

824-GHUP91

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# BOLGATANGA COMMUNITY WATER SUPPLY AND SANITATION MANAGEMENT PROJECT

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## PROGRESS REPORT

JANUARY, 1990 - DECEMBER, 1990

WITH REVIEW OF IMPLEMENTATION AND PROBLEM  
RESOLUTION METHODS

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Bolgatanga  
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## FORWARD

During the International Drinking Water Supply and Sanitation Decade (1980-1990) it is estimated that between 400 to 500 million people have benefitted from extra water supply facilities, whilst there are more millions unserved today than at the start of the decade in 1980. It is also a hard fact that many of the systems installed during the decade period especially handpumps are either malfunctioning or already out of service.

All the same, the lessons learnt during the just ending decade have highlighted numerous challenges that need concerted attention by national and international organizations. While technology choice had been an obvious weakness, it is an undeniable fact that projects failed equally often for not taking the social aspects into consideration.

It should be realized that the centrally managed provision of rural water supply and sanitation services as a public good is an ineffective approach to meet the needs of the unserved millions of rural inhabitants. Many of the installed systems, operate far below capacity because of poor centralized maintenance and lack of community support.

The Bolgatanga Community Water Supply and Sanitation Management Pilot Project is designed to address some of the non-technical and technical issues by testing the willingness and ability of the communities in taking on management responsibilities for operation and maintenance. The approach is aimed at maximizing village level participation in management, thereby reducing dependence on government resources. The overall objective is to test basic procedures to attain sustainable rural water supply and sanitation in Ghana, by a community management system of maintenance.

Started in July 1988, the project introduced innovative strategies in adopting cost effective but appropriate technology by the installation of Village Level Operation and Maintenance (VLOM) handpumps and the establishment of the necessary structures that are prerequisite for sustainable maintenance. After two and a half years of work, the project has so far demonstrated that communities, especially women when given the challenge, can attain a wide range of management and technical skills. The project is gradually proving that the rural population has the innate ability and strength to participate and contribute towards sustainable rural water supply and sanitation.

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## OVERVIEW

The calendar year 1990 saw a continued implementation of the Bolgatanga Community Water Supply and Sanitation Management Pilot Project. This involved the various components of the project to hand over management and maintenance responsibility to the rural people.

The main activity areas in the period under review included:

- Training and Manpower Development
- Health Education and Sanitation Improvement
- Expansion of Pilot Women Income Generation Ventures
- Community Development and Participation.
- Monitoring and Testing of Handpumps.

The main thrust of project activity was centered on the development of a regional model for transfer of the existing centralized maintenance system to a decentralized strategy based on community participation.

Along the way to implementation of the project several problems were encountered. The nature of the pilot project permits to test methods of resolving them.

The present report essentially updates the two previous reports and reviews the implementation strategy as well as the problem-resolution methods.

## EXECUTIVE SUMMARY

The Ghana Water and Sewerage Corporation (GWSC) developed over the years a centralized maintenance system for the 2,600 handpumps dispersed over the two Upper Regions. These waterpoints had been established with the assistance of Canadian International Development Agency (CIDA). Experience in Ghana and elsewhere showed that centralized agency management of rural water supply systems are not only cumbersome but costly. The frail economic situation in most developing countries has necessitated the introduction of low cost alternative systems that can be managed by the communities themselves. This would enable GWSC to free itself of the details of managing rural water supplies.

The approach in the project is to establish community management for water supply systems based on the introduction of Village Level Operation and Maintenance (VLOM) handpumps. Women have been given a strategic role in the project.

The Bolgatanga Community Water Supply and Sanitation Management Pilot Project covers an area of about 320 square kilometers with a population of about 15,000 in 50 pump communities. Three VLOM type handpumps are being tested for reliability and suitability.

Started in 1988 the project is developing a methodology for establishing a viable community based management model replicable elsewhere.

It is naturally expected that in the process of transferring managerial and technical skills to a predominantly illiterate rural population problems would arise. The Bolgatanga Community Water Supply and Sanitation Management Pilot Project is gradually testing methods for resolving these problems.

The Bolgatanga Community Water Supply and Sanitation Management Pilot Project is by nature a multi-sectorial project and high integration of its complementary components is one of its important features.

The main events that took place during the period under review included:

- Continued Community Participation in Management
- Handpump Monitoring
- Training and Manpower Development
- Health Education and Sanitation Improvement
- Women Pilot Income Generating Ventures

### Achievements of the Project

All aspects of transferring to the people the management of the rural water and sanitation schemes have not yet been fully accomplished. The pump spare parts distribution at the local level has yet to be started. The Hand-dug Well construction programme is behind schedule.

Nevertheless some major advances have been made towards the realization of the overall project objectives. These achievements include:

- All the fifty (50) pump communities have settled their outstanding tariff arrears owed to GWSC.

- All the Pump Communities have now opened bank accounts with total savings of about ₦ 1.5 million.
- All 50 boreholes with old hand pump in the project area have now been replaced with VLOM hand pumps.
- Sound organizational and management skills have been introduced and maintained at all the communities.
- All the 50 hand pumps underwent scheduled maintenance in 1990.
- Village level mechanics have been trained and are able to undertake about 60% of the repairs.
- Hand-dug Well Demand Survey was carried out during the latter part of the year.
- Twenty-three modified improved pit latrines have been completed and ten others under construction.

### Future Goals of the Project

In the on-going process of transfer of managerial and technical skills to the community there is need to review performance and set up new goals at each stage of the project. The following are the goals of the project for the future:

- Consolidation of the achievements in testing the model for community management of the rural water supply system.
- Achievement of total coverage of "Yeri Baangide" (Compound latrine) in the project area as part of the sanitation complement of the project over the next two years.
- Construction of fifty (50) Hand dug wells in the project area to be fitted with locally made NIRA hand pumps.
- Extension of the pilot project to cover a remote district from Bolgatanga. This is to provide a more representative sample area to allow testing of the model under less favourable conditions.
- Continuous monitoring of handpump performance.

# 1 INTRODUCTION

## 1.1 Background

The Ghana Water and Sewerage Corporation (GWSC) together with the UNDP/World Bank Water and Sanitation Programme/Canadian International Development Agency (CIDA) and other local Government agencies (DCD, MOH, DSW) established in 1988 the Bolgatanga Community Water Supply and Sanitation Management Pilot Project with the aim of transforming existing centralized management of the rural water supply and sanitation system to direct community management.

