Minhazul Islam

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Google Site | ASU Profile | GIS Portfolio
Linkedin | GitHub | Google Scholar

Education

Arizona State University (ASU) — *2020 - 2025*

PhD in Civil, Environmental and Sustainable Engineering | iPOS GPA: 4.00

Course Highlights: • Contaminant Fate and Transport • Environmental Risk Assessment • Environmental Engineering Chemistry • Physical-Chemical Treatment of Water and Wastewater • Environmental Biochemistry • Environmental Data & Analysis • Carbon Storage • Surface Water Hydrology • Unit Operations • Remote Sensing for Water Resources and Civil Engineering

Proposed PhD Thesis: Geospatial Innovations in Drinking Water and Wastewater Treatment Using Sparse Datasets Across United States of America

Tennessee Technological University (TTU) — *2018 - 2020*

MS in Civil Engineering | GPA: 4.00

Course Highlights: • Engineering Hydrology • Applied Environmental Chemistry • Programming GIS • Open-Channel Hydraulics • Advanced Educational Statistics • Environmental Forensics • Stormwater Management

MS Thesis: Development of GIS-Based Algorithm to Delineate Median Vegetated Swales Along Highways in Putnam County, Tennessee. ProQuest Link: https://tinyurl.com/yh6679v7

Bangladesh University of Engineering & Technology (BUET) — *2012 - 2017*

BSc. in Water Resources Engineering | GPA: 3.32

Course Highlights: • Fluid Mechanics • Structural Analysis and Design - I • Design of Concrete Structures • Principles of Soil Mechanics • Open Channel Hydraulics • GIS in Water Resources Engineering • Groundwater Engineering

BSc. Thesis: Assessment of Stormwater Runoff From Chittagong Using GeoSWMM.

Professional Experience

Graduate Research Associate - Westerhoff Lab [Link] — *2020 - Present / USA*

• ***DRINCS:*** National de facto wastewater reuse modeling and broadening its implications on a national scale.
• ***Microbial Risk Assessment:*** Developed national scale microbial risk assessment model by applying DRINCS modeling framework in the United States.
• ***PFAS:*** Developed PFAS incidence model for consumable water supply in the United States. Project description: https://tinyurl.com/2a93hfad
• ***Groundwater Risk Assessment:*** Developed an ML-based groundwater data imputation model to perform a risk assessment of co-occurring elements.
• ***Urban P Mass-balance:*** Developed decennial urban phosphorus flow mass-balance model and identified key alteration in P dynamics.
• ***Wastewater Phosphorus Budget & Optimization:*** Developing optimization framework for wastewater recovered phosphorus resources to meet agricultural phosphate fertilizer needs in the United States.

Graduate Research Assistant - TechWARMS [Link] — *2018 - 2020 / USA*

• ***GV-SwATH:*** Developed a GIS-based automated vegetated swale delineation model (GV-SwATH) for TDOT highways.
• ***GAVA:*** Developed a preliminary framework of GIS-based Watershed Vulnerability Assessment Tool (GAVA).
• ***HEC-HMS:*** Developed a reservoir routing model using HEC-HMS for Cane Creek Lake, TN.
• ***EPA SWMM:*** Developed a stormwater management model in EPA SWMM for a parking lot in TN to evaluate the existing low-impact development (LID).

Research Assistant - FFEWS Project [Link] — *2018 / Bangladesh*

• ***Bias Correction of Satellite Rainfall Data:*** Developed bias correction method for TRMM satellite rainfall dataset for building a flash flood early warning system in Meghna Basin, Bangladesh.

Research Assistant - C3ER [Link] — *2017 / Bangladesh*

• ***Soil & Water Assessment Tool (SWAT):*** Developed a hydrologic model in ArcSWAT for the Halda River in Bangladesh.

