



**BADEL WATER SUPPLY PROJECT
AISELUKHARKA RURAL MUNICIPALITY
KHOTANG, KOSHI PROVINCE
NEPAL**



**A Project
for
“BADEL COMMUNITY”
AISELUKHARKA RURAL MUNICIPALITY-03 BADEL**



**Project Funded By:
Quality Education Nepal, Australia
Aiselukharka Rural Municipality
Badel Community**

Report – III

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Executive Summary

The **Badel Drinking Water Supply Project** will be successfully implemented to improve equitable access to safe and reliable drinking water for rural households in **Aiselukharka Rural Municipality**, Khotang District. The project will directly benefit **200 households in Badel (Ward No. 3)**, communities that previously faced persistent challenges related to water scarcity, poor water quality, and long collection times.

The project being **managed and implemented by Action for Nepal**, with financial and institutional support from **Quality Education Nepal, Aiselukharka Rural Municipality**, and **meaningful community contributions** from Badel. The intervention adopted a **One Tap per Household (1T/HH)** service model, ensuring inclusive, dignified, and household-level access to potable water in alignment with national standards.

Project activities included water source protection, construction of intake and storage structures, installation of transmission and distribution pipelines, and household tap connections. Community engagement was integral throughout the project cycle, strengthening ownership, local accountability, and long-term sustainability.

Upon completion, the project will significantly reduce the time and physical burden associated with water collection, improved hygiene practices, and contributed to better health outcomes, particularly for women, children, and elderly community members. The project demonstrates effective collaboration between civil society, local government, donors, and communities, and aligns closely with Quality Education Nepal's commitment to enabling foundational services that support education, health, and human dignity.

Project Goal

- To ensure sustainable, equitable, and safe access to drinking water for all households in Badel, thereby improving health outcomes, reducing time poverty, and contributing to inclusive rural development in line with Sustainable Development Goal 6 (Clean Water and Sanitation).

Project Outcome

Outcome 1: Household Access to Safe Drinking Water

Indicator: Percentage of households with functional household tap connections

Baseline: 0%

Expected Endline: 100% (200 out of 200 households)

Outcome 2: Reduced Health Risks Associated with Unsafe Water

Indicator: Proportion of households accessing improved water sources at household level

Expected Endline: 100% of beneficiary households

Qualitative Result: Reduced exposure to water-borne diseases and improved hygiene practices

Outcome 3: Reduced Time and Labor Burden for Water Collection

Indicator: Average time spent per household per day for water collection

Baseline: Long-distance collection from unsafe or seasonal sources

Expected Endline: Less than 5 minutes per day (on-premises access)

Outcome 4: Strengthened Community Ownership and Sustainability

Indicator: Community contribution and participation in implementation and O&M

Expected Endline: 100% community participation during construction and system handover

Project Output

Output 1: Household Water Supply Infrastructure Established

- 200 household tap connections installed and operational
- Service Level: One Tap per Household (1T/HH)

Output 2: Water Source Protection and Storage Systems Constructed

- Improved and protected water sources developed to ensure water quality and reliability
- Storage structures constructed to meet daily household demand

Output 3: Transmission and Distribution Network Completed

- Transmission pipelines installed from source to reservoirs
- Distribution pipelines extended to all beneficiary households with equitable coverage

Output 4: Community Engagement and Capacity Strengthening

- Beneficiary households actively involved in planning, construction, and monitoring
- Community capacity enhanced for basic operation and maintenance of the system

The **Badel Drinking Water Supply Project** will successfully achieve its intended goal and outcomes, delivering **100% household-level access to safe drinking water** in the target communities. The project stands as a model of effective partnership between **Quality Education Nepal, Action for Nepal, local government, and beneficiary communities**, demonstrating how targeted infrastructure investments can generate long-term social, health, and development benefits.

