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SUSTAINABLE ENVIRONMENTAL SANITATION AND WATER SERVICES

Multiple faces of cost recovery

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THE VOLTA REGION Community Water and Sanitation Programme with funding from DANIDA have to date provided water facilities to more than 560 rural communities. Various technology options have been promoted under the Programme. These include Gravity Pipe Schemes; Electrical Pumping Schemes; Solar Pumping Schemes; and boreholes fitted with handpumps.

The Programme has been very conscious of the need to achieve sustainability for the installed water facilities. The communities have been involved and empowered and financial responsibility by the beneficiary communities was considered a pre-requisite by the Programme. The communities were further encouraged to adopt a cost recovery system. Various cost recovery strategies were promoted as outlined below:

- Pay-As-You-Fetch (PAYF).
- Monthly Flat Rate (MFR) tariff either imposed on adults from age 18 or on household.
- Communal Farming or Fishing and
- Other revenue generating activities like ad hoc fund raising during festivals as well as church harvests.

These revenue generation strategies were usually presented simultaneously with the view to allowing communities to decide on the most favoured. The emphasis at this point was more on the acceptance of paying for the water rather than the efficiency of the tariff systems.

One of the biggest achievements of the Programme is the general acceptance in Programme communities of the necessity of paying for the water. More than 90% of Programme communities have implemented one form of revenue generation mechanism or another, despite traditional perceptions of water as a free gift of nature. This achievement in O&M cost recovery is unprecedented in the development history of Ghana.

Methodology

The Approach to the study was highly participatory bringing together all stakeholders of the scheme and using the technique of O&M Audit (see details in the paper of Soley, F. & Thøgersen, J. for this Conference). A team from the Programme Office met the Water and Sanitation (WATSAN) Committees or Boards, Caretakers or Operators, Chiefs and Opinion Leaders and representatives from other development committees in the communities. This Auditing Technique creates a common platform for all stakeholders to air their views on the management of the facility in terms

of O&M and also get clarifications on some mind-boggling questions. During the Audit, all available O&M records like the daily sales/income book, cashbook (accounts), water meter reading book, minutes book and maintenance book are scrutinised and all ambiguities cleared. Implications of financial, managerial and socio-cultural situations are explained and appropriate recommendations given on what can be done to improve the O&M status of the facility.

Tariff collection efficiencies were calculated by the use of water metre records to determine the expected income, which is then compared with the Actual income as a percentage. Where there are no water meters as in the case of Boreholes fitted with handpumps, realistic consumption patterns are estimated using the population of the community and an average daily per capita consumption of 10Litres.

Coverage

The study covered 30 rural communities provided with different water supply technologies. These include 5 boreholes fitted with handpumps, 14 Gravity Pipe Schemes (GPS) and 11 Electrical Pipe Schemes (EPS).

Discussions

Revenue collection systems

It was discovered that, majority of the study communities (70%) have introduced the PAYF, 27% apply the Monthly Flat Rate System whilst 3% have no tariff system at all.

The study revealed a number of advantages and disadvantages for the two main tariff systems: PAYF and the MFR. Below is a list of critical issues observed under both systems:

The PAYF system of tariff:

- The PAYF system may become disadvantageous in situations where the community is largely underserved. The PAYF system requires a vendor to sell the water at the tap/water point, and when the vendor is absent the tap must be locked. In most communities the taps are only opened 4 to 6 hours a day and this can lead to long queuing in underserved communities. The waste of precious man-hours by women and children normally compels them to go back to other available sources of water.
- The direct involvement of money may drive some people to alternative traditional sources of water, which might not be wholesome.

Table 1. Declining trends of collection efficiencies under the monthly flat rate tariff regime

S/No.	Community	Months		
		1	2	3
1.	Logba Tota	16%	11%	7.5%
2.	Chinderi	95%	43%	11%
3.	Santrokofi Bume	96%	19%	-
4.	Akome Gborta	42%	34%	-

- Lack of trust (just or unjust) for the water vendors. The vendors are often accused of favouritism towards their own family relations and friends, and being dishonest with the money they receive.
- People use less water as a way of controlling water expenditure. Others also avoid the use of the potable water all together.

The Monthly Flat Rate system of tariff:

- It is unfair to smaller households because the tariff paid is not related to the volume of water used.
- None of the study communities using the MFR system was able to establish the actual number of qualified payers. They often underestimate the number. At Ostramani for instance, they claimed to have 200 households from which to collect the MFR. Their financial records, however, revealed that the number of paying households in previous months were 311, 317, 292, 297, 233, 225, 278, 248 and 211. The decreasing number of households paying from month to month indicates that the WATSAN is losing control of the payment system. Further, the population of Ostramani, based on a recent headcount organised by the Programme is around 5,000 so the most realistic number of households may be around 800.
- The process of collection is difficult, labour-intensive and full of disappointments. Collectors follow up on the people several times without success. Some do part payment and the collectors sometimes give up pursuing the outstanding amount. In some other communities, other groups instead of the WATSAN Committee have had to come in and assist in the monthly tariff collection but also without much success.
- Collection efficiencies characteristically decline after the introduction of the Monthly Flat Rate (MFR) as illustrated for 4 communities in table 1 below.
- Court actions considered against defaulters have been expensive and the process cumbersome. These actions eventually make their financial predicaments worse as funds are expended on litigations.

