Resume of Dr Mohammad Mahmudur Rahman

Current employment

Associate Professor
College of Science, Engineering and Environment
The University of Newcastle (UON)
Callaghan Campus, Callaghan, New South Wales 2308, Australia.
Tel: +61 2 4913 8754; **Mobile**: +61 431 258 509
E-mail: *mahmud.rahman@newcastle.edu.au*

Websites

UON homepage: https://www.newcastle.edu.au/profile/mahmud-rahman
Google scholar: http://scholar.google.com.au/citations?user=LxbqSwkAAAAJ&hl=en&oi=ao
Publons: https://publons.com/researcher/1435936/mohammad-mahmudur-rahman/metrics/
Scopus: http://www.scopus.com/authid/detail.url?authorId=55163933600
Orcid: https://orcid.org/0000-0002-3426-5221

Recognition/ranking

a) I have been ranked among the **top 2% scientists** (under sub-fields: **Environmental Science, Public Health and Clinical Medicine**) in a global list compiled by the prestigious Stanford University in 2020 (published in PLOS Biology, https://doi.org/10.1371/journal.pbio.3000918).
b) As per Research.com, I have been ranked as **Top Scientists -Environmental Sciences** (National ranking: 64, world ranking: 1927) based on my h-index and citations https://research.com/u/mohammad-mahmudur-rahman?fbclid=IwAR3833n3VDZLS_0a-hVf1ziNGQjytRwc5ZFhfJ-sZq7C2c-Lfar4_UnzjcU

Educational qualifications

Degree: Ph.D. (Environmental Science), 24 March 2004
Field of study: Environmental Science.
Title of Ph.D. thesis: Present status of groundwater arsenic contamination in Bangladesh and detailed study of Murshidabad, one of the affected neighboring districts in West Bengal, India.

Degree: Master of Science, September 1999
Field of study: Physical and Inorganic Chemistry
Department/University: Chemistry, Jahangirnagar University, Bangladesh.

Degree: Bachelor of Science, August 1996
Field of study: Chemistry
Department/University: Chemistry, Jahangirnagar University, Bangladesh.

Professional work experiences/ positions

Details of position and employment of Dr Rahman are given below:

1. Senior Research Fellow, Global Centre for Environmental Remediation (GCER), University of Newcastle, Australia (Oct 2015 – to date).
2. Senior Research Fellow, Centre for Environmental Risk Assessment and Remediation (CERAR), University of South Australia, Australia (Jan 2012 – Oct 2015).
3. Research Fellow, Centre for Environmental Risk Assessment and Remediation (CERAR), University of South Australia, Australia (July 2007 – Dec 2011).
4. Research Associate, Centre for Environmental Risk Assessment and Remediation

(CERAR), University of South Australia, Australia (June 2004 - June 2007).

Academic awards

1. Supported Researcher Grant, University of South Australia (2006-2012).
2. ECR Travel Award. University of South Australia 2009.
3. Jaharwal Nehru Memorial Scholarship Scheme, New Delhi, India during P.D (2003-2004).
4. Indian Council for Cultural Relations (ICCR) scholarship, India during PhD (2002).
5. Visiting Scientist Travel Award, National Institute of Health Sciences, Tokyo, Japan during PhD (2002).

Teaching courses

I teach the following courses at my university

a) Ecotoxicity and Environmental Remediation (ENVS 3004) for undergraduate course (3rd year) and
b) Chemodynamics of Environmental Contaminants (ERAR 6002) for Master's course

Teaching experiences

I am able to teach both at undergraduate and post-graduate levels students. At the University of Newcastle, I have been involved into teaching 2 courses (i) Ecotoxicology, (ENVS 3004) at undergraduate level, and (ii) Chemodynamics of Environmental Contaminants (ERAR 6002) at postgraduate level. I am also able to teach environmental chemistry, soil chemistry, metals chemistry, Instrumental chemical analysis, technologies used for contaminants assessment and environmental remediation etc. Also, I was part of developing the Master of Environmental Remediation (MERAR) course at the University of Newcastle.

In my lecture, I usually use the procedure so that each individual develops the skills, which include cognitive skills such as focusing the memory and attention and problem solving, so that students may learn how to take the feedback of their assessment. As I am experienced on evaluating examination paper, thesis papers, review articles, I am able to assess the student paper properly and provide constructive feedback.

