an attendant trained in meter reading skills for each public kiosk. The attendants start selling water at 6:00hrs in the morning and finish in the evening at 19.00 hours daily. The supervisor makes a daily cycle of independently reading all the meters at the kiosks.
- The accountant who is the overall manager of the practice receives the supervisors' report that he reconciles with the daily kiosk returns that are submitted by the attendants. The attendants submit the daily collections to the manager who banks it the following day. The CIP currently provides transport to the practice for banking purposes.

## LIST THE STAKEHOLDERS, THEIR ROLES AND RESPONSIBILITIES

### MATRIX OF THE STAKEHOLDERS, ROLES AND RESPONSIBILITIES.

The stakeholder matrix for this practice could be represented as follows:

<b>Stakeholders</b>	<b>Roles</b>	<b>Responsibilities</b>
CBO	Owners	Management
COMMUNITY	Users	pay for services
Irish Aid	Donor	Implementation
UTILITY	Backstopping	Quality Control
DCC (CIP)	Facilitator	Capacity Building

### TABATA DEVELOPMENT FUND

The CBO Tabata Development Fund as initiators of the practice is the beneficiary of the water supply assets. Documents for legal ownership were not seen. The ownership arrangements would be in accordance with the financing agreement between Irish Aid the Tanzania government. Ordinarily this being a public water supply it would belong to the government of Tanzania through its local administration structures. The beneficiary and operators of the system are the residents of Tabata acting through their development association. One consideration that led to the selection of Tabata for project support by the CIP was the CBOs track record in community-based projects and their relatively good grass-root representation together with their healthy financial position. The CBO is therefore responsible for the management of the water services and as such the operational staff report to it within the institutional framework of the practice.

### COMMUNITY

The community as beneficiaries of the practice is the end-user of the water supply services. They therefore have direct interest in the water supply system. In this respect they protect the facilities against vandalism and they pay tariffs set by the CBO in order to cover the operational costs and sustain the water supply services. At the management level the community mandates the relevant committee of the CBO to oversee the operational integrity of the practice by employing staff who are trained by the CIP to undertake the required utility management activities.

### IRISH AID

Following the 1996 water crisis the Tanzanian government has received increasing support of the BI-lateral and multi-lateral donor community towards the resolution of the Dar es Salaam water supply problem. Irish Aid, in playing its part indicated that its contribution would be channeled through the community infrastructure programmes, CIP. The stake of the donor therefore revolves around the successful implementation of the project. In this respect the donor facilitated the CIP to provide all the mobilization and other necessary software support for the successful implementation of the community based project. The donor continues to provide post-construction support to the community by meeting a significant portion of the operational wage bill.

## **UTILITY**

The public utility NUWA that later became the Dar es Salaam Water Supply Authority DAWASA is the agency responsible for provision of water supply services to the residents of Dar es Salaam. In this respect it is in the utility's interest for donors and communities to initiate actions that improve water services within the city boundaries. However the provision of these services ought to be in accordance with the technical standards of the utility and as such DAWASA was engaged by Irish Aid to carry out all engineering activities of the project. In this respect DAWASA provided the initial feasibility analysis and engineering designs as well as the construction of the systems. The feasibility analyses assisted the community to calculate the water tariff to respond to the operational costs projected .

## **DCC CIP**

The Community Infrastructure Project (CIP) of the Dar es Salaam City Commission was initiated within the framework of a wider program namely the Sustainable Dar es Salaam Program (SDP). The project addresses urban infrastructure problems by working directly with Community Based Organizations (CBOs) in order to enhance their capacity to participate in development programs that benefit their respective communities. The specific objectives of the CIP include community capacity enhancement, institutional strengthening and improvement of infrastructure service delivery. The CIP is currently working with the two communities of Kijitonyama and Tabata. The project has facilitated the establishment of community managed water supply systems in these two areas though instituting a cost-effective management, operational and maintenance system.

## **COST AND FINANCING OF THE PRACTICE**

The project was implemented in two phases. Phase I that started in March 1997 was completed in October 1997. The design water output of this phase was 4900 litres per hour and the target population was 3000. The cost of this phase was TShs 24.7 million and US\$ 600. Phase II was implemented between 1998 and 1999 at a cost of TShs. 45.7m and US\$ 800. This phase created an additional output of 6800 Litres per hour that is capable of serving a population 12,000. Financial assistance was provided by Irish Aid. Technical support for surveying, design, and preparation of drawings and construction the works including the water tower was provided by DAWASA. A private contractor who was directly engaged by Irish Aid drilled the boreholes. The community contributed labour for pipe trenching. The total wage bill of the practice's senior staff is TShs 170000 (US\$2125). The attendants are paid 20% of the sales from their individual kiosks. This approach is meant to encourage the attendants to fully participate in the sales process. All service delivery costs are met from tariffs that average TShs two million per month.

## **PURPOSE**

The practice begun as an interim community initiative to improve environmental profile in the locality by petitioning the DCC to relocate a solid waste dump-site away from the neighborhood. However due to the acute water shortage that followed the drought of 1996, the initiative was widened to establish a self-help water services project dedicated to and run by the community. The specific problems that the practice is helping to overcome according to the community members interviewed include:

- Distance of fetching water reduced from 2 kms to 0.3 kms on average
- Quality of water has improved given the fact that before residents sometimes fetched water from unimproved sources.
- The Practice has created employment for youths who were engaged as operators.
- Vendor prices have dropped from 300/= to 100/= per 20 litre jerrycan.

## **MANAGEMENT OF THE PRACTICE**

In order to ensure maximum participation of beneficiaries in project planning, implementation and monitoring a CBO leadership and its various committees have been formed. The CBO leadership consists of a chairperson, a secretary and a treasurer. The committees include:

- The Executive Committee; this monitors and directs the development activities at community level. The committee comprises representatives from the community, state, local authority, and Donors.
- The Sectoral Committees: These identify community needs, review and approve plans of action, monitor and evaluate project implementation. They are composed of local professionals within the community and representatives from the state and donors.
- The Finance Committee: This is responsible for managing the accounts of the CBO including causing audits to be performed regularly. The finance committee is chaired by the CBO Treasurer and is composed of neighborhood representatives, and donors.
- The Neighborhood Consultative Committees: These are responsible for liaison between the support partners and the community. Depending on the population, each neighborhood is represented by up to 24 members.
- The Neighborhood Committees: these composed of the area representatives. This is the lowest level of community organization and it represents the initial point of consultation.

The CBO through its Sectoral Committee on environment and social welfare employs operators to manage the water services (see also text on O&M Arrangements).

## **CONTEXT OF PRACTICE**

### **WHAT LED TO THE INITIALISATION OF THE PRACTICE?**

The acute water shortage that followed the drought of 1996 led to the initialization of the practice. Given the scale and extent of the water crisis the community could not wait for the utility to resolve the problem in a short time. On the basis of this consideration the community created a CBO that initiated action to establish and run independent water supply services on behalf of the community. Irish Aid was already supporting infrastructure development in Tabata. The next priority was water development.