The aim of the UNDP/World Bank Water Supply and Sanitation Programme is to reduce the high cost of maintaining centralized management systems in the rural areas of developing countries. It is conceivable that this would reduce the burden on the economies of the developing countries that are already experiencing a precarious situation in relation to their national budgets.

The evolution of a suitable model for maintenance and management of water supply and sanitation systems under the pilot project would be of use in the replication of such schemes elsewhere.

Three types of handpumps: Afridev/Aquadev, NIRA AF85 and Volanta are still undergoing evaluation in terms of suitability for village level operation and maintenance (VLOM).

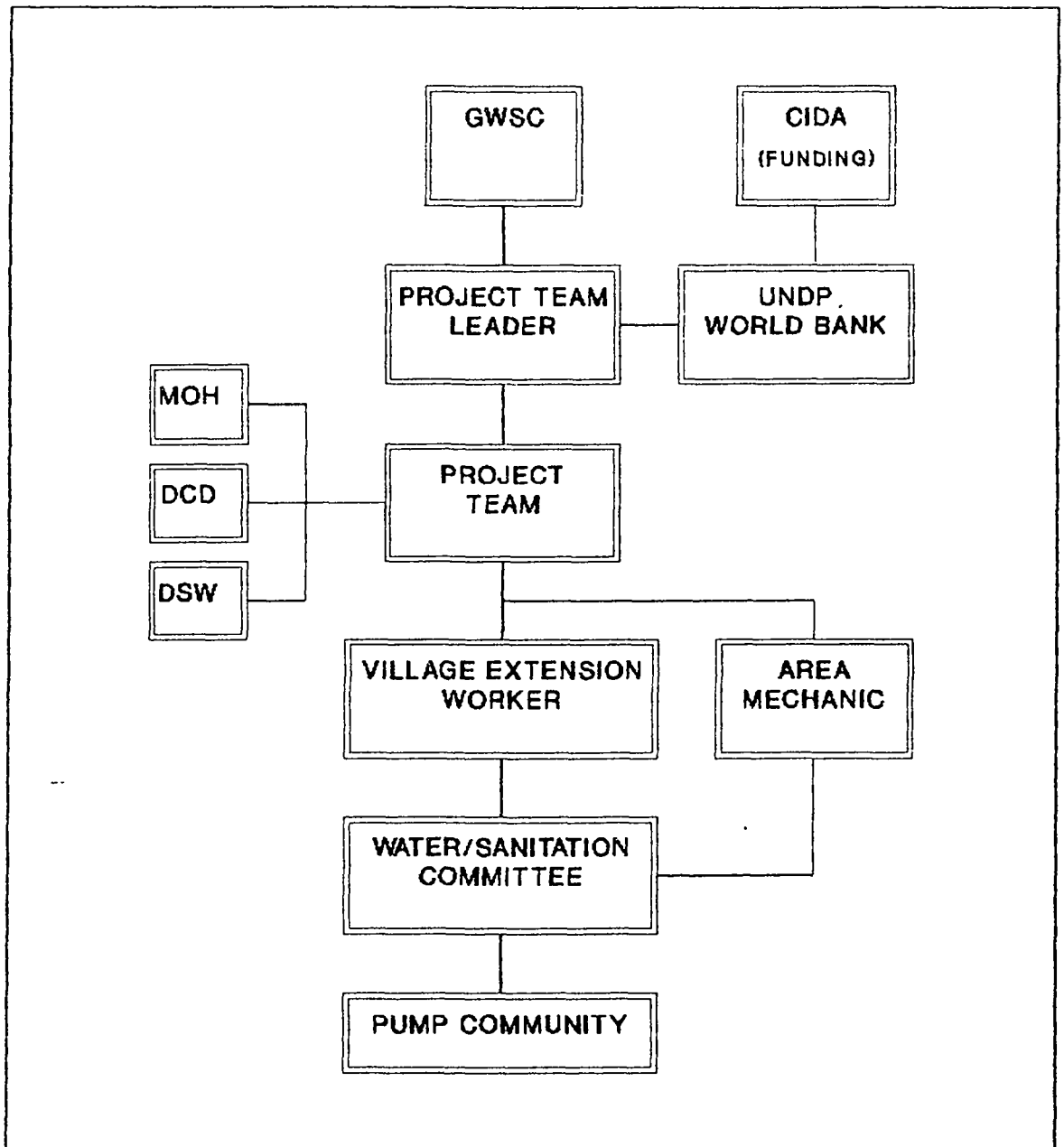
The main objectives set out for the project over the period (1988-1990) include:

- Developing a suitable strategy for the transfer of responsibility for handpump maintenance to the village communities, setting up a spare parts distribution system, and establishing a system of fund mobilization and appropriate financial management methods.
- Develop and document an appropriate implementation strategy and training method for possible replication in other rural project elsewhere.
- Develop an appropriate strategy for promoting the installation and use of simple household latrines.
- Implement a health programme consistent with the Water Health Integrated Programme (WHIP) and the Ministry of Health's Primary Health Care Programme.
- Emphasize the involvement of women in playing leading roles in community water supply management.
- Development of a private hand-dug well industry to assist communities to supplement their current water supplies.
- Develop information and field test data to assist in the selection of handpumps for standardization in Ghana.
- Increase the number of personnel trained to implement water and sanitation projects, particularly in community management system.

## 1.2 Review of Project Structure

Essentially, the Bolgatanga Community Water Supply and Sanitation Management Pilot Project is executed by a team of specialists assisted by extension workers and artisans. Village Elders and Assemblymen exercise an indirect leadership and advisory role at the community level in assisting the Water and Sanitation Management Committees (WASAMCs).

As illustrated in the organogramme of the pilot project there has been little change in the linkages at the lower level. However the numerical strength of Village Education Workers (VEWs) and Area Mechanics has been reduced.





At a higher level, the Country Co-ordinator assumes an advisory capacity coordinating all projects of the UNDP/World Bank Water and Sanitation Programme in Ghana.

The position of Project Advisor resident at Bolgatanga has been discontinued. Technical assistance is provided through personnel of UNDP/World Bank Water and Sanitation Programme.

### 1.3 Content and Scope of Report

Basically the present report updates the first two reports and presents a review of the implementation strategy and problem resolution methods. The report also includes a presentation of achievements over the calendar year (January 1990 - December 1990) and outlines the goals set for the ensuing life of the Bolgatanga Community Water Supply and Sanitation Management Pilot Project.

