



ANNUAL REPORT 2025

Tanzania: Safe Water

The Safe Water Project aims to improve access to safe drinking water for communities in and around Kiruani, Londoto, Msitu wa Tembo, Mikocheni, and Mawala in Tanzania. By providing cleaner and safer water, the project seeks to strengthen community health and reduce the prevalence of waterborne diseases. The BAR filtration system removes harmful contaminants, including parasites, fluoride, bacteria, and viruses, which significantly lowers the incidence of illnesses such as diarrhoea and cholera. To support this objective, the project has introduced an innovative water purification technology developed by Element15 called the BAR system. The BAR is a portable unit that has been specifically adapted to address local drinking water challenges. It consists of a four-stage filtration system. The first stage uses a spin down sediment filter to remove sand and larger particles. The second stage employs a polypropylene sediment filter to capture finer particles and parasites. The third stage incorporates a bone charcoal filter that substantially reduces fluoride levels. The fourth and final stage uses an ultrafiltration membrane that removes bacteria and viruses, ensuring safe and reliable drinking water for the community.

Impact & Achievements



The systems have been installed and distributed across 5 villages



48 out of 50 BAR filter systems have been installed, of which

- 25 to institutions (8 schools, 2 health clinics, 13 water points). In the first quarter of 2026 two additional water pumps will be installed at water points in Mawala and Mikocheni, bringing the total to 50 pumps.
- 10 BAR and solar pumps have gone to Village Community Banking (VICOBA) groups
- 15 BAR and hip pumps to farmer families



Benefitting a total number of 5500 people



1 maintenance worker has been trained and hired and now serves as the main focal point to go around villages to install, repair and maintain the BAR systems.



Production of approximately 30.000L safe drinking water per hour

Challenges

Need for refresher training

Some users of the BAR system and related equipment, particularly VICOBA members and farmers, had forgotten key operational procedures. This included cleaning and replacing filter units as well as operating the solar pump correctly. To address this issue, one day refresher training sessions were organized for VICOBA members, farm operators, and caretakers of the installed BAR systems. These sessions aimed to reinforce proper use and ensure optimal performance of the equipment. In addition, management decided to appoint a dedicated maintenance person who will regularly visit all users to provide ongoing technical support and ensure proper operation and upkeep.

Limited infrastructure

Installation of the remaining two BAR systems has been delayed due to insufficient infrastructure at the designated water stations in areas such as Mawala and Mikocheni villages. The project team remains in close communication with the respective village governments. Once construction of the required wall structures in the proposed locations is completed, FTK will proceed with installation. Construction activities have already begun in some areas, including Msitu wa Tembo and Mikocheni villages.

High fluoride levels

The current fluoride filtration capacity of the BAR units is insufficient in areas with extremely high concentrations. In several areas, including Kiruani, Londoto, and Msitu wa Tembo villages, fluoride concentrations in the water remain significantly above the recommended range of 0.5 to 1.5 ppm. Sample analyses have shown fluoride levels as high as 6.8 ppm, which the BAR system has been able to reduce to 3.4 ppm. While this represents a substantial improvement, it does not yet meet the required standard. FTK continues to work on identifying a sustainable and effective solution to further reduce fluoride levels in integration with the existing BAR systems. In collaboration with Element15, several alternative approaches have been explored, but none have yet achieved the desired results. Ongoing efforts include testing additional filtration methods. One proposed alternative solution involves placing bone char in specially designed bags inside water tanks, allowing extended contact time between the carbon and the water to enhance fluoride reduction.

Best practices

Continuous innovation

The BAR systems remain under continuous development, with regular improvements to enhance performance and sustainability. A backflush system with an automatic timer has been introduced to improve filter maintenance and extend system lifespan. Furthermore, an online management system has been developed to support maintenance scheduling and stock control, making system oversight more efficient and structured.



Refresher training



**Newly appointed
maintenance worker Edward**



Filter after use

Sourcing materials locally

One key lesson learned is the importance of procuring materials locally whenever possible. Importing components, for example from China, proved to be time consuming and administratively demanding due to shipping delays and customs procedures. To improve efficiency and reduce dependency on imports, FTK successfully sourced solar pumps from local suppliers. In addition, a locally developed solution using bone char for fluoride filtration was integrated into the system design. This approach strengthened local ownership, reduced logistical challenges, and supported the local economy.

Conclusion and Next Steps

The Safe Water Project has had a meaningful and positive impact on the communities it serves. The installed BAR systems are operating effectively, providing community members with reliable access to clean and safe drinking water. Feedback from villagers has been overwhelmingly positive, with many expressing appreciations for the noticeable improvement in water quality.

Beyond meeting a fundamental human need, the project has also strengthened local capacity. Groups such as VICOBA members and farmers are using the systems to support and expand their income generating activities while maintaining improved hygiene standards. In addition, the project has created local employment through the appointment of a dedicated maintenance person.

Building on this success, FTK now wishes to scale up the initiative by installing 30 additional BAR systems across three new villages, further extending access to safe water and strengthening community resilience.



Children fetching filtered water



A proud community