Current research contribution and activities

My current and future career focus is to be a thought leader and make my mark on new dimensions of research that would deliver high impact outputs. My research interest cover a broad range of topics including chemistry, toxicity, bioavailability, food chain and human health effects of arsenic, metals/metalloids speciation using hyphenated techniques, nano-encapsulated techniques for pesticides, lowering arsenic and cadmium from rice to enhance food security using agronomic approaches and agronomic bio-fortification of zinc and selenium in food crops to minimize micronutrient deficiencies, remediation of pollutants using innovative, cost effective and ecofriendly materials and the impact of emerging contaminants such as micro-plastics, antibiotics in the environment.

Arsenic contamination in groundwater. I have been highly creative and innovative in my research as demonstrated by my research on groundwater arsenic contamination and its associated health effects. Naturally occurring arsenic has been detected in groundwater from 107 countries worldwide. My research has been helped to understand the extent and severity of arsenic contamination, arsenic related non-cancer and carcinogenic effects, source and mobilization of arsenic, arsenic in food crops grown in contaminated areas. My research activity is very much focused on metals/metalloids, and in particular metal (loids) issues affecting Southeast Asian countries. The work also concentrates on human exposure to metals/metalloids through food chains. My research reveals how hydrologic, chemical and biological processes interact in soils, aquifers and waters to control chemical fate and transport of metals/metalloids. I tackle societally

relevant topics, such as food and water quality and human health risk. Recognizing the complexity of environmental systems, I take a multifaceted and cross-disciplinary approach. I harness knowledge and techniques from multiple disciplines, including environmental analytical chemistry, hydrogeology, soil science, plant physiology and agronomic approach to reduce the metals/metalloids contamination and uses a combination of observational, experimental, and field methods to examine processes that pose risk more than 200 million people worldwide. My research developed strategies such as the promotion of rice genotypes and vegetables that are safe to grow rather than those that bio-accumulate arsenic, cadmium and lead and improved irrigation options etc to help minimise community exposure to arsenic and other toxins (more than 100 articles have been published in reputed journals based on arsenic geochemistry, extent and severity, food chain, speciation, health effects etc research, please see resume).

Remediation of contaminants using novel, cost effective and ecofriendly materials. I have been actively involved in remediating various contaminants [(metal(loids) and textile dyes] from contaminated waters using clay/modified clay and biochar/modified biochar based biocompatible materials to safeguard human from potential exposure to multiple contaminants and the environment. I am also involved in degradation of textile dyes using clay/modified and Fenton-like process and estrogenic compounds from wastewater treatment works (publications: 10.1016/j.apsusc.2021.149122, 10.1038/s41598-021-86978-6, 10.1016/j.watres.2021.117257. 10.3390/w13030354, 10.1016/j.jhazmat.2020.124396, 10.1016/j.jhazmat.2020.124488, 10.1016/j.eti.2019.100380, 10.1016/j.eti.2020.100619).

Separation methods coupled with hyphenated techniques and sample extraction techniques. I am also involved in developing new and novel analytical methods that are widely used in the environmental monitoring. Chemical speciation of metals/metalloids are crucial for the human health risk assessment as the toxicity of contaminants vary based on their chemical forms and total concentrations of heavy metals are of little value. I have developed several new and novel analytical methods for the speciation of metal(loids) in environmental samples such as water, soil, plant and urine by ion chromatography coupled with inductively coupled plasma mass spectrometry (IC-ICP-MS) and detected by Electrospray Ionization MS and published in peer reviewed journals. I have extensive knowledge in the fields of analytical and speciation techniques of metals and metalloids. This is demonstrated in both the development of new extraction technique for the arsenic speciation in soil and plant matrices and analytical procedures. The development of new speciation methods has major significance for the assessment of toxicity, bioavailability and remediation practices and refinement of regulatory guidelines (publications: 10.1016/j.jhazmat.2020.124064,10.1016/j.chemosphere.2020.127134,10.1016/j.chemosphere.2018.09.158, 10.1016/j.chemosphere.2018.02.002, 10.3390/ijerph121012371, 10.1021/jf501077w, 10.1039/b705481e, 10.1002/jssc.200500304, 10.1016/j.microc.2007.10.007, 10.1081/ESE-120016883).

Arsenic accumulation in rice and rice-based products and human health risk. The presence of arsenic in rice grain diminishes the health of hundreds of millions of people worldwide. Food quality is an underappreciated aspect of food security, and my interdisciplinary approach can create knowledge needed to predict how rice grain quality and yield will change in the future due to contamination, evaluate health consequences of diminished grain quality, and develop approaches that can maintain future rice grain quality. My current research reveals geographical variations and age-related dietary exposure in rice along with cancer and non-cancer effects, inorganic arsenic in rice and rice-based diets and potential risk to babies and toddlers, lowering arsenic by managing irrigation options and arsenic bioavailability in various rice varieties using swine model to understand the human health risk. The findings have been published in several peer-reviewed journals (publications: 10.1016/j.scitotenv.2020.138937,

10.1016/j.chemosphere.2019.125070, 10.3390/ijerph15061056, 10.1016/j.foodcont.2017.06.030, 10.1016/j.scitotenv.2017.05.184, 10.1016/j.envint.2016.09.006, 10.1021/jf501077w, 10.1007/s10653-008-9238-x).

