

Water management for better livelihoods

Northwestern Tanzania

CONTEXT

Ngara and Biharamulo are poor and isolated districts in Western Tanzania, close to the borders of Burundi and Rwanda. Adequate water sources in terms of quality and quantity are scarce, and those that are available serve up to 3000-4000 people. Long walking distances from households to improved water sources make it difficult for the most vulnerable (women and children are the main household collectors/users of water) to access safe water. As a result, these groups resort to using inadequate and unsafe water sources such as unprotected self-dug wells and water holes, exposing themselves to diarrhoea and other infectious water borne diseases.

In 2006, in **Kabindi village**, Biharamulo District, only 10% of people had access to water within the recommended 400m walking distance from their homes, and 48% of improved water points were not functioning. On average, one water point served 4907 people, compared to the sphere standard of approximately 250 people per tap. Villagers suffered health problems, with women and children especially spending long periods carrying heavy loads of water. This greatly reduced the time devoted to education for children, especially girls, and to family care and income generating activities for women.

Kabanga Primary School, Ngara District, hosts more than 800 pupils yet it has no water source. All students, even those who travel long distances to school, are requested to bring water for drinking and cleaning. Children constantly face inappropriate sanitary conditions and thirst at school; and ultimately attendance rates decrease as temperatures rise, and children not attending classes do not perform well.

TARGET POPULATION

The programme works with 59,000 direct beneficiaries who are the poor vulnerable communities facing problems of access to safe water in two districts: Ngara (pop. 259,926) and Biharamulo (pop. 188,331).

STAKEHOLDERS

The communities are central to the programme. The intervention engages the local government authority, in particular the education, health, community development and water departments. Civil Society Organisations (CSOs) carry out the intervention with support from Concern Tanzania, Gorta-the Freedom from Hunger Council of Ireland, Irish Aid, Concern general donations and Concern US private funding. The initial stage of the intervention involves ward level development planning with the community, schools, government departments, and CSO partners, in addition to the identification of beneficiary schools and communities. School committees, comprising teachers, elected parents and community facilitators, are trained to participate in all project phases and to ensure a sustainable access to safe water facilities.

THE INTERVENTIONS

SCHOOL TANKS: Concern Tanzania, Gorta, the Development and Life Relief Association (DELIRA) and Tanzania Water and Environmental Sanitation (TWESA) worked with schools and communities to set up large rainwater harvesting tanks (see photos showing formwork: 50,000 L tanks fed from rainfall on school roofs, to ensure storage of rainwater meets demand for use during the dry season), latrine blocks and small 1,500 L rainwater harvesting tanks which are fed from the latrine roofs, for hand washing. Child to child education methods for good basic hygiene practices are promoted.

This rainwater collection technique is ideal for poor communities because it has low implementation, operating and monitoring costs yet it is a durable construction (providing that it is based on engineering specifications and materials are good quality). The construction requires external funding for about €4,500 a tank, compared to cost of a borehole at €7,000 (minimum - indicative only). The community contributes local materials – sand, stone, and aggregates, while Concern Tanzania and Gorta provide industrial materials – cement, wire mesh, gutters, steel bars, etc.

Tanks are preferably cylinder in shape; this avoids cracking in the joints, and is cheaper to construct. Tanks are ferro-cement generally built on the ground so that they are easier and cheaper to build and maintain. Foundations are made of stone to ensure durability. They are built by skilled artisans who are locally available. Plastic tanks of the same capacity can be used but they are less durable and more expensive. The inside of the tank is plastered with a mix of sand, cement and water proof cement that improves the quality of the tank (water proof cement acts as a water seal to prevent leakage). A cover is made from wire mesh, cement and sand, with a manhole to enable entry for cleaning. The cleaning can be done at six monthly intervals or at the start of every rainy season by using brooms followed by chlorine disinfection to kill pathogens. The downpipes are connected to the tank so water flows inside, and an outlet pipe and tap is connected at the lower end of the tank to release water. The pipe comes from the reinforced concrete bed and extends only 30cm. A wash out pipe extending from the tank allows it to be cleaned.

The tanks require little maintenance (cleaning, fixing gutters and fixing broken taps), and training for these tasks is provided to school management staff. Local communities also participate in the project at all stages and undergo a learning-by-doing process. Community commitment, including safe guarding of the structures was essential during the planning sessions. School children and staff learn about good basic hygiene practices, adapted to the local context, and transfer that knowledge to the rest of the community.



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COMMUNITY WELLS: In 2009 the programme also responded to a separate request for support for water provision, from the Kabindi village to District authorities.

