

# WARIDI

## Tanzania Water Resources Integration Development Initiative

WARIDI Final Newsletter

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## WARIDI Participatory Approach Leads to Sustainability

Building sustainable water projects in communities requires a commitment to regular communication and consultation. In order to get community buy-in and ensure sustainability of water schemes, WARIDI used a demand-drive approach by involving and working closely with communities, village, and government leaders during all stages of water scheme implementation; from the beginning (scoping), through construction and community trench-digging, to the inspection and commissioning of each project. Selection of each scheme involved communities participating in identifying the need and resulted in the signing of a Memorandum of Understanding, where they agreed to meter the water points, set sustainable tariffs, and provide in-kind and cash contributions.

Participating communities willingly contributed to the success of the projects through cash and in-kind contributions valued at 1.2 million USD for more than 50 water schemes. Communities provided labor for excavating trenches, laying pipes and back filling. Trench digging by community members covered over 547 kilometers (about 340 miles).

During WARIDI learning reviews, community members said that these in-kind contributions and other involvement throughout the different project phases made them commit to the work, value the investment, and encourage community responsibility for materials at construction sites.

How did WARIDI accomplish this level of community engagement? WARIDI had a fully staffed engineering and Community Engagement Team that worked through a participatory strategy with each community. An Engagement Agent was co-located within the community for the duration of the project to coordinate community work, respond to questions from the community, and facilitate communication between the community and the WARIDI construction management team.

The District, Village Government, COWSOs (now known as Community Based Water Supply Organizations (CBWSOs), and Contractors were jointly involved in project implementation and were party to the MOUs. Weekly site meetings involved local leaders, the contractor, and the CBWSO to review the work plan and discuss construction planning. Monthly meetings were held with the general community that went over general progress, in-kind contributions, and work schedules for community support.



*Ulanga District Commissioner, Ngollo Malenya (Right) being briefed on WARIDI supported activities at Isyaga Water Scheme. She helped mobilize Isyaga and Mwaya Chikwela communities to complete project works.*

WARIDI also supported sustainability through local capacity development, training CBWSOs on operations and maintenance tools. COWSOs were supported in their formation and registration, training on water use permits, financial management, tariff setting, operations and maintenance, governance, climate change adaptation and gender integration and youth inclusion.

WARIDI's sustainability focused participatory approach has been recognized and applauded for ensuring high quality and operationally efficient water supply projects, receiving over 20 appreciation letters from RUWASA offices and other government offices in Morogoro and Iringa regions. During the implementation journey, WARIDI Senior Management that includes field and home office staff was also fully engaged with GoT officials, providing opportunities for sharing information on WARIDI works and progress.

### Notable quotes by the Minister for Water, Hon. Juma Aweso on WARIDI works

*"...On behalf of the ministry, I really appreciate the quality and timely completion of the projects implemented by WARIDI..." "...From what I have seen in Kilolo and here in Magubike, there are good examples of good workmanship that we can learn from WARIDI supported water supply schemes and use them in our other government projects..."*

## Over 500,000 People Get Access to Sustainable, Safe Water

As of May 2021, WARIDI rehabilitated, expanded, and constructed 50 water supply schemes serving over 500,000 people in 20 local government authorities (LGAs) in Morogoro and Iringa regions of Tanzania. Also, WARIDI supported through In-kind grant to RUWASA Njombe and Wanging'ombe districts to rehabilitate 5 additional schemes. The Activity ensured quality construction that could be operated and maintained by beneficiaries. Quality control of materials and construction was integrated directly into the procurement and construction management processes through frequent on-site inspections and materials testing involving third parties to ensure the procured construction materials meet Tanzanian and international standards.



*Kalenga resident fetching water within her house compound for the first time which means she no longer must walk to access water.*

The constructed water schemes provide access to basic drinking water in both rural and peri-urban settings, relieving the burden on over 255,000 women and girls who are often responsible for collection of water from unsafe sources far from home. Works implemented included water intakes, drilled boreholes, submersible electric pumps, pipelines, valve chambers, water points, storage tanks, solar panels, chlorination water treatment units, pump houses, and security measures such as fencing. Click this [link](#) to access more on the story as published by IPPMedia in Tanzania.