The Progress Report for January - December, 1990 therefore covers the following aspects:

- brief introduction
- review of implementation strategy
- water supply maintenance
- community participation and management
- health education and sanitation improvement
- women's involvement and activities
- funding and financial management
- training and manpower development
- implementation difficulties and problem-resolution methods

## 2 REVIEW OF IMPLEMENTATION STRATEGY

The development of a viable implementation strategy for achieving community management of rural water supply is a major objective of the project. The implementation strategy involves the transfer of knowledge and skills at both the institutional levels and community levels as well as the monitoring of approaches for possible corrective measures and refinement.

The implementation strategy is in line the decentralization and self-help promotion policies being implemented in the country.

As a multi-sectoral project involving technical, social and financial aspects the approaches to the implementation of each of these components vary. For successful execution of the pilot project, there is need for on-going self evaluation and review of the implementation strategy to suit the different requirements. Thus the implementation strategy is also evolutionary in nature.

Maintenance is necessary for any system that depends on mechanical equipment. Emphasis is placed on scheduled, preventive maintenance rather than break-down repair. Scheduled servicing which includes the replacement of worn out parts and greasing of bearings reduces breakdowns and prolongs the life of the pumps.

The approach to community participation and management involves regular consultation between project staff and the community. The traditional leadership roles of Village Elders, Assemblymen and Women Organizers, continue to be used for community mobilization organization.

To ensure a steady progress of the project, review meetings of the project team and Village Extension Workers are held weekly. Every 3 months quarterly Plans of Action for the ensuing period are discussed for each sector and the work schedule is reviewed.

Implementing the Health and Sanitation Sector - Component involved carrying out health education, latrine promotion and construction. Essentially the health education covers the following areas:

- Basic Personal Hygiene;
- Causes and prevention of diseases especially malaria, diarrhoea and guinea worm infestation;
- Use of Oral Rehydration Therapy;
- Family Planning;
- Maternal and child health;
- Nutrition;
- Immunization.

In carrying out Health Education on radio, project staff trains the

facilitator at the community level. Health messages prepared by the CIDA funded project Water Education for Health (WEFH) of WUP are transmitted on the local frequency modulation in the Gurune language by GBC staff. The larger coverage of radio is contributing significantly in Health Education. The project made use of the formation of radio learning groups.

The project requires development of organizational skills and management capability. Training for project staff and community facilitator are organized regularly to update skills in co-ordination and community management.

Initially it was feared that the female population would be reluctant to response to the project activities. However, the role of women as providers of water in the traditional household has been utilized to give them a strategic influence in project activities. Apart from active involvement in pump maintenance, health and sanitation education, financial management, women groups are also engaged in income generating ventures as a means of supplementing income. This has helped women to fulfil their financial commitments in pump maintenance and general developmental activities under the project.

Problems that arise because of the project activities are normally being solved by resorting to the judgement of Village elders and assemblymen. It requires the managerial skill and tact of the project staff to bring this traditional, political roles into play.

Construction of ventilated pit latrines is proceeding gradually in the project area. The promotion of latrines is based on the outcome of the household latrine demand survey carried out in 1988 which identified the need for affordable household VIP latrines. In all 23 latrines have been completed and ten (10) others under construction. An earlier plan of recruiting new masons was abandoned. Rather the four masons already trained were re-organized into action.

The Pilot Project has also developed working relationship with other agencies in the sector in providing technical skills in the training of latrine construction and VLOM pump maintenance. Notable among these agencies are Northern Region Rural Integrated Programme (NORRIP), Binaba Area Community Health Project, and the District Assemblies in the Upper East Region.

### **3 HANDPUMP PERFORMANCE**

The UNDP/World Bank Water and Sanitation Programme encourages the transfer of basic technical skills for repair and maintenance of the handpumps to the community. Experience has shown that the maintenance and repair of centralized managed rural water supply system under the Ghana Water and Sewerage Corporation is not only cumbersome but costly. The dispersed location of handpumps means a high outlay on vehicles and motor bikes as well as high running costs.

The aim has therefore been to identify simple and easy to maintain handpump types based on the Village Level Operation and maintenance (VLOM) concept suitable for community self management. The three types of pumps introduced in the project are being monitored on a sustained basis to determine their reliability and performance.

The main activities carried out under this sector during the period under review included:

- Monitoring of hand pump performance and the rectification of common defects;
- Scheduled servicing of pumps on a continue basis;
- Sustained monitoring of Water Discharge Rate and User Preference;
- Monitoring and performance of Village Extension Workers, Area Mechanics and Community Mechanics.

Maintenance is an import requirement of any system based on mechanical technology. Preventive maintenance was introduced, vital pump parts are serviced at regular intervals, thus the life of handpumps is prolonged. Servicing is carried out by the community mechanics. In case of breakdowns the assistance of area mechanics is solicited for the repairs.

Pumps breakdowns beyond the repair capability of the community mechanics our the area mechanics are reported by VEWs to the Bolgatanga Community Water Supply and Sanitation Management Pilot Project office for attention by project mechanics. Approximately 40% of all interventions are reported to the project, the others are dealt with without assistance.

The yield of the pumps is monitored through the project personnel by measuring the discharge on a monthly basis. Available evidence indicates that the pump communities prefer those pumps with higher discharge and easy operation.

The age of the three types of pumps (Afridev/Aquadev, Volanta and Nira AF85) in the field vary between 10-26 months. With the exception of two pumps that were installed less than six months ago. The usage of the pumps can be described as high to moderate. During the test period the pumps have performed in average well with few problems associated with different components.

The proceeding summaries the performance of the pumps and their components:

#### AFRIDEV/AQUADEV

The advantages of this pump is that it is suitable for the deep wells up to 45 metres. In the project area the average setting is 18 metres. With its open top cylinder the plunger and foot valve are extractable. Only a foot valve fishing tool and one spanner are required for all maintenance work and repair since all bolts and nuts are of the same size.

#### PROBLEMS

Generally the Afridev/Aquadev pumps performed well. The only weak point in this point is the rising main/rod system. In the project several different rod design are being used. All of them gave in one way or another problems. It will be essential for the Afridev pump that viable solutions for the rods and centralizers are found otherwise the VLOM concept might be jeopardized.

