Rafia Zaman

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Education

Sep 2018-Aug 2022	Doctor of Philosophy - PhD (Sub: Sustainability and Innovation Management) at **University of Graz**, Austria (Austrian Science Fund fellowship) Thesis: "Sustainable electricity access in rural areas: An empirical investigation of institutional arrangements and distributional (in)equality" Advisors: Alfred Posch and Birgit Bednar-Friedl
Aug 2014-May 2016	Master in Business Administration (major in Finance) at **Asian Institute of Technology**, Thailand (Asian Development Bank fellowship) Grade: 3.95/4.00 (Best Graduate and Best Female Graduate) Thesis: "An application of AHP in prioritizing critical factors in coal-based power generation: A case of Bangladesh" Advisors: Nazrul Islam and Sivanappan kumar
Jul 2005-Apr 2010	Bachelor in Business Administration (major in Finance) at **Khulna University**, Bangladesh Grade: 3.91/4.00 (First position with distinction) Internship thesis: "Asset-Liability management practices in commercial banks"

Work Experience

Postdoctoral Associate (Oct 2022 - Present) at Duke University, Sanford School of Public Policy (Lab: James E. Rogers Energy Access Project), Durham, North Carolina, USA

Research focus: I study how micro-level actors – households, farmers, firms, and communities – adapt to resource constraints and environmental pressures, such as unreliable electricity, changing irrigation patterns, and drought shocks. Using field experiments (experimental games, randomized controlled trials), non-market valuation (discrete choice experiments, contingent valuation, consumer damage functions), econometric analysis of cross-sectional and panel data, and spatial methods, I examine how preferences, beliefs, and constraints influence self-selection into programs and services, intentions to adopt new practices or technologies, and how incentives, reliability issues, and governance arrangements shape behavior, assessing the resulting impacts on development outcomes. While grounded in reliable energy access and groundwater irrigation, these questions extend to climate adaptation more broadly. I am increasingly applying this approach to ecosystem-based adaptation and displaced community contexts to study how shifts in policy direction, unexpected interventions, and variations in policy design affect decision-making and long-term resilience.

Prior Research Experience and Visiting Positions

Sep 2018-Sep 2022	Research project staff - Doctoral candidate Institute of Systems Sciences, Innovation and Sustainability Research (FWF- DK Climate Change), University of Graz, Austria
Sep 2021-Dec 2021	Vising Researcher Multi-Actor Systems Dept., Technology University of Delft, Netherlands *Invitation:* Asst. Prof. Dr. Jenny Lieu
Sep 2017-May 2018	Postgraduate Researcher (Ernst Mach fellowship) Institute of Systems Sciences, Innovation and Sustainability Research University of Graz, Austria *Invitation:* Prof. Dr. Thomas Brudermann

Research and Methodology Interests

Core Research Areas: Energy and irrigation governance; climate adaptation and environmental policy in resource-constrained settings; micro-level development outcomes linked to behavioral responses to pricing, reliability, and service quality; institutional design and political economy in resource allocation; and sustainability and access transitions.

Expanding Interests: Policy design in service delivery systems, including utilities, community resilience, adaptation planning, and population mobility.

Methodological Approaches: Experimental and quasi-experimental econometrics; spatial analysis; non-market valuation techniques; multi-criteria decision analysis (MCDA); interpretive structural modeling (ISM); and text analysis.

Publications

Manuscript(s) in review:
Zaman, R. and Jeuland, M. (2025) Powering livelihoods by avoiding household damages: Household willingness to pay for electricity reliability in Sierra Leone; submitted to *Journal of the Association of Environmental and Resource Economists*; status: under review (July 2025)

Manuscripts in preparation:
Zaman, R. and Jeuland, M. (2025) How Do Farmers Cooperate? Multi-game evidence from irrigation-based behavioral experiments; status: work-in-progress

Zaman, R. and Jeuland, M. (2025) Willingness to pay for self and community electricity access in Sierra Leone: Evidence from contingent valuation method; status: work-in-progress

Zaman, R. and Jeuland, M. (2025) Can farmers save water and value the technology? Evidence from an Alternate Wet and Drying (AWD) pilot and valuation study in Bangladesh; Status: pilot completed, data analysis in progress; valuation survey to begin soon (awaiting IRB approval)

