



Sustainable integrated water supply

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THE NORTHERN REGION Rural Integrated Programme (NORRIP) supported by CIDA and the government of Ghana, was established in 1980 with the goal of improving the living standards of the rural populace of the Northern Region of Ghana. The programme was in two phases NORRIP I and NORRIP II.

In NORRIP I which was the planning phase, sectoral projects, district and regional development strategies were designed.

In NORRIP II which is the implementation Phase of the programme the number of projects was scaled down from fourteen projects to seven projects in 1989. The seven projects were to be driven by a water and sanitation project known as the Integrated Village Water Project (IVWP). The IVWP involved the provision of potable water and also sanitation facilities to two districts namely Yendi and East Mamprusi.

NORRIP 2 has just completed the drilling of its targeted 350 boreholes; and installation of pumps and the training of hand pump mechanics is still going on. 14 hand dug wells fitted with pumps have been sunk in communities which opted for this option and where borehole drilling was not possible.

The IVWP has six main sectors working in collaboration with three line agencies (government departments). The sectors are Gender and Development, Water, Community Development, Health, and Training. The line agencies are the Department of Community Development, Ministry of Health and the Ghana Water and Sewerage Corporation (GWSE).

As part of the hygiene and sanitation component of the IVWP, 77 promotional Mozambican pit - latrines were constructed in 25 villages in the two districts.

Over the past five years all efforts have been geared towards putting in place structures necessary for long term sustainability of the systems. Many lessons have thus been learnt; and it is the aim of this paper to share a few of them.

Sustainability

Sustainability is now the acceptable goal for development in the transformation of rural life. The previous "top down" approach so frustrated rural people that they felt no responsibility for systems placed at their disposal. Systems collapsed a few months after being commissioned and donor's leave.

NORRIP extended the concept of sustainability to include effective community participation in planning, decision making and implementation in the provision of

350 boreholes, 14 hand dug wells and 77 promotional mozambican pit latrines.

After five years of effective collaboration among these groups there are indications of sustainable rural development in the NORRIP programme area.

Some of the elements which have aided in this achievement are discussed below:

Flexibility and change

NORRIP II was originally designed to implement 14 sectoral integrated projects but this was scaled down to 7 due to lessons learned from other rural integrated programmes of the 1980's in the third world.

The flexibility built into NORRIP II is that the community decides on the type of water source it wants. The community chooses its representatives for various training and can change the representative midway of any programme if it deems it fit.

Choice and maintenance of pumps

The choice of the Afridev hand pump was made based on the project philosophy of VLOM. Currently, there three types of Afridev pumps being used on the project. These are the Aquadev from Britain, Unidev from Canada and Ajay from India. The principal reason for using three types of pumps on the project was that there was not much local experience when the project started, and therefore other pumps had to be tried once the first one started giving problems. These problems were mainly rod breakage and perforation of riser pipes. Pumps are maintained at the village level by handpump mechanics (HPM) who have been specially trained by the project in routine maintenance and fault identification. Major repairs are referred to District VLOM Support Unit within the first year of the installation of the pumps. The role of the VLOM support unit is then taken over by Private District/Area HPM trained by the project. Repairs beyond the area HPMS are also referred the DISTRICT / REGIONAL GWSC for appropriate action to be taken.

Financial sustainability

Financial sustainability for the operation and maintenance of the hand pumps is ensured through a hand pump fund contribution of about 60,000 cedis (US\$ 60) for routine maintenance and minor repairs. The minimum sum to be left in any account at any time is c 60,000 but only 30% of the communities in Yendi district have it. Unfortunately in East Mamprusi communities generally has less than c 10,00.00 with them as Handpump fund.

However they contribute readily whenever the need arises. Aside the handpump fund, communities contributed another 60,000 cedis towards the drilling of the borehole. Over the years, these monies which were paid to the project were invested in treasury bills to maintain the value. NORRIP now has 32 million cedis of these contributions in a trust account for the communities.

Community organisation/management

With regards to community organisation and management every community is asked to choose its members for the Village Water and Health Committees (VWHC) with a particular note that it should include at least three women, two of whom should be Traditional Birth Attendant (TBA) and Village Health Worker (VHW). 60% of the communities in Yendi district are classified satisfactory based on the regularity of meetings and minutes recorded; hand pump fund contribution; cleanliness of the pump site and site developments; and involvement of women.