Initially all Afridev from Kenya were installed with polyethylene rod centralizers. They have shown considerable wear both inside and outside. When the wear on the inside increases the centralizer usually break into two pieces. These failures occur after about six months of installation where the pumps were moderate to highly used.

The Afridev made in India are fitted with the forged rod connectors. The centralizers are made of rubber which is vulcanized to a steel insert. This type of centralizers experienced the problem of the rubber piece disintegrating from the metal insert. The metal part then started rubbing against the rising main resulting into rising main perforation.

These two types of centralizers have since been replaced with new black moulded rubber centralizers during the reporting period. In one of the pumps these moulded rubber centralizers have lasted for a year without wear.

Forged stainless steel hook and eye connectors which are screwed to the rods (made in India) were installed in a deep setting of 39 metres. They broke down four consecutive times at the thread. The Indian manufacturers have since changed the design so that the rod are welded to the connectors instead of screwed.

Pintype rods made in Kenya did not break but rather disengage when the centralizer wear. This type is being discontinued for use. The water quality in the project area is very aggressive. The mild steel rods corroded within 18 months. All the mild steel pump rods of all Afridevs require replacement in the next months.

The Aquadev is fitted with polyethylene rod connectors which have a centralizer incorporated. The ribs of the rod centralizers wear heavily on the rising main pipes. Three pumps experienced perforated rising mains after a short time of service. The Aquadev rods need also to be replaced as the connectors give not the required service.

Fibre glass reinforced epoxy rods (Ultra rods) are being tested since the last three months with promising results so far. It is planned to replace all rods with these fibre glass rods to obtain further test results.

#### AFRIDEV DIRECT ACTION

Only one direct action Afridev pump was installed. The rising mains are the same PVC pipes as the standard Afridev. The rods are made of PVC pipes with glued in connectors. The connectors make the rods air tight and thus buoyant, similar to the rods used in the NIRA AF85.

The hooking or connecting system of the rods turned out to be problematic. Only the plunger and the handle assembly are connected by the normal eye and hook connection. The rest of the rods that are glued together they are difficult to disconnect and normally have to be pulled out as a whole, making the operation difficult.

Since installation, thirteen months ago, the pump has failed four times.

Always disconnecting on the hook between the plunger and the T-handle. It has been removed and testing was terminated.

### VOLANTA PUMP

Unlike the Afridev/Aquadev, the pump does not require schedule maintenance except for the lubrication of bearings twice a year. The pump is very reliable. Depending on the nature of breakdown village mechanics are able to carry out repairs.

### PROBLEMS

Notable problems include the breaking of rods at the hook ends and the disconnection of the foot valve assembly from the threaded portion of the cylinder.

Both breakdowns replacement of the broken parts. The former was usually repaired by the Area Mechanic. The latter required the intervention of the Project Mechanics as the components lost fell into the borehole and needed to be replaced at very high cost.

### NIRA AF85

The NIRA pump has proven effective as all the installations in the project area are shallow settings of 10 metres or less. Since the first installation 26 months ago no break down had been recorded with all these pumps. In some cases the bobbin had been interchanged from the plunger to the foot valve. The only minor problem in the pump is that the foot valve is not extractable without removing the rising mains.

### STATISTICS OF PUMP PARTS FAILURE

PARTS REPLACED\PUMP	AFRIDEV	AQUADEV	VOLANTA	NIRA	TOTAL
NO. OF PUMPS	14	16	12	8	50
FULCRUM BEARING	3	2	-	-	5
HANGER BEARING	-	1	-	-	1
PLUNGER SEAL	7	2	1	-	10
ROD & CONNECTORS	10	6	5	-	21
ROD CENTRALIZER	65	-	-	-	65
BOBBIN	8	3	2	-	13
RISING MAIN	7	7	3	-	17
CYLINDER	1	-	2	-	3

Note:

- Above statistic does not include schedule annual maintenance for Afridev/Aquadev pumps.
- Above ground components had very few breakdowns, except the fulcrum bearings for Afridev/Aquadev. This being caused because of inadequate corrosion protection of housing and pins (pumps not supplied to specifications)
- Below ground components of the Afridev had high failure rate because of centralizers and mildsteel rods. The Aquadev had a high failure rate of the rod connectors and rising mains due to scouring of the sharp fins.
- Rod failures in Volanta occurred at the 'U' bend.
- Damage of the thread on the Volanta cylinder caused disconnection of the foot valve.

#### USER PREFERENCE

Most pump communities in the project area use only one type of pump. The users usually do not use all the three types of pumps in the same community. Therefore they can not compare the pumps. Only when a breakdown occurs, one community may go to the next community with a different pump. This situation makes the user preference assessment difficult, however the few that have had the chance to use more than one type of pump usually prefer the one with high discharge.

Among the three pumps types the NIRA is the most preferred for its high yield.

Water quality in the project area is free from iron or other mineral concentration except corroded particles from galvanized rods in some wells.

#### **4 COMMUNITY PARTICIPATION AND MANAGEMENT**

Community participation is an important component towards achieving the overall goal of the project. The communities are encouraged to organize themselves to participate in the planning and to control the operation of the water point. Instilling a sense of community ownership of the pumps is a positive element towards achieving progress.

Participation of the illiterate rural population in water and sanitation activities is solicited through a series of discussion meetings held with them. The task to organize these meetings is left to the Village Extension Workers (VEWs). Continuous training of VEWs includes conducting normal general community meetings, monitoring of the leadership functions of WASAMCs, handling of conflict resolution meetings. Guidelines and Checklists for the VEWs were worked out by the project. These guidelines are attached in Appendix IV.

Normal general community meetings remain a tool for obtaining community involvement. At these meetings the basics of community management including money collection, saving and accounting are emphasized. The particular role of WASAMCs and the need for community co-operation in implementing project programmes are also highlighted. Meetings are either called by the project (to discuss the

operation of the water point and to pass on health and hygiene messages) or by the WASAMCs (to report on financial matters).

To elicit a greater turnout at such meetings, the timing and frequency of meetings were adjusted to suit the period of the year. The frequency of meetings were reduced during the wet season and increased during the dry season.

Monitoring of leadership functions at the community level is used as a means of activating members of WASAMCs in their day to day functions. Back-up support is offered to VEWs and WASAMCs on the specifics of rudimentary book-keeping and financial control. The Project team and the VEWs utilize the traditional leadership of the village elders as an aid in resolving problems encountered e.g. conflicts amongst the members of the committee, etc.

