

Hafiz Usama Tanveer

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SUMMARY

Water and environmental-health researcher and chemical engineer who combines analytical chemistry, evidence synthesis, mathematical modeling, and field implementation to evaluate how interventions perform outside controlled settings. Co-founded PakVitae, now EveryWater, and led hollow-fiber membrane technology from laboratory research through manufacturing and delivery in resource-constrained settings. At George Mason University, developed trace disinfection-byproduct methods and quantified measurement bias; now leads clinical-outcomes research and care-delivery innovation using operational and environmental data to improve service delivery and resource decisions.

PROFESSIONAL EXPERIENCE

Safe Life Home Health Care

Chicago and Lombard, Illinois

Program Manager, Clinical Outcomes Research & Care Delivery Innovation

September 2023 to present

- Redesigned the care-delivery model for a Medicare-certified provider with a 450+ average daily census, creating diagnosis-led clinical pathways across 5 specialty areas and using clinical, utilization, workflow, and Medicare quality data to prioritize case triage, staffing, coordination, and follow-up.
- Contributed to an agency-wide Quality of Care rating increase from 2.5 to 4.5 and a reduction in rehospitalization from 16% to under 8% during the broader clinical and operational redesign; used outcome trends to decide which workflows and staffing changes required further attention.
- Led implementation of Andy-AI ambient clinical documentation, saving clinicians an average of 8 hours per week previously spent on documentation, returning time to bedside care, and reducing a major administrative contributor to clinician burnout.
- Pioneered a clinician-facing home-environment assessment model and app used in 2,100+ evaluations; standardized high, medium, and low risk classifications, assigned follow-up ownership, and supported adoption of the assessment approach by 3 additional healthcare providers.
- Built Python analyses linking diagnoses, visits, hospitalizations, geography, and structured home-environment findings to examine patterns associated with adverse outcomes and target clinical review. The assessment covers drinking-water access and private wells, sanitation, dampness and mold indicators, ventilation, infection and fall hazards, and power continuity.
- Implemented a shared care-coordination platform for clinicians, schedulers, and support teams, standardizing handoffs, escalation, task ownership, and closure while tracking documentation timeliness, follow-up, and workflow adoption.

George Mason University

Potomac Science Center, Virginia

Graduate Research Assistant, Water Quality Engineering Laboratory

August 2021 to May 2023

- Developed and validated triple-quadrupole GC-MS/MS methods for a \$200,000 grant-funded drinking-water project, measuring approximately 60 volatile and semi-volatile disinfection byproducts at reporting limits near 1 ng/L, or approximately 1 part per trillion, about 100 times lower than conventional 100 to 300 ng/L limits.
- Analyzed 29 DBPs across tap water from 10 distribution systems to determine how left-censored results affected exposure and toxicity estimates; found that conventional detection limits could miss 7% to 41% of calculated mixture toxicity while missing only 1% to 8% of total DBP mass in the tested waters.
- Quantified bias introduced when laboratories substitute zero or one-half of the reporting limit for non-detects, making previously unmeasured DBPs visible and developing a reporting framework intended to improve national-level comparisons of drinking-water exposure, treatment, and risk.
- Investigated chlorocyanurate disinfection across regulated and unregulated DBP classes; the published study found 10% to 50% lower regulated byproducts but 50% to 200% greater bromine incorporation across most tested classes and higher calculated toxicity under most conditions.
- Coordinated sampling, laboratory methods, analysis, and reporting across 7 teams at 3 institutions, communicating results to the US Geological Survey and participating drinking-water utilities.

PakVitae, now EveryWater

Co-founder and Chief Technology Officer

Pakistan and Singapore
August 2016 to August 2021

- Co-founded and helped build a membrane-technology company, leading research, product development, pilot manufacturing, commercialization, and early field implementation of water-treatment systems designed for communities with unreliable electricity and limited access to replacement supplies.
- Led development of gravity-fed and pressurized filtration solutions deployed through partner programs in Pakistan, India, and Senegal, reaching 500,000+ people across 3 countries.
- Expanded membrane R&D from Lahore to a Singapore laboratory in 2019, directing polymer and bore formulations, fiber spinning, membrane characterization, module fabrication, permeation testing, and product integration across 100 nm and 16 nm ultrafiltration grades and nanofiltration and reverse-osmosis development.
- Developed manufacturable hollow-fiber membrane and module designs for the innovation protected by 3 granted patents: 2 US and 1 European.
- Helped raise \$8M+ in equity, bank, and grant financing by preparing proposals and translating research, tooling, manufacturing, quality testing, and deployment requirements into budgets, technical milestones, and implementation plans.
- Secured early international seed-grant support across Belgium, France, the United Kingdom, the United States, and the United Arab Emirates, helping move the technology from prototype development into manufacturing and field delivery.
- Combined membrane performance, production yield, unit cost, maintenance requirements, and field feedback to guide product configurations and investment priorities. A separate 15,000-person program conducted from 2017 to 2021 was reported in the One Young World Impact Report to generate \$15 in social value per \$1 invested.