In the East Mamprusi district less than 30% of the communities are said to be satisfactory.

Community participation

Communities were invited to apply for the water supply system they require themselves through their VWHC.

To strengthen and increase community participation in decision-making aspects of IVWP activities, the communities were provided training in organisation, leadership, management, gender issues and problem-solving at various stages of the implementation process.

Two members each of every community were also trained in hand pump maintenance and repair. Village health workers and traditional birth attendants were also trained.

The community also helped the hydrogeological teams by providing local information on available water sources.

Integration of hygiene and sanitation

The Hygiene and sanitation component was restricted to the breaking of oral-faecal control through health education and cleaning the community's environment. Three key messages with pictures were designed to encourage prompt disposal of children's faeces, covering of food to protect it from flies and dust and hand washing after defecation and before eating.

However, potable water and health education must be supported by safe method of human waste disposal. This was achieved through the construction of 77 promotional pit latrines in selected communities in the programme area.

In order to make the pit latrine project sustainable local artisans were trained and provided with tools and equipment free, so that their services can be readily obtainable in the villages. To construct the pit latrine one required a bag of cement and C 5,000 (US\$ 5) for the labour of the artisan. The owner provided the other materials which are available locally.

About 132 private pit latrines have been constructed by locally trained artisans in response to demand in the large towns in the project area.

Role of women in water utilisation

The IVWP design calls for women's equal participation on the VWHC. In practice however, women compose of only one third of the VWHC membership. Nevertheless, women make larger and more regular contributions to the hand pump fund than men; and where no handpump fund (HPF) is available, it is women who come up with the necessary contributions for urgent repairs. For fear of the HPF's being misused the women have suggested that they entrusted with its management.

Women are also half the number of hand pump mechanics (caretakers) on the project.

Issues

Hydrogeological

The hydrogeological setting of the Northern Region of Ghana is one of the most difficult in the country. Until 1981 when a test-drilling programme was undertaken, it was said that water supply through a borehole programme was not feasible. The test-drilling results however proved that an average of 50% success rate was possible. When the IVWP started the success rate was just about 40%, and this meant that about three attempts had to be made in order to obtain a successful well. This cost the project money and time. Also a number of communities which had already been animated and had made financial contributions could not benefit from the programme.

Between June 1990 and November 1991, a number of feasibility studies and training programmes were undertaken to give the hydrogeological teams a better understanding of the area in order to improve on the success rate. These studies helped to improve the success rate to about 55% and in some of the communities that had previously not been successful, ground water was found. Another study was then undertaken in 1993 to explore the feasibility of providing alternative water sources for the remaining thirteen communities.

Handpumps

Mechanical problems encountered with the various models of the Afridev pumps which were installed concentrated mostly in the riser/rod system. Perforation of the riser pipes by the plastic rod connector was common with the Aquadev. With the Unidev, the main problem was breakage of the welded hook and eye rods. Many attempts were made at addressing these problems; The perforations were stopped by replacing the rods in all the 33 Aquadev pumps with fibre glass rods in 1992. Unfortunately, about 30% of these also broke not long after being installed. Until the Afridev SKAT specifications were revised, the project had to cope with the rod break-

age situation. Broken rods were replaced for communities free of charge. Now, with the introduction of the forged hook-and-eye rods by SKAT, a number of the welded hook-and-eye rods have been replaced. The project now intends to replace all welded hook-and-eyes with forged hook-and-eyes.

Pit latrine promotion

Demand for the construction of new pit latrines was slow due to the peoples perception to the use of the latrine by both male, female and children. Also male landlords were generally not willing to share its use with the rest of the household.

Demand for new private pit latrines was rather great in the larger communities as opposed to the small villages where people still prefer to defecate in the bush.

The issue of cost of cement and artisan fee was a big problem in the small villages as opposed to the big towns where people were more financially sound.

There were also structural problems like cracking of slabs and caving in of pits.

Conclusion

The IVWP project has survived most of its test even in disaster situations (An ethnic conflict which engulfed the Yendi district during the early part of the year left over 95% of the pumps intact (not destroyed) even though over 80 villages with pumps were completely destroyed). This may be due to the importance the communities now attach to the systems which have been provided.

References

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