Abhijit Mukherjee

Professor, *Geology and Geophysics, Environmental Science and Engineering, IIT Kharagpur, India*
Associate Editor/Editorial Board, *Scientific Reports (SpringerNature), ES&T Letters, ACS ES&T Engineering (ACS), Groundwater for Sustainable Development (Elsevier)*
Councillor, *Geological Society of America*

Curriculum Vitae, *February,2023*

I. Contact Information

Department of Geology and Geophysics,
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II. Education and Professional Preparation

Jackson School Postdoctoral Fellow, University of Texas at Austin, 2006-2008,
Supervisor: Dr. Bridget Scanlon

Ph.D. in Geology, University of Kentucky, USA, 2006 (grade-point average [GPA] 4.0/4.0)
Dissertation title: Deeper groundwater flow and chemistry of the arsenic contaminated aquifers of the western Bengal basin, West Bengal, India.
Advisor: Dr. Alan E. Fryar

Master of Science (M.S.) in Geology, University of Kentucky, USA, 2003 (GPA 4.0/4.0)
Thesis title: Identification of natural attenuation of trichloroethene and technetium-99 along Little Bayou Creek, McCracken County, Kentucky.
Advisor: Dr. Alan E. Fryar

Professional Diploma in Software Engineering, National Institute of Information Technology (NIIT), India, 2001

Master of Science (M.Sc.) in Geology, University of Calcutta, India, 1999 (First Class)
Thesis title: Geotechnical study of landslides in and around the approach road to Kalimpang, Darjeeling district, West Bengal.
Advisor: Prof. Arup K. Mitra

Bachelor of Science with Honors (B.Sc.[Hons]) in Geology, University of Calcutta, India, 1997 (First Class)

III. Employment

[7] *Professor*, Department of Geology and Geophysics and School of Environmental Science and Engineering, Indian Institute of Technology (IIT) Kharagpur, December 2022–*present*

[6] *Associate Professor*, Department of Geology and Geophysics and School of Environmental Science and Engineering, Indian Institute of Technology (IIT) Kharagpur, March 2016–Deccember 2022

[5] *Assistant Professor*, Department of Geology and Geophysics and School of Environmental Science and Engineering, Indian Institute of Technology (IIT) Kharagpur, September 2010–March 2016

[4] *Physical Hydrogeologist*, Alberta Geological Survey, Energy Resources Conservation Board, Government of Alberta, Edmonton, Canada, August 2008–September 2010

[3] *Jackson School Postdoctoral Fellow*, Bureau of Economic Geology, Jackson School of Geosciences, University of Texas *at* Austin, USA, August 2006–August 2008

[2] *Research Assistant* in Geology, University of Kentucky, USA, summers of 2002 and 2003

[1] *Instructor and Teaching Assistant* in Geology, University of Kentucky, USA, 2001–2006

IV. Specialization

- Physical, Chemical and Isotopic Hydrogeology
- Geologic control on hydrologic systems
- Modeling*(groundwaterflow and transport, geochemical, hydrostratigraphy and geosystems)*
- Contaminant fate and transport
- Surface water-groundwater interaction
- Low-temperature Geochemistry
- Climate change impact on groundwater scenarios
- Water resources planning and management

V. Honors/Accolades/Grants

- Elected to the **Council** of *Geological Society of America (2022-24),* 2022
- Selected as one of India's top 75 leading Scientists, across disciplines, who are under 50 years of age, who are shaping today's India, Department of Science and Technology (DST), Government of India, 2022
- Inducted as **Fellow** to the *Geological Society of America*, 2021
- Inducted as **Fellow**to the *Royal Society of Chemistry*, 2020
- ***Shanti Swarup Bhatnagar Prize***, CSIR, Government of India, 2020, in Earth, Atmosphere, Ocean and Planetary Sciences(*India's highest science award*)
- *Kharaka Award*, International Association of Geochemistry, 2020
- Elected to *Geological Society of America International Committee (2020-24),* 2019
- *Faculty Excellence Award*, Indian Institute of Technology Kharagpur, 2018
- *Newton-Bhabha Research Grant* Award (as member of consortium), NERC(UK)-DST (India), 2018
- *National Geoscience Award 2014,* Government of India*, conferred in 2016 by President of India*
- *ThermoFisher Outstanding Scientist in Water Analytics,* ThermoFisher Scientific*, 2016*
- *Young Scientist Award*, International Association of Hydrogeologist-INC, 2015

