

Eng. Tamir Mitiku Habeteyes

Hydraulic & Hydropower Engineer | Irrigation Engineer | Water-Supply, Sanitation & Wastewater Specialist



Eng. Tamir Mitiku Habeteyes is a hydraulic and hydropower engineer, irrigation engineer, and water-supply, sanitation and wastewater professional whose career has progressively expanded across almost the complete spectrum of water infrastructure.

Over more than twenty-five years of professional practice, his work has encompassed irrigation planning and design, groundwater development, pumping and conveyance systems, hydraulic structures, large-scale irrigated agriculture, urban water supply, sanitation, wastewater and fecal-sludge treatment, construction supervision, project coordination, procurement, contract administration, commissioning, operation and institutional development.

He holds a **Master of Science degree in Hydraulic and Hydropower Engineering** and a **Bachelor of Science degree in Irrigation Engineering**. He is registered in Ethiopia as a Practicing Professional Hydraulic and Hydropower Engineer. His professional development has also included specialised training in World Bank contract management, ArcGIS and hydraulic modelling, wastewater and fecal-sludge management, sewerage-system design, project management, procurement, environmental and social impact assessment, water-resources planning and management, AutoCAD, KAIZEN and risk management.

The HARE Irrigation Project

Tamir's connection with the **HARE Irrigation Project** began in 1995 at the Arba Minch Water Technology Institute, where he studied Irrigation Engineering.

Together with **Mesfin Hagos Tewolde, Mitiku Bedru Gochefo and Seid Shimelis**, he participated in preparing the HARE Irrigation Project Design Report as part of their final engineering studies.

The project required the four young engineers to bring several branches of water-resources and irrigation engineering together within one integrated design. Irrigation-water quality, crop-water requirements, hydrological analysis, canal hydraulics, river diversion, hydraulic structures and irrigation-system planning all had to be considered within a single development scheme.

For Tamir, HARE was an early opportunity to see water engineering as a connected system rather than as a collection of separate calculations and structures. That systems perspective would become increasingly important as his career later expanded far beyond irrigation alone.

Early Irrigation and Water-Supply Engineering

Eng. Tamir began his professional career in 1996 as an **Irrigation Engineer with the South Region Water Resources Development Bureau in Hadiya Zone**.

His responsibilities included reconnaissance studies for irrigation projects, planning and design of small-scale irrigation schemes, project management and technical support to organisations and NGOs involved in irrigation development.

These assignments gave him direct experience in relating available water resources, land conditions, hydraulic infrastructure and agricultural production.

From 1999 to 2005, his responsibilities broadened substantially when he served as **Water Supply and Sanitation Study and Design Team Leader** within the Hadiya Zone water-resources system.

This role extended his work from agricultural water development into municipal and community water infrastructure. His responsibilities included feasibility studies, design of pressure mains and distribution networks, selection and design of submersible pumps, determination of power requirements, hydraulic structures, cost estimates, technical specifications, tender documents, tender evaluation, contract-award processes, project scheduling and verification of as-built records.

This period marked an important broadening of his engineering experience.

Water was no longer being considered only in terms of irrigation canals and agricultural production. Pumping systems, reservoirs, transmission pipelines, distribution networks and reliable community water services became equally important elements of his professional work.

He subsequently served as a **Sanitary Engineer** and later as **Head of Construction Supervision and Registration** within the South Region construction system. His responsibilities included technical advice, construction inspection, quality control, progress monitoring, supervision of water-supply and sanitation infrastructure, and certification of completed works and payments.

Consultancy and Water-Supply Development

Between 2006 and 2008, Eng. Tamir worked with **Legedara Water Supply and Sanitation Consultancy PLC** as a Civil Engineer.

He participated in baseline assessments, identification of dependable water sources, feasibility studies, detailed engineering design and preparation of business plans for water-supply and sanitation systems serving **Areka, Worabe, Tercha, Masha and Bonga**.

These assignments were undertaken for the regional water-resources authority with World Bank financing.

The work strengthened his ability to connect engineering design with service delivery, investment planning and the institutional requirements necessary for water-supply systems to remain functional after construction.

Large-Scale Agricultural Water Development

A major period in Tamir's irrigation and hydraulic-engineering career followed at the **Wonji Shoa Sugar Factory Agriculture Expansion Project**.