Zaman, R., Jeuland, M., Rabbani A., and Pattanayak, Subhrendu (2025). Pricing, participation, and perception: How institutional irrigation governance shapes development resilience Outcomes in Rural Bangladesh; status: data collection to begin soon (awaiting IRB approval)

Peer-Reviewed Articles:
Zaman, R. and Borsky, S. (2025) Solar power play: Uncovering political capture in electricity access program; *World Development*, 193: 107019. https://doi.org/10.1016/j.worlddev.2025.107019

Zaman, R., Das, D.K., van Vliet, O. and Posch, A. (2021) Distributional inequality in market-

based solar home system programs: Evidence from rural Bangladesh, *Energy Economics*, 103: 105523. https://doi.org/10.1016/j.eneco.2021.105523

Zaman, R. and Borsky, S. (2021) The impact of supply structure on solar home system installations in rural off-grid areas, *Environmental Innovation and Societal Transitions*, 40: 625 -644. https://doi.org/10.1016/j.eist.2021.10.015

Brudermann, T., Zaman, R. and Posch, A. (2019) Not in my hiking trail? Acceptance of wind farms in the Austrian Alps, *Clean Technologies and Environmental Policy*, 21(8): 1603–1616. https://doi.org/10.1007/s10098-019-01734-9

Zaman, R. and Brudermann, T. (2018) Energy governance in the context of energy service security: A qualitative assessment of the electricity system in Bangladesh, *Applied Energy*, 223: 443–456. https://doi.org/10.1016/j.apenergy.2018.04.081

Zaman, R., Brudermann, T., Kumar, S. and Islam, N. (2018) A multi-criteria analysis of coal-based power generation in Bangladesh, *Energy Policy*, 116: 182–192. https://doi.org/10.1016/j.enpol.2018.01.053

Sangkakool, T., Techato, K., Zaman, R. and Brudermann, T. (2018) Prospects of green roofs in urban Thailand - A multi-criteria decision analysis, *Journal of Cleaner Production*, 196: 400–410. https://doi.org/10.1016/j.jclepro.2018.06.060

Research letters and conference proceedings:

Zaman, R., van Vliet, O. and Posch, A. (2021) Energy access and pandemic-resilient livelihoods: The role of solar energy safety nets, *Energy Research & Social Science*, 71: 101805. https://doi.org/10.1016/j.erss.2020.101805

Tabara, J. D., Lieu, J., Zaman, R., Ismail, C. and Takama, T. (2021) On the discovery and enactment of positive socio-ecological tipping points: insights from energy systems interventions in Bangladesh and Indonesia, *Sustainability Science*, 1-7. https://doi.org/10.1007/s11625-021-01050-6

Zaman, R., Hofer, C. and Brudermann, T. (2018) One step ahead, two steps backwards: Energy transitions and coal in developing countries, *In International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE), IEEE.* https://ieeexplore.ieee.org/document/8635651

Zaman, R. and Brudermann, T. (2017) Energy governance in resource-poor settings: The case of Bangladesh, *Energy Procedia*, 142: 2384–2390. https://doi.org/10.1016/j.egypro.2017.12.171

Projects

Ongoing Project (May 2024 – Nov 2025): **Institutional arrangements and their implications for energy choice and downstream water conservation: Insights from rural Bangladesh**.

Donor: International Growth Centre, London School of Economics and Political Science. Status: Phase 1 — Behavioral field experiments and irrigation pilot completed; data analysis and manuscript preparation underway. *Phase 2* — Comprehensive farmer survey to launch early September; instrument design in progress.

Upcoming Project (Dec 2025 – Dec 2026): **Switching the current: Evidence on reliability and metering innovations in urban utilities**.

Data provider: Dhaka Electric Supply Company Ltd. (no external funding). *Status:* Data acquisition in approval stage.

Completed Project (Oct 2022 – Sep 2023) **Willingness to pay for improved electricity services and energy access in Sierra Leone**.

Donor: Millennium Challenge Corporation, USA (with Social Impact, USA).

Honours and Awards

Sep 2017	Ernst Mach Grant–worldwide, Austrian Agency for International Cooperation in Education & Research (OeAD-GmbH)
May 2016	The AIT Alumni Association Prize and The Shoichiro Toyoda Prize, Asian Institute of Technology, Thailand
Oct 2012	The Prime Minister Gold Medal 2011, University Grants Commission of Bangladesh
Dec 2010	The University Chancellor Gold Medal 2009, Khulna University, Bangladesh