### **WHAT CONDITIONS ENABLE THE PRACTICE TO EXIST?**

DAWASA managed services are unreliable thus causing scarcity of water in Tabata and in the neighboring areas. This scarcity has created tremendous water demand both within Tabata compelling residents to regularly pay for the services; and outside to the extent that even vendors



purchase water from the practice for sale to other consumers in the neighboring areas. This widened the resource base of the practice and contributed to securing its financial position.

### **WHO INITIATED THE PRACTICE?**

The practice was initiated by the Community acting through its CBO, the Tabata Development Fund that was supported by a combination of stakeholders. The utility was paid by the Donor to provide planning and implementation support. The Municipality acting through its CIP facilitated the process by mobilizing and organizing the community based organization to get the beneficiaries to fully participate in the development initiative. The funding agency Irish Aid provided the monetary support needed to implement the project.

### **BENEFICIARIES OR USERS**

#### **WHO ARE THE BENEFICIARIES OF THIS PRACTICE?**

The beneficiary profile of the practice covers several levels: the community benefits in terms of the services consumed that never existed before the practice was set up. The total population served is estimated at 15000. The practice originally targeted only domestic demand although other activities are also benefiting. The practice provides free water services to the Tabata Health Centre and to all the schools within the project area. The total school population is reported at about 4000 pupils. Commercial activities like block-making are being supported by the water services provided by the practice. The practice has existed since 1997.

#### **WHERE IS IT BEING APPLIED?**

The practice is being applied in Tabata & Kijitonyama. Thirty other borehole systems have been constructed in other parts of the city of Dar es Salaam by DAWASA under the World Bank funded emergency water supply programme. The management arrangement to be adopted for these systems has not yet been finalized. It is likely that most of these systems may run under different management principles from the practice under study although some of them may replicate it.

## **PROTOCOL 2**

### **PROCESS AND APPROACH**

#### **TOOLS AND METHODS**

#### **TOOLS AND METHODS USED TO CARRY OUT THE PRACTICE**

##### **Eligibility and Access**

List the identification and selection criteria and procedures of access

The primary beneficiaries of the water supply services are the eligible residents of the Tabata project area and the social sector institutions within it. According to the Management Constitution membership to the TDF is open to all Tabata residents who have attained the age of 18 years and above. They must have contributed to the fund as stipulated in the constitution.

Admission and membership to TDF is subject to obligations that members have to abide by, according to the Management Constitution. The obligations are as follows:

- To collaborate with and participate in the deliberations of committees set up by the TDF
- To attend all meetings duly convened by the TDF or by any of its committees.
- To co-operate with the TDF in the fulfilment of its objectives and functions especially self-help projects

The procedure for access to services is cash pre-payment for the quantity of water required at the kiosk.

### **APPROACHES FOR COMMUNITY MOBILISATION (E.G. PARTICIPATORY FORA, INTERVIEWS, QUESTIONNAIRES )**

Community mobilization is participatory spearheaded by the CBO leadership that works through the various community structures. For purposes of mobilizing the community to participate in the development initiative the Tabata Project area was zoned into 8 neighborhoods. Each neighborhood covers about 120 areas. Each zone elected a neighborhood representative to sit on the Neighbourhood Consultative Committee. On average 10 to 15 households constitute an area. Each area has Area elected representative. The Area Representatives report to Neighborhood Consultative Committee on contentious community issues. Community decisions originate from public meetings organised by Area Representatives. These are communicated to the neighborhood representative(NR) through the respective Area Representative. The NR is a Member of Central Committee of TDF. Mobilization is done through the NR via the area representative and then to the community. This approach facilitates a two-way communication channel between the community and the CBO leadership.

### **LEGAL INSTRUMENTS IN FORCE E.G. MANAGEMENT CONSTITUTIONS, LEGAL REGISTRATION?**

The activities of the CBO are governed by a Management constitution that was enacted by the community through its structures. Furthermore TDF is legally registered under the Societies Ordinance as a community based organization.

### **IMPLEMENTATION**

#### **HOW THE PRACTICE ACTUALLY WORKS IN PRACTICE AND WHO IS INVOLVED IN ITS IMPLEMENTATION.**

##### **Who set it up?**

The CIP in consultation with the community acting through the CBO and the donors IRISH Aid set up the practice. The process of capacity building to firm up the necessary utility management procedures and protocols within the CBO is still in progress. In this respect the practice is not independently run by the CBO. The Community Development Officer from the CIP still carries on day to day administrative activities for the practice.

**Who operates and maintains it?**

TDF manages the water supply services through staff and operators who were engaged by the CBO to operate and maintain the facilities. An accountant who is assisted by an engineering supervisor manages the facilities. The water kiosks are each manned by an attendant who reports to the accountant on financial matters and to the engineering supervisor on technical issues.

**What are the existing institutional arrangements?**

Overall management of the practice is the responsibility of the relevant Sectoral Committee of TDF. The committee exercises its responsibilities through the Finance Director who sits at the TDF offices. An accountant reporting to the Finance Director oversees the day to day operational needs of the practice. The accountant monitors the kiosk operations from the daily reports that are submitted by the attendants. Supervision The Finance Director supervises the accountant through financial reports. Audits are done at random by a member of community who is qualified to carry out such audits. The first final accounts were due end of 1999. It was understood that an external auditor will be engaged to review the accounts and advise the community accordingly. Enforcement of rules and procedures is accomplished through the management constitution and through the financial and management regulations that the CIP is assisting to establish. A donor supported the initial capital financing requirements. Although the O&M costs are financed through the tariff it is unlikely that the tariff being charged covers replacement financing.

**RATIONALE AND PRINCIPLES****WHY WAS THIS PRACTICE SET UP THIS WAY?**

The Water Works Ordinance (1995) Article 4 Paragraph 42 section and subsection (iii) permits communities to manage water services for their own use. This policy change has created an environment for innovative ideas in the management of community water supplies. This practice was set up in such a way because it responds to community needs in this way. The idea of public kiosks permits flexibility regarding the amount of water the end-user can purchase at any given time. The management arrangements on the other hand compel operational efficiency as it is easy to monitor.

## **PROTOCOL 3**

### **ANALYSIS**

#### **IS THE PRACTICE CONSIDERED TO BE SUCCESSFUL/ IF SO, WHY?**

##### **COMMUNITY**

The community of Tabata considers this practice to be a success because it has solved the water supply problem in the area. The cost of water has been controlled, the service is reliable and the distance walked to fetch water has greatly reduced.

##### **CBO**

One of TDF's objectives is "to assist Tabata Residents in their self-development efforts to solve their environmental (and the ) issuing social-economic problems .....". On the basis of the fact that the community was assisted to implement this practice, this objective of the CBO has been fulfilled.

##### **IRISH AID**

The objective of the donor was to provide emergency relief aid to Tabata in support of their initiative to establish and manage a community water supply system. The objective of the NGO of supporting the community to implement and manage a participatory relief water project in Kijitonyama has been achieved. On this account the practice has achieved its objective.

##### **CIP**

The CIP aims at providing support to communities for sustainable development through participatory approaches. The implementation of the practice and its impact on the lives of the residents of Tabata indicate that the program's aims are achievable. In this perspective the practice is a success.

##### **IMPACTS, EXPECTED AND UNEXPECTED**

##### **PURPOSE INTENDED BY ORIGINATOR OF THE PRACTICE**

The purpose of the practice was to provide the residents of Tabata with reliable supply of clean water at reasonable price.