- *Hydrogeology Divisional Representative to International Section,* Geological Survey of America, 2014
- *Keynote Speaker/International Invited Lecturer at* 4th, 5th, 6th, 8th International Congress on Arsenic in Environment, 2012, 2014, 2016, 2021
- Five first authored articles featured by *Elsevier* as one of the *most cited article* in the respective journal for *five years* since publication
- Four first authored articles certified by *Elsevier* as one of the *highest downloaded article* in respective journal at *ScienceDirect*
- Nominated by MIT-Harvard Arsenic Study Group for *Environmental Fellowship* at HarvardUniversity, 2007
- *JacksonSchool Postdoctoral Fellowship* at University of Texas*at*Austin, 2006
- Offered *Earth Institute Postdoctoral Fellowship* at ColumbiaUniversity, 2006
- *Dissertation Enhancement Award*, University of Kentucky, 2005
- *Ferm Grant*, Department of Geological Sciences, University of Kentucky, 2005
- *Graduate Research Grant Award*for Best Student Research, Hydrogeology Division, Geological Society of America, 2004
- *Pirtle Fellowship*, Department of Geological Sciences, University of Kentucky, 2004-2006
- Nominated for *Outstanding Master's Thesis Award* in Physical Sciences and Engineering, Council of Southern Graduate Schools of USA, 2003
- *Student research grant*, Geological Society of America, SE Section, 2002, 2005
- *Student research grant*, GraduateSchool, University of Kentucky, 2002, 2004
- *Brown-McFarlan Grant* for research, Department of Geological Sciences, University of Kentucky, 2002
- Nominated for *Young Scientist Award* by Indian Science Congress Association, 2001
- *All India Rank 20th* in Graduate Aptitude Test in Engineering (GATE), Government of India, 2001
- *National Scholarship* from Government of India for excellence in graduate studies, 1999
- *Total Freedom Scholarship* from National Institute of Information Technology (NIIT), India, for software engineering study, 1997

VI. Teaching Experience

- *Faculty, IIT Kharagpur:*
  - *Courses:* Applied Hydrogeology, Groundwater Geology, Groundwater Exploration, Modelingand Management, Isotope Geology and Environmental Modeling, Sedimentology, Environmental Science

  - *Ph.D. advisee:*

    Ms. Poulomee Coomar (advisor, IIT Kharagpur, India, ongoing)
    Mr. Soumyajit Sarkar (advisor, IIT Kharagpur, India, ongoing)
    Ms. Adya Dash (advisor, IIT Kharagpur, India, ongoing)
    Mr. David Aind (advisor, IIT Kharagpur, India, ongoing)
    Mr. Subroto Vyas (advisor, IIT Kharagpur, India, ongoing)
    Ms. Anwesha Mukhopadhyay (advisor, IIT Kharagpur, India, ongoing)
    Mr. Tridip Bhowmik (advisor, IIT Kharagpur, India, ongoing)
    Ms. Samarpita Sarkar (advisor, IIT Kharagpur, India, ongoing)
    Mr. Don Chatterjee (advisor, IIT Kharagpur, India, ongoing)

Ms. Sreemoyee Bhattacharya (advisor, IIT Kharagpur, India, ongoing)
Mr. Ankit Dipta Dutta (co-advisor, IIT Kharagpur, India, ongoing)
Mr.Ghulam Nabi Pintoo (co-advisor, Kashmir University, India, ongoing)
Dr. Palash Debnath (advisor, IIT Kharagpur, India, ***graduated***)
*Dr. Soumendra Bhanja (advisor, IIT Kharagpur, India, **graduated**)*
*Dr. Swati Verma (advisor, IIT Kharagpur, India, **graduated**)*
Dr. Srimanti DuttaGupta (advisor, IIT Kharagpur, India, ***graduated***)
Dr. Pragyaditya Malakar (advisor, IIT Kharagpur, India, ***graduated***)
*Dr. Ashis Biswas (co-advisor, KTH, Sweden, Ph.D., **graduated**)*
Dr.Manoj Yadhav (co-advisor, JNU, India, ***graduated***)
Dr.Amit Kundu (co-advisor, University of Kalyani, India, ***graduated***)
Dr.Avishek Dutta (co-advisor, IIT Kharagpur, India, ***graduated***)
Dr.Rishi Rathour (co-advisor, IIT Kharagpur, India, ***graduated***)
Dr. Suhail Ahmed (co-advisor, Kashmir University, India, ***graduated***)
Dr. Kousik Das (advisor, IIT Kharagpur, India, ***graduated***)
Dr. Ashok Shaw (co-advisor, IIT Kharagpur, India, ***graduated***)
Dr. Manoj Yadav(co-advisor, IIT Kharagpur, India, ***graduated***)
Dr. Prerona Das (advisor, IIT Kharagpur, India, ***graduated***)
Dr. Madhumita Chakraborty (advisor, IIT Kharagpur, India, ***graduated***)
Dr. Animesh Bhattacharya (advisor, IIT Kharagpur, India, ***graduated***)

