

SULAV LOHANI

Hydraulic Engineer | Water Resources | GIS | Engineering Automation

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Professional Summary

Hydraulic Engineer with 2+ years of professional experience designing and modelling hydraulic structures for hydropower projects across Nepal, Tanzania, Georgia, and Malaysia, ranging from **3 MW to 285 MW**. Experienced in hydrological analysis, hydraulic design, GIS-based analysis, and Python automation. Founder of toolsforengineers.com — an engineering calculator platform with **130+ tools** spanning Hydraulics, Hydrology, Geotech, and GIS — onlinegistools.com, a dedicated browser-based GIS tools platform, and civilfornepal.com, a leading civil engineering knowledge-sharing community. Completed a **3-month training in Hydropower Project Design in China**, with site visits to large-scale hydropower infrastructure in Sichuan Province. Represented Nepal in Badminton at the **FISU World University Games 2021, Chengdu, China**. Pursuing Master's in Disaster Risk Engineering and Management with a research focus on flood modelling and GIS-integrated disaster risk reduction.

Education

Master of Engineering — Disaster Risk Engineering & Management 2025 – Present
Institute of Engineering (IOE), Pulchowk Campus, Lalitpur

Bachelor of Engineering — Civil Engineering (Specialization in Hydropower) 2018 – 2023
Kathmandu University, Dhulikhel, Kavre

- Final Year Project: Feasibility Study of Super Inkhu Khola Jalbidyut Aayojana (SIKJA) — hydrological analysis, hydraulic design of headworks, headrace tunnel, surge shaft, penstock; tunnel support analysis using Phase2 software.

Higher Secondary (+2 Science) 2016 – 2018
United Academy, Kumariapati, Lalitpur

Professional Experience

Hydraulic Engineer Jan 2024 – Present
QYEC Construction Pvt. Ltd. · Kathmandu, Nepal

- Delivered hydrological analysis and hydraulic design across national (Nepal) and international hydropower projects (3MW to 285MW) in Tanzania, Georgia, and Malaysia.
- Worked on optimization and design reporting for major hydropower components including headworks and waterway.
- Performed extreme hydrology assessments and flood frequency analysis.
- Performed stability analysis of weir, undersluice, intake, settling basin, headpond, retaining wall and RFCD - Rock Filled Concrete Dam.
- Prepared Design Basis Memoranda (DBMs), Detailed Design Reports, and drawings meeting international project standards and Employer's Requirements.
- Optimized hydraulic structure dimensions through cost-quantity comparisons, improving construction efficiency while maintaining hydraulic performance targets.

Hydropower Project Design Training 3 Months, 2023
Sichuan Province, China · International Technical Programme

- Completed the 3-month training programme in Hydropower Project Design in China, covering hydraulic structure design.
- Visited multiple hydropower sites across Sichuan Province, gaining exposure to Chinese engineering standards delivery approaches.

Associate Researcher Jul 2023 – Jan 2024
Institute of Himalayan Risk Reduction (IHRR) · Nepal

- Historical data analysis from BIPAD Portal and DRR Portal.
- Webscraping of rainfall data and analysis from windy.
- Landslide Susceptibility Mapping using QGIS.
- Landslide early warning system at Neelakantha Municipality, Nepal - A USAID-funded project.

- Participated in construction supervision of headworks (trench weir, desilting basin, headrace tunnel, gantry, undersluice) and quality control laboratory testing.
- Gained field exposure to drill-and-blast tunnelling cycles, PU grouting seepage control, shotcrete application.

Key Engineering Projects

Upper Tamor Hydropower Project — 285 MW | Nepal

QYEC, 2025 – Present

- Hydraulic design and water level calculation at key sections of the headworks.
- Seepage analysis of weir and undersluice.
- Stability analysis of weir, undersluice, intake, settling basin, and RFCD (Rock Filled Concrete Dam) under critical static and seismic loading combinations.
- Seepage analysis of RFCD using Rocscience Slide software.
- Detailed headloss calculation across the waterway with technical report.
- Preparation of civil drawings for headworks components.

Chino Khola Hydropower Project — 7.9 MW | Nepal

QYEC, 2025 – 2026

- Hydraulic design of headworks: weir, trashrack, intake, gravel trap, settling basin, headpond, and spillway.
- Seepage analysis and anti-scour calculation for the weir, determining exit gradients.
- Stability analysis of weir, retaining wall, intake, settling basin, and headpond.
- Detailed headloss and energy calculation with comprehensive technical report.
- Water hammer and surge pressure calculation and report for waterway.
- Preparation of the Detailed Design Study (DDS) report.
- Civil drawings for headworks components including weir, intake, and settling basin.

Ghunsa Khola Hydropower Project — 57.5 MW | Nepal

QYEC, 2025 – 2026

- Quantity calculation for major civil structures: weir, undersluice, rock trap, surge shaft, and valve chamber; outputs used for cost estimation and tender documentation.