Strategies to prevent cadmium contamination of rice supplies to enhance food security. Cadmium (Cd) intake from rice represents an important route of exposure, especially for people consuming large amounts of contaminated rice in their diet, so mitigation measures to reduce the accumulation of Cd in rice are urgently needed. My research on Cd is to understand the impact of water management strategies on the chemistry of Cd at the root/soil interface and subsequent Cd accumulation in rice grain, assess the transport mechanisms of Cd in rice and the distribution and chemical forms of Cd accumulated in the rice grain under different hydrological regimes using synchrotron-based X-ray techniques. Currently a PhD student is working on the effect of water management and cadmium accumulation in rice. Another PhD student is also working on factors influencing such as role of Mn and Fe to minimize the uptake of Cd in rice grain (publications: 10.1016/j.scitotenv.2020.137049,10.1021/acs.jafc.0c04579,https://doi.org/10.1016/j.envadv.2021.100075).

Geochemistry and rehabilitation of mine site soil. Trace elements pollution at abandoned mine sites has received significant attention worldwide due to the potential threat to human and ecosystem health. A vast number of abandoned mine sites has been produced internationally due to the lack of clear delegation of responsibility. My research investigates the mineralogy of particle size fractions in relation to trace elements distribution in three mine sites (Webs Consols, Mole River and Halls Peak) at New England, NSW. The outcome of this study will provide significant information for the remediation of mine site soils (publications: 10.1016/j.jhazmat.2020.124185, 10.1016/j.jhazmat.2020.123931, 10.1016/j.jhazmat.2020.123029) .

Lead contamination and blood lead levels in lead-zinc mine. Lead poisoning in children is a major public health catastrophe worldwide including Australia. Lead is a heavy metal used in several industries such as the production of batteries, alloys, plastics, varnishes, etc. Inorganic lead compounds have been classified as probably carcinogenic to humans. I was involved on investigating the effect of mining on blood lead level and exposure pathways in children and adults living around a lead–Zinc site (publications: 10.1016/j.scitotenv.2015.10.143, 10.1007/s11356-017-9250-8,).

Nano-encapsulation materials for pesticides delivery. Nano-encapsulation is a promising approach for pesticide delivery due to reduce the dosage of pesticides, increase efficacy against pests, and finally to diminish human exposure to pesticides. I have been actively involved into research on the potentialities of different nano-encapsulation materials for pesticide delivery to investigate (i) pesticide encapsulation or loading ability and (ii) their pesticide releasing behavior. The next step of this research will be environmental fate, behavior and transport of nano-encapsulated materials. Several publications have been published on this topic (publications: https://doi.org/10.1016/B978-0-12-815829-6.00004-8,10.1021/acsanm.9b01769, 10.1021/acs.langmuir.8b00792,10.1021/acs.jafc.5b05214,10.1021/acs.langmuir.8b00792, 10.1021/acs.jafc.5b05214).

Bio-fortification of zinc and selenium in crops via fertilizations to alleviate malnutrition. About half of the world population suffers from micro-nutrient malnutrition, including selenium and zinc. Biofortification of crops with Se and Zn is a cost-effective and feasible approach to address malnutrition. I have been actively involved in supervising 2 PhD students and in their research, we apply Se/Zn fertilizers through foliar and soil application and hydroponic solution in

different forms of Se/Zn (nano-Se/ZnO fertilizers) to determine the impact on different plant parts (10.1071/CP21598; 10.1021/acsagscitech.1c00237;).

Bioaccessibility and bioavailability of contaminated soils and food. My research investigates the bioavailability and bioaccessibility of heavy metals such as arsenic, lead in soils and foods, which is essential for human health risk assessment accurately (publications: 10.1016/j.jhazmat.2020.124064,10.1016/j.chemosphere.2018.10.141,10.1007/s11356-017-9250-8, 10.1016/j.scitotenv.2017.04.215, 10.1016/j.envint.2016.04.009).

