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WATSAN projects: NGO's experience in Ethiopia

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**WATSAN projects: NGO's experience in Ethiopia***Getachew Alem, Ethiopia*

OVER 70 TO 80 per cent of the diseases in Ethiopia are caused by the use of contaminated water. For most people in the rural areas of Ethiopia, access to clean and safe drinking water is a rare opportunity. According to a 1996 UNICEF report, the national coverage for access to potable water is only 25 per cent, while the rural coverage is only 19 per cent. To make the matter worse, there are areas where water scarcity is so acute that women and children have to walk 3 to 6 hours carrying 15 to 20 litre clay pots or plastic containers on their backs. Studies in selected areas showed that the time spent in fetching water and fuel wood constitute a significant portion of women's time, a case quite common for most of Sub-Saharan Africa. According to a survey (Zewdie and Barbara, 1990), a women in Gojjam works on the average more than 15 hours per day, and of this time, one hour per day is spent for fetching water. An evaluation conducted by the Institute of Development Research (1986) on UNICEF assisted water projects in Bale, Hararghe, Shewa and Wollo, also indicated that women on the average spend 1 to 3 hours, 1 to 4 hours, 0.5 hours and 0.5 to 1 hour per day, respectively. In some areas, the distance is much higher than these values.

The national statistics on the use of latrines is very low in the range between 1 and 5 per cent. The need for pit latrines has not been identified as a priority in most rural areas. According to the recently published private newspaper (Tobia, February 1997) quoting an expert from Addis Ababa Health Bureau, about 50 per cent of the city dwellers use private, and 25 per cent use public toilets. The remaining 25 per cent do not have access to toilets. The paper also indicated that, of the total number of toilets in the city, only 56 per cent have water disposal systems.

Following the highly publicized 1984/85 drought and famine in Ethiopia, several international non-governmental organizations (NGOs) entered Ethiopia to respond to the drought and famine, and do emergency and rehabilitation activities in the country. Since then, NGOs in Ethiopia have been active in water supply and sanitation sector.

Box 1.

In two villages (Dire and Kurkura) 45 kms south of Addis Ababa, women and children used to travel 15 to 17 kms to the nearest town, Dukem and Debre Ziet, to Fetch water. It takes them 4 to 6 hours every day. Recently the Medical Missionaries of Mary (MMM) drilled two boreholes right next to their villages at 5 to 15 minutes distance. What do women do with the time saved? Food production and income generating activities could be their priorities. (Getachew Alem, 1995)

Coverage and investment**NGO's in Ethiopia**

According to a CRDA survey report (Daniel, 1996), assistance to Ethiopia in the water supply and sanitation sector between 1991 and 1994 has increased substantially (i.e., 30 per cent from 1986 to 1990). The number of NGOs involved in the sector has increased from 38 in 1986 to 64 in 1994. The total project funds committed during the five years was approximately US \$ 16 million. Over 90 per cent of this investment was made in the rural areas. In total 1,301 springs, 1,110 hand-dug wells were constructed, and 470 boreholes were drilled and equipped with hand pumps, motorized and wind powered and few solar pumps. Several water storage and distribution systems were also installed. Community participation, in the form of labour and supply of locally available materials, was valued in the range of 10 to 20 per cent of the total project cost. Approximately 5 million people (9 per cent of the total population) benefited from NGOs' investment on water supply projects between 1991 and 1994.

The investment on sanitation and related activities was approximately US\$ 1 million and most of the assistance was targeted to urban areas. Addis Ababa, the capital city, took the largest share of this assistance.

CRS/ET contribution in water sector

CRS/ET's contribution in potable water supply for rural Ethiopia over the last twelve years has been significant. It was the leading NGO in the 1980s. Following the 1984/85 drought and famine, CRS/ET purchased two drilling rigs and constructed 102 successful boreholes in drought prone areas in Eastern Hararghe, Gurage (south-west Shewa), and Wolaita (Southern Regions). All boreholes were equipped with motorized, wind-powered and hand pumps. CRS/ET had used a mix of hand-pump types of different origins; mainly Robinson and Myeres (Monolift) and Indian Mark II (IM II).

Between 1989 and 1991, CRS/ET implemented sustainable water projects which aimed at sustaining the earlier water projects through organizing village water committees, training water care takers and supplying spare parts for pumps.

Since 1992/93, CRS/ET changed its approach, from direct operational to non operational status where assistance was channeled through counterparts. Ten additional hand-dug wells were constructed and equipped with hand pumps (6 Afridev and 4 IM II), and 55 springs were



protected in Food For Work and Cash For Work Programs.

The water supply project is closely linked to CRS/ET Maternal and Child Health (MCH) program which has a health education component that includes classes on hygiene and environmental sanitation. Numerous trainings on hygiene and environmental sanitation were conducted under this program. Over 600,000 people benefited from CRS/ET assistance in the sector.

Experience and lessons learned

An evaluation conducted on CRS water projects in Ethiopia (Solomon, et al, 1994) summarized the following:

- 50 per cent of the wells visited were found non-functional.
- Over 85 per cent of the respondents of the survey indicated that water was their priority.
- The boreholes reduced the travel distance and time of women and children (see Box 2).
- Women have complained about serious health effects due to the work load of carrying water over long distances (such as abortion, backache, and kidney problems). They also reported fear and attack by wild beasts when travelling for water early in the morning and late in the evening.
- Community participation was low. As a result most pumps broke in less than one year.

