MD. ASHHAB SADIQ

sadiq.kuet.urp@gmail.com | +880 1794200784 | Portfolio | GitHub | LinkedIn | 496/C, Dhaka-1219, Bangladesh

An Urban and Regional Planning graduate with a background in geospatial analysis, climate and water-related environmental research, and spatial modeling. My research experience includes working with remote sensing, GIS-based analysis, and machine learning approaches to examine climatic and environmental processes across different spatial scales.

EDUCATION

Bachelor of Urban and Regional Planning - BURP

Khulna University of Engineering & Technology, Khulna, Bangladesh

Total Credits: 162 | CGPA: 3.59 out of 4.00 | Dean's Award (Last Two Years) | Graduation: April 2023

Thesis: Machine Learning based Meteorological Drought Assessment through Remote Sensing Indices in Northern Bangladesh

Relevant Coursework: GIS and Remote Sensing, Environmental Planning and Management, Water Resources Planning, Statistics, Hazards and Disaster Management, Research Methodology

RESEARCH AND PUBLICATIONS

1. **Sadiq, M. A.**, Sarkar, S. K., & Raisa, S. S. (2023). Meteorological drought assessment in northern Bangladesh: A machine learning -based approach considering remote sensing indices. **Ecological Indicators**, 157, 111233. DOI

This study applied a Random Forest (RF) model, integrating the Standardized Precipitation Index (SPI) with seven remote sensing indices to evaluate drought intensity from 2010 to 2019. The analysis produced a set of high-resolution drought distribution map, demonstrating the effectiveness of combining geospatial data and machine learning-based modeling for environmental monitoring.

2. Raisa, S. S., Sarkar, S. K., & **Sadiq, M. A.** (2024). Advancing groundwater vulnerability assessment in Bangladesh: A comprehensive machine learning approach. **Groundwater for Sustainable Development**, 101128. DOI

This research delved into the complex dynamics of groundwater vulnerability. By investigating topographical, meteorological, socio-economic, and land use & geological factors through a machine learning model, this research provided a comprehensive analysis, shedding light on the various aspects contributing to groundwater vulnerability of Bangladesh.

3. Haque, M. N., Abtahee, M., Islam, A. A., & **Sadiq, M. A.** (2023). Students' perception of environmental sustainability exercises at higher education institutions in Bangladesh. **Frontiers in Engineering and Built Environment.** DOI

This investigation assessed students' perceptions of campus environmental sustainability (ES) across three universities in Khulna, Bangladesh. Using survey-based analysis, it evaluated awareness, attitudes, and willingness to participate, providing insights to support sustainability-focused policymaking and campus planning.

Research Interests: Geospatial Science, Remote Sensing, Environmental Modeling, Climate Change

PROFESSIONAL EXPERIENCES

Junior GIS Analyst

August 2024 - December 2025

ACE Consultants Ltd. (subsidiary of SMEC International Pty. Ltd., Australia)

- Managed geospatial databases, ensuring data accuracy and consistency.
- Prepared Land Acquisition Plans (LAP) and spatial overlays aligned with project boundaries.
- Performed QA/QC of topographic and survey datasets; validated spatial accuracy.
- Developed database inventories of structures within the project alignment that require acquisition.
- Geo-referenced maps using GPS and control points to match real-world coordinates.
- Prepared environmental maps and conducted spatial analysis of environmental conditions.
- Supported DTM/DSM-based elevation models for terrain and slope analysis.
- Produced Socially Affected Structure (SAS) and land-ownership maps for affected areas.

Assistant Urban Planner

July 2023 - August 2024

Sheltech Consultants (Pvt.) Ltd.

- Prepared inception and survey reports for three regional planning areas.
- Digitized and geo-referenced land parcels from drone and satellite imagery.
- Managed field survey teams and oversaw data collection workflows.
- Facilitated community consultations (PRA, KII, FGD) to gather stakeholder input.
- Analyzed survey and environmental data using qualitative and quantitative methods.
- Created and maintained project geodatabases while coordinating updates and digitization tasks.

TECHNICAL SKILLS

- **Geographic Information System (GIS):** ArcGIS Pro, ArcGIS Online, QGIS, Global Mapper
- **Remote Sensing and Programming:** Google Earth Engine, R Programming, Python
- **Survey & Spreadsheet Analysis:** Microsoft Excel, SPSS, KoboToolBox
- **Report Writing and Presentation:** Microsoft Word, PowerPoint, Canva

ACADEMIC PROJECTS

Assessment of Regional Diversity: A Study on Bangladesh

- Conducted Image Classification and Image Georeferencing
- Constructed LULC and LST of Bangladesh
- Completed flood inundation map, elevation map, NDVI, NDWI, NDMI
- Assessed district-wise socio-economic, structural and ecological factors and used 'Weighted Overlay' in ArcGIS to identify vulnerable areas of Bangladesh

Neighborhood Layout Design of Goalkhali Residential Area, Notun Rasta, Khulna

- Analyzed the existing condition of that area through a survey
- Constructed a 3D model representing the condition
- Constructed a new design layout of that site using Autodesk Civil3D and followed all rules of site area planning

Geographic Information System (GIS) and Remote Sensing Studio Projects

- Performed spatial analyses including service accessibility mapping, land use assessment, and flood hazard modeling using ArcGIS and satellite data.
- Integrated vector and raster datasets (fault lines, rivers, and thana boundaries) for hydrological analysis.
- Applied tools such as buffer analysis, overlay operations, and DEM-based flood classification to support urban planning and disaster risk management.

Temporal Changes of Zone-level Service Facilities of Khulna City

- Analyzed existing condition of Detailed Area Development Planning (DADP) Zone 20
- Conducted stakeholder analysis, questionnaire survey
- Performed water logging and drainage analysis
- Analyzed land use changes in that zone

CERTIFICATIONS

Verifiable at LinkedIn

- Geographic Information System (GIS) Specialization: University of California (via Coursera)
- Data Analysis with R Programming: Google (via Coursera)
- Cities and Climate Change: United Nations Institute for Training and Research (via UNITAR)
- Cartography and The Location Advantage: ESRI
- Python Data Structures: University of Michigan (via Coursera)

EXTRACURRICULAR ACTIVITIES

Assistant Research and Publication Secretary November 2021 - July 2022

URP Association - KUET

- Organized academic events for the Department of Urban and Regional Planning, including a workshop on "Scientific Research Article Writing" and other student-focused initiatives.

Head of Event Management August 2019 - August 2021

Design Integrated Society of KUET

- Involved in organizing two national events at the campus, "Plannation" and "Plannation 2.0".

AWARD AND SCHOLARSHIP

Dean's Award - Faculty of Civil Engineering, KUET 2020, 2021

- Received the Dean's Award for achieving an average GPA of 3.84 in 3rd year and 3.80 in 4th year.

University Merit Scholarship - KUET 2019, 2020, 2021

- Received this scholarship in all eligible years for excellent academic performance (First to Third Year).

REFEREES

Tanmoy Chakraborty
Assistant Professor
Department of Urban and Regional Planning, KUET
Khulna: 9203, Bangladesh
Email: tanmoy.chakraborty@urp.kuet.ac.bd

Showmitra Kumar Sarkar
Assistant Professor
Department of Urban and Regional Planning, KUET
Khulna: 9203, Bangladesh
Email: showmitrasarkar@urp.kuet.ac.bd