Trace metal(loids) in saltmarsh ecosystems. Although much is known about metal accumulation and distribution in plants, very little is known in endangered salt-tolerant halophytes. Their ability to manage high concentrations of salt may have implications for transporting toxic metals at polluted sites. Knowledge of elemental localisation is crucial for understanding bulk accumulation patterns and gaining a mechanistic understanding pathways of metal(loid) translocation in halophytes(publications:10.1016/j.jhazmat.2021.125515,10.1016/j.jhazmat.2021.126252,10.1016/j.marpolbul.2021.112475, 10.1016/j.scitotenv.2020.136576).

Impact of palm oil mill effluent in aquatic plants and biota. Palm oil mill effluent (POME) is a by-product of palm oil processing, which potentially contaminate the aquatic environment, and impact on the aquatic life. POME contains high concentration of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and suspended solids before processing. In our collaborative research, we investigate the impact of biota exposed to POME and phytoremediation option using aquatic plants (publications: 10.1016/j.eti.2020.101260, 10.1007/s11356-020-09410-y).

Carbon sequestration, composting and nutrient management. My research also involves in carbon sequestration, nutrient management as well as composing techniques (publications: 10.1007/s11356-021-12611-8, 10.1007/s10533-020-00653-y, 10.1016/j.apsoil.2020.103670, 10.1016/j.apsoil.2019.06.007, 10.1016/j.jenvman.2019.04.015, 10.1016/j.scitotenv.2019.02.125, 10.2134/agronj2017.04.0230).

Attract significant number of PhD students and supervision as research leader

UON encourages HDR supervision for researchers as supervising PhD students is one of the most significant and intensive teaching and mentoring experiences available to a researcher. I am/was involved in supervision of several PhD students as well as post-doctoral researchers under Australian Endeavour Fellowships. My research on arsenic toxicity attracted more PhD students from overseas to work with me. This is evident in strong interest from international students for PhD research in my research field. I am currently supervising 12 PhD students, which strongly demonstrates **my research leadership as an independent researcher**. I have played a vital role to attract international PhD students to UON. This is due to my collaborative networks internationally. I have also been successful in attracting 4 HDR students under a Bangladesh government scholarship (fees paying students), which clearly demonstrates my active role in promoting UON to the International community as a research leader and generate revenue for my university.

Current HDR Students Supervision

I have been highly successful to attract significant number of PhD students. The current HDR supervision is given below

1. Md. Maruf Billah, Role of Agricultural Extension Services in Farmers' Climate Change Adaptation and Resilience. 2022.

2. Md. Imran Ullah Sarkar, Rice Straw Biochar as a Tool for Remediation of Arsenic Contaminated Paddy Soil. 2022.
3. Md. Tofail Hossain, Selenium Phytoaccumulation by Neptunia Amplexicaulis and Morinda Reticulata: Study on Mechanism of Selenium Tolerance. 2022
4. Ms. Rosemary Patrick, The Effects of Metals on Semaphore Crabs (Heloecius cordiformis) from Molecular to Population-level. 2022.
5. Md. Moznu Shaike. Perfluorinated Alkyl Substances (PFAS) Present in Biota - Method Development and Assessment. 2021.
6. Shabnam Bahremand Abrasi, Chemometrics Based Spectroscopy For Emerging Contaminants. 2019.
7. Mr Amal Kanti Deb, Multifunctional and biocompatible clay-supported catalyst for the treatment of recalcitrant pollutants from industrial wastewater. 2018.
8. Mr Md. Abdul Halim, Plant Growth Promoting Bacteria (PGPB) assisted Cadmium (Cd) Rhizo-immobilization. 2017.
9. Mr Md. Harunur Rashid, Biofortification of mung bean with zinc to alleviate malnutrition and minimize cadmium uptake. 2017.
10. Mr Kh Ashraf Uz Zaman, Biocompatible multifunctional clay-supported iron nanoparticles for water remediation. 2017.
11. Mr. A.S.M. Fazle Bari, PhD student, Insight of Arsenic Behavior (Mineralogy, Fractionation and Bioaccessibility), Dissolution and Remediation of Abandoned Mine Site Soils in New South Wales, Australia. 2018.
12. Mr Abu Bakkar Siddique, Effect of iron and manganese plaques on Cd accumulation and transport in rice. 2017.

Past PhD Students Supervision

1. Dr Md. Aminur Rahman, Arsenic, Antimony and Phosphorus Removal from Contaminated Waters Using Raw and Modified Biochars: Insights into Mechanism of Redox Transformation. 2022.
2. Dr Syfullah Shahriar, Cadmium in Rice with Reference to Water Management and Cultivar Variation. 2021.
3. Dr Md Nuruzzaman, Nanoencapsulated Pesticide: Insights Of Pesticide Loading To Enhance The Sustainability Of Nanocarriers. 2018.
4. Dr Md Shofiqul Islam, Arsenic in Rice: Genotypic Variation and its Bioavailability with Respect to Human Health Risk Assessment. 2017.