- *Post-doc. Supervisee: Dr. Uttiya Dey (supervisor,completed)*
  Dr. Devanita Ghosh (supervisor, completed)
- *Masters advisor:* M.S.*1 graduated, 2 ongoing*; M.Tech*14 graduated, 2 ongoing*; *M.Sc.*67 *graduated, 8ongoing*

- *Instructor, Lecture and Laboratory Teaching Assistant*, University of Kentucky, 2001 to 2006: Principles of Physical Geology, Stratigraphy, Sedimentary Geology, Geology for Elementary Teachers, Sustainable Planet, Endangered Planet
- *Short Course Teaching*: Groundwater arsenic contamination in Texas: presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, April, 2007
- *Informal advisor and summer student supervisor for Masters and Ph.D.* students at University of Calcutta (India), University of Kentucky, University of Texas*at* Austin (USA), LethbridgeUniversity (Canada), 2003-2010

VII. Research Areas

A. Arsenic and other contaminants fate and transport: global-scale to laboratory scale
B. Interaction of groundwater with sea and river water
C. Groundwater recharge and estimation: controls of climate, vegetation and landuse
D. Groundwater evolution (flow and chemistry) of large sedimentary basins
E. Groundwater exploration, management and remediation
F. Influence of water systems on ancient civilizations

VIII. Research Experiences

- Evaluation and quantification of policy interventions and groundwater governance*(2014-present)*

- Urban geoscientific study to understand resource and resilience of future Indian cities (with Pilot study at Varanasi, *2014-present)*
- Ground and Satellite based estimation of groundwater storage over Indian sub-continent *(2011-present)*
- Groundwater-sea water dynamics in the Bay of Bengal*(2010-present)*
- Effect of climatic factors on groundwater recharge in western Bengal*(2011-present)*
- Controls of arsenic transport from global to pore-scale *(2001-present)*
- Understanding the hydrology and urban geology of ancient civilizations, North India*(2012-present)*
- Application of Artificial Intelligence in predicting future groundwater resources *(2013-present)*
- Assessment of effects of sedimentation and tectonics on hydrology and regional, numerical groundwater flow and hydrochemical evolution simulation of the Canadian Rocky Mountain foreland basins as part of Regional Aquifer Mapping Program *(2008-2010, past job responsibility at Alberta Geological Survey, Canada)*.
- Hydrodynamics and delineation of sub-hydrostatic pressure regimes in RockyMountain foreland basins *(2008-2010, past job responsibility at Alberta Geological Survey)*.
- Surface water-groundwater interaction of glacial lakes, Alberta, Canada*(2008-2010, past job responsibility at Alberta Geological Survey, Canada)*.
- Hydrochemistry and sediment chemistry, contaminant transport and groundwater dating in Central Gangetic plain and Bengal basin, India and Bangladesh, Southern High Plains, USA, Huhhot Basin, P.R. China; *(2006-2008, for postdoctoral fellowship)*
- Characterizing the effect of land use on recharge in semi-arid areas of northwest Texas and western India (Rajasthan) *(2006-2008, for postdoctoral fellowship)*
- Multiphase flow, tracer tests andfluid chemistry of deep subsurface CO_2 sequestration in the Gulf Coastal Plain(FRIO-II) (*2006-2008*, for postdoctoral fellowship)
- Regional hydrogeology, hydrostratigraphy, groundwater quality, and contaminant transport in the western Bengal basin, India by computer-generated simulations, and chemical and stable isotopic characterizations (2003-2006, for Ph.D.)
- Groundwater/surface-water interactions and fate of organic and radioactive contaminants by conservative and non-conservative tracer tests and simulations at a U.S. Department of Energy facility in the northern Gulf Coastal Plain (Paducah), USA (2001-2003, for M.S.)
- Environmental geotechnical studies of lower Ganges river, India (1999-2001, for post-masters research at the University of Calcutta)
- Geotechnical studies on causes, effects and remediation of landslides in Eastern Himalayas, India (1997-1999, for M.Sc.)