Implication on health and food security

It is a well established fact that, water projects have improved the health of the people and contributes to the reduction of diarrhoea incidence among children. Its contribution to food security is also well known.

In food security of the poor (Braun et al., 1992), it is stated that *“Projects and policies that alter the allocation of women’s time may have significant nutritional effects through changes in breast feeding, child care, food preparation, female energy requirement and eating habit.”* This information indicates that the nutritional status of children, which is an important indicator of household food

security, could be improved as women have more time to care and feed their children.

As presented in Box 1 and 2, the labour and work load of women (51 per cent of the population) could be reduced significantly. The saved time and energy could be used in food production and income generating activities enhancing household food security. The case in Dire and Kurkura villages and in many other areas where NGOs are operating clearly show the relationship of rural water supply projects and household food security.

Community participation

Community participation in NGOs supported water supply projects was estimated between 10 and 20 per cent mainly in the form of free labour, locally available construction materials, etc. However, CRS/ET assistance in the sector between 1985 and 1989 was more of an emergency response, and therefore, community participation was low. Most villages with the water supply project did not have water committees and water caretakers.

Experiences with the use of pumps

According to the report (Daniel, 1996), of the total hand pumps installed between 1991 and 1994, 33 per cent were Indian Mark II, 21 per cent Afridev, 12 per cent Akaki (a locally manufactured pump), and 8 per cent Aquadev.

Of the total 112 wells drilled, dug and equipped by CRS/ET between 1986 and 1995, 17 were equipped with motorized pumps, 78 with hand pumps, 16 with wind pumps and one with solar pump. Of the total hand pumps, 28 per cent is IM II, 33 per cent Robinson and Myeres and 9 per cent Afridev.

IM II and Afridev (in shallow wells) are best suited for maintenance because of ease of access by local technicians. In environmentally degraded and marginalized areas where ground water is deep (> 60m), the performance of IM II and Robinson and Myeres depends on strength of the users. Robinson and Myeres has been found less suitable for village level repair and maintenance than IM II, however it was found reliable in Gurage particularly in very deep wells (Solomon et. al. 1994).

The major causes of pump breakage and failure of wells include high population pressure (over 500 persons per well), inappropriate use of pumps, drop in the ground-water level during drought years, etc. The major parts that break more frequently with the IM II and Afridev is the

Box 2

The distance travelled for fetching water was reduced in the ranged between 0.7 and 6.8 kms and 0.4 and 2.1 kms in Hararghe and Guraghe, respectively. The corresponding time saved also ranged between 20 and 114 minutes per day, and 43 and 85 minutes per day in the respective regions.

(Solomon et al., 1994)

chain and chain couplings, and rarely connecting rods. Hook connectors have also failed in a few Afridev pumps. Installation faults are also causes of failure for most hand pumps.

Most (but not all) CRS/ET pumps are located in remote and dispersed locations where access is difficult, and they lack timely maintenance. The maintenance cost varies from place to place, and depends on the availability of spare parts and technicians.

Sectoral integration

CRS/ET strategy to integrate water supply projects with health and catchment rehabilitation programs has brought about positive changes and leveraging impacts. The health education program has increased the awareness of women and the community at large (although the pace is slow). As a result, communities are becoming proactive and start asking CRS/ET counterparts for water projects in their villages, initiatives to manage water supply systems, and start to collect water fees for repair and maintenance.

In one of CRS/ET assisted programs in Eastern Hararghe (Fedis, a typical semi arid area), a spring increased its water yield substantially as the result of an intensive two year catchment rehabilitation project with soil conservation and afforestation programs supported by Food For Work. This spring is now supplying water for human consumption, livestock, and small scale irrigation.

Towards sustainability

The Water Supply and Sewerage Authority (WSSA) is the only government institution that provides services to water supply systems in the country. However, its services is limited only in towns and cities.

Under CRS/ET's sustainable water project, a total of 139 people from Gurage and Kembata (Southern Regions) were trained in pump operation and maintenance. A similar training was also conducted in Wolaita and Meki for one week, and a total of 118 water caretakers and community representatives from different Parishes attended. In all the training, the following topics were covered:

- the role and responsibilities of the executive members of Peasant Associations (PAs) and the CRS/ET counterparts;
- supervision and management of the water supply systems by the water committees and pump operators (caretakers);
- collection and management of water fees;
- roles and responsibilities of pump operators;
- the remuneration of pump operators;
- repair and maintenance, payment for spare parts and services.

As a result of the project, 80 per cent of the villages with water supply systems established water committees, protected water supply systems and assigned water caretak-

ers. Spare parts were purchased and supplied to counterparts. A total of 46 boreholes (15 in Hararghe and 31 in Gurage) were repaired and their services resumed. While 11 boreholes equipped with wind pumps operated successfully with minor repair and maintenance.

Conclusion

Experience of NGO's shows that hand pumps at the moment seem to be a viable option in the provision of clean and safe water to rural communities in Ethiopia. Wind pumps and solar pumps are good for long term and trouble free services with relatively low operational costs. NGOs assistance, in general, was reported socially justifiable for addressing the pressing need of the rural communities in Ethiopia.

It is also important to note that the NGOs working in the sector in Ethiopia are faced with challenges and opportunities ahead. The challenge is that there are financial, institutional and environmental constraints that are affecting the development and progress of water supply systems in the rural areas. While the opportunity is to work closely with the communities and the government to help provide safe drinking water for approximately 38 million rural people (equal to a combined population of Uganda, Malawi, and Rwanda).

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