## **5 HEALTH EDUCATION AND SANITATION IMPROVEMENT**

The well being of the individual is important for development. Every individual irrespective of socio-economic status desires good health. Community-based education is considered the best approach towards achieving good health.

Emphasis on preventive rather than curative medicine has gained importance in recent years. In Ghana the Primary Health Care concept falls directly in line with the Alma Mater declarations whose basic aim is the achievement of "Health For All by the Year 2000".

Activities in the Health and Sanitation sector complement the provision of good drinking water to the people.

The main activities of the Health and Sanitation sector include:

- Community Health Education
- Latrine promotion and construction;
- Pump site development and cleanliness.

Health education is carried out during community training meetings, organized for target groups such as the Radio Learning Groups and Community Health Workers. The project cooperates closely with the WUP project, by exchanging ideas and making use of their training materials. Health education covered a number of areas including:

- Proper use of water;
- Pump site sanitation;
- Compound cleanliness;
- Food hygiene and nutrition;
- Causes and prevention of common diseases such as diarrhoea and malaria.



Future training emphasis will be placed on Primary School Health Education. The project collaborates with schools. An agreement with the District Education Office has been reached to conduct a Workshop on Water utilization and Hygiene with all Teachers in the project Area. Training manuals are being developed and will be made available to all teachers.

## **6 WOMEN INVOLVEMENT AND ACTIVITIES**

Women present over 50% of the population in rural Northern Ghana they are also the main providers of water in the household. They have hitherto had no say in the management and maintenance of their water sources. The Bolgatanga Community Water Supply and Sanitation Management Pilot Project recognizes the key role of women in the rural water system and therefore considers their involvement as a prerequisite for the achievement of project goals. The main thrust has been to integrate women in activities aimed at the acquisition of organizational and technical skills in support of community management.

Apart from continuous organization of women and their participation in training programmes, women diversified their income generating activities. Some women groups realizing the need to conserve the rapidly deteriorating environment started tree planting around their pump sites.

Women play an important role in the Health and Sanitation Sector. As members of the WASAMCs responsible for health and hygiene, they educate the other women in the community on the importance of cleanliness at pump sites and homes they teach simple methods of preventing and controlling avoidable diseases such as diarrhoea, cholera and guinea worm. The project has developed illustrated picture books for this purpose. Training was done through regular home visits.

In the depressed rural areas of Northern Ghana where the project is located, characterized by a prolonged dry season, irrigation farming by women on areas near the Veia Dam is the main source of income for most part of the year. This added to the traditional beliefs of the people makes life of women one of the most unbearable in the society. To facilitate the process of establishing community responsibility for water and sanitation it is imperative that women incomes are raised. Introduction of alternative and innovative income generating ventures can improve their socio-economic status and make funding available for pump maintenance as well as form the basis for other developmental activities.

The project motivates the women groups to take fallow land under agricultural production and assists such activities by bringing them in contact with agricultural development projects. In the reporting period women increased acreage under crop cultivation but output declined due to erratic nature of rainfall during the year. However one of the groups managed to harvest some rice from the irrigated farms. Finance for seed and land preparation was from proceeds of the previous year's harvest.

Some women groups engage themselves in basket and hat weaving. Project staff continue to offer advice on marketing and improving the quality of the products. Project plans to provide assistance to the women groups by providing loans for raw material and direct marketing.

Women activities have also extended to the provision of social

infrastructure and environmental management. The women from five pump communities came together to initiate the construction of a community clinic. This was identified as a pressing need of the community. The project solicited technical assistance from the Department of Community Development whilst Adventist Development and Relief (ADRA) gave food assistance. Two packets of roofing sheets were donated by a visiting team of the Nogouchi Medical Centre of the University of Ghana and the Ministry of Health in Bolgatanga.

Realizing the role of environmental conservation in preserving water supplies, women in the project have initiated tree planting at their pump sites. The objective is to raise the awareness in the community for checking environmental degradation as a way of conserving water resources.

The active involvement of women in project activities disproves earlier fears that in a male dominated society, response by women may be slow.

## **7 FUNDING AND FINANCIAL MANAGEMENT**

Centralized management of rural water supply and sanitation systems have proven costly and difficult to maintain partly because of the widely dispersed location of the waterpoints in the Upper Regions. Water tariffs charged by GWSC are not sufficient to cover cost of centralized maintenance. Improved reliability of water supplies as a result of lighter, simpler pumps based on the VLOM concept, encourages community willingness to take over financial responsibility for pumps. The shift to community based management releases the country from the burden to subsidize operation and maintenance.

The experience of the Bolgatanga Community Water Supply and Sanitation Management Pilot Project endorse the findings from other VLOM projects that institutional and financial management deficiencies are some of the main obstacles to the smooth functioning of the decentralized system. Thus fund mobilization and financial management methods are of great importance in project implementation.

Fund collection has been sustained in the project area over the past year. As a result of better confidence in mobilizing community funding because of self management of funds and improved bookkeeping skills, all communities collected sufficient to settle all outstanding tariff arrears owed by the community to Ghana Water and Sewerage Corporation. Consequently all the fifty pump communities now operate bank accounts totalling up to about ₵ 1,500,000.-

Women are a source of additional funding through contributions to women group accounts and also proceeds from income generation ventures.

Developing at its incipient stages, is a system for carrying out sanctions against defaulters in payment of pump maintenance funds. Normally pressure is brought to bear on families who are late in payment through the WASAMC and the village elders. In some cases such recalcitrant individuals were prevented from having access to pump water.

Out of 50 communities one case of financial mismanagement of community funds has been reported. In order not to spread misgivings the project tried to resolve the matter internally without too much publicity. The discussion were

successful an agreement was reached that the missing funds will be recovered. Three members of the WASAMC are signatory of the bank accounts. Withdrawals at the bank have to be done always by two members jointly. This reduces the possibility of fraud. The supervision of bank accounts and monitoring of withdrawals will be phased out.

Training in petty cash book - keeping and basic financial management for WASAMCs was maintained to help ensure proper use of community funds.

## **8 TRAINING AND MANPOWER DEVELOPMENT**

The implementation of a project with several component involves effective co-ordination. This requires the acquisition of basic skills in management. There is therefore the dire need for training programmes to upgrade the manpower resources on a continued basis.