However, the MFR system certainly has some advantages:

- People use more water, as the tariff is not related to the quantity of water used much to the benefit of their health.
- There is unlimited access to the water facility since it remains opened all the time (Day and Night).

Table 1 and the above points indicate that the MFR system is highly unsustainable. The high percentage of defaulters does not encourage those paying to continue. It often gets to a point where payers feel cheated by the habitual defaulters and also stop paying.

The only condition that can guarantee the sustainability of the MFR system of tariff is that everybody is *willingly* paying. This occurs if there is a strong central authority deriving adequate legitimacy from tradition and customs (sometimes divinity or religion). This authority base must command respect from all and sundry, which is mostly possible in small homogeneous communities.

It is clear from the study that the advantages of the PAYF system by far outweighs the disadvantages and the system seems to be the only feasible and sustainable option except in small communities which are very homogeneous and/or authoritative. But the officers assisting the communities with the water issues must be aware of the problems with the PAYF system so as to help develop means to minimize their effects.

Tariff setting

The animation process of the Programme concentrated on sensitising the communities to have a tariff collection mechanism but not how to arrive at a realistic tariff. Even though the committees were trained in the estimation of O&M costs (budgeting), this was not deliberately related to tariff setting. Estimating water consumption in order to determine the appropriate tariff per bucket or household/adult per month is absolutely essential. This will enhance acceptability of the tariff, based on objective understanding of the cost elements whilst improving the management performance of the WATSAN Committee through effective financial control and self-monitoring. During our interaction with community members we observed that mistrust is one of the most frequent and serious problems facing the WATSANs .

Where communities have been assisted to prepare realistic O&M budgets and estimate water consumption levels in order to calculate appropriate tariff for the water, the outcome has always been a better understanding of why they have to pay for the water followed by an improved willingness to pay.

Tariff collection efficiency

Table 2 lists the average revenue collection efficiencies and the range of revenue collection efficiencies for the study communities having different water technologies and different tariff systems.

Table 2. Tariff systems under various technologies and range of collection efficiencies

No of comm'ties	Tech-nology	Tariff system	Average efficiency	Range of efficiency
4	BHP	PAYF	65%	13 – 107%
1	BHP	MFR	50%	NA
10	MBH	PAYF	38%	18% - 86%
1	MBH	MFR	26%	NA
4	GPS	PAYF	40%	25% - 63%
10	GPS	MFR	24%	0% - 96%

Legend

(BHP-Borehole fitted with handpump; MBH – Mechanised Boreholes; GPS- Gravity Piped Water Schemes).

None of the communities could actually monitor their collection efficiencies or were aware of the implications of low collection efficiencies and few could take sufficient steps to improve revenue generation. The result is that most of the communities have very low levels of collection efficiency both under the PAYF and the MFR tariff regimes. This is diminishing the likelihood of facility sustainability. Either insufficient revenue is collected to operate and maintain the facility or those paying will have to pay more to make up for non-payers, which is normally not possible. It was learnt that tariffs are normally increased, sometimes doubled to make up for the revenue gap.

It could be seen from table 2 that there is no significant difference in the Tariff Collection Efficiencies (TCEs) between Gravity-fed Water Supply Schemes and the Mechanised ones. In view of the need to pay electricity bills it might be expected that TCE would be higher. However, tariff is generally higher in mechanised schemes (¢50/bucket or ¢2000 - ¢3000/Household) as compared to Gravity Schemes (¢25/bucket or ¢1000/HH). This adversely affects the willingness to pay. The table also shows that the TCE is higher in the Pay-As-You-Fetch regime than the Monthly Flat Rate system. However, both systems are ineffective unless some workable control measures are adopted. One gravity scheme community applying the Monthly Flat Rate system achieved 96% collection efficiency in the first year. This fell sharply the following year to 19%. Meanwhile, this community actually fulfils the conditions of having a closely-knit homogeneity and the presence of a strong traditional leadership.

The communities applying the MFR system are aware of the inefficiency of collecting the agreed tariff and most of them have tried different measures to improve the situation but to no avail.

For the P-A-Y-F system major improvements have been realised when communities apply one or more of the following control measures:

- Use of locked moneyboxes by vendors. This enhances the trust of the community members in the water vendors whilst limiting vendors' access to the money collected.
- Use of specially designed metal pieces or coupons to limit the amount of money used at the standposts. This

serves the purpose of preventing the vendors from directly handling the money.

- Rotation of the water vendors or frequent changing of water vendors.
- Households selling water as a communal labour activity for which commissions are not received. This is particularly recommended for underserved communities so that vendors can sit all day to sell water if the need be thus reducing the congestion at the standposts.