From 2008 onward, he served first as **Senior Hydraulic Engineer** and subsequently as **Head of the Civil Engineering Department** on an agricultural development program involving approximately **7,000 hectares of sugarcane plantation** and its associated irrigation, drainage and hydraulic infrastructure.

His responsibilities included preparation of terms of reference for feasibility and detailed engineering studies, evaluation of technical and financial proposals, review of consultant designs, contractor evaluation, construction monitoring, supervision of hydraulic structures, quality control and preparation of progress reports.

The Wonji assignment also gave him extensive exposure to the operational requirements of agricultural water infrastructure.

Primary, secondary, tertiary and field canals, aqueducts, siphons, culverts, pumping facilities and drainage systems had to be considered not only from the standpoint of design and construction but also in terms of their long-term operation and maintenance.

International Hydraulic and Irrigation Experience

Tamir's professional experience later expanded beyond Ethiopia.

From 2013 to 2015, he worked in Kenya as a **Hydraulic Engineer on the Kwale International Sugar Project**, involving approximately **5,000 hectares of sugarcane development under subsurface drip irrigation**.

This assignment brought together several different water sources and engineering systems.

His responsibilities included surface-water development; supervision of dams and day-storage reservoirs; groundwater development through boreholes; planning and supervision of borehole drilling; design of delivery pipelines and fittings; selection of submersible pumps and determination of power requirements; supervision of bulk-water conveyance systems; pump stations and pump houses; irrigation and drainage layouts; main and sub-main pipelines; and installation of subsurface drip irrigation systems.

He was also involved in associated agricultural infrastructure including farm roads, access roads, haulage roads, box culverts and ford crossings.

The Kwale project illustrates particularly well the integrated nature of Tamir's hydraulic-engineering experience. Reservoirs, groundwater, pumps, pipelines, pressurised irrigation, drainage and civil infrastructure had to operate as components of one coordinated agricultural water-development system.

Engineering from the Contractor's Perspective

Between 2015 and 2018, Tamir added another dimension to his professional experience by establishing and managing **Tamir Mitiku Water Works and General Contractor**.

As General Manager, he was responsible for bid preparation, competitive tendering, contract negotiations, project planning, logistics, coordination of construction activities, quantity take-offs and preparation of payment certificates.

This experience allowed him to approach infrastructure from the perspective of the contractor as well as that of the engineer, consultant and client representative.

It gave him direct familiarity with the practical realities of construction delivery, resource mobilisation, commercial responsibilities and contract implementation.

Urban Water Supply and Sanitation

From November 2018 to October 2023, Eng. Tamir served as **Project Coordinator for the Second Urban Water Supply and Sanitation Project in Debre Berhan**, working with the city utility and Ethiopia's Ministry of Water and Energy.

The project addressed sanitation-service improvement, water-supply and operational-efficiency improvement, extension of services to low-income and previously unserved communities, project management and institutional development.

As Project Coordinator, Tamir participated in the preparation and monitoring of annual physical and financial work plans, procurement of goods and services, construction of public and communal sanitation facilities, contractor selection, contract management, construction supervision, stakeholder coordination, consultancy review and payment certification.

An important component of this work was his participation in reviewing the **Citywide Inclusive Sanitation Plan and wastewater-management system** prepared by international and Ethiopian consultants.

He also participated in reviewing the city's **Non-Revenue Water Reduction and Business Plan studies** and regularly presented project progress and achievements to stakeholders.

By this stage of his career, his responsibilities had expanded substantially from the design of individual hydraulic works. Urban water infrastructure required

the coordination of engineering, finance, procurement, institutional development, communities, consultants and contractors within one service-delivery program.

Wastewater and Fecal-Sludge Engineering

From February 2024 to January 2025, Tamir's professional work moved increasingly into the field of **wastewater and fecal-sludge management**.

Working with Metaferia Consulting Engineers PLC, he served as a **Wastewater Specialist/Sanitary Engineer on the Adigrat Town sanitation project**.

His responsibilities included assessment of household sanitation systems, water consumption and containment facilities; characterisation of wastewater and fecal sludge; establishment of effluent requirements; population and demand projections; and estimation of short-, medium- and long-term wastewater and fecal-sludge generation.