IX. Research Skills and Expertise

Field studies, experimental studies, numerical modeling of hydrostratigraphic framework, groundwater flow, solute transport, thermodynamics and reaction path geochemical modeling and reactions in the subsurface:

Field techniques

Groundwater and stream sampling (solutes, redox species, gases, volatiles, isotopes, noble gases), tracer tests, slug tests, geologic, hydrogeologic, and geotechnical

mapping, stream gaging, deep subsurface sampling by U-Tube sampler, sediment sampling from vadose zone and aquifer

Laboratory analyses

ICP-OES, AA-GF, IC, GC (FID, ECD, P&T and MS), IRMS, spectrofluorometers, TOC analyzer, XRD, XRF

Geologic/modeling software

Groundwater Vistas (MODFLOW and MODPATH), PHREEQC (forward and inverse), OTIS, ArcGIS, SURFER, RockWorks, ViewLog, Global Mapper (Remote Sensing), Aquachem, Geochemist's Workbench

Computer/Information technology skills

Win NT architecture, C++, VC++, Win32API, VJ++, VB, networking, HTML, MS ACCESS, SYBASE

Research/Special/Short Courses participated

Technical

- Computer gridding and geomodeling for geologists, Center for Computational Geosciences, University of Alberta, January 2010.
- Data modeling for Geologist, December, 2009-January, 2010
- Tensional, compressional and transpressional structural styles, Petroskills, Edmonton, November 2008-January 2009
- MODFLOW, International Ground Water Modeling Center, Colorado School of Mines, Boulder, CO, November 2004
- Quaternary Geology, remote sensing and GIS, International Union of Quaternary Research (INQUA), Indian Chapter, Kolkata, January 1999
- Basic computer applications, Indian Institute of Computer Engineers, Asutosh College, 1994-1995
- Petrographic slide preparation and ore polishing, AsutoshCollege, 1994

Managerial

- Project management 101, Interthink Consultants, Edmonton, May 2009
- Effective management and leadership for engineers and scientist, Stargate Consultant Limited, Edmonton, November, 2008
- Quality Management, PQM, Kolkata, 1998

X. Sponsored Research:

- Demonstration of sustainable mitigation of groundwater arsenic in arsenic-polluted Gangetic river aquifer of Bihar, Uttar Pradesh and West Bengal, India**(PI),** Department of Science and Technology, Govt. of India, Rs. 242,00,000
- Resilience of Groundwater Physico-Chemical Evolution in River Ganga deltaic aquifers to changing Hydrologic regime**(PI),** Ministry of Earth Science, Govt. of India, Rs. 75,79,500
- Newton-Bhabha Research Grant **(primary Co-PI),** NERC-DST, 2018-2021,~Rs. 30,000,000

