

# Munshi Md Rasel, M.Sc., E.I.T

Graduate Research Assistant, Department of Civil, Environmental, and Infrastructure Engineering,  
George Mason University, 5055 Seminary Rd, Apt 1214, Alexandria, VA 22311  
Contact No: 571-277-3331, E-mail: [mrasel@gmu.edu](mailto:mrasel@gmu.edu)

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## **SUMMARY**

I am an environmental engineer with three years experience in air pollution modeling and air pollution exposure disparity which is becoming more complex every day, requiring creative and sound engineering answers. My goal is to face these challenges with the knowledge and experience I have acquired over the last two years to create a safe and clean environment for our current & future generations.

## **PROFESSIONAL EXPERIENCE**

- **Graduate Research Assistant**, Department of Civil, Environmental, and Infrastructure Engineering, George Mason University, Fairfax, VA (August 2020- Present)
  - Sector-wise air pollution trend analysis using statistical and chemical transport model
  - Air pollution exposure and disparity analysis
  - Policy analysis and evaluation in terms of human health benefits
- **Graduate Research Assistant**, District of Columbia Water and Sewer Authority, Washington, DC (June 2017-August 2020)
  - Evaluated the impact of thermal dose on sludge rheology due to thermal hydrolysis pre-treatment process
  - Evaluated the performance of anaerobic digesters under dynamic operation.
  - Development of acoustic fingerprint to control and monitor the performance of anaerobic digesters
  - Worked with the full-scale anaerobic digesters to monitor its operating conditions.
- **Lecturer**, Department of Civil and Environmental Engineering, Ahsanullah University of Science and Technology, Bangladesh (October 2014 -December 2016)
  - Taught undergraduate courses and took lab classes
  - Rainfall modelling to generate IDF curves for different states of Bangladesh

## **EDUCATION**

### **Ph.D. in Civil, Environmental, and Infrastructural Engineering (projected graduation: Summer, 2024)**

George Mason University, Fairfax, VA, USA | CGPA: 4.0 on a scale of 4.0 | Major: Environmental Engineering (Air pollution modelling) | August 2020- July 2024 (Anticipated)

### **M.Sc. in Civil & Environmental Engineering**

The George Washington University, Washington, DC, USA | CGPA: 3.83 on a scale of 4.0 | Major: Environmental Engineering (Wastewater Resource Recovery) | May 2017 – August 2019

### **B.Sc. in Civil Engineering**

Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh | CGPA: 3.96 on a scale of 4.0 | April 2010 – June 2014

## **PROFESSIONAL CERTIFICATION**

- Engineer-in-Training (Environmental, Texas Board, EIT No. 77714)

## **RESEARCH INTERESTS**

- Air pollution accountability over large spatial-temporal scales

- Environmental justice and air quality disparity
- Environmental policy analysis and understanding health effects of environmental interventions
- Air pollution modeling using statistical and chemical transport models

### **RELEVANT COURSEWORK**

Air pollution formation & control | Atmospheric Dynamics | Aerosols | Hazardous waste management | Industrial waste treatment | Environmental impact assessment | Water quality | Microbiology for environmental engineers | Environmental Chemistry | Water and wastewater treatment processes | Advanced treatment processes | Numerical methods in environmental and water resources | Principles of Environmental Engineering | Advanced sanitary engineering design | Data science in Civil & Environmental Engineering

### **JOURNAL PUBLICATIONS**

- **Munshi Md Rasel**, Kevin L. Chen, Rachel C. Nethery, and Lucas R.F. Henneman, (2022), “COVID-19 and beyond: COVID-19 interventions and power plant emissions in the United States”, Environmental Science & Technology - ACS Publications (Under review)
- Henneman, L. R., **Rasel, M. M.**, Choirat, C., Anenberg, S. C., & Zigler, C. (2023). Inequitable exposures to US coal power plant–related PM 2.5: 22 years and counting. *Environmental Health Perspectives*, 131(3), 037005.
- **Rasel, M. M.**, & Hossain, S. M. (2015). *Development of rainfall intensity duration frequency (R-IDF) equations and curves for seven divisions in Bangladesh*. International Journal of Scientific & Engineering Research, 6(5), 96-101.
- **Rasel, M. M.**, & Islam, M. M. (2015). *Generation of rainfall intensity-duration-frequency relationship for North-Western Region in Bangladesh*. IOSR Journal of Environmental Science, Toxicology and Food Technology, 9(9), 41-47.

