

SOMNATH LUITEL

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EDUCATION

2019 –2024 **Bachelor in Civil Engineering (B.E.), Institute of Engineering, Pulchowk Campus, Tribhuvan University (TU),**
Relevant Coursework: Fluid Mechanics, Engineering Hydraulics, Hydrology, Irrigation & Drainage Engineering, Water Supply Engineering, Environmental Engineering, Soil and Foundation Engineering, Engineering Geology, Computational Techniques, Probability and Statistics

WORK EXPERIENCE

Aug 2024- Present **Research Assistant, Pulchowk Campus, Lalitpur, Nepal**

- Developing a **canal optimization system** to maximize water distribution efficiency.
- Conducting **hydrologic modeling** using HEC-HMS and HBV model for government projects.
- Collaborating with Prof. Kuolin Hsu from UC Irvine for research work on Water resource and hydrology
- Supervising final year students' project, Identifying research gaps in **water resources and climate resilience**.

Sept 2024- Jan 2025 **Site Engineer, Initial Environmental Examination of Landfill Site at Manthali, Ramechhap**

- Worked as a Site Investigation Engineer for a report preparation of Initial Environmental Examination (IEE) of Proposed Landfill Site at Manthali, Ramechhap, conducted socio-economic survey, and water and soil quality test.

May – Aug 2024 **Intern, Civil Engineer, Institute of Himalayan Risk Reduction**

- Coordinated research projects on **hydrology and remote sensing** applications.
- Prepared reports and field data assessments related to **climate impact studies**.

Jan-Nov 2023 **Tutor, Clamphook Academy, Lalitpur, Nepal**

- Faculty of Mathematics at Nepal's well-recognized Entrance Preparation Academy.
- Career counselling and exam preparation at government schools in Kathmandu Valley (Part time)

RESEARCH PROJECTS

2025 - Present **Modeling the Impact of Climate-Induced Drought on Irrigation Demand and Crop Productivity: Adaptation Strategies for Sustainable Agriculture in Water-Stressed Regions**

- Assessing irrigation demand and crop productivity under drought using AquaCrop, SPI/SPEI indices, and local agro-climatic data in Mahakali Irrigation Command Area.
- Establishing Factor of Safety (FoS) framework and recommended adaptation strategies to enhance agroecosystem resilience.

2025 - Present **Bias Adjustment of Satellite-Based Precipitation Estimates Using Local Gauge Observations and Orographic Factors for Himalayan Region: A Case Study in Nepal**

- Currently conducting a regional-scale study on bias adjustment of satellite-based precipitation estimates using local rain gauge data and orographic factors across the Himalayan region of Nepal.
- Developing and validating a bias correction framework that integrates satellite rainfall products with ground observations to improve precipitation accuracy for hydrological modeling and climate resilience in mountainous terrains.

Feb - June 2025

Impact Evaluation of Climate Change on Water Resources and Irrigation Projects in Nepal (Case of Khageri River Basin)

- Evaluating changes in river flow, groundwater recharge, and irrigation efficiency under different climate scenarios.
- Utilizing SWAT hydrological modeling, Global Climate model, GIS-based analysis, and statistical methods to quantify climate change impact on change in net irrigation water requirements.

2023 - 2024

Monitoring of Land Subsidence Pattern of Pokhara Valley using InSAR technique | Final year Major Project (2024).

- Used Sentinel Application Platform (SNAP) Desktop for the processing and analysis of Satellite data
- Applied Sentinel-1 InSAR processing to detect subsidence patterns, and plot them in gis.

PROJECTS

Nov 2024 -Present

Hydrologic Modeling for a governmental project

- Working on hydrologic model developing with the use of **HEC-HMS** and **HBV model**.
- Developing Canal Optimization System using **HRCR design** of canal and use python for minimum loss of discharge, Hydrological Analysis for Gwar Khola Multipurpose Dam

Dec 2023

Analyzing River Morphology and Shifting Patterns in Chitwan, Nepal Using Multi-Temporal Landsat Imagery

- Evaluated **erosion and sediment deposition** in Chitwan using Landsat data.
- Applied **Google Earth Engine**, **ArcGIS**, and **AutoCAD** for spatial analysis.

RESEARCH INTERSTS

Water resources management, Computational Hydrology, Climate change and resilience, Remote sensing, Sustainable development, Environmental conservation, Big Data and Advanced Analytics techniques, Groundwater Hydrology: Groundwater flow modeling, recharge estimation, and sustainable water resource management, Hydrologic Modeling & Remote Sensing: Use of HEC-HMS, HBV, GIS, and satellite-based approaches for water resource assessments, Climate Change and Water Resources: Impact assessment on irrigation projects, precipitation trends, and groundwater recharge.

COMPUTER SKILLS

- Geographic Information System and Cartography (ArcGIS, SW Maps)
- **Drafting and Modelling, Analysis:** AutoCAD, GIS, SNAP, HEC-HMS, HEC-RAS, ArcSWAT, CROPWAT
- **Programming tools:** C programming, Python, R
- **Others:** Word, Excel, PowerPoint, Project and Visio, MATLAB, Origin Pro, LaTeX, Google Earth Engine

PUBLICATIONS

Journal Articles

- S. Lamichhane, N. Devkota, H. P. Poudel, and S. Luitel, "Flood Hazard Mapping and Flood Vulnerability Analysis of Building Structures at Settlement-Scale," Journal of Science and Engineering (JScE), Volume 11, 2024. DOI: <https://doi.org/10.3126/jsce.v11i01.73526>

- S. Luitel, S. Ghimire, S. Chaulagain, S. Sah, D. K. Thapa, and S. Lamichhane, “Assessment of Land Subsidence Pattern in Pokhara Valley Using Sentinel-1 InSAR Processing,” Journal of Engineering Technology and Planning (JOETP), vol. 5, no. 1, pp. 27–37, 2024. DOI: <https://doi.org/10.3126/joetp.v5i1.69649>

Books and Chapters

1. S. Luitel (Ed.), A Textbook of Civil Engineering Material, by S. Lamichhane, Kathmandu: Heritage Publication, 2025. ISBN: 978-9937-35-019-8.

LEADERSHIP, ASSOCIATION AND VOLUNTEERING

2024- Feb 2025	Secretary at Institute for Research and Action Nepal (IRACTION)
2022-2024	President of Madan Bhandari Sports Academy-Pulchowk Unit (Motivating sports events and programs for engineering students).
2023-Present	Member of Free Student Union (FSU), Pulchowk Campus (Conducting academic events, exhibitions, competitions, and personality development programs).
2024	Member of Pulchowk Pride Award Selection Committee-2080 and 2081.
2024	Attended the seminar on “ Research for Undergraduates ” by the University Grant Commission and Pulchowk Campus.
2023	Completed a “ 3-Day Training on GIS ” by CESS-Nepal.
2022	Attended the seminar on “ Water Resource Management ” by the Department of Civil Engineering, Pulchowk Campus.

SCHOLARSHIPS & AWARDS

Merit based Scholarship to pursue Undergraduate: Secured 4 years Scholarship for Bachelor in Civil Engineering Course

Merit based Scholarship to pursue higher secondary school: Secured position in examination taken by Nepal Government through National Examination Board (NEB) and got full scholarship to complete higher secondary education

“**District Level Youth Talent Recognition and Honor 2074**” Award (Honored as **Youth Scientist**, issued by the National Youth Council, District Youth Committee Office, Government of Nepal, Kathmandu).

CONTACTS OF REFEREE

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Environmental Engineering

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