##### **TO WHAT EXTENT HAS THIS PURPOSE BEEN ACHIEVED?**

- From the public health perspective the purpose has been achieved. The residents have reasonable access to reliable water services.
- The development objectives have been achieved to the extent that residents' quality of life has been improved.
- At the CBO level the practice is able to sustain itself financially. Hence the burden of sourcing funds to sustain O&M costs has been eliminated.

**TO WHAT EXTENT HAS THIS PURPOSE NOT BEEN ACHIEVED?**

None so far.

**ASSESSMENT OF REPLICABILITY**

The success of the practice is principally based on the fact that the operation is well managed therefore the water services are cost recovering and hence self-sustaining. Supervision of service delivery is at two levels: at the community level by the CBO's Sectoral Committee and by the CIP through the CDO. The system design is such that daily consumption can be audited against production by comparing the meter readings at the kiosks with the flow recorded by the bulk flow meters that are installed at the out fall of each reservoir. Furthermore the operational procedures are based on a simple but effective management information system that compels transparency at all levels (see text on O&M arrangements). The CIP is providing strong capacity building support to the CBO in terms community mobilization, training in data collection, report writing and finance management. This scheme represents best practice procedures in the management of community water services which ought to be adapted by other communities.

**HAS PRACTICE BEEN REPLICATED ELSEWHERE?**

A similar approach is being applied in the management of water services in the neighboring settlement of Kijitonyama. However the impact and level of success is much lower in Kijitonyama than in Tabata. The main weaknesses appear to be related to the inadequate attention being paid to the institutional and utility management aspects of the service delivery operation in Kijitonyama and the fact that the DAWASA managed services are performing better there than in Tabata. Please separate case study on Kijitonyama.

**ASSESSMENT OF SUSTAINABILITY**

Are there support arrangements/ external influences/ inputs that when withdrawn could result in the eventual collapse of the system?

The input from the CIP needs to be sustained for as long as it will take the CBO to fully grasp the management procedures and protocols being established. It is not clear how long this will take but should the support be withdrawn prematurely there is a real risk of adversely affecting the proper performance of the practice.

**IS THERE OWNERSHIP, CONSENSUS OR COMMITMENT TO THE PRACTICE?**

All the principal stakeholders, having provided input to the implementation process and given the impact that the scheme has had on their expectations, have strong commitment to the sustainability of the practice.

**WHAT ACTIONS HAVE BEEN TAKEN, ARE BEING TAKEN WITHIN THE FRAMEWORK OF THE STAKEHOLDERS TO ENSURE SUSTAINABILITY?**

The CIP is implementing a comprehensive training programme that seeks to raise the capacity of the CBO to levels where it can sustain sound utility management procedures without external support from other organizations.

## **PROTOCOL 4: OUTSTANDING ISSUES**

### **EXTERNAL CONDITIONS WHICH AFFECT THE PRACTICE**

#### **ARE THERE EXTERNAL FACTORS NOT TAKEN INTO ACCOUNT IN THE DESIGN THAT COULD POSITIVELY OR NEGATIVELY AFFECT THE PRACTICE?**

The DAWASA managed services are to be privatized in due course. The relationship that will emerge between the private operator and the CBO after the transition is not clear. The ownership of the infrastructure facilities needs to be clarified well ahead of the initialization of private operations otherwise conflicts may arise on account of this question at a later stage. In most countries in the region ownership of social infrastructure assets is vested in the central government who then decentralize them to the local authority in due course. If indeed this is the case with the ownership of the assets of the practice then the community may face legal difficulties arising from reform of the urban water sector.

#### **STATE WHICH, IF ANY, ASSUMPTIONS MADE AT THE START OF THE PRACTICE WERE PROVED TO BE WRONG -SUCH A LEGISLATION IN PLACE WHICH IS NOT YET IN USE ETC.**

None.

#### **INFORMATION GAPS WHICH AFFECT THE ANALYSIS OF SUCCESS OF THE PRACTICE.**

This practice has a modern record-keeping procedure to the extent that it is possible to make most relevant forms of analysis and even financial appraisals if required.

## **PROTOCOL 5. LESSONS LEARNED /CONCLUSIONS**

- Improved capacities of CBOs' leadership play critical role in enhancing sustainability of community projects especially when appropriate management and supervision procedures are instituted and followed.
- Cohesive collaboration of stakeholders during planning and implementation of community based projects increases the chances for post-construction success. All partners gain a better knowledge of local conditions and their problems thus solutions are elaborated on the basis of firm understanding of the background issues.
- Effective supervision of community managed utility services depends heavily on the implementation of sound management information systems that are supported by appropriate training in technical data collection and recording.

**RELEVANCE FOR THE PROPOSED PROJECT OUTPUTS E.G. ADVOCACY TOOLS,  
SPECIFIC GUIDELINES**

The Tabata Practice represents some of the best practice procedures for the management of community based peri-urban water services. The training modules being implemented ought to be scrutinized and adapted for incorporating into the WUP Guidebook.

## **PRACTICE 3**

### **REGULATION OF CESSPOOL EMPTYING SERVICES BY THE DAR ES SALAAM CITY COMMISSION**

#### **DAR ES SALAAM CITY COMMISSION WASTE MANAGEMENT DEPARTMENT**

#### **DESCRIPTION**

##### **WHAT IS THE PRACTICE?**

The Dar es Salaam City Commission (DCC) is responsible for sanitation in the city of Dar es Salaam. Sewerage that mainly covers the central business district accounts for about 20% of the city's sanitation demand. The rest of the residents depend on septic tanks and traditional pit latrines for disposal of human waste. . Under existing law DCC is the only organization allowed to provide pit-emptying services to the public. DCC operates a fleet of 4 pit emptying trucks which it hires out to the public for sanitation support purposes. But with a population of close to 3 million the demand for pit emptying services in Dar es Salaam overwhelms the Commission's capacity to cope resulting in long waiting lists of customers who had paid for truck services. Consequently about 4 years ago clandestine private operations emerged to fill the unmet demand for pit emptying services. The DCC recognized the importance of these private operators in supplementing the Commission's efforts in providing pit-emptying services to the city residents. Therefore the DCC had to explore the possibilities for formalizing the private operators activities including the tariff that would be permitted. . In this respect a study was conducted in the Sinza suburb of Ilala District by the Sustainable Dar es Salaam Project of the DCC to determine the true operational costs of pit emptying services within the city of Dar es Salaam. The study concluded that the minimum operational cost was in the region of TShs.20000/- (US\$ 25) per trip. Resulting from this study a meeting was convened between the DCC and private owners of cesspool trucks. During this meeting the need for formalization of the pit-emptying business was discussed and it was agreed that one pre-condition for permitting private operations in the sanitation sub-sector was to limit their charges to no more than TShs 20000/- per trip where people could not afford to pay more. Any truck that would be reported by a customer as having contravened this agreement would be stopped from further operations forthwith. The practice therefore addresses itself to the formalization of private pit emptying services in the city of Dar es Salaam by regulating the charges to a maximum amount of TShs 20000/- per trip. Resulting partially from this formalization initiative the number of private operators rapidly rose from the initial 3 to 8 between 1996 1998. As the number of tankers grew the charges imposed by private operators started to drop from the municipal recommended maximum charge. The private operators' charges are negotiable, varying according to the distance between the site to the sewage disposal facility. Between jobs the trucks normally park at Mikocheni.