Concern Worldwide Tanzania, Gorta, Community-Based Health Care Council (CBHCC) and Environmental Conservation, Water supply and AIDS Control Organization (EWACO) worked with the community to secure two water sources. These were shallow wells, 4m to 10m in depth, using Nira AF85 pumps from Finland, assembled in Tanzania. Special attention was given to building capacities and ownership through participatory approaches to enable communities to manage and maintain the improved water sources over time, thus guaranteeing the sustainability of the project results. Villagers provided building material and participated in the construction of the wells.

The community set up water user groups to manage and maintain the structures, comprising: a chairperson, a secretary, a treasurer, a maintenance person, a care taker and a community mobilizer who encourages the community to promote good hygiene behaviours among the villagers and to take care of the wells (since the start only 3 out of 120 hand pumps have been stolen). Mobilizers and facilitators are elected among community members and are trained by the project on group facilitation, well maintenance and good hygiene practices. They work closely with other community members promoting environmental health at people's homes using the Participatory Hygiene and Sanitation Transformation (PHAST) approach. This joint approach enables greater coverage for the promotion of environmental health through groups at the water source and individually in their homes.

Water-user groups also set up a contribution system to a common pot that serves for well maintenance and repair expenses, and for the future construction of additional improved water sources. Several poor households are exempted from contributions (mostly elderly). Following sensitisation sessions, water user groups are linked to both local government offices and retail suppliers who stock spare parts.

RESULTS – SCHOOL TANKS AND COMMUNITY WELLS

Improved water management not only facilitates the access to clean and safe water, but also improves environmental health and good hygiene practices. For the school tanks, more than 20 have already been constructed in Ngara, 13 in Biharamulo, and another 12 are planned for 2011. The tanks ensure availability of safe water at school, thus reducing the risk of exposure and contraction of infectious diseases such as diarrhea, as well as contributing to improve the nutritional and health status of school children and staff.

Ngara school teachers report that hygiene on school premises has improved, children's attendance and performance have increased, fewer children have diarrhea and teachers have more time to prepare lessons.

Kabindi villagers report that their health problems (in particular diarrhea) have noticeably diminished. Women report they have more time for income generating activities and for cooking, resulting in higher incomes and healthier children. Children's school attendance rates and academic results have improved and parents can plan to send their children to secondary school.

Communities and school staff can replicate the project, with funding support from a donor in the case of rainwater harvesting tanks, or through self-financing mechanisms in the case of improved wells.



Ashura Nasoro, sub-village chair and community mobilizer:
"I coordinate 3 water user groups. In meetings we always have three men and three women – people who can volunteer, those who can write, and are honest and hardworking. Women in the group are always the treasurers in charge of the money".



Zinath Aziz (14) & Evestina Geofrey (12), members of the P2P group in Kabanga Primary School, promote good hygiene practices amongst the children and the community.

UPSCALING/REPLICABILITY OF THE PROJECT

The experience described above can be successfully up-scaled/replicated in similar contexts, if the following principles are applied:

- this type of intervention can be complemented with others, such as the installation of **solar panel pumps**, to establish safe water from improved water sources in distant poor villages (as done in Mabare Village, Biharamulo). Initial costs are high, as is the risk of equipment being stolen or damaged, but in the long run, they are the cheapest option for communities in terms of operating and maintenance costs;
- school staff and communities are **consulted and involved** at all stages of the project, and should be involved in the improved water source construction operations, in order to acquire ownership and knowledge;
- construction should be accompanied by **training sessions** on basic hygiene and nutrition for school children and school staff, as well as on water management and group facilitation skills for community members, to empower communities;
- coordination with environment and health initiatives should be complemented with **coordination with food and nutrition security** interventions, for example, through the agriculture extension services;
- **local authorities**, in particular agriculture extension services as well as relevant **local NGOs and associations**, should be involved to ensure continued support to the communities after project completion;
- **key messages** conveyed through training sessions should be **adapted to local context**, culture and constraints;
- **peer to peer (P2P)** learning methods should be applied to all issues tackled in training sessions;
- tanks are built on the ground with stone foundations and are cylinder in shape to avoid cracking. This is **cheaper to construct and easier to maintain** - plastic tanks are less durable and more expensive. The inside is plastered with a mix of sand and water proof cement to prevent leakages;
- the top of the tanks are made from wire mesh, cement and sand, with a manhole for entry for cleaning, done at 6 month intervals using normal brooms, followed by chlorine **disinfection**. As well as the tap, a wash out pipe extends from the tank to allow **cleaning**;
- tanks require **little maintenance** (cleaning, fixing gutters, fixing broken taps), and training is provided to school management staff.