

# Dr. Mohammad Moniruzzaman

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**Principal Scientific Officer, Soil and Environment Research Section**

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## Education

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**Ph.D. in Environmental Remediation Technology** **November 2018**  
University of Dhaka, Dhaka-1000, Bangladesh

**M.S. in Environmental Science** **May 2006**  
Department of Soil, Water and Environment, University of Dhaka, Bangladesh

**B.Sc (Hons.) in Soil, Water and Environment** **June 2004**  
Department of Soil, Water and Environment, University of Dhaka, Bangladesh

## Professional Experience

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**Principal Scientific Officer** **December 2019 – Present**  
**Soil and Environment Research Section, Biological Research Division, BCSIR Dhaka Laboratories** Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

**Officer In-charge (Chief Coordinator)** **February 2020 – Present**  
**Central Analytical and Research Facilities (CARF)** Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

**Senior Scientific Officer** **August 2011 – December 2019**  
**Soil and Environment Research Section, Biological Research Division, BCSIR Dhaka Laboratories** Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

**Scientific Officer** **June 2006 – August 2011**  
**Soil and Environment Research Section, Biological Research Division, BCSIR Dhaka Laboratories** Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

**Consultant** **November 2017 – June 2019**  
**Clean Air and Sustainable Environment (CASE) Project, Funded by World Bank**

**Editor Associate** **June 2016 – Present**  
**Bangladesh Journal of Scientific and Industrial Research (BJSIR)**

**Head of Environmental Monitoring Group** **December 2018 – Present**  
**Dhaka Mass Rapid Transit (Metro Rail) Project**

**Head of Environmental Monitoring Group** **March 2020 – Present**  
**Shahjalal International Airport Expansion Project**

## Technical Skills and Competences

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- **Mass Spectrometry:** ICPMS (Nexion 2000, Perkin Elmer), LC-MS/MS (Agilent), GC-MS (Shimadzu)
- **AQMS:** Air Quality Monitoring System (Horiba)
- **Spectroscopy:** AAS (Shimadzu), FTIR (Thermo), Raman (Horiba), UV-Visible Spectroscopy (Analytik jena)
- **Chromatography:** Ion chromatography (Sekum), HPLC (Agilent), GC (Shimadzu)
- **Geospatial analysis software:** ArcGIS 9.2, HYSPLIT, GrADS

## Computational Skills

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- **Chemometrics software:** PMF 5.0, PCA
- **Programming:** JAVA, C/C++, Visual Basic, R Studio, Python
- **Statistic Software:** SPSS 22, OriginPro 2024, Graphpad Prism 10
- **Graphic Software:** Adobe Photoshop, Adobe Illustrator

## Research Grants (Selected)

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### Principal Investigator

- Program Director: Annual Development Program (ADP) (2009-2010)  
"Strengthening of the Laboratory for Maintaining Environmental Quality and Soil Health" under Ministry of Science and Technology
- Principal Investigator: Special allocation project 2016-2017  
"Effect of arsenic and selenium interaction on biomagnifications of arsenic in food chain at different arsenic affected areas of Bangladesh"
- Principal Investigator: Special allocation project 2020-2021  
"Environmental Performance Evaluation (EPE) of Fixed Chimney, Zigzag and Hybrid Hoffman Brick Kilns Incorporating Gravity Settling and Spray techniques"

