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Community planning of water supplies

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Introduction

This paper describes community planning for the rehabilitation, operation and maintenance of small urban water supplies in northern Ghana, that is taking place under the Ghana Water and Sewerage Corporation (GWSC) Assistance Project.

At present, GWSC manages about 40 mechanised, piped water supplies and approximately 2,800 boreholes with hand pumps in northern Ghana. Most of the mechanised supplies were installed in the 1960s and 1970s, when the Government of Ghana embarked on a programme to expand potable water coverage to communities with populations over 1,500. Most of the boreholes with hand pumps were installed in the 1970s and 1980s, concentrating in villages in the Upper Regions.

These installations were done without involvement of the communities, and technology choices were made by GWSC engineering staff. After installation, communities were expected to pay a water tariff to GWSC, who are required by law to operate and maintain the supplies.

Many of the mechanised, piped water supplies are broken down, or shut down because of non payment of tariff. The ones still operating provide sporadic and unreliable service, and frequently do not serve large portions of the communities. The boreholes with hand pumps have had a better operational record, but most of the hand pumps now need replacement. The cost of operating and maintaining all of these supplies is a tremendous financial drain upon GWSC's meager resources. Tariff collected from community residents is a relatively insignificant source of revenue for GWSC.

In addition to water supplies installed and managed by GWSC, community residents in northern Ghana have access to many other water sources. Non-government organisations (NGOs) in particular have been active in providing shallow, hand-dug wells, boreholes with hand pumps, and surface water reservoirs throughout the area. Many residents have developed their own supplies, usually shallow, hand-dug wells and various forms of rainwater catchment.

Water supplies provided by NGOs are sometimes maintained by the NGOs at some cost to the users, but frequently it is expected that GWSC will maintain them. Water supplies developed by community residents are often inadequate in the prolonged dry season, and produce

very poor quality water in the wet season. As could be expected, water-related diseases are widespread in northern Ghana.

The existing water supply development, operation and maintenance management situation in northern Ghana is not sustainable. Existing water supplies are rapidly deteriorating, and many area residents lack access to a reliable and potable water supply. The GWSC Assistance Project was formulated to establish community management of the rehabilitation, operation and maintenance of some small urban water supplies, and to assist GWSC in more effectively managing the operation and maintenance of the remaining urban supplies.

Community management strategy

The project was initially conceived as a predominantly technical undertaking to rehabilitate as many mechanised, piped water supplies as possible. Expatriate and GWSC project staff were primarily engineers and technicians, and one of the first major activities undertaken was preparation of rehabilitation designs for about 40 towns and cities. Fortunately, a comprehensive socio-economic and willingness-to-pay survey was conducted early in the project. Community residents and their opinion leaders were very vocal in expressing their displeasure with the existing GWSC water service in their communities, and their lack of involvement in GWSC's decision-making. Also, the survey revealed to project staff the extent to which people relied upon non-GWSC water supplies.

This knowledge gained by the survey resulted in a reformulation of the project activities. Significantly more resources were allocated to community development, and a dialogue was established with community and district government representatives. After some time, a community management strategy was developed that committed the project to establishing and enabling community control of rehabilitation, operation and maintenance of small urban water supplies in 14 towns.

Institutional framework

The communities, through mobilisation of Water and Sanitation Development Boards (WSDBs), have become actively involved in planning the rehabilitation and management of their water supplies. WSDBs are semi-autonomous bodies operating within the established District

Assembly system legislated and enacted throughout Ghana. Each WSDB is linked to the District Assembly by a constitution, that is drafted and then ratified in each district. By-laws to enable management of the community water supply are drafted and also ratified in each district, and enacted by the WSDB and the District Administration. The District Administration also oversees the WSDB's activities in the community, provides administrative support to the WSDB, and performs a financial auditing function on the WSDB bank accounts and bookkeeping system.

GWSC's relationship to WSDBs is one of providing technical assistance and training, monitoring, and will be to provide materials and services to WSDBs on a contract basis.

Integration of WSDB activities is occurring at the district level, as they are able to link up with health committees, development committees, NGOs and other community-based organisations.

Planning for rehabilitation

Most of the communities have identified water supply as their prime need. This was clearly demonstrated at Damongo, where the chief equated the success of his reign to the acquisition of a reliable potable water supply for the town. While recognising water supply as their prime need, it is also evident that community residents are aware and concerned about the high costs associated with higher levels of service. As a direct result of this concern, low-cost technologies and less expensive levels of service were explored by the WSDBs, thus creating a blend of technologies and service levels within each community's rehabilitation plan.

WSDBs and their communities were able to assess the operation and maintenance costs and level of management required for various technology options. For example, the Damongo WSDB determined that slow sand filtration would not be feasible due to the low level of communal spirit and cooperative action in that community, whereas the Zabzugu WSDB determined the opposite for their community.

