Newsletter
WASH-NETWORK

DIOCESE OF MUHABURA WATER, SANITATION AND HYGIENE PROGRAMME
WASH NEWSLETTER 2020

Cyintare community celebrates construction of 20,000 litre rainwater harvesting tank

In October 2019, the community of Cyintare celebrated the construction of a new rainwater harvesting tank. In a jubilant ceremony attended by local politicians, elders and the entire Cyintare community, the tank was commissioned by His Lordship the Bishop Cranmer Mugisha (see photo).

The 20,000-litre tank was constructed following concerns from the Cyintare community about the burden of travelling long distances to fetch water. The Department of Water at the local district government initially provided two tap stands from the Mwihe Gravity water scheme, but this wasn't enough considering the high demand of water, especially during dry seasons. Rev. Patience Mbarusha, the Parish priest of the local church, and other community members raised the issue of a tank, which caught the attention of the WATSAN programme workers. The tank was constructed quickly thanks to the overwhelming support of the local community and WATSAN partners.

Cyintare is located in Nyakinama Sub County, in the water stressed southern part of Kisoro District. The majority of the population dwell along the slopes of the plateau of Muhangi Hill, which stretches from Nyaruyaga Hill to the Kaboko tributary of Lake Mutanda. This is a distance of about 5km and there is an additional distance of 1km of wetland before you reach the natural waters of Lake Mutanda.

The DOM-WATSAN Programme

The Diocese of Muhabura Water and Sanitation (DOM-WATSAN) Programme was established in 2013, with technical support from the Kigezi Diocese WATSAN Programme, and with the financial support and partnership of Tearfund-UK and UK churches.

The Programme operates throughout the Diocese of Muhabura but its work is concentrated particularly in six parishes and nine churches, covering 60 villages/ communities.

The Programme covers a population of around 75,000 people from these communities who were identified as being severely water stressed and having very poor water, sanitation and hygeine (WASH) services.

The main aim of the Programme is to improve WASH services in the water-stressed communities of Kisoro district.

The Programme's main interventions:

- Building ferro-cement rainwater harvesting tanks.
- Design and development of gravity flow schemes where feasible.
- Construction of long drop pit latrines using locally available materials.
- Promotion of good sanitation practice, through home visits and implementation of Community Led Total Sanitation (CLTS).
- Hygiene promotion through home visits, community mobilization and education as well as follow–up visits and mentoring.

DOM-WATSAN Programme strategies and methods of work:

- Commitment to improving the welfare and livelihoods of communities through holistic transformation and implementation of appropriate WASH initiatives.
- Provide services based on need, and without discrimination.
- Establishment of scientifically proven interventions.
- People-centred and community-based in service delivery.
- Fostering partnerships and collaboration at the local and international level.
- Striving for integrity and accountability.

Recent achievements

- We have contributed to the improvement of Kisoro district's safe water coverage that stood at only 45.7% in 2005 to the current 65% in 2019
- We have constructed 236 ferro-cement rainwater harvesting tanks
- We have built the Shunga Gravity Flow Scheme with eight tap stands.
- We have also contributed in the improvement of latrine/sanitation coverage that was 63% and now is above 75%.
- Successful implementation of CLTS has resulted in improved sanitation in 58 communities/villages and elimination of open defecation in 2 villages (Kijuguta and Kanombe).
- We have established WASH committees, comprising of 480 members, in all 60 villages where we are working. They were trained and given tools to do their work.
- We have assembled a team of 48 trained community-based artisans who do tank construction work.

Peter Rukasi (Gitenderi Parish) standing near his newly constructed tank, with his neighbours with whom he shares the water from his tank. The roof of his house is covered with new roofing sheets and gutters to take rainwater to the tank. He is delighted with the tank, and expressed gratitude to DOM-WATSAN. He said that water shortage in his family is historical. He values the tank so much and has promised to look after it very well.

Beneficiary stories

Roy Kalerero

Roy Kalorero resides close to Cyintare church premises. She is 75 years of age.