RESEARCH PORTFOLIO

Published Research

1. Adusei, K.B.; **Tanveer, H.U.**; Kralles, Z.T.; Furst, K.E. (2026). Enhanced Formation of Brominated and Nitrogenous Disinfection Byproducts in Drinking Water Disinfection with Chlorocyanurates. *Environmental Science & Technology*, 60(1), 1357-1367. [DOI](#)
2. **Tanveer, H.U.**, et al. (2026). Evaluating the Impact of Emerging Contaminants on Membrane Performance in Ultrapure-Water Production for Semiconductor Manufacturing: A PRISMA-Directed Meta-Analysis. *IEEE Transactions on Semiconductor Manufacturing*, 39(2), 358-368. First author. [DOI](#)
3. **Tanveer, H.U.**, et al. (2024). Impact of Contaminated Water on the Prevalence of Diarrheal Diseases in Children. *Frontiers in Health Informatics*, 13(8), 5564-5571. First author; cross-sectional observational study.
4. Faheem, H.H.; **Tanveer, H.U.**; Abbas, S.Z.; Maqbool, F. (2021). Comparative Study of Conventional Steam-Methane-Reforming and Auto-Thermal-Reforming with Their Hybrid Sorption-Enhanced and Environmentally Benign Process Models for Hydrogen Production. *Fuel*, 297, 120769. [DOI](#)

Submitted and Under Review

- Small-Scale Water Treatment Systems for PFAS Removal in the United States: Technologies, Costs, and Environmental Justice Implications. Critical review submitted to the *Journal of Environmental Management*.
- Water Quality Considerations for Sustainable Data Center Cooling: Treatment Needs, Reuse Potential, and Environmental Trade-offs. Review article submitted to *Environmental Technology Reviews*.

Research in Preparation

- Nationwide Assessment of Per- and Polyfluoroalkyl Substances in US Public Drinking Water Systems: Detection Patterns, Screening Exceedances, and Predictors of Contamination from UCMR 5 Monitoring Data. In preparation for *ACS ES&T Water*.
- Pushing the Method Detection Limits to Minimize Bias in Calculated Disinfection-Byproduct Toxicity Due to Censored Data. Methods manuscript in preparation.
- Water Sustainability in US Semiconductor Manufacturing: Treatment Technologies, Implementation Barriers, and a Multi-Criteria Water Technology Selection Framework for Fabs. Working paper prepared for the *Journal of Cleaner Production*.
- What the Proposed PFAS Rescission Changes for US Drinking-Water Protection. Policy-analysis manuscript prepared for *AWWA Water Science*.

Patents

Co-inventor, *Hollow Fiber Membrane for Filtration of Liquids*: US 11,148,100 B2 (2021), US 11,395,992 B2 (2022), and EP 3 563 928 B1 (2023).

Peer Review

Peer-review service by journal (completed assignments): *Journal of Water and Health* (30); *Applied Water Science* (9); *Chemical Engineering Research and Design* (5); *Journal of Water, Sanitation and Hygiene for Development* (5); *Water Cycle* (3); *Water Policy* (3); *Case Studies in Chemical and Environmental Engineering* (3); *International Journal of Environmental Science and Technology* (1).

EDUCATION AND PROFESSIONAL TRAINING

University of Chicago

Autumn 2026

Master's Program in Environmental Science | Concentrations: Environmental Policy & Data Science

George Mason University

2021 to 2023

MS, Civil and Infrastructure Engineering | Concentration: Environmental and Water Resources Engineering

University of Engineering and Technology, Lahore

2014 to 2018

BS, Chemical Engineering

Florida State University

Fall 2016

Academic Exchange, Chemical Engineering | Global Undergraduate Exchange Program in Pakistan, US Department of State

TU Delft Extension School

2020

Certificate of Professional Education, *Nanofiltration and Reverse Osmosis in Water Treatment*

CIVIC LEADERSHIP

Bilqees Trust

Pakistan

Founder and Program Lead

September 2021 to present

- Mentored and supported 70+ students from underserved backgrounds through tuition assistance, mentoring, progress reviews, and continued follow-up.
- Built a network of 90+ mentors and donors, primarily Pakistani professionals working abroad, matching financial support and professional guidance to students' needs.

METHODS AND TECHNICAL SKILLS

- **Research and quantitative methods:** Experimental design; observational analysis; systematic review and meta-analysis; evidence extraction; sensitivity and uncertainty analysis; left-censored data analysis; mathematical modeling; process simulation; linear programming; multi-criteria decision analysis; treatment-cost and lifecycle-cost comparison; scientific writing and peer review.
- **Data and software:** Python, R, Excel, GAMS, gPROMS Model Builder, ASPEN HYSYS, ASPEN Plus, ROSA, and AutoCAD; data cleaning, statistical analysis, visualization, scenario modeling, reproducible workflows, and geographic data integration.
- **Water systems and laboratory:** Membrane formulation and spinning; ultrafiltration, nanofiltration, and reverse osmosis; module fabrication; flux and molecular-weight-cutoff testing; SEM, FTIR, TOC, and GC-MS/MS; drinking-water sampling; disinfection byproducts; PFAS treatment.
- **Program delivery and funding:** Field implementation; care-delivery redesign; monitoring frameworks; technology adoption; cross-functional coordination; grant and investment proposals; budgets; milestone planning; stakeholder communication.

SELECTED RECOGNITION

Commonwealth Youth Awards, Asia regional winner (2020); Forbes 30 Under 30 Asia, Social Entrepreneurs (2020); Meaningful Business 100 (2022); One Young World Ambassador (2019, 2021); Hult Prize regional winner, Dubai (2018); Young Water Fellow (2017).

INTERESTS

Cricket, international travel, civic leadership, community mentoring, distance running, and health and fitness.