

Rainwater Harvesting



A communal rainwater harvesting tank at the base of Mgahinga volcano in Uganda.

In the Virunga landscape there is a lack of safe drinking water. In areas near the Virunga volcanoes, the hydrology of the volcanic soil can create what is called a “lava dry zone” making springs run deep and therefore largely inaccessible. Other ground water sources, especially the many streams in the Bwindi region, are polluted with chemical and biological pollutants.

EEEGL has focused on making a substantial contribution to poverty reduction in this region by promoting enterprise, environment, and equity throughout the region. While the mandate of water supply and sanitation lies with the national and local governments, the EEEGL project was involved for a number of reasons.

In consultation with communities on the front-lines with Volcanoes National Park, Rwanda, and Mgahinga Gorilla National Park, Uganda, one need was prioritized above all others – water. As it stands, most communities do not have a source of water, forcing people to walk for many kilometers and many miles to access water. Some of these people relied both illegally and legally on the water that collected in surface streams within the parks.

Collecting water within parks is not ideal for people or for the parks. People, especially women and children, walk far and chance encounters with wildlife or with park rangers. The parks are degraded with trying to accommodate the needs of so many people, there is an increased chance of mountain gorillas contracting human diseases due to increased contact, and while in the parks collecting water, people would also use the chance for other resource extraction such as setting illegal snares or collecting firewood.

Due to these factors, EEEGL supported the construction of rain water harvesting (RWH) tanks in the communities surrounding the national parks in the Virunga region in Uganda and Rwanda.

Impact

Five communal rainwater harvesting tanks were constructed in **Uganda** near Mgahinga Gorilla National Park. **Four communal rainwater harvesting tanks** were constructed in **Rwanda** near Volcanoes National Park.

In Uganda, there are 2,414 beneficiaries of the rainwater harvesting tanks and in Rwanda, there are 6,334. In total, the nine tanks supply water to **8,748 people**.

Nine **Water Use Committees** (WUCs) were formed and trained, one associated with each tank constructed. In Uganda, the WUCs have 40 total members; 12 or 30%, of these committee members are women and 12 are from historically marginalized groups (HMGs). In Rwanda, the WUCs are comprised of 28 total members; 12, or 43%, of these are female and two are from HMGs. In Uganda, 1,339 or 55% of the beneficiaries are women. In Rwanda, 3,800 or 60% of the beneficiaries are women. Most members of the community pay to collect water based on agreed usage guidelines, but vulnerable members of the community are allowed to collect water free of charge.



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Approach

Several water supply technologies - from gravity water schemes, boreholes, pumped water from regional contact springs and rainwater harvesting - were explored. However, an evaluation of different technologies found that rainwater harvesting was the most cost effective technology in the Virunga landscape given the region's geology and hydrology¹.

The need for water in the region greatly outweighed the available resources of the EEEGL project, so several important approaches were taken so that the EEEGL project could be a catalyst for further large-scale construction of tanks.

The first approach was giving priority to developing a **successful methodology for sustainability of the rainwater harvesting tanks**, given the fact that many of the communal tanks previously constructed in the region had failed in one way or another, either from lack of maintenance or from lack of equitable or transparent distribution. The EEEGL project adapted the approach, which **emphasizes community empowerment**, used by the Kigezi Diocese in Uganda.

Community members were heavily engaged in the process and community institutions (Water Use Committees in particular) were strengthened and empowered before, during, and after tank construction. The **local government officials responsible for water allocation were also heavily engaged** in the process, thus giving local government officials exposure directly from their constituents to the issues of water, as well as exposure to the potential methodology to improve the situation. This was especially important given as both Uganda and Rwanda government policy currently does not allow for government led communal tank construction, given the history of failure with past tanks.

Another key approach was developing **linkages to Village Savings and Loans Associations (VSLAs)** so that the money collected by and from the community for of the use of the rainwater could be re-invested back into the maintenance of the existing tank as well as future construction of new communal or household rainwater harvesting tanks.

The tanks were round above ground tanks with the storage capacity of 30 (Uganda) to 90 (Rwanda) cubic meters (m³). The tanks harvested water from a free-standing roof structure constructed along with the tank. Land for each tank was provided by the community; it was used by or owned by the local government.

Women and children line up to collect water from a communal water tank in Rwanda.



Looking Ahead

At the end of the EEEGL project, all WUCs and communities have completed the sensitization and management training necessary to ensure that these tanks will be managed in a way that offers the maximum and equitable benefits to the members of the community.

