



WATER, SANITATION, ENVIRONMENT and DEVELOPMENT

Community-managed water supply in Mafi-Kumase

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Introduction

Traditionally, most Ghanaians regard the GWSC (or Government) as the 'Mother of all water supplies' due to its status of monopoly. Unviable systems in the remotest villages are owned and managed by the GWSC. Break-downs and failures of the systems follow due to finances human and logistic problems.

The options of local initiatives and Community management were not developed. The GWSC and external support agencies (notably CIDA) and the private sector are currently evolving a programme of transition from centralized to Community Management Systems. There is therefore, the need to examine such existing systems in the country to afford the right guidelines and measures to be established.

One such Community initiated and managed water and sanitation system is the Mafi Kumase Self-help Water project. The system, constructed 5 years ago by the people has facilitated the complete eradication of guinea worm and bilharzia in the community.

This case study recounts the highlights of established measures that account for the successful community management of the project.

Project history

Community structure

Mafi Kumase is a rural community of 9 chain-linked villages in the North Tongu district, Volta Region. The people are homogeneous and united, and have undertaken a number of self-managed community development projects.

The community population: 5,000.

Occupation: peasant farming (cassava and maize).

Religion: African and Christian religions.

Infrastructure: electricity, community senior secondary school, health centre, a viable market and a piped water supply, all provided through self-help.

Community organisation

Very active town development committee, chiefs and area youth association form the developmental structure of the community, women are fully involved.

Past water situation

Supply from ponds and non-perennial streams (guinea worm endemic) and inadequate roof catchment.

Present water supply scheme

Source: Dam reservoir (guinea worm and bilharzia endemic).

Scheme: Slow sand filtration (SSF) and horizontal-flow roughing filtration (HRF) gravity plant. Pumped distribution to public stand pipes. Emergency gravity well provides for eventual pump failures.

Project funding

| | | |
|---------------------------|-----|-------------------|
| a. Swiss NGOs and friends | 48m | approx. \$137,000 |
| b. The community | 32m | approx. \$91,000 |
| Total project cost | 80m | approx. \$228,500 |

External door conditionalities

Community ownership, full community participation, community management of the system.

C M - oriented implementation activities

Specific activities intended to provide sound basis for the community management of the project were incorporated in the implementation programme, including:

- Establishment of central and village water committees.
- Community involved in design activities.
- Community education on water usage and sanitation.
- Training of community leaders in leadership skills.
- Project-related income generation activity. (Stone cracking)
- Training of selected caretakers (residents only).
- Determination of levies based on income levels.
- To seek GWSC involvement.
- Phased project implementation: I: treatment, II: distribution, III: sanitation.

Operation and maintenance (O & M)

O & M considerations were accorded a high degree of importance. Local resources were explored and provisions established to achieve cost-effective and affordable operation.

The central and village water committees are responsible for system management. O & M by 2 caretakers and 1 night security. The TDC/water committee responsibilities are:

- Fix, review and collect tariffs (presently below GWSC rate).
- Fix and review wages of operators.
- Organize fund-raising activities including a 'water day' festival.
- Operate 2 bank accounts - cedi and dollar account.
- Read accounts at monthly TDC meetings.
- Prepare and read annual accounts to community.
- To order connections and disconnections.
- Keep stock of spare parts.

SSF cleaning Routine by the senior secondary school. hydraulic gravel cleaning by caretakers and manual cleaning by community. Preventive maintenance by caretakers, and major repairs by specialists. Quality control by caretakers, GWSC, standards board. Caretakers provided with bicycles.

Operation and maintenance costs

| | | |
|-------------------------------------|---|------------------|
| Revenue (1992): | | Per year |
| Water rates 38 taps at 3,000 | = | 1,400,000 |
| Shop bar, food and water sellers | = | 300,000 |
| 'Water day' festival proceeds | = | 200,000 |
| | | <u>1,900,000</u> |
| Expenditure (1992): | | |
| Salaries: 2 caretakers & 1 security | = | 480,000 |
| Electricity | = | 360,000 |
| Filter cleaning expenses | = | 50,000 |
| Retainers, repairs & replacement | = | 260,000 |
| Water tests and incidentals | = | 200,000 |
| | | <u>1,350,000</u> |
| Reserve fund | = | 550,000 |

Post-construction assessment.

The general performance and impact of project on the community after 5 years of operation is positive. The prime objective of eradicating guinea worm and bilharzia has been achieved. Family stone cracking industries established as a source of added income. (Skill acquired during project execution).

Assessment

| Assessment | Performance | Indicator |
|---------------------------------|-------------|--------------------------------------|
| System performance | Good | Improved water quality |
| Service delivery | Good | Regular supply |
| TDC/water committee performance | Good | Active, monthly meetings |
| Caretakers' performance | Average | Need for improvement |
| Finances and accounting | Good | Regular account and reserve build-up |
| Collection of tariffs | Good | Regular, defaults attract sanctions |

| | | |
|-----------------------------|------|--|
| State of installations | Good | Excellent condition |
| Interaction with donors | Good | Regular communication |
| Involvement of GWSC | Poor | Lack of interaction |
| Project impact on community | | |
| Short term: | Good | Guineaworm and bilharzia eradicated |
| Long term: | ? | Indications of improved health and productivity are visible. |

New community projects are under construction: A dam and 200 individual home latrines with revolving fund. The spirit and level of commitment of the community is still high.

Basis of project success

- Need
- Appropriate technology
- Acceptance
- Dedicated leadership
- Community involvement
- Reliable service
- Accountability
- Pride of ownership
- Training
- Donor cooperation.

Project design

Affordable CM consideration and local skills influenced the design and choice of technology.

Design data:

| | |
|--------------------|---|
| Design capacity: | 75m ³ /day |
| Raw water sources: | Dam reservoir |
| Raw water quality: | Guineaworm and bilharzia; turbidity, 30 - 60 NTU |
| Water treatment: | Gravity scheme of horizontal-flow roughing filtration (HRF) $V_f = 1$ m/h, slow sand filtration (SSF) $V_f = 0.15$ m/h. Emergency clear well Pumping to elevated reservoir (45 m head), piped distribution to stand pipes |
| Implementation | 3 years (communal labour). |