- Urban Geological Exploration of Varanasi**(PI),** British Geological Survey, British Government, 2016-2018, GBP 100,000
- Arsenic uptake and health risks in Nadia District, West Bengal (India): Water and food security crisis. 2015-2016, Rs. 300,000
- Geo-quest of Varanasi **(PI)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 25,000,000
- Geo-quest of Chandraketugarh **(PI)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 1,05,00000
- Application of artificial intelligence in groundwater storage of Indian Subcontinent **(PI)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 33,24,000
- Geo-quest of Lalitagiri-Pushpagiri (Vajragiri) **(Co-PI)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 1,05,00000
- Urban-design, planning and urban engineering exploration of Varanasi, **(Co-PI**with Partha Pratim Chakraborti**)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 1,50,00000
- Architectural-archeological-iconographic and epigraphic exploration of Chandraketugarh, (**Co-PI**with Joy Sen**)**, Ministry of Human Resource Development, Department of Higher Education, Government of India, 2014-2017, Rs. 70,00000
- Understanding the extent and natural/anthropogenic controls on groundwater recharge in water scarce areas of western districts of West Bengal**(PI)**, Govt. of West Bengal, 2013-2016, Rs. 28,32,000
- Delineating physico-chemical dynamics of discharging groundwater to sea in coastal areas of the Bay of Bengal**(PI)**, 2014-2017, Ministry of Earth Science, Govt. of India, Rs. 78,52,936
- Geomicrobiology of the deep subsurface in Koyna-Warna region: Diversity, distribution and function of microbial communities within granitic-basaltic crustal systems(**Co-PI** with Pinaki Sar (PI), Biotechnology, IIT KGP), 2014-2017, Ministry of Earth Science, Govt. of India, Rs. 76,56,000
- Field Demonstration of Low Cost Laterite Base Arsenic Filter: Community Scale (Co-PI with Prof. Shirshendu De (PI), Chemical Engineering, IIT KGP), 2012-2014, UNICEF, Rs. 13,44,863
- Groundwater-Sea water interaction at a coastal aquifer the Bay of Bengal: Implications on flux and solute exchange (PI), IIT ISIRD, 2011-2014
- Impact of land use on groundwater recharge in arid and semi-arid parts of India (Joint PI), 2006-2008, $12000, funded by the University of Texas at Austin
- Hydrogeochemical evolution of groundwater along a flow path in western Bengal basin (PI), 2003-2006, $3500, funded by Geological Society of America
- Arsenic contamination of groundwater of western Bengal basin (PI), 2003-2006, $3000, funded by the University of Kentucky

XI. Industrial Consultancy:

- Hydrogeological Studies at Bangur Chromite Mines of OMC Ltd. (PI), Orissa Mining Corporation Ltd., 2012-2013, Rs. 11,53,937

- Geophysical and Hydrogeological study at Proposed Site at Durmut Block: Raghunathpur-I, Purulia, Reliance Cement Ltd. 2013, Rs. 18,25,850
- Integrated Beach Front Development, Digha-Shankarpur, IWIN Advisory Services Ltd., 2012-2013, Rs. 3,60,000
- Study of GCV profiling and stack yard coal GCV change analysis, National Thermal Power Corporation, Rs. 1,43,39,000, 2015-2016
- River Water quality evaluation for river based piped water supply scheme, Public Health Engineering, Government of West Bengal, Rs. 27,63,930, 2015-2016

XII. Professional Affiliations

- Geological Society of America*(Fellow)*
- Royal Society of Chemistry *(Fellow)*
- American Geophysical Union
- International Association of Hydrogeologists
- Indian Science Congress Association (life member)

XIII. Selected Keynote/Invited Lectures

- UNESCO 2022, Paris, France, *Regional Dialogues:* Asia-Oceania
- Geological Society of America Annual Meeting 2020, USA, October, *Invited Lecture:* Does Plate Tectonics Generate Primary Source for World-wide Groundwater Arsenic?
- Indian National Groundwater Conference 2020, Calicut, India, February 2020, *Keynote Lecture:* Groundwater Security of India
- *IWMI-Tata Partners' Meet 2018*, Anand, India, December, 2018, *Keynote Lecture*: Groundwater depletion triggering Ganges river drying
- *Indian Academy of Sciences Workshop on Advances in Earth system Science,* Benaras Hindu University, November 2018: Delineating Groundwater Security of India
- *International Conference on Networked Digital Earth*, Kharagpur, India, March 2018, *Invited Lecture*: Application of data analyses and assimilation in delineating groundwater scenarios of India
- *Workshop on Implementation of Submarine Ground Water DischargeMission*, Trivandrum, India, February 2018: Submarine Groundwater Discharge Study in West Bengal
- *International Ground Water Conference*, New Delhi, India, December 2017, *Keynote Lecture*: Securing Groundwater for future India:understanding the interplay between natural processes, human practices and policy interventions
- *International Seminars on Planetary Emergencies 50th Session*, Erice, Italy, August 2017:Groundwater drought and replenishment in India: Recent observations from ground and space
- *NASA Surface Water and Ocean Topgraphy (SWOT) Application Workshop*, Virginia, USA, April 2017: Potential applications of SWOT mission to Indian water systems
- *University of Manchester Postgraduate Research Training Invited Lectures,* Manchester, UK, March 2017: *1.*Groundwater Issues and Contamination in