Research outputs

Research output and quality

- Total publications: 190. I have published 161 international peer reviewed high impact journal publications, and 19 refereed book chapters. In addition, I have also authored/co-authored >80 conference abstracts published in different international conferences.
- According to the Scopus (SciVal), my citation impact for last five year (2017-2022) in the fields of Environmental Science, Environmental Engineering and Water Resources is well above world standard having been cited 2.36 times the world average with 20 articles.
- As per Google scholar, my h-index is **53 along with over 10,700 citations** (http://scholar.google.com.au/citations?user=LxbqSwkAAAAJ&hl=en&oi=ao).
- My total citation is around **6,500 with *h*-index of 43** as per publons (web of science) (https://publons.com/researcher/1435936/mohammad-mahmudur-rahman/metrics/).
- Publications in high ranking Journals such as Chemical Society Reviews (**IF 54.546**, 2/177 in Chemistry), Comprehensive Reviews in Food Science and Food Safety (**IF 12.24**, 2/139 in Food Science and Technology), Water Research (**IF: 11.236**, 6/277 in Environmental sciences),

Journal of Hazardous Materials (**IF: 10.58**, 8/277 in Environmental sciences), Environmental Health Perspectives (**IF 9.031**, 11/277 in Environmental sciences), Environment International (**IF: 9.621**, 18/277 in Environmental sciences), Environmental Science and Technology (**IF 9.028**; 15/277 in Environmental sciences), Bioresource Technology (**IF 9.642**, 12/156 in Biotechnology and Applied Microbiology), Talanta (**IF 6.057**, 11/86 in Chemistry, Analytical), Molecular Nutrition and Food Research (**IF 5.914**, 8/139 in Food Science and Technology), Journal of Analytical Atomic Spectrometry (IF 4.023, 5/42 in Spectroscopy) etc.

- I have been listed as **top 2% scientists** list by Stanford University.

Research Utilisation and Impact

My research findings have been reported by media and highlighted in several journal news and magazines such as RSC Environmental Chemistry Group Bulletin, American Chemical Society News, New Scientist (London), Environmental Science and Technology, Nature News, New Scientist, Nature Magazine etc. The American Chemical Society (ACS) has recognised the research of one of my PhD students as an outstanding work from authors in Australia to show the contributions that chemists have made to Australia and the world. My work on arsenic contamination has helped to mitigate this problem in Bangladesh and India. My ground-breaking research on arsenic test kits led to the discontinuing of the existing test kits for arsenic detection in West Bengal by the UNICEF. My application of knowledge is evident from the utilisation of his publications by UNICEF and other agencies in Bangladesh in dealing with arsenic pollution, as well as his current role in the University of Newcastle as a leading researcher through the development of new analytical methods for metals/metal(loids) speciation.

Scholarly book chapters and journal publications

1. Wijayawardena, M., Naidu, R., Rahman, M., & Kulathunga, M. (2021). Health risk assessment from heavy metals derived from drinking water and rice, and correlation with CKDu. *Frontiers in water*, (Water and Human Health). doi:10.3389/frwa.2021.786487
2. Natasha., Bibi, I., Niazi, N. K., Shahid, M., Ali, F., Masood ul Hasan, I., . . . Rinklebe, J. (2022). Distribution and ecological risk assessment of trace elements in the paddy soil-rice ecosystem of Punjab, Pakistan. *Environmental Pollution*, *307*. doi:10.1016/j.envpol.2022.119492
3. Fazle Bari, A. S. M., Lamb, D., MacFarlane, G. R., & Rahman, M. M. (2022). Soil washing of arsenic from mixed contaminated abandoned mine soils and fate of arsenic after washing. *Chemosphere*, *296*. doi:10.1016/j.chemosphere.2022.134053
4. Aminiyan, M. M., Rahman, M. M., Rodríguez-Seijo, A., Hajiali Begloo, R., Cheraghi, M., & Aminiyan, F. M. (2022). Elucidating of potentially toxic elements contamination in topsoils around a copper smelter: Spatial distribution, partitioning and risk estimation. *Environmental Geochemistry and Health*, *44*(6), 1795-1811. doi:10.1007/s10653-021-01057-z
5. Obayomi, K. S., Yon Lau, S., Akubuo-Casmir, D., Diekola Yahya, M., Auta, M., Fazle Bari, A. S. M., . . . Mahmudur Rahman, M. (2022). Adsorption of endocrine disruptive congo red onto biosynthesized silver nanoparticles loaded on Hildegardia barteri activated carbon. *Journal of Molecular Liquids*, *352*. doi:10.1016/j.molliq.2022.118735
6. Deb, A. K., Biswas, B., Rahman, M., Xi, Y., Paul, S. K., & Naidu, R. (2022). Magnetite Nanoparticles Loaded into Halloysite Nanotubes for Arsenic(V) Removal from Water. *ACS Applied Nano Materials*. doi:10.1021/acsanm.2c00239
7. Rea, R. S., Islam, M. R., Rahman, M. M., Nath, B., & Mix, K. (2022). Growth, Nutrient Accumulation, and Drought Tolerance in Crop Plants with Silicon Application: A Review. *Sustainability (Switzerland)*, *14*(8). doi:10.3390/su14084525
8. Mondal, D., & Rahman, M. M. (2022). Editorial: Exposure Pathways, Characterization and Risk Assessment of Chemical Contaminants in the Food Chain. *Frontiers in Environmental Science*, *10*. doi:10.3389/fenvs.2022.881334