Training was conducted at all levels from the project staff to community level. Training and manpower development consisted mainly of two types:

- Training of project personnel in order to provide knowledge and skills regarding the management of hardware and software issues. Seminars, study tours and workshops also continued to be part of the manpower development programme.
- Training of community based personnel (VEWs, area mechanics, masons, WASAMC members) in sanitation and technical skills like health education, latrine promotion and construction as well as pump maintenance.

The training method used is mainly on-the-job and participatory in nature. Practical field training is carried out for VEWs, Area Mechanics and Village mechanics under the supervision of the project staff.

Over the period under review, the main training activities include:

- A three month course on ground water development attended by the Project Leader in England.
- One month course organized by Management Development and Productivity Institute (MDPI), Accra on the practice of supervision was attended by the Women's activist and Health/Sanitation specialist in August 1990.
- A ten-day workshop on participatory methods was attended by four Core Team members in October, 1990.
- The Project Team visited the Yatenga Community Water Management Project in Burkina Faso as part of group study visits to other similar projects.

Workshops organized by the project for Water and Sanitation Committees, Village Extension Workers and Area Mechanics include:

- VEWs weekly seminars
- Eleven handpump repair and maintenance training workshops for 100 village mechanics, 6 area mechanics and 6 Village Extension Workers.
- 6 Workshops on financial management for 150 WASAMC chairpersons, secretaries and treasurers.
- Individual follow-up training at pump community level.

The Bolgatanga Community Water Supply and Sanitation Management Pilot Project has collaborated well with other projects/agencies in the sector. Project personnel conducted training courses on VIP latrine and handpump technology with the following organizations:

- Northern Region Rural Integrated Programme (NORRIP)
- Binaba Community Health Project (BACH).
- The Districts Assemblies in the Upper East (participation in VIP latrine promotion and construction organized by Project with sponsorship from UNICEF.

## **9 IMPLEMENTATION DIFFICULTIES AND PROBLEM-RESOLUTION METHODS**

The idea of transfer of management and maintenance responsibility of rural water supply and sanitation systems to a predominantly illiterate rural folk requires imagination. Managerial and technical expertise needed for the success of such a new novel system is traditionally lacking at the local level.

It was therefore expected that in the process of handing over such new roles to the rural folk, certain implementation difficulties would arise. Part of the objective of Bolgatanga Community Water Supply and Sanitation Management Pilot Project is to identify such problems or difficulties for possible future remedial action.

Available evidence from similar projects suggested that the main problems have been institutional and financial. It is much easier to provide solutions to problems of choice of technology than to difficulties involving the interrelations of several human beings. Basically, the project team adopted strategies involving close collaboration with community leaders in resolving such problems.

This section of the report examines key institutional, financial, technical problems as well as appropriate measures to ameliorate the situation.

Implementation problems at the community level include:

- Low Community participation,
- misunderstanding over the payment of tariffs,

- high illiteracy
- customary inhibition to the acceptance of some sanitation issues, particularly latrines.

At the institutional level:

- dormancy of some WASAMCs,
- favouritism by some VEWS and WASAMCs,
- undemocratic decision-making by community leaders,
- problems of handling of defaulters of payment

In a few communities there had been non co-operation and low response to project activities. The communities had some previous bad experiences with development projects that did not fulfill the raised expectations this led to the reluctance to participate. The inhabitants therefore wanted to observe the chances of success or the difference between the pilot project and the failed projects. After some time the confidence in the project grew so that lack of community acceptance is not anymore a problem.

The project placed in its extension work strong emphasis on the participation of women. This led to some misunderstandings. In some cases the men in the communities refused to participate in payment and left the financial responsibility for collecting the water tariff to the female community. The women resented the unwillingness to pay by the men and staged a boycott of water activities. The project staff had to be called in to discuss the matter with the complete community and to explain the mutual responsibility of men and women for the waterpoint. The problem has now been resolved and men understand their role participate in the project.

The high level of illiteracy has represented a major setback in the diffusion of project ideas among the communities. Though this obstacle is gradually being removed governments adult literacy programmes, it is obvious that if the level of literacy had been higher, the pace of adoption of messages would have been greater.

Traditionally in the project area the idea of disposing human waste in a sanitary facilities had been absent. Apart from a few progressive members of the community, acceptance of sanitation issues to check diseases is naturally slow. In fact some individuals still feel that material cost of latrines should be borne by the project.

The problem of dormancy and inactivity on the part of some WASAMCs has been experienced. In some instances irresponsible individuals were elected to serve on the committees, some old members of the WASAMCs were inactive and showed lack of initiative and commitment. When this became apparent the project discussed the matter with the communities and through communities themselves such persons who failed to live up to expectation were replaced.

Undemocratic decision making has also been an institutional problem at the

grass root levels. There have been instances of a few WASAMC members taking decisions without regard to the views of the collective.

Some leading members of the WASAMC transferred their functions to their sons claiming that they were old and could not be active without asking the communities. By means of thorough discussion at general community meetings such issues were resolved. It is needed to produce a easy understandable basic constitution for the selection and the running of committees.

An unhealthy aspect has also been favouritism by some VEWs and WASAMCs. Such tendencies showed when under the WUP project transistor radios were distributed. These tendencies led to division within the WASAMCs and reflected in poor collaboration between the VEWs and WASAMCs. Again it was necessary that the project personnel discussed this issue and had to re-emphasize the individual roles.

A difficulty that required corrective action was how to handle defaulters in payment of contributions for pump maintenance. On their own communities have devised a method of instituting punitive sanctions. The action has led to the improvement in financial contribution.