##### **TECHNOLOGY OR INNOVATIVE IDEA THAT DRIVES THE PRACTICE**

- The private operators are commercially recognized by the DCC
- The trucks of the private pit-emptying operators are easy to locate,
- Their charges are negotiable and generally lower than the utility tariffs
- The service is available immediately upon payment a compared to the utility run services that require booking for in advance.



- the private operators usually go to the customers and not vice versa as the case is with the DCC services.
- Most private operators have mobile phone contact numbers boldly displayed on their trucks making them conveniently accessible at all times.

#### **DETAILS OF THE O&M REQUIREMENTS OF THE PRACTICE**

Details of O&M requirements of the practice are as follows:

- The truck drivers and their assistants must be regularly paid for their services,
- The trucks have to be maintained in roadworthy condition,
- Access road to the Waste Stabilization Ponds (WSPs) must be passable especially during wet seasons when the demand for the pit emptying services peak.
- Owing to for environmental considerations the WSPs must be maintained in sound operational state.

#### **PROVIDE A MATRIX OF THE STAKEHOLDERS, THEIR ROLES AND RESPONSIBILITIES**

A matrix of the stakeholders, their roles and responsibilities is given in Table I.

**TABLE I STAKEHOLDER MATRIX**

<b>Stakeholders</b>	<b>Roles</b>	<b>Responsibilities</b>
Consumer	uses the service	Payment for the services
Truck Operator	provides service	Meets O&M requirements
DCC	Regulation of Service	Managing the WSPs

#### **INITIAL COSTS AND FINANCING OF THE PRACTICE**

The initial costs of the practice include purchase of the trucks and mobile phones, payment of licensing fees and employing truck drivers and attendants. The trucks were purchased second-hand at an average price of US\$ 10000 each including licensing fees. Mobile phones cost US\$ 800 on average per set. The financing of these costs was through private initiatives. Hence for the ten trucks in operation the total cost is US\$ 120000..

#### **RUNNING COSTS OF THE PRACTICE AND HOW THESE ARE FINANCED**

All running costs are financed by the private operators and they cover the cost centres outlined below:

- Monthly cost of wages and allowances of the truck drivers and their assistants US\$200,
- Daily operational maintenance of the truck including fuels, oils and miscellaneous
- Costs US\$ 30 equivalent to US\$780 per month.
- Periodical preventive mechanical servicing including tyre replacement average US\$40 per month.
- Licensing fees US\$100 per year, sludge dumping surcharges at \$20 and mobile phone airtime costs.US\$30 rental per month.

## **CONTEXT OF PRACTICE**

### **WHAT LED TO THE INITIALISATION OF THE PRACTICE?**

On-site sanitation, principally traditional pit latrines, covers over 80% of the urban sanitation profile of the city of Dar es Salaam. Possibly due to the high risk of cholera out-break in the city during the El Nino floods of 1996 a national public health awareness campaign was initiated. Consequently community demand for pit-emptying services rapidly grew to the extent it could not be met by the Dar es Salaam City Commission acting in isolation. This combined with the liberalization of the national economic environment to create an opportunity for private sector participation in pit emptying services delivery. Demand for pit emptying services has rapidly risen over the past 2 years thus outstripping the DCC capacity to cope. This permitted entry of the private operator in the market

### **WHAT CONDITIONS ENABLE THE PRACTICE TO EXIST?**

Several factors are responsible for the survival of the practice. These include the following:

- Intensification of threats of prosecution of defaulters of public health regulations by the DCC together with increased public awareness for improved environmental sanitation practices have combined to sustain demand for better on-site sanitation services delivery regime.
- Long-running historical public apathy towards utility-managed services compels residents to turn to the private providers of pit-emptying services. This public attitude is likely to remain unchanged for a long time in future even when utility efficiency will improve.

## **PURPOSE**

### **WHAT SPECIFIC PROBLEM IS THE PRACTICE HELPING TO OVERCOME?**

The practice is contributing towards establishing a mechanism of efficient, sustainable and timely delivery of pit emptying services in the city of Dar es Salaam at rates that the market can support. The practice has provided the residents of Dares Salaam with an alternative means of emptying their human waste pits thus eliminating the long queues of applicants that used to wait for pit-emptying services from the DCC. Consequently the on-site waste management arrangements in the city of Dar es Salaam has improved.

### **WHO INITIATED THE PRACTICE?**

The practice was initiated by the private sector gaining legal and commercial recognition with the formalization of the business by the DCC later on.

### **WHO MANAGES THE PRACTICE?**

Being a private sector operation the practice is essentially self-managing. Its output quality regulation is largely dependent on market dynamics such as the regulatory environment, competition, and supply and demand. However the DCC exerts control in terms of vetting and

approving the truck that it permits to operate. All trucks are required to dump sludge only at DCC approved disposal sites.

## **MANAGEMENT ARRANGEMENTS AND STRUCTURE**

Each operator manages his truck individually. All operators report to the DCC for registration at the beginning of the operation. Thereafter they are required to pay for dumping sludge at the sewage treatment plant on a trip by trip basis.

## **BENEFICIARIES OR USERS**

The primary beneficiaries of the practice are the end-consumers. One truck makes 4 trips per day on average working 300 days a year. Pits are not emptied more than once in the same year. This means that this practice with ten trucks is able to serve about 12000 households in a period of one year. Given the average household size of 5.5 the total number of people served is 66000. The target market comprises all households and other structures that use on-site sanitation facilities. This is 80% the residents of Dar es Salaam city.

## **HOW LONG HAS THE PRACTICE BEEN OPERATING?**

The practice started in 1994. However rapid growth was recorded between 1997 and 1999. This might be connected to the social and political impact of the El Nino weather phenomenon of 1997.

## **WHERE IS IT BEING APPLIED?**

The practice is being applied throughout the city of Dar es Salaam especially within the low lying areas which have a high water table. This practice started in 1994 but it gained prominence between 1997 and 1999 during which period the number of trucks grew from 2 to over 10.

## **IF IT WAS TRANSFERRED FROM ELSEWHERE STATE WHERE AND HOW LONG IT WAS OPERATIONAL THERE?**

Banks, Embassies and such large international organizations that owned pit-emptying facilities were the institutions that originally applied private pit emptying in Dar es Salaam.

## **PROCESS AND APPROACH**

### **WHAT ARE THE TOOLS AND METHODS USED**

### **ELIGIBILITY AND ACCESS**

The intending operator purchases a cesspool truck then applies to the DSSD for a permit to dump at a specific sewage treatment works site. There are 6 different sewage treatment stations in Dar

es Salaam as follows: Musamani, Lugalo, University of Dar, Mabibo, Vingunguti and Kurasini. Only two dump -site of Lugalo and the University of Dar are permitted for use by the practice. The rest are restricted by the DSSD due to lack of sludge drying beds. The other conditions of the permit are:

- Only organic waste permitted,
- Disposal fees TShs 3000/- (US\$3.75) per trip
- The tankers will not charge beyond TShs 20000/- where customers can not afford.
- Operators only allowed to dump only at the treatment plant entered on the permit.

