



Community management of water supply

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THE CITY OF Dar es Salaam in Tanzania with its population of about 3 million people depends on three water treatment plants for its water supply. Also some 60 boreholes feed the distribution system. This system is owned and operated by the Dar es Salaam Water and Sewerage Authority (DAWASA). The system is able to supply about 294,000m³ per day. The water demand stands at around 408,000m³ per day. This leaves a clear deficit of about 114,000m³ per day.

Heavy investment is required to boost up supply. This kind of investment is unfortunately not readily available. To try and cope up with the situation, DAWASA has instituted a rationing programme to ensure that at least some amount of water reaches as many people as possible. Therefore the city is split up area wise and each area is allocated a number of days and time when it will get its supply of water.

To bring any meaningful development in the community, an adequate and reliable supply of water is necessary. The Tabata Community has therefore decided, through its organisation the Tabata Development Fund (TDF), to look for alternative means to argument its twice a week share of DAWASA supply.

The Tabata Community is a beneficiary of the Community Infrastructure Programme (CIP) Project which is a component of the Urban Sector Rehabilitation Project Funded by the World Bank. Through the project, the community will realise improved roads, storm water drainage and sewage disposal. These improvements were deemed incomplete without adequate and reliable water supply.

Implementation of the project

It was aimed at the outset to set up a low cost project that would be simple and easy to operate and maintain. It was also decided to involve the community in all phases of the project so that they don't feel ignored and also instill in them a sense of ownership.

Irish Aid provided the necessary funds for the project. These funds were to be used in investigation to establish borehole sites, survey work and design of the system. Material for construction of the project as well as supervision costs were to be met by this fund.

DAWASA were involved as partners in this project and were required to provide expertise in project preparation, design and supervision of construction work. DAWASA appointed me as the expert in this project.

The community in their part were involved in choosing the route where the various water supply lines would pass

and picking appropriate sites for water kiosks. They also provided labour for excavation of trenches and backfilling. Two boreholes were sunk. The first borehole had a yield of 3.5m³/h and was designated to serve one neighbourhood with a population of 3000 people. The system designed for this area involved 2 storage tanks of 15m³ capacity each tucked on the roof of the pump attendant's quarter. These tanks feed a distribution system with 5 kiosk points spread out in the neighbourhood. This system was commissioned in September 1997.

The second borehole has yield of 6m³/h and is designated to serve seven neighbourhoods with a population of 12,000 people. The designed system for this area involves a 65m³ brick reinforced tank on raiser and distribution system with 11 kiosk points spread out evenly in the various neighbourhoods. The system was commissioned in February 1999.

The total cost construction of the 2 systems is US\$76,812.

Operation of the system

The systems served by the two boreholes are independent of each other. Each borehole supplies its own area. Neither are they linked to the DAWASA water supply system. Since outlet lines from the tanks are metered, it will be easy to know how much water is fed into the target area from these supply tanks. Every kiosk is also metered therefore all the water consumed at the kiosks is known. In this way unaccounted for water through leakage and theft can be established.

Conflicts with DAWASA are non existent since the systems are not enter linked. Further more no house connections are allowed from these systems. These would have made revenue collection a nightmare since DAWASA also has customers with house connections from its system.

Each kiosk is operated by an attendant selected from within the neighbourhood. The attendant opens the kiosk around 6.30 am each day and closes around 6.30 pm. The attendant sales water throughout the day and at closing time takes down the last reading while opening up gives the total amount of water sold at that kiosk for that day. Upon closing the attendant submits his collection to a clerk at the TDF office. The price of water is set at US\$1.5 per 1000 litre. This price was set in consideration of the peoples ability and willingness to pay. The average monthly collection per kiosk is US\$108.7. The kiosk attendant receives a pay of 10 per cent of the total monthly collection that he makes.

Apart from selling the water, the kiosk operator also oversees cleanliness by ensuring that washing of clothes

and utensils is not done around the kiosks and also that order is maintained during the process of fetching water.

A water committee comprising of 15 members with about 2 representatives from each neighbourhood has been formed. This committee will oversee the day to day management of the system in conformity with the Ministry of Water policy on management of community water supply as well as report to their respective areas all deliberations on water.

Maintenance of the system

When a defect is detected in the system it is reported at the TDF office. The situation is made known to the technical committee which appraises the situation and prepares cost estimated of material for repair. These are presented to the finance committee which endorses procurement of materials using funds from the collected revenue.

Electricity bills are also settled with money from the revenue collected. The rest of the money is available for other activities that will be agreed upon by the TDF Committee.

Achievements and problems

The systems were designed to argument DAWASA supply. In that they have performed splendidly. During times when DAWASA supply is not on, all people converge to the kiosks for water. Residents of the community have shown great satisfaction in the service rendered by the system. The women now spend less time searching for water than they did before. With the fulfilment of CIP projects, of road storm water drainage and sewage disposal Tabata will be a very attractive place to live in now that availability of water is assured. Already people from other parts of the City, institutions and Government Ministries are showing interest in the project with the aim of learning from it.

Cost wise these installations are also better off. The 1st phase for the rehabilitation and improvement of the DAWASA system to provide reliable supply would require an investment of US\$22.5 million. For a population of 3 million this is an investment of US\$7.5 per capita. The two systems installed at Tabata serve a population of 15000 people. At a cost of US\$76, 812 the investment per capita would be US\$5.1.

Despite these fine achievements, problems exist. Some kiosk operators have been discovered to have tampered with the meters to facilitate embezzlement of revenue. Another operational problem is the ease with which meters fitted prior to the kiosks break down. Efforts to repair these meters have not been very successful. Another version of meters is now being tried and so far it is working well.

Conclusion

Although the system is not able to completely bridge the gap left by the DAWASA supply it is able to realise its objective of alleviating the water problem situation of Tabata. When there is no DAWASA supply the system serves the community.

It has been shown above, that a system derived from a local source with an investment of US\$5.1 per capita, can be much cheaper compared to a system drawing its water from a distant source like the Ruvu river 80 km away that would require an investment of US\$7.5 per capita.

The guaranteed availability of water has made life much easier to the community particularly women and children who used to spend a lot of time searching for water. Now they invest this time in other valuable undertakings.

Community participation has been able to create a sense of ownership into the minds of the people. They are quick to report any leaks or illegal connections in the system and are prepared to participate in any development project linked to the water system.

The system has been able to function in a sustainable manner with the revenue collection being ploughed back to run and maintain the system.

References

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