She in most cases remains with her grandchildren when their parents have gone to work. She remembered how she used to travel to the lake for water even after a short dry spell during the course of the year.

She said, "I would wake up every day at 6.00am to travel the lake and return at 10.00 am. This would enable me to escape the heat of the midday sun. I would use a saucepan to fetch water because a 20 litre jerry can would be too heavy for me to carry.

"When the grandchildren were old enough, I was relieved from going to the lake. However, the children would waste time playing and arrive home at 2.00pm. This meant I got the water late in the day, and could not get on with cooking or washing.

"I am happy these days, because children bring the water from the church in abundance and without delay".

Munyansanga Sam

Munyansanga Sam is in late 30s and his home is located in the hill slopes of the northern part of Kisoro town. The DOM-WATSAN Programme has concentrated some of its efforts in this water-stressed area. With eight people living in his household, Sam was chosen to receive an 8,000 litre tank from the programme.

When Sam received the news about the tank, he was so anxious and zealous that he frequented our office quite often. He is one of the beneficiaries that never bothered us in mobilising the locally available materials.

In our routine monitoring of the functionality of tanks, Sam expressed his delight about the tank, in particular because he was relieved of the daily commuting to the town on a bicycle, to collect water from kiosks. He promised to maintain the tank and guard it from any damage.

Sam was recently given a heifer under the Government Poverty Alleviation policy programme commonly known as Operation Wealth Creation (OWC), so needed water for more than just his family. He hopes the cow will improve his household income.

Working with local communities to improve water services in Gitovu

Story by Mr Ruzaza Christopher (DOM WATSAN Programme Coordinator), Mr Musabyi Alex (DOM WATSAN Programme Field Officer), Prof Chad Staddon (Director, International Water Security Network, UWE Bristol), and Mr Wayne Powell (International Water Security Network, UWE Bristol).

The International Water Security Network has been conducting water services research in Kisoro, Uganda for several years, with a focus on the water quality and structural integrity of rainwater harvesting tanks. During this time, there had been many discussions with community leaders and representatives of the WATSAN Programme about the construction of a gravity flow scheme in the somewhat remote area of Gitovu.

In 2019, funding for this was secured through the Global Challenges Research Fund and the Lloyd's Register Foundation on the premise that this scheme could provide both water services and a platform for research into socio-technologies of water in remote, under-served communities.

In early November, two field survey visits were undertaken in the villages of Rurangara, Gitovu, Bugara and Gatera, which will be supplied by the scheme. Team members included Eng. Mberwa Cranmer (Kisoro District Water Officer), Mr. Christopher Ruzaza (Diocese of Muhabura WATSAN Programme Coordinator), Rev. Christopher Kizza Habyara (Archdeacon of Gitovu) and Alex Musabyi (WATSAN Programme Field Officer). These visits,

Gitovu and Gatera communities discussing their water needs

Community discussion in Rurangara

which included community meetings, had several key objectives:

- Sensitizing the community to the project that will be implemented in their villages, including around land issues, and discussing their responsibilities.
- Securing the permission of the communities to allow the technical field survey team involved in design and development to have access to the homes and gardens of the residents work.
- Listening to feedback from people about the project, especially from the village of Rurangara where the water sources are located.
- Determining the quantity of water to be tapped and collected from Nyarutembe water sources in Rurangara (located at higher elevations above the main village centres).

Sixty people attended the first community meeting at the Karere Center in Rurangara community. Some adjacent land owners of the land wanted to be given financial compensaion for the inconvenience of access works, and other residents were keen to ensure the existing spring was not affected by the new scheme.

Eighty local residents took part in the meeting at Gitovu Church of Uganda (where the communities of Gitovu, Gatera and Bugara converge). They were willing to offer the necessary support in the implementation of the scheme, in part because of their high demand for water. There are two water sources in Nyarutembe. The flow rate of water from the lower source, a government protected spring utilized by the Rurangara community, is around 5.4 seconds per litre. This means 16,000 litres can be collected in 24 hours but this is not enough to supply the 2,280 people who live in the three villages. At the World Health Organization standard of 15 litres per person per day, 34,200 litres would be needed every day. Therefore, tapping an additional water source at Nyarutembe would be required.