### **APPROACHES FOR COMMUNITY MOBILISATION (E.G. PARTICIPATORY FORA, INTERVIEWS, QUESTIONNAIRES)**

The community participates in this practice purely on a commercial basis as customers who pay for a service. Therefore there are no community mobilization requirements beyond raising awareness for the need for improved urban environmental sanitation conditions.

### **WHAT LEGAL INSTRUMENTS ARE IN FORCE E.G. MANAGEMENT CONSTITUTIONS, LEGAL REGISTRATION?**

The DCC Waste Management Department registers all trucks. The WSP attendant records each disposal trip.

### **WHAT PAYMENT TOOLS ARE IN USE (E.G. CASH, PAYMENT CARDS, TOKENS)?**

Payment for the service is by cash in advance of service delivery.

### **HOW IS IT BEING IMPLEMENTED?**

This section describes how the practice actually works and who is involved in its implementation. The management arrangements are such that each truck operator is expected to solicit business and to discharge the obligations therefrom on the basis of the commercial principles that govern the trade. Each truck operator employs a driver who doubles up as the overall business and customer relations' manager. Service payments by customers are made to the driver, who may issue a receipt if so required, upon which the pit is emptied. The sludge is then hauled to the DDC sewage disposal facility for dumping.

### **WHAT ARE THE INSTITUTIONAL ARRANGEMENTS DO EXIST FOR:**

#### **MANAGEMENT**

None

#### **MONITORING**

The DCC records all truck arrivals at the sewage treatment facility.

**SUPERVISION**

The private operator

**ENFORCEMENT OF RULES AND PROCEDURES**

The DCC.

**FINANCIAL MANAGEMENT**

The private sector operators

**CAPITAL AND O&M FINANCING**

The private sector operators

**WHY WAS IT SET UP THIS WAY?****RATIONALE AND PRINCIPLES**

The rationale of setting up the practice is based on user-demand guided by free market principles and private sector initiative.

**ANALYSIS**

The practice has analysed on the basis of a number of indicators (effectiveness, efficiency, reliability and accessibility<sup>7</sup>) **from the viewpoint of the different stakeholders** involved.

**IS THE PRACTICE CONSIDERED TO BE SUCCESSFUL? AND WHY:**

The impact of the practice can be summarized as indicated in the matrix given below:

**STAKEHOLDERS MATRIX**

<b>Stakeholders</b>	<b>Stake</b>	<b>Verification Criteria</b>	<b>Analytical Rating</b>
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- <sup>7</sup> efficiency - quality at lowest cost in time
- effectiveness - objective achieved reliability

<sup>8</sup> utility fixed charges are: TShs 20000/- (US\$0.25) for domestic and TShs 25000/- (US\$0.31) for commercial consumers per trip while the private operators report variable rates that average TShs 10000/- (US\$0.13).

Consumer	Social	Convenience Affordability	Successful Successful
Utility	Effectiveness	Efficiency Reliability	Satisfactory Satisfactory
Service Providers	Commercial	Profitability	Satisfactory

## END CONSUMER

The end consumer's stake holding is social. From this perspective therefore the practice is a success because it serves to:

- elevate the inconvenience of queuing for pit emptying services at the utility;
- while reducing the average cost of the service in relation to the utility tariff<sup>8</sup>

## THE SERVICE PROVIDERS

As far as the service providers are concerned the trade was profitable at the beginning before too many operators joined the business. However as more trucks were introduced onto the market the ensuing competition has tended to depress the profit margins. In this context therefore the practice which was successful at commencement has now been rendered only 'satisfactory'.

## THE UTILITY

The utility's main concern is to resolve the service backlog problem at the lowest cost in terms of management load and financial burden. In this respect the practice can be rated as 'satisfactory' because the DCC continues to provide parallel services albeit at higher prices, indicating that the private operators are not yet able to meet the market demand on their own.

## IMPACTS, EXPECTED AND UNEXPECTED

### ANALYSIS OF THE IMPACT OF THE PRACTICE AGAINST THE INTENDED OR STATED PURPOSE AND/ OR OBJECTIVES.

#### TO WHAT EXTENT HAS THE PURPOSE OF THE PRACTICE BEEN ACHIEVED?

The practice serves different purposes for different stakeholders. Hence the extent of achievement ought to be analyzed in the context of the various stakeholders as outlined below:

Stakeholders	Objective	Impact Rating
Consumer	Safe sanitation Environment	Positive
Service Provider	Profitability	Satisfactory
Utility	Efficiency	Satisfactory
Community Leaders	Political	Positive

**WHAT WERE THE INCENTIVES CREATED BY THE PRACTICE AND HOW HAVE THESE AFFECTED THE OUTCOME (E.G. COMPETITION OR THE LACK THEREOF)?**

The main incentive created by the practice was the introduction of a competitive spirit, at least among the private pit emptying service providers. This incentive in turn acts to improve the quality of service while lowering prices over time. It must however be noted that the emergence of a parallel service provider in the market has not affected the operational commercial approach of the utility in any significant way. This in itself might as well be the ideal situation for the smooth operation of the practice given the fact that the DCC is playing the role of a regulator of a service it also provides.

**ASSESSMENT OF REPLICABILITY**

This reflects on the usefulness of the tools and methods applied to put the practice in operation. The tools may have to be adapted for different conditions. There may be special circumstances why the practice works here (such as presence of an NGO to work with the communities) and may not work elsewhere.

**ANALYSIS OF THE POTENTIAL OF THE PRACTICE FOR IMPROVING SERVICES IN OTHER AREAS**

The potential of replicability of the practice thereby improving services in other areas of Dar es Salaam is obvious. However the limitations are related to absence of sewage treatment facilities in other parts of the city. There are only two sewage treatment plants in Dar es Salaam where private operators are allowed to dump sludge. The price charged by the service providers is a function of the distance traveled from the customers' premises to the sewage treatment facility. Hence without additional treatment facilities being provided close to areas of high service demand the possibilities of replicating the services in these areas at current rates are quite remote.

**HAS THE PRACTICE ALREADY BEEN REPLICATED ELSEWHERE?**

Private pit emptying services were first introduced in 1994 operating mainly within the Makocheni area.. The services later spread to cover the entire city when new operators introduced additional trucks and competition for customers intensified.

**BY WHAT MEANS DID IT SPREAD?**

The replicability of the service in to new areas is driven principally by commercial incentives. Even within the areas where the service is being provided there exists pockets of nil coverage. This is basically due to absence of passable access roads. One means of overcoming this weakness is introducing technologies that work under conditions of narrow peri-urban access roads.

**ASSESSMENT OF SUSTAINABILITY**

This should not only be viewed in financial terms, although cost recovery is a key element for sustainability, but effectiveness of institutional arrangements for management, operation and maintenance.