Mtkvari Cascade Projects — 57.6 MW | Georgia

QYEC, 2025 – 2026

- Project screening: technical review of existing data, site conditions, and cascade configuration to assess feasibility and identify key design constraints.
- Performed hydrological frequency analysis for design flood estimation.

TZ-Nakatuta Hydropower Project — 10 MW | Tanzania

QYEC, 2025 – 2026

- Headloss calculation across the conveyance system from intake to powerhouse.
- Quantity calculation for intake, spillway, desander, and forebay structures.

Igamba-II Hydro-electric Project — 3 MW | Tanzania

QYEC, 2025 – 2026

- Preparation of the general headworks layout.
- Quantity calculation for headworks structures for cost estimation.
- Detailed head loss calculation and report.

Manang Marsyandi Hydropower Project — 135 MW | Nepal

QYEC, 2024 – 2025

- Hydraulics of sluice gates and undersluice.
- Water level calculations at upstream and downstream of the headworks.
- Stability analysis of undersluice.

Malagarasi Hydropower Project — 49.5 MW | Tanzania

QYEC, 2024 – 2025

- Prepared the Design Basis Memorandum (DBM) per Employer's Requirements; design key hydraulic structures.
- Stability analysis of dam, intake, undersluice, and settling basin.
- Detailed headloss calculation across the waterway from intake to powerhouse with supporting technical report.
- Preparation of headworks civil drawings including plan, sections, and details.

Kikuletwa 3 Hydropower Project — 11 MW | Tanzania

QYEC, 2024 – 2025

- Detailed headloss calculation and report.
- Quantity calculation for arch dam and intake structures for cost estimation.

- Headloss and energy calculation.
- Quantity calculation for intake and settling basin.

- Quantity calculation for substation civil works (access roads and foundation) at Phokoje, Dukwi, and Pandamatenga substations.

Digital Products & Platforms

- Built and maintain a comprehensive online engineering calculator platform featuring **130+ tools** across Hydraulics (53), Transport (16), Geotech (13), Structures (13), Hydrology (13), and Environmental categories.
- Developed Online GIS Tools: AutoCAD (DXF) to KML converter (MUTM/Nepal), DEM-to-Contour converter, Global DEM Downloader, and Nepal Catchment Delineation tool.
- Built interactive dashboards: Disaster Risk Management (DRM) dashboard using BIPAD data, Nepal Hydropower Dashboard, Solar, Thermal, and Wind energy project dashboards.
- Engineered Hydropower and Building package toolsets integrating domain-specific calculation workflows.

- Founded and administer Nepal’s leading civil engineering knowledge-sharing community platform, hosting user-generated technical content, resources, and professional networking for civil engineers.

- Designed and built personal portfolio showcasing projects, skills, and professional profile; includes web scraping and automation experiments.

- Built and maintain a dedicated online platform offering browser-based GIS tools including coordinate conversion, DEM processing, catchment delineation, and spatial data format converters tailored for engineers and GIS practitioners.

Technical Skills

Hydraulic Modelling	HEC-RAS, HEC-SSP
GIS & Remote Sensing	QGIS, Google Earth Engine (GEE), GRASS GIS, SAGA GIS, Web-GIS
Programming	Python (automation, web scraping, data analysis), HTML, CSS, JavaScript
CAD & Design	AutoCAD, Civil3D
Geotechnical Software	Rocscience Slide (seepage and slope stability analysis)
Machine Learning	Supervised learning concepts, flood prediction modelling
Web Development	Full-stack development (toolsforengineers.com)
Microsoft Office	Excel, Word, PowerPoint, Visio
Engineering Analysis	Hydrological analysis, hydraulic design, stability analysis, headloss computation, water hammer analysis

Certifications & Licenses

- Nepal Engineering Council (NEC) License — Registration No. 78924 — Licensed Practicing Engineer, Nepal

Leadership & Extracurricular

Led the largest civil engineering student organisation at KU; organised technical events, workshops, and industry exposure programs for 300+ members.

Directed Nepal’s premier student-run civil engineering exposition, coordinating logistics, sponsorships, and technical sessions.

Advisor, Kathmandu University Indoor Games Club (KUIGC)	2022–2023
Vice Coordinator, Sankalpa'21 — Annual Civil Engineering Expo	2021
Media & Marketing Head, KU Red Cross Circle (KUYRCC)	2019–2021
Executive Member, AIESEC in Kathmandu University	2018–2019

Sports & International Representation

International Badminton — National Representative, Nepal 2021

- Represented Nepal in Badminton at the FISU World University Games 2021, Chengdu, China — competed in the Nepal vs. Slovakia match (Men's Singles), representing Nepal as one of its university sport athletes on the world stage.

Research Interests

- Flood Modelling
- GIS-based Water Resources Management
- Disaster Risk Reduction & Resilience
- Hydrology & Hydraulics
- Machine Learning in Hydrological Prediction
- Remote Sensing & Earth Observation

Languages

English (Professional) Nepali (Native) Hindi (Conversational)

References available upon request. LinkedIn: www.linkedin.com/in/sulavlohani