The upper Nyarutembe source was partly captured by one community member who constructed a water collection box and laid underground HDP pipes to supply a plastic tank reservoir at his home, as well as two homesteads in the neighbourhood. The amount that flows through his compound is similar to the volume from the lower Nyarutembe spring.

The WATSAN Programme, the Kisoro district water department and beneficiary communities need to negotiate with the constructor of the private supply from Nyarutembe and the chairman of Rurangara village where the two springs are located so as to allow for the capture of enough flow from both springs to adequately cater for the population to be served.

Once everything is in place, the project managers will undertake community meetings to sign agreements of consent with land owners where small reservoirs (for break of pressure and localised supply points) will be situated along the pipe runs towards final destinations around lower elevations of Gitovu.

This project is a good example of partnership between WATSAN and international scientific organisations such as IWSN. IWSN has brought to Kisoro technical capacity to assess water quality as well as student interns to assist design and also post-commissioning monitoring and evaluation.

Alex and volunteer taking flow measurements of lower source

University of the West of England builds water testing lab in Kisoro

Story by Prof Chad Staddon and Mr Wayne Powell (International Water Security Network, UWE Bristol).

Researchers from the International Water Security Network (IWSN), based at the University of the West of England in the UK, have been conducting water research in Kisoro for several years, often working in spaces borrowed from the nearby Muhabura View Guest House and from the Potter's Village Medical Centre.

UWE Bristol research team with two students from Seseme Girls' School

However, it was becoming clear that we needed our own space in which to work, and with this in mind, we secured agreement from the Headmistress of Seseme Girls' School to build a small Water Science and Innovations Lab. Ground was broken in January 2019 and the structure was finished, with windows, doors, a solar electricity system and internal sinks and worktops, in March.

We are very grateful to our Field Engineer Alan Cook, who oversaw the build, and to the school and all the local residents who have provided help and support along the way. Funding for this project was provided by the University of the West of England and Lloyd's Register Foundation (through the IWSN).

The building has two rooms that can comfortably accommodate 2-4 people working simultaneously on water quality assessment (based on samples collected in the field), filtration technology development, field notes, and other research. This is a huge step forward for our operations in Kisoro, and will allow us to work much more efficiently in future.


The lab at Seseme Girls' School

In the summer of 2019, Prof Staddon and Mr Cook led a team of six students who worked in Kisoro for one month. The team set out to sample 50 rainwater harvesting tanks, a few gravity-fed water schemes and some surface waters, spread throughout ten rural villages in the local district.

Once collected, these samples were then taken back to the lab to test for total and faecal bacterial content and specific bacterial species known to be harmful to health, specifically *E. coli* and *enterococci* bacteria.

Rural villages often rely on rainwater harvesting tanks for drinking water as the communities cannot afford other improved water supplies and are often far from freshwater sources. Thus, it is essential that the tanks are properly maintained, both to maximise their output and provide a consistent supply of clean drinking water.

Along with the lab work, a survey was designed to assess all aspects of the physical conditions of the tanks, to gain an understanding of the state of the infrastructure. The tanks are all installed by WATSAN, an organisation that aims to provide reliable water and sanitation services for vulnerable communities in the area.

Later on in during this working session a pilot survey of social-demographic, water and health-based questions was tested on the villagers of Gitovu. This survey was designed to probe social perceptions in the area and understand the community's level of access to clean, safe and affordable drinking water. It will be very interesting to compare these results with the quantitative data from the lab, and we hope a detailed overview of water scarcity and poverty in the district will emerge.

UWE Bristol student Hannah Ingram, who is studying for a degree in Environmental Science, said:

"My overall experience in Kisoro as amazing. Alan Cook and Chad Staddon were wonderful teachers and leaders and I learnt a great deal from them. While in Kisoro, I realized that although I had learnt a wealth of knowledge in lectures and was well equipped with a set of laboratory skills, it is imperative to assign these to real life situations with real time problem solving.