India; *2*.Geological controls on Groundwater Arsenic in Ganges-Brahmaputra River Basin Aquifers, South Asia

- *6th International Congress on Arsenicin Environment*, Stockholm, Sweden, June 2016, *Keynote Speaker*: Delineating sustainable low-arsenic drinking water sources in parts of South Asia
- *Integrated Isotope Hydrology Research Meeting at Physical Research Laboratory*, Ahmedabad, India, July 2015: Application of isotopes in groundwater studies of BengalBasin
- *Groundwater Resilience to Climate Change and Abstraction in the Indo-Gangetic Basin*, Dhaka, Bangladesh, November 2014:Deeper groundwater of western Bengal basin, India:Hydrostratigraphy, Flow and Chemistry
- *5th International Congress on Arsenicin Environment*,Buenos Aires, Argentina, May 2014, *International Invited/Keynote Speaker*: Tectonic-sourced groundwater arsenic in Andean foreland of Argentina: Insight from path modeling
- *Groundwater Resilience to Climate Change British Geological Survey Meeting by*, New Delhi, India, November 2013:Hydrogeology of WesternBengalBasin
- *Security of deep groundwater in Bangladesh Seminar*, Dhaka, Bangladesh, January 2013:Vulnerability of Deeper Groundwater of West Bengal: a perspective
- *Australia-India Science and Research Forum*,New Delhi, India,September 2012. Controls on arsenic distribution in CentralGangeticBasin
- *4th International Congress on Arsenic* in Environment, Cairns, Australia, July 2012, *International Invited Speaker*: Widespread elevated arsenic in groundwater of West Bengal: Implications for water supply
- *National Science Foundation (NSF)* Conference, Hanoi, Vietnam, 2011, *Keynote Lecture:*Research of Arsenic Research in India,
- *American Geophysical Union* Joint Assembly, Toronto, Canada, 2009: Regional groundwater systems of Western Canada Sedimentary basin.
- *International Association of Hydrogeologists(IAH)*-Canadian National Chapter, Calgary and Edmonton, Canada, January to March 2009: Hydrogeologic investigation of arsenic contamination of deeper groundwater in Bengal basin, India.
- *Alberta Geological Survey*, March 2009: Study of natural attenuation of VOC and radiogenic contamination by tracer tests.
- *University of Dhaka*, Bangladesh, November, 2007: Arsenic contamination of deeper groundwater of West Bengal.
- *University of Calcutta*, India, November, 2007: Sustainable groundwater in arsenic-affected West Bengal.
- *Bureau of Economic Geology, University of Texas at Austin*, Austin, USA, Friday Seminar Series, October, 2006: Groundwater contamination of arsenic in India.
- *University of Texas at Austin*, *Department of Geological Sciences,* Hydrogeology brown-bag lecture series, Austin, USA, September 2006: Is deeper groundwater of the arsenic affected western Bengal basin a safe drinking water alternative?—a contradiction for current hypothesis.

- *Flinders University*, *School of Chemistry, Physics and Earth Sciences,* Adelaide, Australia, May 2006: Arsenic contamination of western Bengal basin.
- Rast-Holbrook Lecture Series, *Department of Earth and Environmental Sciences,University of Kentucky*, Lexington, USA, February 2006: Hydrologic characterization of the arsenic contaminated western Bengal basin, India.
- *Kentucky Geological Survey*, Lexington, USA, November 2004: Regional Quaternary hydrostratigraphy, groundwater flow, hydrochemistry and arsenic contamination of the Indian part of the Bengal basin: interim results.
- *Arsenic Core Committee*, Government of West Bengal, Kolkata, India, October 2004: Study of hydrogeochemical evolution of groundwater and fate of arsenic along regional flow path in the western Bengal basin, India.
- *Indian Science Congress Association*, Young Scientist Award assessment, New Delhi, India, January 2001: Assessment of causal factors and suggested remedial measures for the landslides of the west slope of Kalimpang hills.