The last measure has proven very effective in improving the tariff collection efficiency, as was the case in Mafi Dekpoe where a TCE of 86% was achieved. When no professional vendors are employed to operate the system, no families become dependent on the income generated by selling water. The different households tend to compete among themselves as to who can generate the most revenues whilst the water users seem to be more willing to pay because they themselves are more directly involved and have a better understanding of the implications of not paying. In Programme communities, where water has been provided based on 300 users per fetching point (design criterion), each household will only have to sell water for about one week in a year.

Above all, the most reliable means of checking the collection efficiency (and the water consumption) is the use of water metres. All pipe scheme facilities provided by the Programme will before the end of the present phase benefit from a complementary intervention in which water meters will be installed on all the standposts. Observations from communities where water meters have already been installed shows, however, that most of the communities are not using the meter records to monitor the collection efficiency or to check the vendors and the WATSAN Committee. The installation of meters at the standposts must therefore be followed up with adequate training and education on how to read the meters, how to keep meter records and how to use the meter records to control the financial performance of the vendors and the WATSAN committee.

Financial record keeping

All the WATSAN Committees studied kept some kind of financial records. It was realised that they have been trained

on using the 3-column cashbook where income, expenditure and balance are recorded each time money exchanges hands. It was found that most of the committees were not consistent and meticulous in doing this. Mistakes committed in one month run through all other succeeding months and if detected, they are difficult to correct, as it is not a periodic monthly account but a continuous one. Loans taken for some maintenance works are not recorded, whilst in some cases, savings are entered as expenditure and withdrawals treated as income. As a solution therefore, the communities are now being introduced to a simple 'T' Account format where Accounts are closed every month stating monthly balances and the total (accumulated) balance. Statement of current assets and liabilities is made below the 'T' Account to solve the problem of communities not knowing how to treat bank deposits and withdrawals, stocks and Owings. Further, the WATSANs are encouraged to make copies of the monthly T-account and post on community notice boards to improve the transparency of their work.

Revenue utilisation and management

Revenues are not always being used judiciously. Often, water revenues are used for purposes other than water and sanitation. Some of the WATSAN Committees also spend too much on frivolous expenditures like refreshment (protocol) for visitors. At Aveyime for example, 6% of the revenue was used for protocol. In some cases members of the management team pay themselves 'fat' salaries and bonuses. In a community for example, the Management Board spends between 24% and 59% of its revenue on salaries/allowances each month. The varying percentage is due to varying tariff collection efficiency. It also shows that even when the income is low the management's priority for their own salaries is higher than all other commitments. As a result, the system had hardly any significant savings even though their incomes are relatively high. Ideally, such big schemes should not spend more than 10% of their income on remunerations if they are to achieve sustainability. The crucial lesson here is that generating good revenues is in itself not sufficient unless it is accompanied by prudent utilization of such funds mainly on O&M.

Others employ two or three operators who receive fixed monthly remuneration even though they may all not be active. Dagbamatey presents a very useful model worth replicating. Here three operators have been recruited and trained. However, they are used in turns, one per month and are paid only when they are on duty. By this arrangement, there will be no redundancy or dormancy and operators will be paid for work actually done.

By way of funds management, communities are advised to safeguard revenues from depreciation through investment in stocks and/or buy some essential spare parts as reserve.

Accounts rendering

Most of the WATSAN Committees do not render accounts to their communities regularly. It has been noticed, how-

ever, that where this is done in a transparent manner there is a good measure of trust for the WATSAN Committee and the community is more cooperative and supportive. As mentioned earlier, it is recommended that a copy of the monthly T-account is put on the community notice board. Details of the account should then be rendered to the whole community on quarterly basis.

The direct use of the 'T' Account format will ease out the burden of the WATSAN in presenting Financial Accounts periodically.

Conclusion

Our fieldwork has established in practical terms, 'the multiple faces' of O&M cost recovery in rural water projects. The bottom line is the fact that, facilitating the adoption of a tariff mechanism and creating a willingness to pay within the community is important but far from sufficient for sustainability of the facility.

A holistic approach to building cost recovery capacities is needed. This should encapsulate the following:

- The PAYF tariff system shall be promoted as the most effective and reliable system. The communities must be made aware of the critical problems connected to the system and how to overcome these problems by appropriate control mechanisms.
- The communities must know how to prepare a realistic O&M budget and how to calculate an appropriate tariff based on the budget.
- Communities shall learn how to assess and also improve their revenue collection efficiency.
- Pipe schemes shall necessarily have meters installed at the standposts and other outlets like house connections. The committees shall understand how to read the meters and how to use the meter records to improve revenue collection efficiency and to make management easier and more transparent.
- Communities shall keep simple financial records on monthly basis like the T-account, which clearly shows monthly and accumulated balances. All financial assets and liabilities shall be summarized and included in the monthly account sheet.
- WATSAN Committees shall render accounts to the whole community regularly for the sake of transparency. This will help the community to stop frivolous expenditures before its too late, and improve the ownership feeling in the community for the facility. The monthly closed T-account and assets and liabilities table can be used as format for the rendering of account, and it may be sufficient to display it on a public notice board.
- Communities applying the P-A-Y-F tariff system shall be educated on the health/hygiene benefits inherent in the use of more water.

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