Project Details

- ❖ **Project Title:** Badel Water Supply Project
- ❖ **Report Submitted to:** Quality Education Nepal and Aiselukharka Rural Municipality
- ❖ **Report Submitted by:** Action for Nepal
- ❖ **Reporting Period:** May 2025 to April 2026 – Needs to be Extended till August 2026
- ❖ **Project Start Date:** May 2025
- ❖ **Project Duration:** 12 Months (Up to April 2026)

Progress Summary

Construction Progress at Badel Drinking Water Supply Project

Construction of Intake

Progress

The construction of the primary spring intake system for the Badel Drinking Water Supply Project has been successfully executed in strict accordance with the approved engineering designs and technical specifications. The core infrastructure is fully complete, integrating a structurally sound wingwall designed to stabilize the source area and direct natural surface flow into the system.

This is supported by a newly constructed collection chamber that aggregates the tapped water while facilitating initial sedimentation, alongside an adjacent valve chamber equipped with the necessary flow-control valves for discharge regulation and routine maintenance.

To safeguard the water source from contamination, livestock encroachment, and unauthorized access, a comprehensive perimeter protection system has been established. The primary structural framework of the fencing is already in place, featuring robust Mild Steel (MS) angle posts anchored into concrete foundations and a secured structural steel entry gate.

The final installation and tensioning of the barbed wire strands have been intentionally scheduled as a concluding project activity, a sequence that prevents material damage during ongoing site operations and ensures the security boundary is fully intact upon final handover.



Construction of Interruption Chamber and Brake Pressure Chamber

Progress

The construction of the proposed pressure management structures across the project's pipeline network has progressed significantly, with major structural works successfully executed.

To regulate high static head and mitigate pressure-induced risks along the transmission line, both of the planned interruption chambers have been fully constructed. These structures are now strategically positioned to break the hydraulic pressure within the pipeline, ensuring structural stability and safe flow velocity during the transmission phase.

Concurrently, substantial progress has been achieved on the distribution network, where two out of the three proposed brake pressure chambers (BPCs) have been successfully completed. These chambers will function to reduce pressure buildup within the community distribution loops, protecting downhill pipe joints and household taps from excessive head. Because these chambers are relatively compact, perimeter fencing is not planned for these specific sites.

At present, the structural concrete and internal plumbing works for these four completed chambers are entirely finished, with only final exterior and interior protective painting works remaining to be executed before handover.



Pipeline Excavation, Laying and Jointing

Progress

The pipeline excavation, laying, jointing, and backfilling works for the project's main transmission line have been successfully completed, covering the entire 4,200-meter stretch from the intake to the reservoir tank. This milestone secures the primary alignment, allowing for gravity-fed water transmission to the reservoirs. Meanwhile, parallel pipework along the community distribution network are progressing rapidly in the field. Out of the total proposed 12,000 meters of distribution line, 10,000 meters have already been fully excavated, laid, jointed, and backfilled, leaving a remaining balance of just 2,000 meters to be executed in the upcoming phase.

A defining feature of this progress has been the exemplary level of local ownership and community mobilization. The vast majority of the earthworks and pipe assembly have been executed through the in-kind labor contributions of the project beneficiaries. Under an organized community framework, each household volunteered seven days of hard physical labor to support the excavation, handling, and jointing of the pipelines. This robust public participation has not only accelerated the construction timeline across both the transmission and distribution networks but has also laid a strong foundation for the long-term operation and maintenance of the water supply system.



Construction of Distribution Chambers

Progress

The construction of the two newly proposed distribution chambers has been successfully executed and brought to full completion, strictly adhering to the project's stringent engineering specifications and design standards. These dual structures are engineered to fulfill a critical, highly sensitive operational role within the system's infrastructure, specifically tasked with precisely regulating, balancing, and partitioning the incoming raw water flow before systematically channeling it into the downstream reservoir tanks. Every phase of the structural concrete reinforcing, and mechanical pipework installation for both distinct chambers have been meticulously finalized, thereby ensuring that the interconnected flow-control systems are fully optimized, integrated, and ready to be brought online into the broader water supply network.