9. Shahriar, S., Paul, A. K., & Rahman, M. M. (2022). Removal of Toxic and Essential Nutrient Elements from Commercial Rice Brands Using Different Washing and Cooking Practices: Human Health Risk Assessment. *International Journal of Environmental Research and Public Health*, *19*(5). doi:10.3390/ijerph19052582
10. Kumar, S., Rahman, M. A., Islam, M. R., Hashem, M. A., & Rahman, M. M. (2022). Lead and other elements-based pollution in soil, crops and water near a lead-acid battery recycling factory in Bangladesh. *Chemosphere*, *290*. doi:10.1016/j.chemosphere.2021.133288
11. Siddique, A. B., Rahman, M. M., Islam, M. R., & Naidu, R. (2022). Influences of soil pH, iron application and rice variety on cadmium distribution in rice plant tissues. *Science of the Total Environment*, *810*. doi:10.1016/j.scitotenv.2021.152296
12. Yeasmin, M., Lamb, D., Choppala, G., & Rahman, M. M. (2022). Selenium Accumulation and Speciation in Chickpea (Cicer arietinum) Impacted by S in Soils: Potential for Biofortification. *ACS Agricultural Science and Technology*, *2*(1), 135-143. doi:10.1021/acsagscitech.1c00237
13. Alam, M. R., Rahman, M. M., Tam, N. F. Y., Yu, R. M. K., & MacFarlane, G. R. (2022). The accumulation and distribution of arsenic species and selected metals in the saltmarsh halophyte, spiny rush (Juncus acutus). *Marine Pollution Bulletin*, *175*. doi:10.1016/j.marpolbul.2022.113373
14. Rahman, M. M., Islam, M. R., Uddin, S., Rahman, M. M., Gaber, A., Abdelhadi, A. A., & Jahangir, M. M. R. (2022). Biochar and Compost-Based Integrated Nutrient Management: Potential for Carbon and Microbial Enrichment in Degraded Acidic and Charland Soils. *Frontiers in Environmental Science*, *9*. doi:10.3389/fenvs.2021.798729
15. Islam, M. R., Sanderson, P., Naidu, R., Payne, T. E., Johansen, M. P., Bari, A. S. M. F., & Rahman, M. M. (2022). Beryllium in contaminated soils: Implication of beryllium bioaccessibility by different exposure pathways. *Journal of Hazardous Materials*, *421*. doi:10.1016/j.jhazmat.2021.126757
16. Rahman, M. A., Lamb, D., Rahman, M. M., Bahar, M. M., & Sanderson, P. (2022). Adsorption-Desorption Behavior of Arsenate Using Single and Binary Iron-Modified Biochars: Thermodynamics and Redox Transformation. *ACS Omega*, *7*(1), 101-117. doi:10.1021/acsomega.1c04129
17. Rashid, M. H., Rahman, M. M., Halim, M. A., & Naidu, R. (2022). Growth, metal partitioning and antioxidant enzyme activities of mung beans as influenced by zinc oxide nanoparticles under cadmium stress. *Crop and Pasture Science*. doi:10.1071/CP21598
18. Zulfahmi, I., Apriansyah, M., Batubara, A. S., Kautsari, N., Sumon, K. A., Rahman, M. M., & Nur, F. M. (2022). Commercial marine fish species from Weh Island, Indonesia: Checklist, distribution pattern and conservation status. *Biodiversitas*, *23*(4), 1977-1989. doi:10.13057/biodiv/d230432
19. Nuruzzaman, M., Liu, Y., Ren, J., Rahman, M. M., Zhang, H., Hasan Johir, M. A., . . . Naidu, R. (2022). Capability of Organically Modified Montmorillonite Nanoclay as a Carrier for Imidacloprid Delivery. *ACS Agricultural Science and Technology*, *2*(1), 57-68. doi:10.1021/acsagscitech.1c00125
20. Nuruzzaman, M., Liu, Y., Ren, J., Rahman, M., Zhang, H., Johir, M. A. H., . . . Naidu, R. (2022). Capability of Organically Modified Montmorillonite Nanoclay as a Carrier for Imidacloprid Delivery. *ACS Agricultural Science & Technology*, *2*, 57-68. doi:10.1021/acsagscitech.1c00125
21. Halim, M. A., Rahman, M. M., Mondal, D., Megharaj, M., & Naidu, R. (2021). Bioaccumulation and Tolerance Indices of Cadmium in Wheat Plants Grown in Cadmium-Spiked Soil: Health Risk Assessment. *Frontiers in Environmental Science*, *9*. doi:10.3389/fenvs.2021.779588
22. Rahman, M. A., Lamb, D., Kunhikrishnan, A., & Rahman, M. M. (2021). Kinetics, isotherms and adsorption–Desorption behavior of phosphorus from aqueous solution using zirconium–iron and iron modified biosolid biochars. *Water (Switzerland)*, *13*(23). doi:10.3390/w13233320
23. Uddin, S., Islam, M. R., Jahangir, M. M. R., Rahman, M. M., Hassan, S., Hassan, M. M., . . . Rahman, M. M. (2021). Nitrogen release in soils amended with different organic and inorganic fertilizers under contrasting moisture regimes: A laboratory incubation study. *Agronomy*, *11*(11). doi:10.3390/agronomy11112163
24. Zulfahmi, I., Rahmi, A., Muliari, M., Akmal, Y., Paujiah, E., Sumon, K. A., & Rahman, M. M. (2021). Exposure to Lead Nitrate Alters Growth and Haematological Parameters of Milkfish (Chanos chanos). *Bulletin of Environmental Contamination and Toxicology*, *107*(5), 860-867. doi:10.1007/s00128-021-03344-y