**ARE THERE SUPPORT ARRANGEMENTS/EXTERNAL INFLUENCES/INPUTS THAT WHEN WITHDRAWN COULD RESULT IN THE EVENTUAL COLLAPSE OF THE SYSTEM?**

It would appear from the focus group discussions that the prices that the market can support and therefore the profitability of this venture are closely related to the socio-economic circumstances of the end users. The majority of the peri-urban dwellers, representing the most important element of this market live below the poverty line. Hence a slight increase in the input costs of this service will almost certainly signal the eventual collapse of this business. The one single such cost is the dumping charge. Should the utility impose a charge any higher than what the operators are currently paying then a lot of the providers will be forced out business.

**IS THERE OWNERSHIP, CONSENSUS OR COMMITMENT TO THE PRACTICE?**

Commitment to the practice is anchored by the need for the private investor to recover his costs and also to survive in the business.

**WHAT ACTIONS HAVE BEEN TAKEN, ARE BEING TAKEN WITHIN THE FRAMEWORK OF THE STAKEHOLDERS TO ENSURE SUSTAINABILITY (E.G. FORMALISING PROCEDURES/REFORMING LEGISLATION, FINANCING STRATEGIES, TRAINING AND CAPACITY BUILDING, ETC)**

Apart from the original agreement regarding the minimum charge that has since been superseded by events the DCC does not interfere with the operations of the private operators. This permits market forces to take full effect thus enhancing the efficiency of the business.

**OUTSTANDING ISSUES****EXTERNAL CONDITIONS WHICH AFFECT THE PRACTICE**

Are there external factors not taken into account in the design (e.g. entrance of new actors such as illegal water vendors; change in the policy, political, socio-economic framework) that could positively or negatively affect the practice?

As mentioned in the proceeding observations the single biggest risk to the survival of this practice is the non-commercial imposition sometimes exerted by utilities upon small-scale independent providers of urban environmental services. Impositions such as increasing sludge dumping charges beyond what the market can support are likely to negatively impact the long-term sustainability of the service. The fragile socio-economic framework dictated by urban poverty is a hidden factor with direct impact on the survival of social services delivery by the subsistence private sector.



## **ASSUMPTIONS, IF ANY, MADE AT THE START OF THE PRACTICE WERE PROVED TO BE WRONG - SUCH AS LEGISLATION IN PLACE WHICH IS NOT YET IN USE ETC.**

No assumptions appear to have gone off target apart from the projections made regarding medium-term profitability of the practice.

## **INFORMATION GAPS WHICH AFFECT THE ANALYSIS OF SUCCESS OF THE PRACTICE**

Here, the study has identifies what additional information would have been useful to improve the analysis of the practice, but was not available at the time of the study.

Information regarding the en users' willingness and ability to pay for the services would have been useful in determining the point on the demand curve at which the services are being charged in relation to what the market can optimally support. Hence it is not possible to assess the market saturation point and therefore the quantity of additional trucks that the market could support at current prices within the prevailing socio-economic framework. Without such assessments service expansion scenarios cannot be realistic.

## **LESSONS LEARNED/ CONCLUSIONS**

### **WHAT DO THE KEY FINDINGS OF THIS PRACTICE MEAN/IMPLY FOR WATER AND SANITATION SERVICES TO THE POOR**

- Permitting private sector participation in the provision of urban environmental services enhances service delivery efficiency. Private operators are motivated by profits to the extent that tariff guidelines need to be agreed with operators as way of regulating the charges to the end user.
- One single measure of reform has:
  - Attracted private investment into the sanitation sub-sector.
  - Increased the number of trucks on the market.
  - Eliminated pit-emptying service backlog.
  - Reduced service charges to customers.
  - Afforded utility opportunity to concentrate on sewer maintenance activities

### **RELEVANCE FOR THE PROPOSED PROJECT OUTPUTS E.G. ADVOCACY TOOLS, SPECIFIC GUIDELINES**

**This section states how the findings from the report could be used in Project # 5 - i.e. in developing further outputs.**

Regulatory mechanisms used to establish this practice could be adapted as a guide for the introduction of private sector participation in urban sanitation services in the towns where restrictions to such participation still exist.

## **PRACTICE 4**

### **VENDOR MANGED WATER SERVICES FROM SALES AT YARD TAPS**

#### **THE CASE OF VINGUNGUTI**

#### **DESCRIPTION**

##### **CONTEXT OF PRACTICE**

##### **WHAT LED TO THE INITIALISATION OF THE PRACTICE?**

The DAWASA managed supply became acutely unreliable about two years back and it has never improved since. The supply is currently available three times a week for an average of about 7 hrs each day in the worst hit areas. Residents of low-income areas who usually have no means of fetching water from far distances resort to shallow wells located within their neighborhoods to meet their water needs when mains supply is interrupted. However water from shallow wells is too saline to be used for drinking and cooking purposes. Therefore residents often supplement their water needs during shortages by purchasing water from vendors who purchase water from DAWASA supplied areas for sale in areas of no supply. The shortage of water in the city of Dar es Salaam is most acute in Ilala and Tekeme districts. Vingunguti Ward is located in Ilala District. The situation intermittent water services has lasted for a period of about 3 to 4 years in the two areas of Vingunguti and Buguburini during which time small scale commerce in water services has thrived. Alongside this growth a new business related to the manufacture and hiring out of water trolleys has emerged. The trolleys are let out to water vendors by the owners through a hire arrangement that is sometimes administered by the ten-cell leader known in Kiswahili as *Mjumbe wa nyumba kumi*.

##### **UNDER WHICH CONDITIONS DOES THE PRACTICE HAVE TO EXIST?**

The key item in the water vending business is the trolley that is used for transporting the water. The trolleys are welded metal carts on push-cycle tyres. About 60% of the vendors do not own the trolleys they use in the water business. The relationship between the trolley owners and the vendors is a very important factor in the small scale water commerce. Two distinct relationships exist: one is whereby the trolley owner and the vendor were known to each other before the hire arrangements were initiated. The other, which is more common, is where the two parties had never met before the hire agreement was negotiated. In case of the second situation two "sureties" are needed to introduce a prospective vendor to the trolley owner. The sureties must themselves be well-known to the trolley owner in order to qualify for the inter mediation task. The hire charge is ordinarily TShs 600/- (US\$ 0.75) per trolley per day. Other trolley owners require the vendor to deliver a trip of water to their homes at the end of each day in lieu of payment.

##### **WHAT IS THE PRACTICE?**

The practice addresses itself to the purchase of water by vendors from owners of private water connections located in areas with regular utility water services that transport it on pushcarts for sale in areas without water services. The vendors purchase water at TShs 20/- (US\$ 0.025) and sell it at TShs 100/- (US\$ 0.125) per 20-litre container. The carts carry 6 to 10 containers each depending on size and the distances traveled by vendors range between 2 to 5 kilometres. The

volumes purchased per family range from 1 to 3 containers per family depending on affordability and household size. The water is mainly used for drinking water purposes. Additional supplies are obtained from shallow wells where the price is TShs20/- per 20-litre container. A household purchases one jerrycan on average per day.