## Publications (Selected)

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1. Hassan, M.R., Bhuiyan, M.N.H., **Moniruzzaman, M.**, Mahmud, M.S. and Samad, A. Pollution status and ecological risk assessment of heavy metals in surface water and sediment of an ecologically critical lake of Dhaka, Bangladesh. *Discover Water*, **2026**, 6(1), p.23.
2. Nawar, A., Shahrukh, S., Sadia, M.M., Miazi, R., Jashim, Z.B., Yasmin, F., Sultana, G.N.N., **Moniruzzaman, M.** and Hossain, M.E. Microplastic Pollution in Coastal Cox's Bazar, Bangladesh: Quantification, Distribution, and Characteristics. *Journal of Hazardous Materials: Plastics*, **2026**, p.100037.
3. Lisa, S.A., Nishat, S., Hossain, M.K., Hosen, L., **Moniruzzaman, M.**, Islam, M.S.M.M. and Sarkar, M.S.U. Investigative health and ecological risk assessment of trace elements in pharmaceutical deposition near Dhaka: An endemic industrial surge of Bangladesh. *PLoS One*, **2026**, 21(1), p.e0338816.
4. Ankhy, R.S., **Moniruzzaman, M.**, Salim, M.J.B., Islam, M.S.M.M., Das, S. and Bhattacharjee, S.C. Comprehensive analysis of heavy metals in street dust across urban and rural areas of Chattogram City, Bangladesh: occurrence, sources, and health risks. *Environmental Geochemistry and Health*, **2026**, 48(1), p.5.
5. Arafat, M.Y., Alam, M.S., Saha, B., Bashir, M.S., Bhuiyan, M.N.H. and **Moniruzzaman, M.** Urban Atmospheric Microplastic Distribution and Potential Health Impact in Dhaka City, Bangladesh. *Journal of Hazardous Materials: Plastics*, **2025**, p.100029.

6. Das, N., Barua, S., Kashem, M.A., **Moniruzzaman, M.**, Bashar, M.S. and Islam, M.S. Dye removal from wastewater using ferrihydrite-modified sugarcane bagasse and biochar: adsorption performance and modeling analysis. *Environmental Challenges*, **2025**, p.101390.
7. Uddin, M.J., Nahar, N., Paul, A. and **Moniruzzaman, M.** Evaluation of Surface Water Quality Affected by Industrial Effluents Near Tannery Industrial Area: Heavy Metal Concentrations and Ecological Toxicity Index Measurement. *Water, Air, & Soil Pollution*, **2025**, 236(15), p.989.
8. Abedin, M.J., Wangwongwatana, S., Bhuiyan, M.N.H., **Moniruzzaman, M.**, Tan, Q. and Liang, L. Health risk assessments of worker exposure to heavy metals in informal e-waste recycling communities in Chattogram City, Bangladesh. *Chinese Journal of Analytical Chemistry*, **2025**, p.100654.
9. Maya, M.B.M., Islam, M.S.M.M., Mostafiz, F., Moshfeka, H., Sakib, S., Saha, B., Hossain, M.K., **Moniruzzaman, M.** and Islam, M.M. Health Risk Assessment and Seasonal Investigation of Trace Metals in Different Organs of Sea Bass Fish from Cox's Bazar, Bangladesh. *Food Chemistry Advances*, **2025**, p.101185.
10. Anam, U., Chakraborty, A., Saifullah, M.K., Gupta, T., Reza, M.S., Khatun, M.A., Mim, F., **Moniruzzaman, M.**, Munshi, M.K., Hossain, M.A. and Iqbal, M.M. Tubificid worms reveal hidden pollutants in tropical upstream freshwater ecosystem. *Chemical Engineering Journal Advances*, **2025**, p.100928.
11. Mithu, M.M.U., Shormela, S.A., Abdullah, A.T.M., Mubarak, M., Rahman, M.M., Khan, T.A., **Moniruzzaman, M.** and Islam, M.S. Exploring Heavy Metal Bioaccumulation in Vegetables: Unraveling Environmental Pollutants' Impact on Agricultural Produce and Human Health. *Biological Trace Element Research*, **2025**, pp.1-16.
12. Hossain, M.K., Sultana, S., Parvin, A., Islam, F., **Moniruzzaman, M.**, Saha, B., Parvin, A., Solayman, H.M. and Sharmin, S. Arsenic and heavy metal contamination in drinking water from an industrial zone in Dhaka District, Bangladesh. *PLoS One*, **2025**, 20(10), p.e0332601.
13. Saha, P., Shristy, N.T., Nahar, A., Arefin, P., **Moniruzzaman, M.**, Jamal, A.H.M.S.I.M., Al-Mansur, M.A. and Akbor, M.A. Assessment of Caffeine, Trace Metals, and Associated Health Risks in Popular Carbonated and Energy Drinks in Bangladesh Using Advanced Analytical Techniques. *Journal of Food Composition and Analysis*, **2025**, p.108344.
14. Ghosh, A., Hossain, M.K., Karmaker, K.D., Rana, Z., Alam, M.J., Yousuf, A.H.M., Shreya, S.S., Rahman, M., Hamid, A., Parvin, A. and **Moniruzzaman, M.** Heavy Metal Pollution in the Sundarbans Mangrove Ecosystem: A Growing Environmental Concern. *Journal of Hazardous Materials Advances*, **2025**, p.100887.
15. Elora, A.A., Sarker, T., Tahmid, I., Paul, P., **Moniruzzaman, M.**, Ashaduzzaman, M., Saha, B.B. and Sarker, M. Highly efficient MnOX/TiO2@ NH2-ZIF-8 composite for the removal of toxic textile dyes from water. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **2025**, 718, p.136882.
16. Islam, M.M., **Moniruzzaman, M.**, Shoeb, M., Mamun, M.I.R. and Ankhy, R.S. Spatiotemporal dynamics, quality appraisal and source apportionment of water quality parameters in Shitalakshya River, Bangladesh. *Heliyon*, **2025**, 11(13).
17. Alam, O., Li, J., Uddin, M.R., Zheng, X., Hosen, S., Tanvir, N.I., **Moniruzzaman, M.**, Ahmed, F., Alam, R., Du, D. and Zhao, X. Unraveling the relations between heavy metals and microplastics transport and accumulation in the coastal environment. *Process Safety and Environmental Protection*, **2025**, p.107675.
18. Abedin, M.J., Wangwongwatana, S., Bhuiyan, M.N.H., **Moniruzzaman, M.**, Norkaew, S., Tan, Q. and Liang, L. Assessments of heavy metal contamination found in environmental samples from informal e-waste recycling communities in Chattogram City, Bangladesh. *Journal of Hazardous Materials Advances*, **2025**, p.100845.