## WARIDI Engineering Intern Program Successes

WARIDI's engineering internship program provided opportunities for university graduate engineers to develop their technical skills. Under the program, recognized by the Tanzania's Engineers Registration Board (ERB), the junior engineers were paired with a lead WARIDI engineer and participated in the identification, scoping, design and implementation of water projects, a requirement to become a professional engineer. Over the life of the activity, WARIDI hosted 51 intern engineers (41 males, 10 females) at various construction sites. Five (two female) interns completed their Structural Engineers Apprentice Program (SEAP) training and received Engineer's Registration Board (ERB) registration as professional engineers. These young engineers (all below 35 years old) gained vital experience in construction monitoring and management by working with WARIDI and other organizations including RUWASA, WSSAs, and construction companies. Many interns went on to work for entities such as DAWASA, TANESCO, NGOs, and consulting companies. A recent survey shows that 73% of interns have secured employment after their internship with WARIDI. Visit the [WARIDI July 2019 Newsletter](#) to get more of the story about the Internship program.



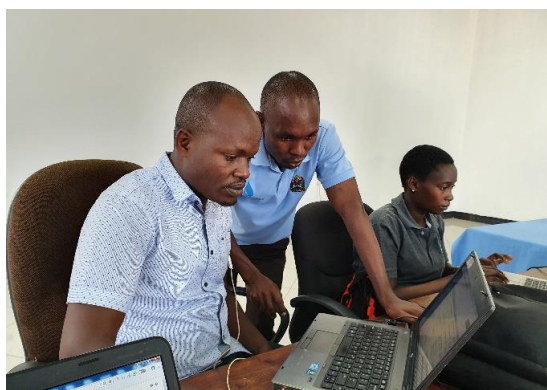
*Engineer Zeidia John in the field during her internship program. She was hired by WARIDI and certified by ERB as a Professional Engineer (PE).*

# Hydrometeorological Information Systems for National Expansion

Pressure on water resources in Tanzania is increasing to unprecedented levels due to population growth, agriculture production, and demand for natural resources, while climate change is altering the rainfall regime and availability of water resources. Managing Tanzania's vital water resources requires accurate information on the quality and quantity of river flow. WARIDI has introduced the Aquarius Time Series software, a software platform capable of mathematically calculating river flow information such as rating curves for water data management at all nine Basin Offices in Tanzania. The software provides essential tools to the Ministry of Water (MoW) and basin offices and their sub-offices for effective water data management, quality assurance, and decision making. It serves as the basis for developing a diverse set of information products that supports water resources assessment, allocation, and management.

Good water data provides the basis for inclusive management of Tanzania's water resources through an Integrated Water Resources Management (IWRM) approach and relying on the permitting tools of the respective Basin Water Boards. The Aquarius software is an essential tool in increasing the understanding of hydrological resources in Tanzania and operationalizing effective water resources management in the country.

From 6 to 30 April 2021, a comprehensive hands-on remote training for MoW staff and representative from each basin was organized on the use of the Aquarius software. The training included 28 participants from all nine basin offices in the country and the MoW. The training covered all aspects of the software including deployment, system administration, timeseries management, quality assurance and quality check (QA/QC), and rating curve development with the sophisticated Rating Development Toolbox. Field



*Ministry of Water staff in Mbeya and representative from each basin participating in a remote training delivered by WARIDI.*

visits were made to stations to illustrate the robust methodology on which the Aquarius rating tools are based. Similar trainings were previously conducted for Wami-Ruvu and Rufiji Water Basin staff where the Aquarius system was first tested. Aquarius has now been installed on a server at the National Internet Data Center (NDIC) in Dar es Salaam and provides a unified water database that can be accessed by Tanzania's nine basins (Wami-Ruvu, Rufiji basins, Pangani, Ruvuma and Southern Coast, Lake Nyasa, the internal drainage basin, Lake Rukwa, Lake Tanganyika and Lake Victoria) and sub-basin offices through a Virtual Private Network (VPN). Migrating and quality control of historic data to this server is in progress.

## Private Enterprises Are Vital for Water & Sanitation Services

During activity implementation, WARIDI worked with entrepreneurs in targeted communities to create livelihoods in water and sanitation products and services. Businesses and social enterprises were facilitated to provide essential, low-cost water, sanitation, and hygiene (WASH) products in rural and peri-urban areas of Tanzania. Consumers not only needed access to appropriate household latrines, but they also needed trained professionals to install them in their communities. It seems simple enough, however, sanitation product companies face numerous barriers that prevent them from expanding into these markets — one of them is the high cost of creating and managing distribution networks. To address this issue, WARIDI began working with LIXIL, the maker of SATO (Safe Toilet) products, to hold marketing and supply chain development events connecting them with potential distribution partners down the supply chain. Tanzania's National Sanitation Campaign has been instrumental in driving demand for improved latrines across the country. WARIDI interventions



