

Eng. Seid Shimelis

Irrigation and Water Resources Engineer | Dam and Irrigation Design Specialist | Project Manager | Senior Technical Leader



Eng. Seid Shimelis is an irrigation and water-resources engineer whose professional career has been built around the planning, design and management of irrigation, drainage, dam and water-infrastructure projects. Over nearly three decades of professional practice, his responsibilities have progressed from field investigation and detailed hydraulic design to multidisciplinary project management and senior technical leadership.

His engineering formation began at the Arba Minch Water Technology Institute, where he studied Irrigation Engineering. In 1995, together with **Mesfin Tewolde, Mitiku Bedru and Tamir Mitiku**, he participated in the preparation of the **HARE Irrigation Project Design Report**.

For the four young engineering students, HARE required the application of irrigation-engineering principles to an integrated development problem. Water resources had to be assessed, irrigation requirements determined, canals proportioned and hydraulic structures incorporated into a workable irrigation system.

For Seid, these were not subjects that disappeared after graduation. They became the technical core of much of his later professional work.

He subsequently strengthened his academic background with a **Master of Science degree in Water Resource and Irrigation Engineering from Arba Minch University**. His professional development also included specialised training in project analysis, FIDIC Conditions of Contract, finance for non-

finance managers, leadership and technical and management software including AutoCAD, Microsoft Project, Microsoft Office and Visual Basic.

Building a Foundation in Irrigation Design

Seid's early professional years were strongly rooted in practical irrigation development.

Working with the **Commission for Sustainable Agriculture and Environmental Rehabilitation in Amhara Region (CO-SAERAR)**, he participated in the identification of water resources, reconnaissance studies, field-data collection and detailed engineering design of small-scale irrigation schemes.

His assignments included the Zana and Gomit micro-earth dam irrigation schemes; Uwa and Telalak diversion irrigation projects; Gota and Gumara diversion schemes; the Megech Diversion Irrigation Project; and the Zarima Intake Irrigation Project.

These projects gave him experience across the complete engineering sequence required to transform a potential irrigation site into a technically defined project. His responsibilities involved water-resource and site identification, reconnaissance surveys, field investigation, hydraulic and structural analysis, preparation of engineering drawings, bills of quantities and cost estimates.

As his responsibilities increased, he also began coordinating multidisciplinary groups of engineers and other specialists.

This period established an important characteristic of Seid's later career: although his expertise was rooted in hydraulic and irrigation design, he increasingly worked across the wider technical process required to deliver complete irrigation projects.

He later continued this work with the ***Amhara Region Water Resource Development Bureau***, undertaking irrigation studies and designs from reconnaissance through detailed engineering. He served both as an engineer

and as a multidisciplinary team leader, including responsibilities on the **Zingbn and Kalo diversion irrigation projects**, where he worked as headworks engineer.

Headworks and Hydraulic Design

The **Megech Diversion Irrigation Project** is particularly representative of Seid's technical foundation.

As Design Engineer and Team Leader, he participated in reconnaissance and field-data collection and undertook hydraulic and structural design of the diversion headworks. The works included a diversion weir on the Megech River, a scouring sluice and an irrigation head regulator.

His responsibilities extended beyond the hydraulic calculations themselves to preparation of the detailed design report, engineering drawings and cost estimates.

This type of work required the integration of hydrology, river behaviour, hydraulic loading, structural considerations and operational requirements. It also demanded close attention to how individual headworks components would function together as part of the complete irrigation system.

The experience developed during these assignments later became important as Seid moved from designing individual structures and smaller schemes to managing much larger and more complex irrigation developments.

From Design Engineer to Major Irrigation Project Manager

A significant expansion in the scale of his responsibilities came during his work with the ***Water Works Design & Supervision Enterprise (WWDSE)***.

There, Seid served as Project Manager for the **Ziway and Raya Pressurized Irrigation Projects**.

The Ziway scheme covered approximately **3,000 hectares** and combined pressurised water conveyance with gravity-furrow irrigation application. The

Raya project extended over approximately **18,000 hectares** and incorporated pressurised irrigation supplied from groundwater wells together with surface-irrigation development associated with the Waja springs.

Managing projects of this scale required considerably more than individual engineering design.

Seid's responsibilities included project planning, coordination of multidisciplinary specialists, technical decision-making and supervision of the preparation of inception, feasibility, detailed-design and tender documents.

His work therefore moved progressively from solving particular hydraulic problems to coordinating complete irrigation-development studies involving water resources, soils, agriculture, irrigation engineering, hydraulic infrastructure, cost estimation and implementation planning.

He also participated in feasibility study and design work for the **Kebabo and Angereb Pressurized Irrigation Projects**. These assignments included water-resource assessment, selection of appropriate irrigation methods, system planning and design, bills of quantities, cost estimation and construction scheduling.

