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SUSTAINABILITY OF WATER AND SANITATION SYSTEMS

Buying into rural water systems

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ETHIOPIA HAS BEEN called "*The Water Tower of Africa*". No fewer than 14 major river systems flow out of the country into neighbouring countries like Sudan, Somalia and Kenya. Each year, following the main '*Krempt*' rains in July and August 91.5 million cubic meters of water leave the Ethiopian highlands.(1)

Despite this endowment, only an estimated 19% of the total population of 55 million (1984 census projection) has access to a safe water supply (2). Of this 19%, about 12% of the population has been provided with water by the government while the remaining 7% has been provided by non-government organizations. Of the 12% of the population served by the government, about 90% live in urban centres including the estimated three million who reside in Addis Ababa. Taking this into account it can be seen that the small percentage of the rural population of Ethiopia (estimated at 48 million) who have been provided with safe domestic water supplies, have been provided by NGOs. According to UNICEF, 37 NGOs were active in the rural water sector in 1992 (2). Since then about 20 more NGOs' have become active in this field (3). As in other countries in Africa, NGOs are major players when it comes to provision of rural water supply.

Sustainability

Sustainability in this context may be defined as an intervention which the community can maintain and manage for more than ten years with the minimum of outside assistance. In this context, the rural water systems installed by the government in Ethiopia do not have a very good record. For example, in the former southern provinces of Bale, Borana, Sidamo, and Gamo Goffa, it was reported in 1992 that 40% of the systems installed by the government were not functioning for a variety of reasons (4). One of the main reasons was that the beneficiaries were not involved in the system until it was handed over to them upon completion. The users were not properly trained in how to maintain or manage the system. Maintenance was seen and is still seen in many communities, as being a government responsibility.

However, systems installed by NGOs tend to have a far better, although by no means perfect, record of sustainability. The principal reasons for this are:

- NGOs work in smaller areas, therefore they are closer to the communities.
- Rural people tend to trust NGOs more than they do government organizations who have ripped them off in the past, particularly under the authoritative Derg regime which was in power from 1974 to 1991.
- NGOs have involved beneficiaries to a greater extent at all stages of the project cycle.
- NGOs tend to respond to requests from communities to intervene, therefore initiatives are demand-driven, not driven from the Central Planning Office in Addis Ababa.
- NGOs tend to have better human and material resources than GO's and NGO staff tend to be more motivated.
- NGOs are usually able to respond quicker and in more appropriate ways than GO's, to the needs of communities.

The example of one international NGO operating in Ethiopia will be cited as an example.

CARE in Ethiopia

CARE, arguably one of the largest non-government, non-sectarian organizations in the world, has been operating in Ethiopia since 1984 when it was involved in famine relief. Since then, CARE has diversified into more long term development activities in Oromia, the largest of Ethiopia's 12 regions. Since 1989 CARE has been involved in a natural resource development project in Western Hararghe zone, about 400km east of Addis Ababa. Funded by the Overseas Development Administration of the U.K., the project is working with about 13,000 rural families in two woredas (districts) ranging from the arid lowland of the rift-valley, to the highland area forming the Western part of the Hararghe mountain range.

The CARE Habro Community Based Development (CBD) Project is mostly concerned with increasing crop yields and helping farmers to reduce soil erosion. A participatory extension approach is used to introduce sustainable interventions with particular attention being given to the needs of women.

One of their needs is improved water supplies. Communities are assisted in the construction of shallow wells equipped with handpumps, and in protecting springs.

Community awareness

The first stage of CARE Habro's approach was to create an awareness in the communities of the benefits and advantages of improved water supply. This was done through meetings convened by project extension agents, many of whom are women, and by showing videos of water

schemes in other villages and by cross-visits. This process helped create the demand.

Community involvement

The farmers and their families actively participate in water development activities. The project works with communities through democratically elected Community Development Committees' (CDCs), which include respected elders and traditional leaders. People articulate their needs to the CDCs which get in touch with the project through the extension agents. The projects' water engineer then visits the community and conducts a technical feasibility study with members of the CDC to determine the type and cost of the system.

The CDC is then told how much the system will cost, and how much the community will be expected to pay.

In the CARE Habro project area, communities normally contribute between 60 to 70% of the total construction cost. This includes a cash contribution of between 30 to 80 birr (US$ 5 to 13) per household plus contributions in kind like labour and providing project technicians with board and lodging during construction. Before work starts, the beneficiaries have to deposit at least half of their cash contribution with the project and make an access road to the site. The cash contribution depends on the communities ability to pay. This is assessed by a socioeconomic survey done by the project sociologist. This community input instills the all-important sense of ownership of the completed system and has been found to be one of the major factors contributing toward the sustainability of the systems. This approach is diametrically opposed to that taken by the government.

The Government approach

Normally the government requires no cash contribution and only minimal in kind inputs from beneficiaries when constructing a rural water system. This approach guarantees dependency on outsiders and more or less ensures that the system will not be sustainable. For example, there is a water system installed by the government in a village adjacent to the project area which has been broken down for more than 12 months.