UWE Bristol student Ed Hammond leads a class

"On several occasions, we were fortunate to teach the girls at Seseme Girls' Secondary School. The girls there were lovely and were very interested in the work we were doing in Kisoro. It was clear from the start that we were welcome among them and it was great to speak with them and answer the many questions that they had.

I feel very grateful for the opportunity the UWE Global Water Security Programme has given me and I am very excited for the students who will visit and make an impact in the years to come."

Three UWE Bristol students collect water samples from a rainwater harvesting tank for testing at the lab

Improving lives on Shunga Hill

Four rainwater harvesting tanks were built to benefit twenty households that live on top of Shunga Hill. The population of these households is 118 and accessing water tap-stands linked to the Shunga Gravity Flow Scheme is difficult because they down in the valleys.

The residents were pressing DOM-WATSAN to help them by building rainwater harvesting tanks so that they could get relief from fetching water, and carrying full jerry cans around the steep slopes of the area.

The programme facilitator recently revisited the Shunga Hill homesteads to assess the conditions of four tanks that were constructed in 2017, and to encourage the communities to improve on their hygiene and sanitation. He was warmly received by the residents, and listened to many tales about how the tanks had transformed their lifestyles. Here are some of their stories.

Hope Habyara is an elderly woman in her late seventies who shares a tank with other neighbors including Beatrice Halerimana. She explained how she was relieved from the fatigue of fetching water after the Diocese of Muhabura helped build a 10,000 litre tank.

Hope Habyara (middle) with her neighbors, who are beneft from her rainwater harvesting tank

She said: “All of my eight grandchildren traveled to school every morning and I remained alone at home. Sometimes, they left no water for the preparations of meals and other domestic activities. What I had to do was travel about 3km down the valley, with a 10-litre jerry can, to a run-off water source gushing from a rock at Mumatare.

“If there was an extended dry spell, we would travel an extra 2km down the valley to a similar water source known as Murungu. At this point, I would be exhausted, to the extent that it would be difficult for me to perform any necessary activities at home for the whole day.

“Life was very difficult for me. When the tank was built, I was relieved from that fatigue and I am now comfortable, especially because I can sleep well because I do not need to worry about how I get water the next morning”.

Mr & Mrs Halerimana are now rearing livestock, after becoming beneficiaries of the tank constructed at Hope Habyara’s house.

Beatrice Halerimana, one of the beneficiaries of the tank, said that there is a tremendous relief of burden of fetching water. “We don’t even get scared about rearing livestock for fear of having no water for them. Before, nobody could think of rearing animals because of water scarcity.”

Epafra Bazokoriki, one of the benefactors of an 8,000-litre rainwater harvesting tank, had started thinking of leaving the area because of being so far from a water source.

He recalls traveling many kilometres down the hill to the Bukangano water stand, one of the stands of the Shunga Gravity Flow Scheme. He said that this was very far and inconvenient but he noticed that migrating was also expensive. He is very excited about his tank, and delighted for the good luck he got of being one of the beneficiaries.

From the Director of the IWSN

Prof Chad Staddon explains more about the research work being undertaken by the International Water Security Network and UWE Bristol in Kisoro

Our relationship with the DOM-WATSAN Programme has grown quickly in recent years to encompass many wonderful activities, all aimed at helping the District of Kisoro to meet the Sustainable Development Goal for Water: “Ensure availability and sustainable management of water and sanitation for all.” We are really happy to be working with such dedicated and professional colleagues from around the district and also from elsewhere in Uganda.

Starting in 2012, our Field Engineer Mr Alan Cook started assisting the DOM-WATSAN Programme with construction of rainwater harvesting tanks and gravity water systems around the district. This work has continued to the present day with the current Gitovu gravity scheme project (discussed elsewhere in this Newsletter) and new projects planned for 2020 and beyond. In the last several years more than 200 tanks have been constructed, benefitting 17 different communities around the district. You can see testimonies from some of the beneficiaries elsewhere in this Newsletter.