Through these projects, Seid developed substantial experience in both **gravity and pressurised irrigation systems**, allowing engineering decisions to be made according to available water resources, topography, agricultural requirements and operational conditions.

Large-Scale Irrigation and Drainage Development

Seid's project-management responsibilities later extended to the **Kesem-Bolhamo Sugar Development Expansion Irrigation Project** in Ethiopia's Afar Region.

The project involved approximately **10,000 hectares of new command area** and required the development of irrigation and drainage infrastructure under

demanding physical conditions, including swampy portions of the command area.

The irrigation system combined pressurised water conveyance with gravity irrigation application. Hydraulic management was particularly important because operating pressures had to be controlled across different components of the system while irrigation and drainage infrastructure had to function together over a large agricultural command.

His subsequent project-management portfolio included the **Omo Valley Farms Irrigation Project in South Omo**, covering approximately **6,000 hectares of gross irrigable land**.

These projects demonstrate the increasing scale of Seid's engineering responsibilities.

The engineer who had begun his career conducting reconnaissance surveys and designing diversion structures was now managing irrigation developments covering thousands of hectares and coordinating the work of multidisciplinary professional teams.

Technical and Institutional Leadership

Alongside his responsibilities on individual projects, Seid progressively assumed broader managerial and technical-leadership positions.

His work included management responsibilities in **water-resources infrastructure development design, headworks design, surveying and mapping, and irrigation and drainage**.

In these roles, his duties included planning and organising professional activities, supervising technical teams, mobilising specialists for new assignments, overseeing technical proposals and contract-management activities, evaluating staff and project performance and ensuring the timely completion of engineering outputs.

His professional record culminates in his appointment as **Director of Dam and Irrigation**, with responsibility for managing the design of dam, irrigation and drainage projects.

This position represents an important development in his career because the technical experience accumulated through individual irrigation schemes, diversion headworks, pressurised systems and major agricultural developments became the foundation for directing the work of other engineering professionals.

His role consequently expanded from performing engineering analysis to ensuring the technical quality and coordinated delivery of major water-infrastructure assignments.

A Career Anchored in Irrigation Engineering

Across Seid's professional career, there is a particularly strong continuity in the type of engineering problems he has addressed.

Water resources must first be identified and evaluated.

Appropriate diversion, storage or conveyance systems must then be selected.

Headworks must safely control river water.

Canals or pressurised pipelines must convey that water through the command area.

Irrigation systems must distribute it according to agricultural requirements.

Drainage must protect the land and maintain suitable operating conditions.

And each of these technical components must ultimately be translated into drawings, quantities, costs, construction documents and implementable engineering works.

Seid has worked across this complete sequence.

His career has included reconnaissance, field-data collection, feasibility assessment, hydraulic and structural design, preparation of drawings and bills of quantities, cost estimation, irrigation-system planning, tender documentation, multidisciplinary coordination, project management and senior technical supervision.

The scale of the work changed substantially over time, but the engineering discipline underlying it remained remarkably consistent.

HARE Seen Through the Engineer He Became

The significance of the **HARE Irrigation Project** in Seid's professional history can therefore be understood most clearly through this technical continuity.

In 1995, the project presented a group of young irrigation-engineering students with the fundamental tasks of understanding a water source, designing a diversion system, determining how water should be conveyed and applying irrigation-engineering principles to agricultural development.

During the decades that followed, Seid encountered those same fundamental questions repeatedly—but under increasingly demanding professional conditions.

Small-scale schemes were followed by major diversion projects.

Individual structures were followed by complete irrigation systems.

Gravity systems were complemented by pressurised irrigation.

Individual design assignments developed into multidisciplinary project management.

And responsibility for particular engineering components eventually expanded into senior leadership for dam, irrigation and drainage design.

The value of HARE in Seid's story is therefore not that it predicted every position he would later hold. Its importance is more practical.

It was an early occasion on which the engineering principles that would dominate his professional career had to be brought together within one irrigation-development problem.

More than three decades later, the scale of his responsibilities is very different, but the technical questions remain recognisable.

How can water be captured safely? How should it be controlled? How should it be conveyed? How can irrigation infrastructure be designed efficiently? And how can engineering decisions be translated into reliable systems serving large areas of agricultural land?

These are questions Seid first confronted as a young irrigation-engineering student and later addressed professionally across numerous irrigation, dam and water-resources projects in Ethiopia.

His professional record therefore gives the HARE project a particularly appropriate place in this book.

It preserves an early example of the technical work of an engineer who would later devote much of his professional life to designing, managing and leading the development of irrigation and water infrastructure on a far greater scale.