



# ST. JOHN'S HOSPITAL *Lugarawa*

*Water  
& Wastewater  
System  
Improvements  
Project*

TANZANIA



Our mission as a nonprofit organization is to connect volunteer professionals and partners with communities in developing countries to improve water, sanitation, and hygiene resources for the benefit of those communities and the environment.

It is with your support and partnership that so many lives are positively impacted as we work to fulfill our mission.

*Thank you!*



Water Engineers for the Americas & Africa  
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# ST. JOHN'S HOSPITAL

## *Lugarawa*

Located in the Njombe region of Tanzania, St. John's Hospital is situated about 800 km southwest of Dar es Salaam, in the village of Lugarawa. The Hospital is operated by the Diocese of Njombe Benedictine Sisters and is the only resource for people with medical needs living within a 100 km radius.

The village includes the Health Center, primary and secondary schools, a vocational training institute, shops, and several religious institutions. Up until a new water and wastewater system was installed in early 2021, both the Hospital and the village had been encountering water system and sanitation infrastructure problems which contributed significantly to public health challenges in the region. Water and sanitation related diseases (Typhoid, Malaria) were common in the community due to septic tanks and pits discharging untreated effluent onto the ground, especially near the Hospital. Poor water quality, water shortages, and broken or leaking pipes made consistently good medical care at the Hospital nearly impossible to provide.

In early 2019, WEFTA engaged with St. John's Hospital to address the needs for water, sanitation, and hygiene (WASH) infrastructure upgrades. WEFTA volunteers, working with teams from Sanitation and Water Action (SAWA) and from Lugarawa, provided project management, technical expertise, and engineering oversight for construction of a new water and wastewater system.







# ST. JOHN'S HOSPITAL LUGARAWA

## Water & Wastewater System Improvements Project

WEFTA worked in collaboration with Tanzanian in-country partners, Sanitation and Water Action (SAWA), to implement the St. John's Hospital Lugarawa Water & Wastewater System Improvements Project. This project was finalized in early 2021.

The main construction activities had an original slated timeline spanning 9 months, which included a gap for the anticipated rainy season; instead, construction took place over an intense 3-month period while teams worked on separate phases simultaneously, significantly shortening the timeline. The team on the ground did an amazing job with project design, adaptation in the field, oversight of construction crews, working with the community, and efficiently maximizing productivity while camped out on location.

By eliminating points of contact of contaminated water with residents, animals, and livestock in the community, this successfully completed project now provides a safe reliable water supply daily to roughly 2,200 people directly at the hospital, the church, and the schools. Indirectly, these institutions serve the entire village and the people in the surrounding communities, positively impacting over 25,000 lives.





During the project kick-off meeting, various local teams were established to implement the project.

The project was divided into phases. The water supply improvement portion of the project included 7 masons led by senior technicians. Trenching work and ferrying building materials within the construction sites was supported by over 30 local laborers from within the Lugarawa Centre.

Prior to completion of this project, water service was intermittent more than 70% of the time. The water supply upgrade now provides the hospital and community with a continuous source of clean water. Access to this improved water system will help reduce water and sanitation related diseases.





# WATER SUPPLY

## *Intakes & Spring Boxes*

Upgrades to the water supply included improving water intakes through construction of 3 spring boxes with the capacity of 1,500 liters, each with 3 partitions to allow sedimentation of solids. The 3 intakes were then protected by barbed wire to prevent human contact.





# WATER SUPPLY

## *River Crossing*

At the river crossing, PVC pipe was replaced with 2" galvanized iron pipe supported by concrete columns to protect the transmission line from flooding.





# WATER SUPPLY

*Pipe & Valve Rehabilitation & Repair*

Existing gravity pipe was rehabilitated by replacing problematic sections with new pipe.

In addition, 2 air valves and 2 washouts were repaired.