*An entrepreneur selling SATO products in Morogoro.*

contributed to 1,290,089 people gaining access to a basic sanitation service. This partnership was intended to reduce transaction costs and encourage LIXIL's expansion into underserved areas. Click this [Link](#) to access more on the story published on the

## Water, Sanitation and Hygiene for All

Access to WASH facilities is already a challenge in Tanzania where an average of only 57% of households have access to drinking water, and only 25% have safely managed sanitation services. While investments in school WASH have achieved good results (69% of schools have drinking water and 66% have basic sanitation facilities), only around 6% of Tanzania's schools are accessible to students with limited mobility. Design and structural issues prevent students from accessing classrooms, toilets, and teachers' offices and contribute to the 62% of disabled children who do not attend school. Inadequate WASH infrastructure can also be extremely prohibitive for girls in primary school. Over half of girls' school latrines in Tanzania do not have doors, which makes girls feel unsafe and up to 20% more likely to not go to school. In addition, 10% of girls in Tanzania drop out of school during menstruation because most latrines have nowhere to dispose of sanitary pads and are without changing rooms. Access to school WASH facilities is a national priority in Tanzania and a cornerstone of the National Sanitation Campaign. But if school WASH facilities aren't designed equitably, they won't have the desired impacts on health and education. WARIDI began designing improvements to water, sanitation and hygiene (WASH) facilities at 25 primary and secondary schools in Morogoro and Iringa regions benefiting over 14,000 students. Click this [link](#) to access more on the story as published on the USAID website.



*Pupils using WARIDI constructed latrines at Peapea Primary School in Kilosa District Council.*

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## Land Use Planning Helps Protect Water Resources

Growing stresses brought on by floods, droughts, and population growth reduces the resilience of communities and households. In addressing this challenge, USAID/WARIDI with support from the USAID Land Tenure Assistance (LTA) activity supported Local Government Authorities in prioritized villages in Morogoro Region to develop Village Land Use Plans (VLUP) to strengthen community and household resilience and protect water resources.



*Women with their Certificates of Customary Rights of Occupancy issued to them at Ngujami Village, Gairo DC.*

Working in collaboration with the District Land Offices and communities in targeted councils, WARIDI supported the process of preparing VLUPs in Magana, Msufini and Ngujami villages in Kilolo, Mvomero and Gairo District Councils. The three villages cover almost 21,000 hectares which was successfully demarcated to show various land uses such as crop farming, livestock routes, pastoral grazing lands, forest reserves, residential areas, and other uses to improve land use management and protect water resources. Effective land use planning enables communities to protect important water sources that are tapped for community water supplies and improve water quality and availability downstream. Having VLUPs and CCROs in place is a critical step to empowering village governments and landholders to address threats to sustainable land management, forests, and water resources as well as reduce land conflict.

Land use planning support by WARIDI will be sustained and expanded as testified by government officials from respective councils. Bernard Kajembe, District Town Planner for Kilolo says the district is planning to increase the number of villages with land use plans from the current 46 to all 94 villages in Kilolo District. Alistidy Manjonda, District Land surveyor for Mvomero, says the District has identified two more villages this year where they will develop VLUPs. Dr. Charles Cosmas Mkawala of the National Land Use Planning Commission (NLUPC) is welcoming more collaboration and partnership to ensure that more villages in Tanzania complete their VLUPs so that communities and the surrounding environment can benefit. Click this [link](#) to access more on the story as published on USAID website.

# Innovative Solution for Better Water Services

Over 5-years' implementation of Activity, WARIDI supported innovative pilot projects, including smart metering, through a partnership with eWater Pay at 2 sites (Msowero and Mandela) in Morogoro. WARIDI also partnered with Medentech to install low-cost water disinfection and filtration systems. At all other constructed water supply schemes, WARIDI installed drip chlorination systems for water disinfection. Click this [Link](#) to access more on the story as published on various websites including USAID website.



*Villagers using smart meter at Msowero village, Kilosa District.*

## About WARIDI

The Water Resources Integration Development Initiative (WARIDI) is a U.S. Agency for International Development (USAID) funded five-year activity which aims to improve health, water resources management, agriculture practices and climate change adaptation in the Wami/Ruvu and Rufiji river basins of Tanzania. Photos from WARIDI are available for [download](#). Please provide credit to USAID/WARIDI.

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