Let us now see, as an illustration, two specific examples of two communities which have contributed surprising financial commitments in order to get potable water through the technical assistance of CARE Habro.

Hidha Medar

There is one spring in this community which is the only source of drinking water, not only for human beings but also for the large livestock population in the area. It was really amazing to see the struggle between people and their livestock to get water from this source.

To alleviate these problems, the community started mobilizing themselves and contributed the required amount of money to have their spring protected. With the assistance of the people of Hidha Medar, CARE Habro protected the source of the spring and built a simple distribution point. Besides this, other facilities were also built, like a cattle trough, clothes washing facility and even a shower with two bath rooms.

The actual cost of this project is calculated as follows in Ethiopian birr.

Cost of Hidha Medar Spring

Item	Unit	Quality	Cost
Cement	qtl	25	1000
Sand	cu.m	12	240
GI pipe	pcs	30	1500
Ring	pc	1	354
Ring	pc	1	177
Nipples	pc	4	60
Reducers	pc	10	100
Tee	pc	10	20
Total material cost			3451
Unskilled labour cost			2000
Total community contribution			5451
CARE contribution (Transport, skilled manpower)			3400
Total cost			8851
Community cash contribution			2224
Community labour contribution			2000
Total community contribution			4224

Thus, the community input was birr 4224 (US$681) which is 47% of the total project cost. The CARE input was birr 4627 (US$746) which is 52% of the total project cost. The protected spring serves 80 families so the community input per family is birr 52.8 (US$8.50) and hence the project input per family was birr 57.83 (US$9.32).

The per capita cost works out at birr 18.43 or US$3.00.

Gorometa community

Another of the communities in which CARE has assisted is Gorometa, 2800 metres up in the highlands of Gubakoricha woreda. There was an acute drinking water problem as there are no rivers, streams or springs in the vicinity. So the community agreed to dig a well and, assisted by technical input from CARE, fortunately found ground water at a depth of four metres. They requested CARE to instal a handpump, so an Indian Mark Two was installed for the community and they are now enjoying a safe and reliable drinking water supply. The total cost, in birr, of constructing the well and installing the handpump is as follows;

Cost of Gorometa handdug well

Item	Unit	Quality	Cost
Ring	pc	4	448
Handpump	pc	1	2400
Cement	qtl	5	200
Rebar	pc	8	376
Sand	cu.m.	8	160
Total materials			3584

Masons perdiem	7	168
Unskilled labour cost		1950
CARE skilled labour and transport		4000
Total cost		9702
Community cash contribution		2104
Community labour contribution		1950
Total community contribution		4054
CARE contribution		5648

Thus, the community input amounted to birr 4054 (US$653) which is 41% of total cost.

The CARE input was birr 5648 ($911) or 58% of total cost. The handpump serves 60 families. Therefore the cost per family is birr 161.7 ($26). The project input per family is birr 94 ($15). The total cost per capita works out at birr 26.95 ($4.34).

NGO - Government cooperation

One of the criticisms of NGO interventions in developing countries like Ethiopia is that they are not sustainable.

- What happens when the NGO leaves the area?
- Does the NGO have a proper counterpart relationship with government organizations who are there for the long term?
- Has the NGO made an effort to involve GOs so that a smooth handing over process is in place?

These are some of the questions that both indigenous and international NGOs will have to address.

Governments' too, have an obligation to provide NGOs with guidelines so that water systems are built to the required standard. Poor quality systems are being constructed by well meaning but sometimes technically deficient NGOs.

Governments must also be able to inspect systems built by NGOs and have the authority to reject systems that do not come up to established standards.

Agreements

It is in the interests of both parties to have a tripartite agreement to include the beneficiary community in each and every system built so as to ensure that the community has some outside source of assistance should they encounter technical problems which are beyond their capacity to solve.

In the case of Ethiopia, guidelines for NGOs were drafted by the government agency responsible for rural water supply, but due to the turmoil surrounding the change of the government in 1991, these guidelines were never finalized, so NGOs are still working on their own. Therefore, NGOs are building systems the designs for which have not been approved by the concerned government organization.

So there is a risk that some poor quality systems are being built as they are outside the remit of any control body.

Most NGOs in Ethiopia regard GO's with apprehension and tend to steer clear of government bureaucracy in order to get the job done on time.

However, this does not auger well for the future sustainability of water supply systems. The question of who is to take over the maintenance of rural water systems when NGOs leave has not been adequately dealt with.

NGOs must make it their business to keep government organizations informed at each stage of constructing and maintaining water systems. They must strive to train government staff in the management and maintenance of the systems and handover resources such as vehicles and spare parts to government agencies in a timely fashion.

Governments, for their part, need to come up with practical guidelines for NGOs to follow, so as to ensure quality is built in to rural water systems.

Both sides have room for improvement if the goal of providing safe water for all by the year 2000; only five years away, is to be achieved.

References

1 RRC News, February 1995, Addis Ababa.
2 UNICEF / Water Resources Commission Report, 1992; UNICEF, Addis Ababa.
3 CDRA Report, Addis Ababa, 1994.
4 Evaluation of Southern Regional Rural Water Supply and Sanitation Project, CIDA, 1992.