Following the formal completion of the primary masonry works and structural concrete curing periods, a series of rigorous, highly detailed hydraulic performance evaluations were initiated directly on-site. To conclusively verify structural integrity and long-term durability under maximum operating conditions, both distribution chambers were subjected to exhaustive, full-scale hydraulic leakage testing, keeping the units completely submerged under a maximum hydrostatic load for an extended monitoring window. The successful conclusion of these hydrostatic trials conclusively proved the structural soundness of the units, revealing zero visible material defects, micro-cracks, moisture seepage, or measurable drops in water pressure. These pristine testing results definitively validate that both chamber units are entirely watertight, structurally resilient, and fully capable of maintaining trouble-free, continuous water distribution operations for their intended multi-decade lifecycle.



Construction of Reservoir Tanks- Badel (8000, 14000, 18000 and 20000 liters)

Progress

The construction of all four proposed reservoir tanks—with storage capacities of 8,000, 14,000, 18,000, and 20,000 liters—has been successfully completed. To ensure institutional security and prevent external encroachment at these critical storage sites, the framework for the perimeter fencing has been established, with the installation and anchoring of the Mild Steel (MS) angle posts fully executed.

Additionally, the entry gates have been fixed and are ready on-site. The final phase of the protection work, which includes applying protective paint to the metal structures and tensioning the barbed wire mesh, is currently scheduled to be completed as part of the project's final finishing works.

Following the completion of the structure works, leakage test was conducted on all four storage units. Each reservoir tank was filled to capacity and subjected to a comprehensive 48-hour leakage test to monitor structural water tightness. Over the two-day testing period, water levels in every single tank remained completely static, with zero drop in volume, no structural sweating and no visible seepage detected.

The successful outcome of these tests confirms that all four reservoirs are completely watertight, structurally sound, and ready to safely store the community's drinking water supply.



Construction of Tap post Construction

The implementation of the water distribution endpoints is progressing systematically across the project area, with a substantial portion of the target infrastructure now successfully underway. Out of the 204 proposed individual household tap posts, active civil works have commenced on 120 units, reflecting strong field momentum.

Within this active cohort, 39 tap posts are fully completed and operational, having successfully undergone structural works, external plastering, consumer water meter connection, and comprehensive pressure testing to ensure leak-free performance.

Additionally, structural construction and surface plastering have been entirely wrapped up for 67 tap posts, with these units currently awaiting final water meter fixing and flow verification tests before they are cleared for handover.

On the remaining balance of the active household sites, localized excavation and foundation structural work for 14 tap post structures have been initiated by the technical team and community laborers. Parallel to these private household connections, civil works have also officially commenced on one of the proposed institutional tap posts.

The initiation of this institutional unit marks a critical phase in the project, as it expands the system's reach beyond domestic utility to secure a reliable, high-volume drinking water supply for public and community spaces.



Remaining Works and Timeline

Progress

The Badel Drinking Water Supply Project is rapidly approaching its final phase of implementation, with the vast majority of the core civil infrastructure successfully established. The remaining physical scope of work is highly concentrated and systematically planned, primarily involving the construction of the final remaining brake pressure chamber along the distribution alignment and the mobilization of resources to complete the final batch of 84 individual household tap posts.

Alongside these structural completions, extensive final commissioning and quality assurance protocols are scheduled, most notably the comprehensive hydraulic flow and pressure testing across all 204 tap posts to ensure uniform equitable water distribution. The final contractual finishing works will also be executed simultaneously, which include applying industrial-grade protective painting to all exposed metal gates, valves, and structural chambers, as well as the final tensioning and fixing of the barbed wire mesh along the Mild Steel angle fencing frameworks at the intake and reservoir sites to guarantee long-term asset protection.

According to the updated project management schedule, if field operations, material supply chains, and community labor contributions continue to progress as smoothly as they have to date, all remaining physical construction and structural installations are on track for complete completion by August 15, 2026. Following the wrap-up of physical works on site, the final two weeks of the month will be strictly dedicated to administrative closeout, system-wide hydraulic balancing, and financial reconciliation.

This will involve conducting joint field verifications, finalizing the project as-built documentation, clearing all outstanding vendor, supplier, and labor payments, and preparing the comprehensive final project completion report. Consequently, the project is safely positioned for a definitive final closure by August 31, 2026, marking the formal handover of a fully operational, safe, and sustainable drinking water supply system to the water users' committee and the target community.