Skills

Programming Languages	***Experienced:*** Python | R | MATLAB | Excel VBA ***Familiar:*** C++
GIS Software	ArcGIS | QGIS | ENVI | Google Earth Engine (GEE)
Modeling Software	HEC-RAS | HEC-HMS | EPA SWMM | SWAT
Design Software	AutoCAD
Python Libraries	Jupyter | Matplotlib | Numpy | Pandas | Scikit-learn | Arcpy | Geemap | PyTorch
Data Experience	Tabular Data | SQL | Satellite Remote Sensing | LiDAR Point Cloud
Others	MS OfficeSuite | Latex
Languages	***Native:*** Bengali ***Fluent:*** English

Peer-Reviewed Publications

1. Ruyle, B.J., Pennoyer, E.H., Vojta, S., Becanova, J., **Islam, M.**, Webster, T.F., Heiger-Bernays, W., Lohmann, R., Westerhoff, P., Schaefer, C.E. and Sunderland, E.M., **2025**. High organofluorine concentrations in municipal wastewater affect downstream drinking water supplies for millions of Americans. Proceedings of the National Academy of Sciences, 122(3), p.e2417156122. https://doi.org/10.1073/pnas.2417156122
2. Mahmood, A.U., **Islam, M. (Co-first Author)**, Gulyuk, A.V., Briese, E., Velasco, C.A., Malu, M., Sharma, N., Spanias, A., Yingling, Y.G. and Westerhoff, P., **2024**. Multiple Data Imputation Methods Advance Risk Analysis and Treatability of Co-occurring Inorganic Chemicals in Groundwater. Environmental Science & Technology, 58(46), pp.20513-20524. https://doi.org/10.1021/acs.est.4c05203
3. Ahmed, K.J., Oyshi, J.T., **Islam, M.**, Rashid, M.B., Atiqul Haq, S.M. and Tasneem, N., **2024**. Comparing household heads' perception of climate change variability with meteorological trends and understanding mitigation measures to combat the adverse effects in coastal areas of Bangladesh. SN Social Sciences, 4(9), p.168. https://doi.org/10.1007/s43545-024-00971-0
4. Baker, J., Schunk, N., Scholz, M., Merck, A., Muenich, R.L., Westerhoff, P., Elser, J.J., Duckworth, O.W., Gatiboni, L., **Islam, M.** and Marshall, A.M., **2024**. Global-to-Local Dependencies in Phosphorus Mass Flows and Markets: Pathways to Improving System Resiliency in Response to Exogenous Shocks. Environmental Science & Technology Letters, 11(6), pp.493-502. https://doi.org/10.1021/acs.estlett.4c00208
5. **Islam, M.**, Thompson, K., Dickenson, E., Quiñones, O., Steinle-Darling, E. and Westerhoff, P., **2023**. Sucralose and Predicted De Facto Wastewater Reuse Levels Correlate with PFAS Levels in Surface Waters. Environmental Science & Technology Letters, 10(5), pp.431-438. https://doi.org/10.1021/acs.estlett.3c00185
6. Saha, P., **Islam, M.**, Oyshi, J.T., Khanum, R. and Nishat, A., **2020**. A sustainability analysis on the trends and frequency of the channel flow of a carp breeding river against human interventions and governing public–private partnership (PPP) as adaptation. SN Applied Sciences, 2, pp.1-17. https://doi.org/10.1007/s42452-020-2766-4
7. Saha, P., **Islam, M.**, Oyshi, J.T., Khanum, R. and Nishat, A., **2019**. A sustainability study of the flow regulation impacts by dams in a carp breeding river using the hydrodynamic model and building block analysis. SN Applied Sciences, 1, pp.1-20. https://doi.org/10.1007/s42452-019-1417-0