The buyers have neither control over nor the means of verifying the quality of water supplied by vendors. The buyers typically purchase water from vendors randomly except the few who have stable incomes and able to make long-term arrangements with particular vendors for regular deliveries. Generally however the water is collected from DAWASA supplied sources according to the consumers interviewed. According to the Water Works Ordinance only DAWASA can sell water to the public. No other entity is permitted according to existing Law. The private domestic connection owners, if found selling water they are supposed to pay a year's consumption bill in retrospect and their tariff altered from domestic to commercial categories thereafter. However the change of consumer category is only part of the penalty for breaking the law and it does not still legalize nor entitle one to sell water. Three of five vendors interviewed are aware that the action of selling water is outside the Law. But they seemed to be also aware of the institutional and moral limitations of the utility with respect to pursuing the necessary legal action. The water vendors are said to be mostly ex-DAWASA operatives. Given the prevailing circumstances of widespread shortage of water services in most areas of Dar es Salaam, DAWASA has no moral basis for enforcing the relevant regulations.

#### **WHAT INNOVATIVE IDEA DRIVES THE PRACTICE?**

The innovative idea that drives the practice is that the vendors are able to respond to the water demand of low-income earners with flexibility. They deliver water door to door and sell according to the immediate social need and economic ability of the customers. Their market is distinctly medium and low-income areas located far from safe water sources.

#### **WHAT ARE THE O&M REQUIREMENTS OF THE PRACTICE?**

There are no serious O&M costs of the practice beyond the replacement of the cycle tyres on the push-carts and welding of the cart frame wherever necessary. This is usually done once in every two years. The other activities include purchase of water from the private water connection owner, transfer of the water to the customers, obtaining payment for the water delivered.

#### **MATRIX OF THE STAKEHOLDERS**

A matrix of the stakeholders, their roles and responsibilities is given below:

<b>Stakeholders</b>	<b>Roles</b>	<b>Responsibilities</b>
DAWASA	Primary Provider	Provide Water
Connection Holder	Secondary Provider	Pay Water Bills
Cart Owners	Investors	Provide Carts
Vendor	Tertiary Provider	Vend Water
End-User	Consumer	Pay Vendor

The cost of the pushcart together with the jerrycans is TShs. 38600/- (US\$ 48). Most vendors however hire the carts at TShs. 600/- per day. The cost of the 100 pushcarts reported in the Vingunguti area is therefore TShs. 3, 860,000/- or US\$ 4800. This cost is financed through private initiative. The other cost category that is rapidly becoming important is the installation of holding tanks by private connection holders. The water sellers interviewed were unwilling to disclose the cost of their tanks probably on account of the clandestine nature of the trade.

## **PURPOSE**

This practice resulted from the need by the vendors to earn a living and the shortage of water in poor peri-urban areas whose residents cannot afford to transport water from far away locations which benefit from regular DAWASA water services..

## **WHO INITIATED THE PRACTICE?**

Vendors initiated the practice having discovered that there was a market for vendor delivered water services in the areas of Vingunguti and Buguburini.

The trade started almost spontaneously with a few vendors at first and then expanding to 100 carts as the water shortage became more protracted and acute.

## **WHO IS RESPONSIBLE FOR MANAGEMENT OF THE PRACTICE?**

This is a market-regulated practice that is practically self-managing with respect to customer needs and water supply conditions. There was no distinct management arrangement or structure noted. The vendors on the one hand and the connection holders on the other manage the micro-level operations. DAWASA has no specific role in this business beyond being the primary provider of water services.

## **BENEFICIARIES OR USERS**

The beneficiaries of this practice can be said to be the pushcart owners who make a living out of it, the connection holders and the vendors on account of its commercial value. The users of the practice are the end-consumers of the service, mostly the peri-urban residents of areas not served by the utility.

The average water consumption under the socio-economic conditions of the peri-urban settlements is ordinarily in the range of up to 20litres per capita per day. Hence given that a vendor is able to make an average 4 trips of 6 jerrycans per day, the number of people served by 100 vendors reported in Vingunguti area is 100000 in 2400 households.

## **HOW LONG HAS IT BEEN OPERATING?**

The practice has been operating for up to 4 years but it peaked in the past two years when the shortage of water services became particularly acute in Ilala district.

**WHERE IS IT BEING APPLIED?**

Water vending according to secondary sources of information is most dominant in Temeke and Ilala districts of the city of Dar es Salaam.

process and approach

**TOOLS AND METHODS**

Describe the tools and methods used to carry out the practice

**ELIGIBILITY AND ACCESS**

List the identification and selection criteria and procedures of access

The procedures of access include a prospective vendor being able to afford to hire a push-cart from the owner the cost of one trolley load of water from the connection holder.

**APPROACHES FOR COMMUNITY MOBILISATION( E.G. PARTICIPATORY FORA, INTERVIEWS, QUESTIONNAIRES )**

There are no community mobilization requirements for this practice.

**TOOLS USED FOR DECISION MAKING (E.G. PUBLIC MEETINGS, FOCUS GROUP DISCUSSIONS, TRADITIONAL LEADERS )**

The traditional business decision-making tools do not apply to this practice.

**WHAT LEGAL INSTRUMENTS ARE IN FORCE (E.G. MANAGEMENT CONSTITUTIONS, LEGAL REGISTRATION?)**

The connection holders from whom the vendors purchase the water need to be registered consumers with DAWASA. However the utility cannot register connection holders as water sellers.

**WHAT PAYMENT TOOLS ARE IN USE ( E.G. CASH, PAYMENT CARDS, TOKENS)?**

The payment tools used for purchase and sale of water is cash.

**IMPLEMENTATION**

The water vended is usually carried and sold in special plastic 20litre containers known as jerrycans. The containers are loaded onto cycle-wheeled push-carts that carry an average of 6-10 jerrycans each. The price of one full trip of 6 containers varies from TShs.200/- under normal supply to 300/- during shortage. The water is sold at between 100/-under normal circumstances and at TShs.200/- per jerrycan when there interruption of mains supply. .

Almost all vendors are illiterate, have no access to formal credit and most do not own the carts used for transporting the water. About 80% of the water is bought from private connections and then resold to consumers. In the recent past some private connection owners have installed large holding tanks in order to minimise the effects of DAWASA water rationing. The vendors have to draw water from one area that has supply and then transfer the water on pushcarts to the areas of

shortage. The distances involved are usually quite great, sometimes up to 2 or 5 kilometres. Hence the turn around time is long. The daily incomes are therefore quite low owing to the low turnover that vendors achieve in the process. The incomes reported are in the range of `TShs. 1500 to TShs 2000 per vendor per day. Both vendors and connection owners are quite aware that this business will cease when conventional utility services become adequate and reliable.

## RATIONALE AND PRINCIPLES

### Why was this practice set up this way?

The subsistence nature of the commercial transactions related to the selling and buying of vended water services dictates the structure and modalities of the operation. The practice operates this way because this is the only way it can be effective. It has to respond to user-demand with respect to their ability-to-pay and the immediate water needs. Households purchase water on a daily basis for two reasons: one reason is that the income of the majority of consumers is earned on a daily basis and other is the lack of large safe storage facilities. Given the average price of unit volume of water vended, the consumers can only periodically afford small quantities of water and according to need. Hence the vendors provide services on the basis of individual requirements and on prevailing the socio-economic circumstances.