The assignment also involved comparison of containment, conveyance and treatment alternatives; multicriteria evaluation of treatment technologies; identification and assessment of potential treatment sites; and design of fecal-sludge treatment systems, decentralised wastewater systems, conventional sewer networks and wastewater-treatment facilities.

The proposed systems incorporated components including fecal-sludge drying beds, anaerobic and aerobic treatment processes, constructed wetlands, sanitation facilities, sewer networks and wastewater-treatment infrastructure.

This work represented an important extension of Tamir's earlier engineering experience.

Much of his career had concerned the development, storage, pumping, conveyance and distribution of water. Wastewater engineering carried his professional responsibilities to the other side of the water cycle—collecting water after use, treating it appropriately and managing its safe disposal or further handling.

Arba Minch Fecal-Sludge Treatment Plant

From February 2025 onward, Eng. Tamir's work has included the **Arba Minch Town Fecal Sludge Treatment Plant**, where he has served as a **Sanitary Engineer**.

His responsibilities include review of detailed designs for technical feasibility and constructability; verification of topographic surveys, bills of quantities and specifications; review of piping and instrumentation information, pipe networks, SCADA and electromechanical components; and technical supervision of civil, process, mechanical, pumping and sanitation works.

He is also involved in reviewing construction drawings and equipment designs before installation, quality assurance and quality control, verification of completed work, plant commissioning, process-performance testing and effluent-quality assessment.

His responsibilities extend further to review of operation and maintenance documentation, monitoring of treatment-plant performance during the defects-liability period, identification of operational deficiencies, recommendation of corrective measures and assessment of physical, chemical and microbiological monitoring results.

He also contributes to the development of performance indicators and to training and capacity building for utility operators and technicians.

Engineering Across the Water Cycle

Viewed across these assignments, Tamir's professional experience is distinguished by an unusually broad engagement with the **engineered water cycle**.

He has worked with water at its source through surface-water and groundwater development.

He has worked with its storage through dams, reservoirs and day-storage facilities.

He has worked with its movement through canals, pressure mains, pipelines, pump stations and distribution systems.

He has worked with its productive use through surface irrigation, pressurised irrigation and subsurface drip irrigation.

He has worked with municipal delivery through urban water-supply systems.

And increasingly, he has worked with water after use through sanitation, sewerage, fecal-sludge management and wastewater treatment.

At the same time, his responsibilities have extended across almost the complete life cycle of infrastructure development: reconnaissance, feasibility assessment, planning, detailed design, procurement, tendering, contract administration, construction supervision, quality assurance, commissioning, operation, maintenance and performance monitoring.

That combination gives his career a breadth extending beyond any single branch of hydraulic engineering.

From HARE to the Complete Water System

Seen from this perspective, the importance of the **HARE Irrigation Project** in Tamir's professional history is particularly clear.

The project introduced him, as a young engineering student, to the idea that successful irrigation development depended on understanding water as a complete system—from hydrology and available supply to diversion, conveyance, hydraulic control and productive use.

His later career continually expanded that original perspective.

Irrigation engineering led to water supply.

Water supply introduced pumping, pipelines and distribution systems.

Large-scale agriculture brought reservoirs, groundwater, pressurised conveyance and complex irrigation networks.

Construction and contracting added implementation and commercial project delivery.

Urban programs introduced service provision, procurement, institutions and sanitation.

And wastewater engineering eventually extended his work beyond water supply itself to the collection, treatment, monitoring and safe management of water after use.

The professional distance between HARE and his present work is therefore measured not simply by years or by increasing responsibility. It can also be understood through the widening part of the water cycle with which he has worked.

What began with the question of how water could be diverted and delivered efficiently to agricultural land ultimately developed into a career concerned with how water can be **identified, stored, pumped, conveyed, distributed, used, collected, treated and managed responsibly throughout its engineered cycle.**

That breadth is the distinctive feature of Eng. Tamir Mitiku Habeteyes' contribution to the story of HARE.

The original 1995 project records one of his earliest applications of irrigation and hydraulic engineering. The career that followed demonstrates how those foundations grew into a remarkably comprehensive engagement with agricultural water systems, municipal water services, sanitation and modern wastewater infrastructure.