The tanks constructed cater for only a very small percentage of the water needs of people in the Virunga Landscape. Through the EEEGL project, IGCP has developed a five-year water strategy and will continue the construction of communal and household rainwater harvesting tanks as well as continue to advocate for increased investment in this area by other donors and government.



A PROJECT FUNDED BY THE HOWARD G. BUFFETT FOUNDATION

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Lessons Learned¹

Social acceptability

The application and adoption of any technology will depend on it being socially acceptable in its design.

Access is more important than quality to many communities

Access is a more significant factor of water supply and sanitation in rural areas than water quality. Households would rather use dirty water from a nearby pond than travel longer distances in search of safe water.

Water is one of the main causes of conflict in rural communities

Water is one of the main causes of conflict in water stressed rural communities, especially where self supply is the main approach. During the dry seasons, neighbors come to fetch water from those who have personal tanks, but are not willing to pay for the operation and maintenance of the source. If they are denied water, they hatch plans to destroy the systems.

Payment increases ownership of water and sanitation projects

Water in rural set up is a public good which should not be sold. The willingness to pay is low. On the contrary, payment increases ownership of water and sanitation projects. This is crucial in designing rural water projects.

Stakeholder participation

Participation of all stakeholders in community water project is of paramount importance in their success.

Water supply and sanitation should go hand-in-hand

The safe water chain, what happens to water after the source, and sanitation are given less importance than water supply yet only one case of water borne disease could cause an epidemic. Water supply and sanitation should be handled side by side.

Water supply and sanitation is considered mainly a development agenda not a conservation agenda and projects are therefore mostly designed for development/ poverty reduction objectives. The investment of conservation agencies should be carefully assessed on how this investment would contribute to their goals and objects.

Sanitation requires a community approach.

Sanitation requires a community approach rather than an incremental approach, (number of households with improved sanitation increasing) because even one person use of an unimproved latrine or open defecation can put the whole community at risk.

Scattered settlements make water supply and sanitation services expensive.

Behavior change and adoption of better hygiene practices at household level requires continued follow up.



¹ IGCP Water Strategy in the Virunga-Bwindi Landscape: 2011-2015. IGCP. 2011.

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Case Study: Nzogera Community, Uganda

A 30 m³ rainwater harvesting tank was constructed in the Nzogera community in 2009 by the EEEGL project. The tank provides water to 74 households with an average number of six people per household.

The WUC includes seven members, including three women. The WUC makes sure that the rules and regulations regarding the collection of water and of user fees are followed.

Each household is allowed to collect no more than two jerricans (40 liters total) of water each day and pays 100 Ugandan Shillings (0.04 USD) per jerrican.

For families that are determined to be unable to pay for the water, they are allocated, at no charge, two jerricans per day.

This WUC has been very active in the community and regularly meets with WUCs in neighboring villages, participated in a study tour to Mbarara sponsored by the EEEGL project, and has collected funds to construct a community meeting room underneath the free-standing roof structure.

When presented with the opportunity to obtain an additional tank through another funding source, the community used the water tank VSLA funds along with individual contributions to purchase land located closer to the village than the communal land that was initially proposed.

Local Council 1 (LC1) Chairman of Nzogera, Festo Serufuli, with members of the WUC.



Beneficiary Profiles

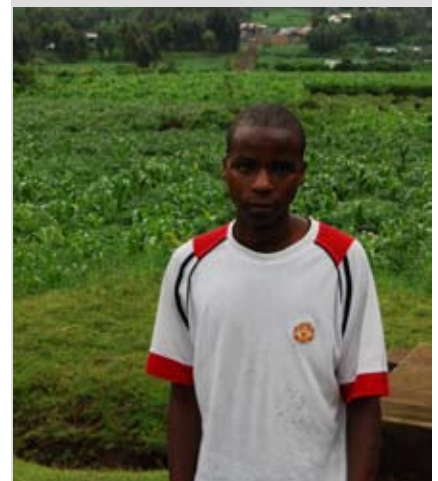


Gladys Nyambanabuza, Nzogera, Uganda

Her children have grown and left home, leaving her to fetch water, which she would struggle to do herself. She now can fetch enough water for cooking, drinking, and washing clothes.

James Manakiza, Nzogera, Uganda

A secondary school student, he now gets to school on time (as do his teachers) because the time to collect water in the mornings has been greatly reduced.



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