## ANALYSIS

The practice is analysed on the basis of a number of indicators (effectiveness, efficiency, reliability and accessibility) **from the viewpoint of the different stakeholders** involved. This may be central government, utility, municipality, NGO, CBO and consumers or any other stakeholder. It is important to distinguish between these different groups as their experience with the practice may be quite different or even contradictory - all views should be incorporated and reasons provided. For each stakeholder viewpoint, the source of information and methodology for collecting it has been stated.

## STAKEHOLDER MATRIX

The stake-holding profile of this practice can be divided into the following categories:

Stakeholders	Roles	Responsibilities
Utility	Service Provider	Provide service
Connection Holder	Sell to Vendor	Meet utility charges
Vendor	Retail the price	avail the price
Consumer	Consume service	Pay the vendor

Stakeholders	Stake	Verification
Primary Provider	Commercial	Profitability
	Social	Effectiveness
Connection Holder	Commercial	Profitability
Vendor	Commercial	Profitability
Consumer	Social	Efficiency
		Reliability

- efficiency - quality at lowest cost in time
- effectiveness - objective achieved

- reliability
- accessibility

## **IMPACTS, EXPECTED AND UNEXPECTED**

Analysis of the impact of the practice against the intended or stated purpose and or objectives.

### **END CONSUMER**

The end consumer's stake holding is social. The end consumer purchases the water because under the circumstances, the practice offers the most convenient and affordable source of safe drinking water. From this perspective therefore the practice is a success because it serves to protect their health by providing safe drinking water.

### **THE PUSH-CART OWNERS**

The push-cart owners earn income from leasing out the carts. The cart owners are essentially metal workers or welders operating from the workshops that are located within the peri-urban areas from where the vendors fetch the water. These artisans noticed the potential for making a side income from the water shortage by providing the push-carts needed for transporting the water. However due to the social circumstances of the water vendors, it is not possible to sell the carts to them. Hence the option of leasing carts on a daily basis was piloted and it appears to have worked well. The origin of the current design of water push-cart comes from the multi-purpose wooden carts that are used for shifting foodstuffs around the vegetable market known in Kiswahili as *Mukokoteni*. The practice is big success from the point of view of the push-cart owners.

### **THE VENDORS**

As far as the vendors are concerned the trade is profitable and it provides them with employment and much needed income. In this respect the practice is successful. Most of the vendors however find this job very physically taxing and would prefer an alternative occupation if such opportunity presented itself.

### **THE CONNECTION HOLDER**

The objective of the connection holder is to make a profit from utility supplied water services. In this respect this practice is a success.

### **THE UTILITY**

The utility's main concern is to resolve the service delivery bottlenecks at the lowest cost especially in terms of management load and financial burden. In this respect the practice can be rated as successful.

## **WHAT WERE THE INCENTIVES CREATED BY THE PRACTICE?**

In order that the connection holders continue in this business their water accounts must remain up-to-date. Otherwise DAWASA will disconnect supply. The main incentive that has resulted from this practice therefore is the regular payment of utility water bills by the private connection holders who are involved in this practice.

## **ASSESSMENT OF REPLICABILITY**

*This section reflects on the usefulness of the tools and methods applied to put the practice in operation. The tools may have to be adapted for different conditions. There may be special circumstances why the practice works here (such as presence of an NGO to work with the communities) and may not work elsewhere.*

## **ANALYSIS OF THE POTENTIAL OF THE PRACTICE FOR IMPROVING SERVICES IN OTHER AREAS**

Vendor managed water services are routinely found in urban neighbourhoods that have no regular water services.

## **HAS THE PRACTICE ALREADY BEEN REPLICATED ELSEWHERE? HOW WIDESPREAD IS IT?**

This practice exists in all wards of Dar Es Salaam where DAWASA water services are irregular.

## **BY WHAT MEANS DID IT SPREAD?**

The practice spreads spontaneously. As soon as vendors sense an area experiencing chronic shortage of utility managed water services they always quickly organize and establish this retail water business there. The average unit prices are usually very high in the beginning but they steadily drop as the number of vendors increases.

## **ASSESSMENT OF SUSTAINABILITY**

*This has only been viewed in financial terms, although cost recovery is a key element for sustainability, but effectiveness of institutional arrangements for management, operation and maintenance.*

*Are there support arrangements/external influences/inputs that when withdrawn could result in the eventual collapse of the system?*

This practice exists as a consequence of absence or unreliable utility water services. The average unit prices are usually several times the utility tariffs and the quality of the water itself is doubtful. Therefore vendor-managed services always cease with emergence of regular utility water services in the candidate area. The realisation that DAWASA will one day improve its water services without warning was given as one of the reasons vendors do not find it prudent to own the trolleys that they use to ferry the water containers.



## **IS THERE OWNERSHIP, CONSENSUS OR COMMITMENT TO THE PRACTICE?**

Vendors represent the single most important element of this practice on account of the effort they have to commit in relation to the other players. Commitment to the practice therefore does exist within the context of the need for the vendors to remain in this form of employment. Most vendors interviewed however stated that they would ordinarily have preferred alternative forms of employment if given a choice citing low incomes from too much effort as the main cause of this.

What actions have been taken, are being taken within the framework of the stakeholders to ensure sustainability (e.g. formalizing procedures/reforming legislation, financing strategies, training and capacity building, etc)

The connection holders appear to have recognized the economic importance of this practice. Consequently some of them have constructed large holding tanks in order to ensure that they remain in business even on days when DAWASA does not supply their part of the network.

## **OUTSTANDING ISSUES**

### **EXTERNAL CONDITIONS WHICH AFFECT THE PRACTICE**

Here we discuss external factors not taken into account in the design (e.g. entrance of new actors such as illegal water vendors; change in the policy, political, socio-economic framework) that could positively or negatively affect the practice.

The most serious external influence is the irregularity of the utility services even where the vendors collect the water from. Whenever the utility supply is interrupted the cost price at the water connection is automatically hiked. This acts to reduce the amount of water that the vendors can sell because they too have to hike their retail prices thus cutting off a significant portion of their regular market.

### **INFORMATION GAPS WHICH AFFECT THE ANALYSIS OF SUCCESS OF THE PRACTICE**

Identify what additional information would have been useful to improve the analysis of the practice, but was not available at the time of the study.

The information regarding the alternative water delivery services in the peri-urban areas would have improved this analysis. The actual share of the market that the vendors control is unknown therefore it is very difficult to estimate the volume and hence the economic importance of this practice.

## **5. LESSONS LEARNED/ CONCLUSIONS**

### **WHAT DO THE KEY FINDINGS OF THIS PRACTICE MEAN/IMPLY FOR WATER AND SANITATION SERVICES TO THE POOR?**

Water vending occurs in middle and low-income peri-urban areas where the population has no means to go too far to fetch water. Therefore they enhance service coverage at no cost to the utility. Lessons learnt from the practice indicate that communities that are compelled to consume vendor managed services pay several times more than the official utility tariffs; consequently the volumes purchased are only sufficient for drinking water purposes only. The communities always have to supplement vendor services with water supplies from cheaper unimproved sources like shadoofs.

### **RELEVANCE FOR THE PROPOSED PROJECT OUTPUTS E.G. ADVOCACY TOOLS, SPECIFIC GUIDELINES**

There is no relevance that would be of direct interest to WUP 5 activities.