Conferences & Presentations

1. **Islam, M.**, Solis, J., Earl, S., Westerhoff, P., **2025**. Decennial Phosphorus Dynamics in Central Arizona Phoenix – Long-Term Ecological Research (CAP- LTER) Site. 27th Central Arizona-Phoenix Long-Term Ecological Research (CAP-LTER) Program Annual All Scientists Meeting and Poster Symposium. https://globalfutures.asu.edu/caplter/cap-lter-symposia/
2. Saha, A., **Islam, M.**, Muenich, R., Earl, S., Obeneour, D., Morrison, E., Nelson, N. and Westerhoff, P., **2024**. Development of an Urban Watershed Modeling Framework for Arid Regions Using SWAT. American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting 2024. https://aim2024.secure-platform.com/a/
3. **Islam, M.**, Solis, J., Earl, S., Westerhoff, P., **2024**. Decennial (2000-2020) P Flow Dynamics in CAP LTER. AZ Water Research Symposium, March 22 (2024). https://www.azwater.org/events/EventDetails.aspx?id=1822061&group=
4. **Islam, M.**, Saha, A., Muenich, R.L. and Westerhoff, P., **2023**, December. Unlocking the Potential of Wastewater Treatment Plants for Phosphorus Recovery: Identifying Optimal Locations for Technology Implementation and Fertilizer Production. In AGU Fall Meeting Abstracts (Vol. 2023, No. 158, pp. H13K-158). https://tinyurl.com/3cdbt2je
5. **Islam, M.** and Westerhoff, P., **2022**. DRINCS: A GIS-based model that is used to predict de facto reuse, nutrient recovery and PFAS risk analysis. Water Quality Technology Conference - WQTC 2022. https://events.tpni.com/gcmmaintenance/awwa/online%20agenda/30000206/index.htm
6. **Islam, M.**, Muenich, R.L. and Westerhoff, P., **2022**, December. Quantifying the Potential Phosphorus Recovery From Municipal Wastewater Across the Contiguous United States. In Fall Meeting 2022. AGU.
7. **Islam, M.** and Westerhoff, P., **2021**, December. Microbial Risk Assessment Informed by De Facto Reuse at Public Drinking Water Systems Across Contiguous United States. AGU Fall Meeting 2021. Poster presentation. https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/840990

8. **Islam, M.**, Cunniungham, T., Snigdha, N.J. and Kalyanapu, A., **2019**. Reservoir Routing Model for Cane Creek Lake, Cookeville, TN. Tennessee American Water Resources Association (TNAWRA) Symposium 2019. https://tinyurl.com/22hhhtds
9. Saha, P., Tasneem, J., **Islam, M.**, Khanum, R. and Nishat, A., **2019**, March. Assessment of flow regulation impacts by dams in Halda river using hydrological and hydrodynamic modelling. 7th International Conference on Water and Flood Management-ICWFM 2019. Conference Paper. https://tinyurl.com/yxypxvyb
10. Mahmood, F. and **Islam, M.**, **2017**. Analysis Of Intense Rainfall Runoff And Water Logging In Recent Years Due To Drainage Congestion In Chittagong City Using Hydrological Model. 5. http://dx.doi.org/10.13140/RG.2.2.31105.84329

Media Coverage

1. **The New York Times, 2025**. 'Forever Chemicals' Reach Tap Water via Treated Sewage, Study Finds. https://tinyurl.com/bde88mja
2. **The Washington Post, 2025**. These common medications could be releasing 'forever chemicals' into the environment. https://tinyurl.com/2x9pfpfw
3. **CNN, 2025**. Scientists discover concerning new source of 'forever chemicals' in drinking water. https://tinyurl.com/y9t3rm84
4. **NCSU News Release, 2024**. Machine Learning Predicts Highest-Risk Groundwater Sites to Improve Water Quality Monitoring. https://tinyurl.com/fh3kv2b3
5. **EurekAlert, 2024**. Machine learning predicts highest-risk groundwater sites to improve water quality monitoring. https://tinyurl.com/ytdttbyx

Clubs, Leadership & Volunteering

PhosForUs Podcast Team [https://steps-center.org/phosforus/] *2022 - Present*
- Scripting, Planning, Podcast Recording.

Student Leadership Council (SLC) Member at STEPS Center [https://steps-center.org/] *2022 - 2023*
- Secretary

Volunteered at ASU Open Door Event [https://opendoor.asu.edu/] *2024*
- Demonstration of water treatment and phosphorus sustainability to K-12 kids.

Bangladesh Students Association Arizona State University (BSA-ASU) *2022 - 2023*
- Cultural Secretary

Bangladesh Students Association of Tennessee Tech University (BSA-TTU) *2019 - 2020*
- Treasurer

Volunteered at Putnam County Clean-up Program in Tennessee *2018 & 2019*
- Awarded for the contribution in 2019 from the city Mayor. • Herald-Citizen featured our work in 2019.

Volunteered at H2GO Fab Friday at Tennessee Tech University *2020*
- Demonstration of water supply systems to school going kids.

Hobbies

1. Music
2. Running
3. Hiking
4. Vlogging