25. Shahriar, S., Haque, M. M., Naidu, R., & Rahman, M. M. (2021). Concentrations of toxic elements and health risk assessment in arum grown in arsenic-contaminated areas of Bangladesh. *Food Control*, *129*. doi:10.1016/j.foodcont.2021.108240
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Media coverage of my research findings

Some of my research findings received enormous interests and have been captured by media in several journal news and magazines. Details below:

1. High arsenic levels revealed in soil, ground water near Karnataka gold mine. The Hindu, November 21, 2012 (http://www.thehindu.com/todays-paper/tp-national/tp-otherstates/high-arsenic-levels-revealed-in-soil-ground-water-near-karnataka-gold-mine/article4118175.ece).
2. Vibha Varshney, Gold's toxic legacy. Down to Earth, 30 November 2012. http://www.downtoearth.org.in/news/golds-toxic-legacy-39585
3. Vibha Varshney, The not so glittering legacy of gold: Cases of arsenic poisoning are rising near Karnataka's gold mines. Business Standard. November 22, 2012. http://www.business-standard.com/article/economy-policy/the-not-so-glittering-legacy-of-gold-112112202026_1.html
4. Archita Bhatta. Arsenic poisoning stalks India's gold mines. 12 November 2012. http://www.scidev.net/global/disease/news/arsenic-poisoning-stalks-india-s-gold-mines.html
5. Archita Bhatta, Arsenic Contamination from Gold Mining found in India Villages. Environmental News Network. November 12, 2012 http://www.enn.com/top_stories/article/45203
6. Arsenic-free Water still a Pipedream. Nature Magazine, Vol 436, Page 313, 21st July 2005 (http://www.nature.com/nature/journal/v436/n7049/pdf/436313a.pdf).
7. Arsenic's fatal legacy grows worldwide. New Scientist, August 6, 2003 (http://www.newscientist.com/article/dn4024-arsenics-fatal-legacy-grows-worldwide.html).
8. Asia's arsenic crisis deepens. Nature News, February 15, 2003 (http://www.nature.com/news/2003/030215/full/news030210-14.html).
9. Field kits fail to provide accurate measure of arsenic in groundwater. Environmental Science and Technology, 35a-38a, January 1, 2003 (http://pubs.acs.org/doi/pdf/10.1021/es0323289).
10. Flawed water tests put millions at risk. New Scientist (London), November, 13, 2002 (http://www.newscientist.com/article/dn3048-flawed-water-tests-put-millions-at-risk.html).
11. Inaccurate arsenic test kits jeopardize water safety in Bangladesh and India. American Chemical Society News, November 19, 2002. (http://www.scienceblog.com/community/older/2002/E/2002324.html).
12. Arsenic field test kits may lead to mislabelled wells. RSC Environmental Chemistry Group Bulletin, January 2003, Page 5 (http://www.rsc.org/images/scaf003_200301_tcm18-9786.pdf).