In summer 2018 the first team of students from the University of the West of England (UWE Bristol) arrived to begin a survey of water quality in rainwater harvesting tanks. The initial task, which continued through the 2019 summer research season, has been to create a georeferenced record for each tank, recording basic data including size, location, and when and how it was constructed. To this record we are appending data about physical, chemical and microbiological quality of stored rainwater, using a lab we built on the site of Seseme Girls School.

A different UWE team in 2018 examined the engineering of the rainwater tanks themselves and made recommendations about better construction and maintenance. For all of us, the common goal is to contribute to the better management of rainwater and gravity water supply systems.

UWE Bristol students have also produced short films about water challenges in Uganda, including the *Colour of Water* (shorturl.at/oSV58)which won a National Union of Journalists prize in 2017, and a short video about water challenges in Kisoro (shorturl.at/hmLN3).

Next we plan to start producing ceramic pot filters locally in Kisoro, for water filtration. These small filters are well-suited to household use, are cheap and require only simple maintenance.

For more info about the International Water Security Network and the UWE Global Water Security Programme, visit ***www.watersecuritynetwork.org***

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DOM-WATSAN Co-ordinator Christopher Ruzaza talks about the aspirations of the programme as it works in partnership with UWE Bristol

We are privileged to be in partnership with UWE Bristol, a university of international reputation. Previously, we had technical assistance from engineers working with the Kisoro district water department and the Kigezi Diocese WATSAN Programme. We really appreciate their support, but working with UWE Bristol has opened new opportunities and extended the horizons of our work. The entire programme has embraced scientific innovations which will result in a better quality of work as we seek to solve WASH challenges amongst the most vulnerable people of our society.

We have high expectations, and great aspirations for our joint ventures. We worked together on a trial project at Seseme Girls' School, where urine is being used to generate electricity for lighting purposes. We had never imagined this would be feasible and practical. We are working to improve access to safe water through gravity flow scheme development as is the case in Gitovu (see story on previous pages) or Nyamatsinda, and through construction of rainwater harvest tanks in high altitude and mountainous areas, where national water and sewerage cooperation cannot reach at the moment.

We have also discussed the possibility of human resource or student exchange programmes where knowledge and capacity enhancement benefit both partners. We have definitely enjoyed working with students from UWE in their previous two expeditions to the diocese, as they studied our existing WASH interventions, especially rainwater tank construction as well as how our interventions have impacted on livelihoods of the needy communities. Socially and spiritually our interactions with engineer Alan Cook, Professor Chad Staddon and the UWE Bristol students have been an inspiration.

We definitely anticipate more good things as we work together in fulfillment of our mission of sustainable improvement of safe water, hygiene and sanitation services to the needy and water stressed communities of Kisoro district, Diocese of Muhabura.

From left: Chad Staddon (UWE), Christopher Ruzaza (DOM-WATSAN Co-ordinator), Alan Cook (UWE) and Stephen Ruzaza (Secretary of the Diocese of Muhabura)

Statement from the Rt. Rev. Cranmer Mugisha, Bishop of the Diocese of Muhabura

It is with great pleasure that I write in support of the UWE Global Water Security Programme. This programme has been sending University students and staff to work on water and sanitation projects in our diocese and the District since 2017 and we are very grateful for the work that they have done so far.

The work of two Engineering students has helped us to understand why concrete rainwater harvesting tanks crack and how to fix and prevent cracking, an important contribution to helping us better manage our fleet of more than 200 tanks. In 2018, the Environmental Science students studied the quality of stored rainwater and found that some of it is contaminated. This important finding will now inform our monitoring and guidance to beneficiaries to help ensure that stored water is as safe as possible.

They have also built a Water Innovation Hub. This is now an important base for further research and teaching about water quality and how to protect it and, being situated on within the grounds of the Seseme Girls' School, has led to both formal and informal teaching and knowledge exchange sessions between the UWE researchers and the girls at the school.

The Diocese of Muhabura is very grateful to the UWE team for undertaking these projects in our community and we very much look forward to more collaborations in the future.