## Conference Presentations

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- **Oral Presentations:** BCSIR Congress 2022 & 2024

## Thesis Supervision

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- Supervised more than 60 M.S. and 7 Ph.D. theses on topics including air pollution, heavy metal uptake, microplastics pollution, e-waste, bioabsorbent

## Professional Memberships

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- Soil Science Society of Bangladesh
- Bangladesh Botanical Society
- EDAPHOS
- Dhaka University Soil Science Alumni Association

## Professional Trainings and Workshops

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### Trainings Attended

- Acquiring Knowledge of Japan's Administrative Experiences and Recent Trends in Air Quality Management, JICA, Yokohama, Japan (8–19 December 2025)
- Raman spectroscopic technique, International HORIBA Instruments Incorporated, A HORIBA Scientific Company, Piscataway, New Jersey, USA (July–August 2019)
- Final National Action Plan for reducing SLCPs (Black Carbon) in Bangladesh, Department of Environment (DoE), Bangladesh (13–18 May 2018)
- Overview and Safe Use of Laboratory Ventilation Equipment, ESCO (9–12 April 2017)
- Management Skills for Project Executives, National Academy for Planning and Development, Ministry of Planning, Dhaka, Bangladesh (19–23 December 2010)
- Geographical Information System (GIS) using ArcGIS 9.2, Department of Geography and Environment, University of Dhaka, Dhaka, Bangladesh (6 Oct – 7 Nov 2009)
- Intellectual Property Rights (IPR), Bangladesh Agricultural Research Council (BARC), Food and Agriculture Organization of the United Nations (FAO) (28 May – 1 June 2009)
- International soil testing and formulated fertilization for ASEAN and South Asia, National Agro-Tech Extension & Service Center, Ministry of Agriculture, Beijing, China (10–23 October 2007)
- Industrial Pollution, Its Effects: Management and Mitigation, Institute of Chemists and Chemical Technology, Bangladesh (ICCTB), Bangladesh Chemical Society (BCS), Dhaka, Bangladesh (23–24 November 2012)

### Trainer Participation

- Provided Training on "Plastic/Paint & varnish analysis and operation of AAS, GC-MS, HPLC system" for BOF (16–24 August 2018)

## Awards

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- MABS Young Scientist AWARD in recognition of outstanding achievement in thesis work for the year 2006, UNESCO, Paris, France (2006)

## References

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- Available upon request.

*Last Updated: Friday 27<sup>th</sup> February, 2026*