Invited keynote and speaker addresses

Based on my research excellence and outstanding publication records, I have been

1. Invited to deliver a lecture to the 8th International Congress of Arsenic in the Environment. Netherlands, 7-9 June, 2021.
2. Invited to deliver a lecture to the 7th International Congress of Arsenic in the Environment. Beijing, 1-6 July, 2018.

3. Invited to deliver a lecture to the Indo-Australia Workshop on Arsenic, New Delhi, India, 3-4 October 2012.
4. Invited to deliver a lecture to the 4th International Congress of Arsenic in the Environment, Cairns, 22-27 July 2012.
5. Invited to deliver a lecture to the Environmental Science and Technology Conference, Houston 25-29 June 2012.
6. Invited to deliver a lecture to the 6th International Workshop on Chemical Bioavailability in the Terrestrial Environment, 7-9 September, 2011.
7. Invited to deliver a lecture to the International Conference on the Biogeochemistry of Trace Elements, Florence, Italy, July 3-7, 2011.
8. Invited by the Crawford Fund, Australia to organize a training workshop on "Arsenic in drinking water, soil and food crops in southeast Asia" involving scientists from Bangladesh, Nepal, Cambodia and Vietnam, 2011.
9. Invited to Chair sessions of Clean-Up 2011 and 2015 Conferences.
10. Invited to deliver a lecture to the International workshop on "Arsenic in the Asia-Pacific Region", Adelaide, Australia, November 20-23, 2001, organized by CSIRO, Land and Water, Australia.

Editorial board and service

Journal's Editorial board

- Associate Editor, Groundwater for Sustainable Development (https://www.sciencedirect.com/journal/groundwater-for-sustainable-development).
- Editorial board member, Water-MDPI journal (https://www.mdpi.com/journal/water/editors).
- Review Editor, Frontiers in Nanotechnology: Environmental Nanotechnology (https://www.frontiersin.org/journals/nanotechnology#editorial-board).

Guest editor of the special issues of journals: current

1. Sustainability journal on "Impact of Urbanization on Declining Groundwater Level and Water Quality: Understanding Environmental Sustainability of Emerging Contaminants" (https://www.mdpi.com/journal/sustainability/special_issues/Impact_Contaminants).
2. Sustainability journal on "Soil Pollution, Soil Biology and Waste Treatment" https://www.mdpi.com/journal/sustainability/special_issues/sustai_soilpollution.
3. Research Topic "Sustainable Environmental Technologies" https://www.mdpi.com/topics/Sustainable_Environmental_Technologies

Guest editor of the special issues of journals: past

1. Frontiers in Environmental Science" journal on "Exposure Pathways, Characterization and Risk Assessment of Chemical Contaminants in the Food Chain" in (frontiersin.org/research-topics/17523/).
2. International Journal of Environmental Research and Public Health (IJERPH) on "Arsenic in Drinking Water: Current Perspectives and Future Directions". (http://www.mdpi.com/journal/ijerph/special_issues/Arsenic-Drinking-Water)
3. International Journal of Environmental Research and Public Health (IJERPH) on "Arsenic Contamination, Bioavailability and Public Health". (http://www.mdpi.com/journal/ijerph/special_issues/Arsenic).

Journal reviewers. Peer review is an important component of scientific activity. Based on my excellent scientific record, I received frequent invitations to review scientific research articles from many high impact journals. I have been listed as top peer reviewer in Environment/Ecology

(https://publons.com/researcher/1435936/mohammad-mahmudur-rahman/). I usually review 40-50 articles annually from top ranking journals.

Conference coordination: I was involved in organizing and technical committees of several conferences and workshops such as Clean up conference series and Arsenic congress series.

Committees: I am part of the University Chemical and Radiation Technical Committee. Also, I have been part of several committee's within GCER and the University such as Senior Management Team, WHS committee etc. I contributed significantly for the planning and designing of GCER building and laboratory.