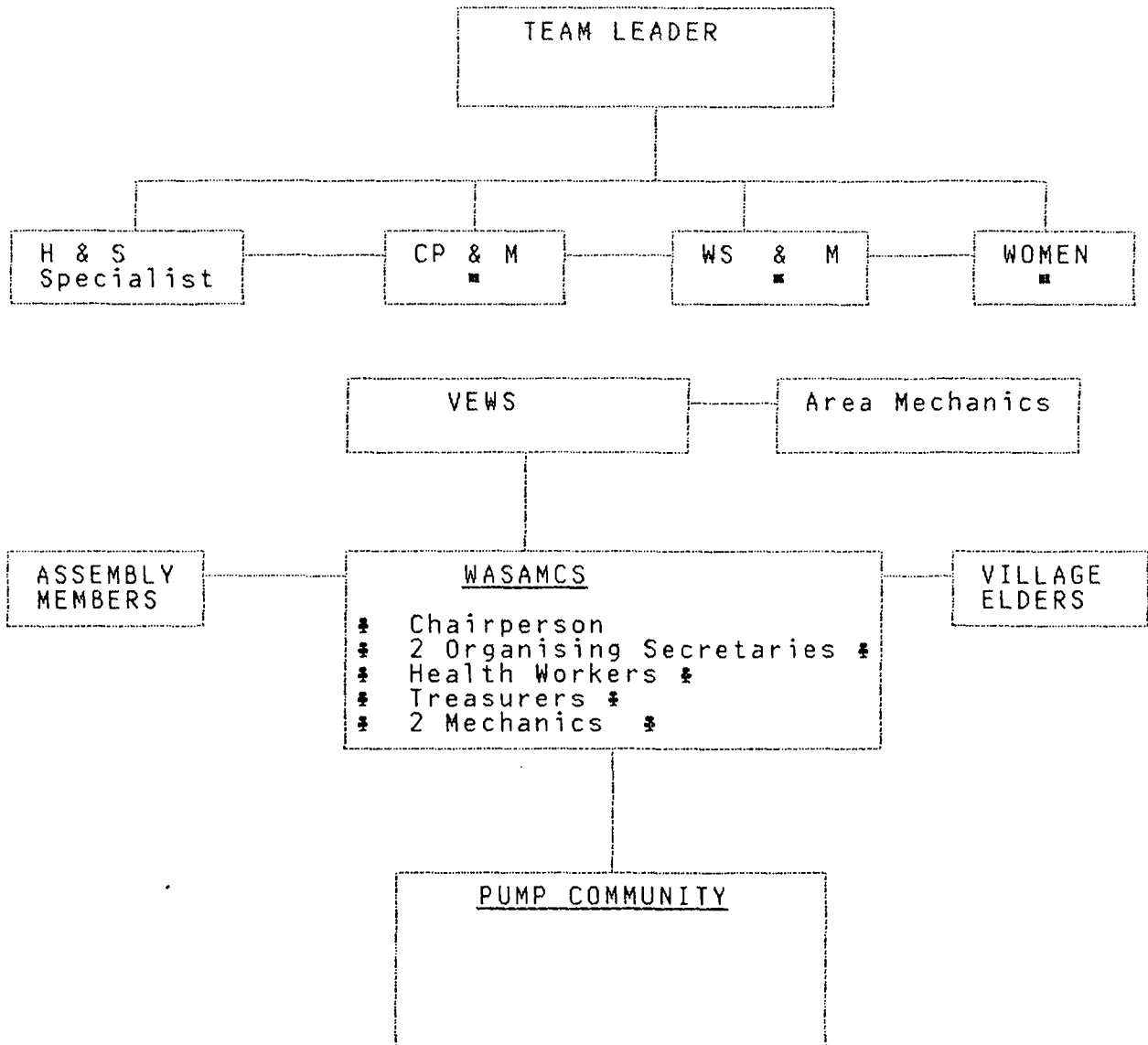
It should be noted that all these problems could be handled by the project team soon after they emerged. It is essential to have close ties with the communities to be able to take remedial action soon without letting problems linger on. Joint intervention of project staff, assemblymen, village elders, and women organizers were often required. For the close monitoring the projects rely on the continued inputs from the VEWs. The VEWs are presently paid by the project. It is still not yet resolved how the cost of the services of these very important persons can be supported in the future. It appears that neither communities nor existing government institutions are capable and willing to absorb the cost of the VEWs. Sustainability will to a large extent rely on whether the project will succeed in making the communities less dependent of the VEWs or whether it will be possible to integrate the VEWs into a health education scheme.

**LIST OF STAFF MEMBERS**

Project Team Leader:	George Yanore
Women's Activist:	Dorothy Abayaa
Community Development Specialist:	Steve Anankum
Health Education/Sanitation Specialist:	Emmanuel Adii
Driver/Mechanic:	Dadoho Mensah
Handpump Mechanic:	John Ontoyin

Appendix II

INTERNAL STRUCTURE OF BOLGA PILOT PROJECT



- \* Including/Mostly a Woman
- ▣ Sector Specialists



## PROGRESS ON PLANNED ACTIVITIES - 1990

ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D	PROGRESS TO DATE	
VEWS/WASAMC Field support/supervision.	[Activity bar from Jan to Dec]												Achieved	
Monitoring of Handpumps.	[Activity bar from Feb to Dec]												Achieved	
Water/Sanitation Management Committee trainings.	[Activity bar from Jan to Jun]						[Activity bar from Oct to Dec]						Achieved	
Orientation of Masous.	[Activity bar from Jan to Feb]												Achieved	
Latrine promotion and Construction.	[Activity bar from Feb to Jun]						[Activity bar from Nov to Dec]						Partially Achieved	
Debriefing Meetings with Community Health Workers.				[Activity bar from Apr to Jun]									Achieved	
Collaboration with teachers in Project Area on Health and Sanitation in Schools.					[Activity bar from May to Jun]								Partially Achieved	
Project workshop with selected heads of Department/District Assemblies.								[Activity bar from Aug to Dec]					Partially Achieved	
Demand survey of hand-dug wells							[Activity bar from Jul to Sep]						Achieved	
Survey on IGAS.			[Activity bar from Mar]											Not achieved
Annual Progress Report												[Activity bar from Dec]	Achieved	

UNDP/WB COMMUNITY WATER AND SANITATION MANAGEMENT PROJECTBOLGATANGAGUIDE FOR ORGANIZING MEETING

## I. You will need to:

- Meet with chiefs, elders, women leaders (magazias) or other village leaders.
- Explain the purpose of your visit (i.e. to organize a village meeting);
- Explain the purpose of the village meeting;
- Stress the importance of including women;
- Agree on a date and venue for the village meeting;
- Find out what they are willing to do to arrange the meeting; and
- Get an agreement for some specific action to be done by you/them.

## II. What to do:

- Avoid market days, days of funeral ceremonies, and festive days for general meetings;
- Establish yourself in the community as a Village Extension Worker;
- Have courage, confidence and commitment;
- Know your subject, audience, and objectives; and
- BE DEPENDABLE.