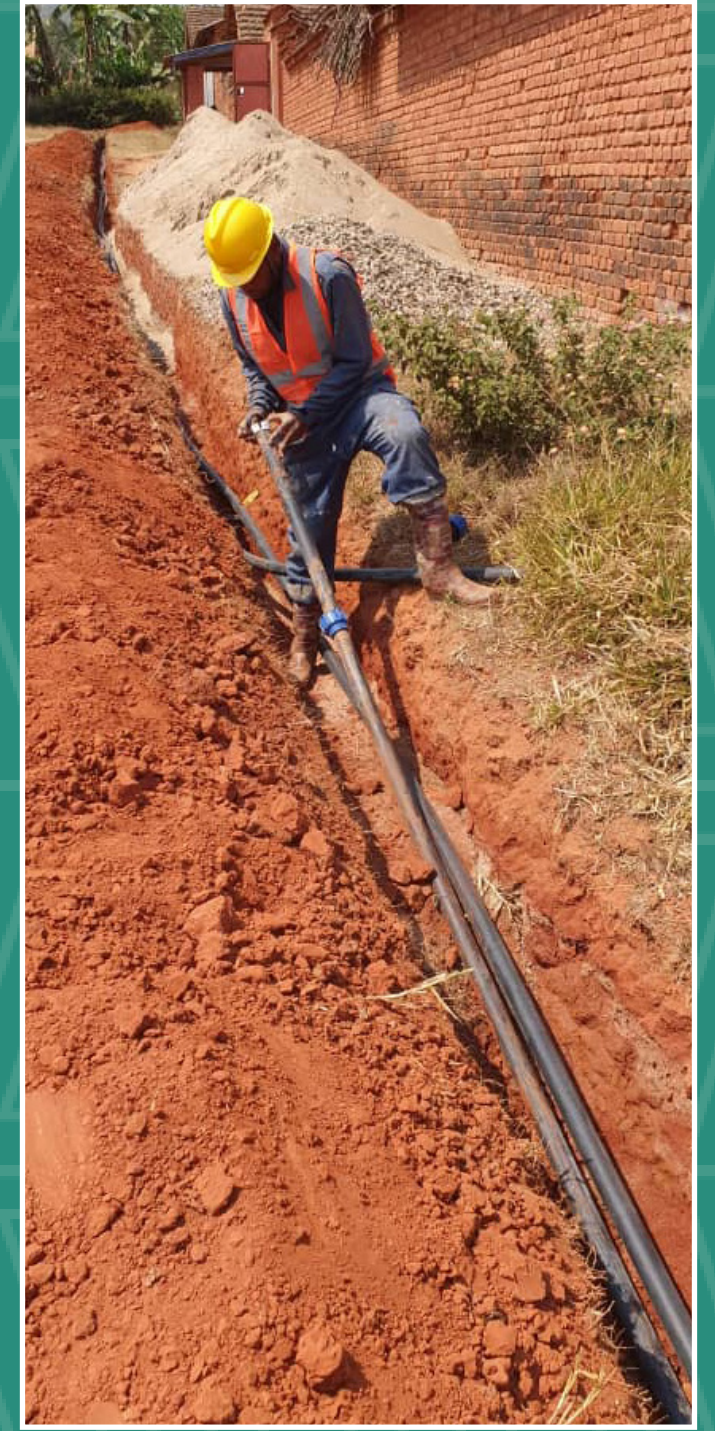






*Distribution Line Rehabilitation*  
**WATER SUPPLY**

Over 1,950 meters of water supply transmission lines were rehabilitated and replaced with new poly pipes to distribute water to the Hospital, Health Training Institute, Sisters' Convent, Umawanjo Boys' Secondary School, and the staff quarters.







*Distribution Line Rehabilitation*  
**WATER SUPPLY**





Two new concrete tank towers were constructed to provide additional water storage and adequate water pressure for St. John's Hospital and the Sisters' Convent.

*New Water Tank Towers*  
**WATER SUPPLY**







*New Water Tank Towers*  
**WATER SUPPLY**





# WATER SUPPLY

*Water Storage Tank Rehabilitation*

Six existing tank towers were rehabilitated and new tanks were installed.





# WASTEWATER SYSTEM

*Collection & Settling Chambers*

The wastewater system improvements portion of the project included construction of a shallow sewer network with 19 manholes, 36 collection chambers, 16 settling chambers, an Anaerobic Baffled Reactor (ABR), Aerated Composite Filter (ACF), Polishing Tank (PT), and disposal system for the treated effluent below ground into a leach field.







In the pre-project assessment, SAWA reported that the current septic tanks were undersized and thus needed to be pumped out often. The new wastewater treatment plant was designed to address the need of frequent pumping of the septic tanks by adding the wastewater treatment processes and the leach field.



**WASTEWATER SYSTEM**  
*Polishing Tank*







# WASTEWATER SYSTEM

*Anaerobic Baffled Reactor*







The separation of wastewater from human contact is critical to community public health. The new system of underground wastewater treatment and disposal functions well because there is adequate separation between the water supply area and the disposal fields.

Prior to sanitation improvements, wastewater had flowed into open pits, exposing people and animals to pathogens, frequently resulting in outbreaks of preventable diseases.

Wastewater from these facilities is now safely treated in stages and then securely recharged into the ground using French drainage techniques.



## Leach Field WASTEWATER SYSTEM



# SUSTAINABILITY



At the completion of the project, an inauguration ceremony took place with the managing community team and plans for project sustainability were developed. Committees are tasked with proper operations and maintenance of the system, and to handle training for repairs and proper use of water.

Annual monitoring visits will take place through WEFTA's Circuit Rider program. WEFTA volunteer engineers, along with SAWA engineers and local technicians, will work with the Church and Hospital staff, and monitor the performance of the system to ensure that proper maintenance is achieved for long-term sustainability. These visits will include water quality analysis of discharged effluent to ensure that national standards are being met.





# SPECIAL THANKS!



Wheaton Franciscan Sisters  
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A very special thank you  
for all the amazing support  
from our partners, major  
contributors, and individual  
donors like you!

This project could not have  
been completed without you!

*Thank you for  
changing lives  
with us!*





*Water Engineers for the Americas and Africa (WEFTA) is a nonprofit organization connecting engineers and sponsors with communities in developing countries to engage with people and partners to improve water, sanitation, and hygiene resources for the benefit of communities and the environment.*

Access to a safe and reliable water source changes lives, empowers communities, and helps create bright and healthy futures.

This successfully completed project now provides a safe and reliable water supply daily to roughly 2,200 people directly at the hospital, the church, and the schools. Indirectly, these institutions serve the entire village and the people in the surrounding communities, **positively impacting over 25,000 lives.**



*Making connections. Empowering communities. Changing lives.*





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