### **CONFERENCE PROCEEDINGS**

- **Munshi Md Rasel**, Kevin L. Chen, Rachel C. Nethery, and Lucas R.F. Henneman, “COVID-19 and beyond: COVID-19 interventions and power plant emissions in the United States”, 21<sup>st</sup> CMAS Conference, UNC-North Carolina, November 2021
- **Munshi Md Rasel**, Kevin L. Chen, Rachel C. Nethery, and Lucas R.F. Henneman, “COVID and Beyond: Impact of COVID-19 intervention on 2020 power plants emissions in the United States using generalized synthetic control methods”, A&WMA 115th Annual Conference & Exhibition, June 2022, San Francisco, CA, United States
- **Munshi Md Rasel**, Kevin L. Chen, Rachel C. Nethery, and Lucas R.F. Henneman, “Assessing the impact of COVID-19 on power plants emissions in the United States using generalized synthetic control methods”, 20<sup>th</sup> CMAS Conference, UNC-North Carolina, November 2021
- **Munshi Md Rasel**, Mandy Mitchel, Rumana Riffat, Matthew Higgins, Charles Bott, Sudhir Murthy, Ahmed Al-Omari, Christine de Barbadillo, Haydee De Clippeleir, “Gelation factor as potential Indicator of overcooking solids in thermal hydrolysis process” 93<sup>rd</sup> Annual Water Environment Federation Technical Exhibition & Conference, Chicago, Sept 2019
- **Munshi Md Rasel**, Mandy Mitchel, Rumana Riffat, Matthew Higgins, Charles Bott, Sudhir Murthy, Ahmed Al-Omari, Christine de Barbadillo, Haydee De Clippeleir, “Determination of the optimal thermal dose input for maximum AD kinetics based on the gelation potential of sludge” WEF/IWA Residuals and Biosolids Conference, Florida, May 2019

- **Munshi Md Rasel, Shahana Akter Esha**, “*Identifying The Parameters Of Rainfall Intensity-Duration-Frequency Relationship: A Case Study For North-Eastern Region In Bangladesh*”, International Conference on Advances In Civil Engineering, CUET-Chittagong, Bangladesh, 2016
- **Munshi Md Rasel**, Md Tashfique Uddin Chowdhury, “*Modeling of Rainfall Intensity Duration Frequency (R-IDF) Relationship for Seven Divisions of Bangladesh Using LPTIII Method*” International Conference on Recent Innovation in Civil Engineering for Sustainable Development (IICSD-2015), DUET-Gazipur, Bangladesh, December 2015

### **TECHNICAL SKILLS**

Air pollution modeling: WRF, CMAQ, SMOKE, EJSCREEN | Programming language: C, C++, R, RStudio, Python, Matlab, NCL | Analysis Software: Lab VIEW, Origin Lab, WAVE, SUMO, GIS | Drawing: Auto CAD 2D-3D, Sketchup, VERDI, GrADS | Others: Adobe Photoshop, Microsoft office (Word, Excel, Power point, Excess)

### **PROFESSIONAL AFFILIATIONS**

American Society of Civil Engineers (ASCE) | Water Environment Federation (WEF) | Institute of Engineers of Bangladesh (IEB) | Federal Water Quality Association | International Water Association (IWA) | American Academy of Environmental Engineers & Scientists (ACEES) | Air & Waste Management Association (A&WMA)

### **ACADEMIC HONORS**

- Graduate Research Assistantship, George Mason University, USA
- Graduate Travel Fund, George Mason University, USA
- Graduate Tuition Award, George Mason University, USA
- Graduate Fellowship Award, The George Washington University, USA
- Teaching Assistantship, George Washington University, USA
- Graduate Research Assistantship Award, The George Washington University, USA
- Professional Development Fund, The George Washington University, USA
- Dean’s List of Honors, Ahsanullah University of Science and Technology, Bangladesh
- Tuition Award, Ahsanullah University of Science and Technology, Bangladesh
- Junior Scholarship, Government of Bangladesh.

### **VOLUNTARY EXPERIENCE**

- Volunteered in organizing ACM 2020 conference
- Volunteered for teaching Sewer Science Lesson organized by DC Water at Maret School (DC)
- Volunteered for constructing a bioswale and a green educational infrastructure at Treme Recreation Community Center, New Orleans, LA
- Ex-Vice President of Civil Engineering Society at Ahsanullah University of Science and Technology.
- Ex-General Secretary of Civil Engineering Society at Ahsanullah University of Science and Technology.

### **WEBSITES**

LinkedIN <https://www.linkedin.com/in/munshimdrasel/>

Github <https://github.com/munshimdrasel>