The Bole, Nandom, Jirapa and Binaba-Kusanaba WSDBs determined that solar powered water pumping was feasible and desirable in their communities, but the applications of this technology range from full solar powered pumping to conjunctive use with diesel or grid power for pumping.

Some WSDBs, such as Navrongo and Zebilla, have determined that the improvement of existing shallow hand-dug wells instead of expanding the piped system to remoter areas of the community is a more feasible plan. Most communities in the Upper Regions have opted to rehabilitate and expand the number boreholes with hand pumps to effectively serve some sections of their communities. The Yendi WSDB has included household and environ-

mental sanitation improvements as one of their main goals in water supply rehabilitation.

Participatory design

The WSDBs have been directly involved in technical design of the water supply rehabilitations: locating public standpipes and private house connections; identifying sections where new or expanded distribution pipes were required; assisting in the calculation of institutional and commercial water demand; and facilitating topographic surveys and land acquisition for elevated storage tanks.

The location of public standpipes, private connections, hand pumps and other water demand and service points identified by the communities through their WSDBs, enabled GWSC technical teams to prepare cost estimates for operation and maintenance of the proposed supply. These costs were then evaluated within the communities to see if they were affordable, and to determine that the service levels were convenient and acceptable. In many cases, this evaluation resulted in the reduction of the number of public standpipes and private connections originally requested, and also resulted in the more widespread use of lower cost technologies.

This has helped GWSC technical teams to then prepare conceptual designs, which are then submitted to the WSDBs for their study and approval. Only after this approval are detailed designs prepared.

Financial planning

The communities are willing to pay the full cost of operating and maintaining their rehabilitated water supplies. As a tangible sign of this willingness, almost all communities have commenced collection of a deposit towards future operation and maintenance costs. A six-month deposit has been suggested. To reduce the project-borne capital costs, most WSDBs are planning to provide some volunteer labour for rehabilitation work.

WSDBs are being assisted to develop tariffs that will cover all operation and maintenance costs, and include a reserve for capital depreciation and future expansion of the water supply.

Planning for management

WSDBs have recognised the need for training to enable them to effectively plan and manage the development and delivery processes. Training needs assessments were conducted with WSDB members and for the community at large. WSDB management training is focused on financial, administrative, technical, hygiene and sanitation issues in water supply. Each WSDB member clearly sees his or her role and responsibility in managing the water development and delivery process, and is receiving training in these responsibility areas.

WSDB members are also receiving training in communications and public awareness, and are fully involved in planning and delivering public education sessions in their communities. Drama, role-play, slides, music, songs and puppets are all used by WSDB members to deliver public education.

Changes within GWSC

Formerly, GWSC technical staff planned and controlled water supplies in all small urban communities. As a result of the introduction of community planning and management, GWSC technical staff are now recognising that community members have the ability and capacity to be fully involved in water supply activities. The community WSDBs have gained confidence in their abilities, and now feel more equality in their dealings with GWSC.

Within GWSC a group of community liaison staff has been created over the past few years to help establish and then work with the WSDBs.

Conflicts were apparent between the technical and community liaison staff. The technical staff were anxious for rehabilitation to start quickly, and saw community liaison activities as causing delays in the rehabilitation. The technical staff felt they knew what type of water supply was needed in the communities, and wanted to get on with designing, procuring and installation.

The community liaison staff felt that the technical staff had an air of superiority, and were not willing to communicate with them or with community members. Technical designs being considered for the communities appeared to be far too complex and expensive for sustainable management.

These conflicts were reduced to a considerable degree by conducting interdisciplinary workshops to help each group within GWSC learn about the other groups activities, and to sensitise each group to community management objectives and methodologies. Joint monthly meetings were started, involving technical and community liaison teams, to share information and conduct work planning together on a regular basis.

Conclusion

Community planning for the rehabilitation of small urban water supplies has been proven to be effective and feasible in 12 communities to date. WSDBs are an appropriate organisation to lead the planning and management activities at the community level. Through their formal and non-formal linkages with District Assemblies, District Administrations and other community-level organisations, WSDBs are well established institutionally. GWSC has an important role to play in providing technical assistance and training to WSDBs and district governments, and by playing a role in operation and maintenance on a cost-recovery basis.

As WSDBs and district governments mature and grow stronger, planning and management of water and sanitation development at the community level will in all likelihood become the norm. This approach is probably the most sustainable arrangement for ensuring adequate water supply and sanitation facilities in small urban centres in Ghana. This approach has the potential to be expanded to rural water and sanitation planning and management through a district-based board representing residents outside of the urban areas of the district.