## III. Meeting Day:

- Be punctual at meeting place;
- Ensure that all arrangements for sitting the meeting are done; e.g. sitting;
- Introduce yourself to the village members;
- Carefully explain the purpose of the meeting;
- Request the active participation of all in the discussions;
- Make a summary of the issues discussed;
- Ensure that tasks assigned to individuals and groups are clear;
- Thank people for coming and for their active participation in the discussion;
- Challenge participants to act on what they have resolved; and
- With a formal group, agree on a date and venue for the next meeting.

F O L L O W   U P   ! ! !

## DISCUSSION AS AN ADULT TEACHING METHOD

### CHARACTERISTICS

- A group seeking to put together their knowledge, ideas and opinions about one subject in a co-operative endeavour to learn from each other;
- It must be constructive;
- Group members are encouraged to contribute freely;
- Earlier statements can be withdrawn or amended during discussions; and
- Participants are encouraged to listen to others, respect their views and ideas with the hope that goals are realised shortly.

### TECHNIQUES

- Number in a discussion group should be ideal (not more than 20 and not less than two participants);
- Sitting arrangements (circular, horse shoe U, let people see each other's faces);
- Start discussion with introduction of topic;
- Avoid too rigid planned frame work;
- Encourage membership participants by leaders;
- Re-phrasing of statements of participants by leader;
- Be humorous (jokes to ease tension);
- Close the discussion before participants are bored or tired (idea time not more than one hour);
- Draw conclusions either final or tentative depending on issues discussed;
- Finally, be satisfied that the time spent for discussion has been useful to the participants; and
- BE DEPENDABLE.

UNDP/WB COMMUNITY WATER SUPPLY/SANITATION MANAGEMENT PROJECT

PUMP INSPECTION CARD

Well Number:..... Pump Type:.....

Pump Community:.....

Date Installed:..... Bucket Size:.....

DATE AND MONTH	NAME OF PERSON DOING TEST	PUMP CONDITION	LEAKAGE TEST	DISCHARGE TEST	PAD	GUTTER	TROUGH	SURROUNDING

N.B: Do Inspection and Recording once every month.

BOLGATANGA UNDP/WS COMMUNITY WATER SUPPLY/SANITATION MANAGEMENT PROJECT

VEW REPORT FORM

FOR THE MONTH ENDING:.....19...

A. General:

Name:.....

Village/Pump Number:.....

Attendance: Male:.....

Female:.....

Total:.....

B. Meetings: Number of Visits to Pump Community:.....

1. Target Group:.....

2. Subject for Discussion:

- .....
- .....
- .....

3. Important Decisions Taken:

- .....
- .....
- .....
- .....
- .....
- .....
- .....

4. Resultant Action Taken and by Whom:

- .....
- .....
- .....
- .....

5. Community Communal Spirit:

- .....
- .....
- .....
- .....

C. Handpump Performance/Site Conditions:

1. Handpump Condition:

- .....
- .....
- .....
- .....
- .....

2. Handpump Site Condition:

- .....
- .....
- .....
- .....
- .....
- .....

3. Community Need for Improvement:

- .....
- .....
- .....
- .....
- .....
- .....

D. Funding

1. Is Community Operating a Savings Account? Yes No

2. If No, reason(s) for non-operation:

- .....
- .....
- .....

3. How is Money Collected for Savings?

- Household Contributions:.....
- Individual Contributions:.....
- Generating Income from Farms/Crafts/Gardening etc:  
.....
- Specify other ways:.....  
.....

4. How often is Money paid into Savings Account:

- Weekly:.....
- Monthly:.....
- Every 3 Months:.....
- Every 6 Months:.....
- Once Every Year:.....

E. General Comments:

- .....
- .....
- .....
- .....
- .....
- .....

THE WATER AND SANITATION MANAGEMENT COMMITTEERoles

- Generally responsible for water/sanitation in the community;
- Provide leadership in community action;
- Undertake maintenance/repairs responsibilities for the handpumps;
- Arrange community meetings
- Arrange for pump spare parts and the hire of a an Area Mechanic;
- Ensure cleanliness of the pump and its surroundings;
- Keep the community accounts; and
- Be accountable to the community.

IN BRIEFROLES AND TASKS OF INDIVIDUAL WASAMCThe Chairperson

- Co-ordinate the committee activities;
- Convenes and leads meetings of the committee;
- Approves expenditure to be made;
- Supervises the committee's activities;
- Reports the committee;s work to the entire pump community;
- Control access to the cash box or accounts book;
- Ensure good work done by the committee;
- Settles differences/conflicts among the committee.

Organising Secretaries

- Summon meetings at the request of the Chairperson;
- records and keeps minutes of all meetings;
- Arranges logistics (benches, sitting) for meetings; and
- Ensures no' distraction at meetings.

The Treasurer

- Collects and saves money;
- disburses money after decision is taken; and
- Keeps record of financial accounts, filing invoices, receipts, bank book.

The Mechanics

- Inspects the hand pump daily for leakages, wear of parts;
- Carry out repairs/servicing on the hand pump;
- Oversees the proper use of the pump;
- Report break downs beyond him/her to the committee and invites the VEW/Area Mechanics for assistance; and
- Organises the periodic cleaning of the pump site.



### The Health Worker

- Encourages households to dig VIP latrines and keep area clean;
- Advising mothers to take their children for immunization by Ministry of Health;
- Educating families on good nutrition for their children (child nutrition);
- Teaching parents on how to prevent diarrhoeal diseases;
- Making home visits to give advise on environmental sanitation (hygiene condition);
- Advising pregnant women to attend antenatal clinics;
- Helping sick people to get to the hospital by directing them what to do; and
- Advising the cleanliness of the pump site at all times.

**LIST OF ACRONYMS**

1.	GWSC	-	Ghana Water and Sewerage Corporation
2.	UNDP	-	United Nations Development Programme
3.	W.B	-	World Bank
4.	CIDA	-	Canadian International Development Agency
5.	VLOM	-	Village level Operation and Maintenance
6.	DCD	-	Department of Community Development
7.	MOH	-	Ministry of Health
8.	WA	-	West Africa
9.	DSW	-	Department of Social Welfare
10.	C.C.	-	Country Co-ordinator
11.	U.R.A.	-	Upper Region Agriculture
12.	WUP	-	Water Utilization Project
13.	WHIP	-	Water Health Integrated Programme
14.	WEFH	-	Water Education for Health
15.	GBC	-	Ghana Broadcasting Corporation
16.	VEW	-	Village Extension Worker
17.	WASAMC	-	Water and Sanitation Management Committee
18.	RWSG	-	Regional Water and Sanitation Group