XIV. Professional Services

Editorial

- ***Associate Editor/Editorial Board:***
  - *ES&T Letters (ACS), 2022-Present*
  - *Scientific Reports (SpringerNature)*, 2020–*Present*
  - *ACS ES&T Engineering (ACS), 2020-Present*
  - Sustainable Water Resource Management (*Springer)*, *2015–Present*
  - *Groundwater for Sustainable Development (Elsevier)*, *2015-Present*
  - Journal of Earth System Sciences (Springer), 2017-2022
  - Frontiers in Environmental Sciences: Groundwater Resources and Management*(Frontiers and Nature PG)*, 2013–*2019*
  - Journal of Hydrology *(Elsevier)*, 2010–2017
  - Applied Geochemistry *(Elsevier)*, 2011-2014
- ***Guest Editor**,* Special issue on Groundwater resources. *Scientific Reports, ongoing*
- ***Managing Guest Editor***, Special issue on Groundwater Systems of the Indian Sub-continent. *Journal of Hydrology: Regional Studies,* vol. 4A
- ***Managing Guest Editor***, Special issue on Arsenic and other toxic elements in natural water systems.*Applied Geochemistry*, vol. 26, 4
- ***Managing Guest Editor***, Special issue on Distribution of geogenic arsenic in hydrologic systems: controls and challenges. *Journal of Contaminant Hydrology*, vol. 99, 1-4
- ***Guest Editor**,* Special issue on Submarine Groundwater Discharge. *Frontiers in Environmental Sciences (Ongoing)*
- ***Guest Editor**,* Special issue on Groundwater arsenic in Geological Systems. *Journal of Hydrology,* vol. 518

Expert/Management/Planning

- ***Member-at-Large***, International Committee, Geological Society of America, 2020-23
- ***Member***, Ocean and Coast Committee, IEEE Planet Positive 2030, 2022-

- ***Member***, Expert Committee, *Scheme for Young Scientist and Technologist* (SYST) Scheme, Department of Science and Technology, Government of India, 2022-
- ***Member***, International Association of Hydrogeologist (IAH) Futures/Frontiers of Hydrogeology Working Group, 2019-20
- ***Expert/Advisor***, Dynamic Ground Water Resources of India, Ministry of Water Resources, RD & GR, Government of India, 2017
- ***Special Invitee/Advisor***, National Aquifer Mapping & Management Programme, Ministry of Water Resources, RD & GR, Government of India, 2017
- ***Expert/Advisor***, Low Cost Technology for Aquifer Mapping, Ministry of Water Resources, RD & GR, Government of India, 2017
- ***Expert/Advisor***, Paleochannels in Arid Areas of India, Ministry of Water Resources, RD & GR, **Government of India,** 2017
- ***Member***, Screening Committee,*Teacher Associateship for Research Excellence* (TARE) Scheme, Science and Engineering Research Board (SERD), Department of Science and Technology, Government of India, 2018-*Present*
- ***Member,*** Fluoride Task Force, Government of West Bengal, *2016-Present*
- ***Witness/Expert,*** Estimate Committee on Occurrence of High Arsenic Content in Ground Water**, Parliament of India**, 2014
- ***Contributing Author****,* Vision 2020 document: to provide safe, sustainable and adequate water supply to all humans and livestocks by 2020, for Minister-in-Charge, Public Health Engineering Department, Govt. of West Bengal, 2012
- ***International section Representative****,* Geological Society of America (GSA), Hydrogeology Division, 2014–*2017*

Reviewer

- *Journal Reviewer*:

  Science, Nature Geoscience, Nature Communications, Scientific Report, Geophysical Research Letters, Environmental Research Letters, Geochimica Cosmochimica Acta, Environmental Science and Technology, Water Resources Research, Journal of Contaminant Hydrology, Journal of Environmental Management, Journal of Hydrology, Journal of Geophysical Research, Ground Water, Hydrogeology Journal, Chemosphere, Applied Geochemistry, Journal of Asian Earth Sciences, Journal of Hazardous Material, Journal of American Society of Agricultural and Biological Engineers, Journal of Environmental Management, Journal of Geochemical Exploration
- *Proposal Reviewer*:
  - *Low Temperature Geochemistry and Microbiology Division, National Science Foundation, USA*
  - *National Environmental Research Council, UK*
  - *Ministry of Science Technology and Space, Israel*
  - *Ministry of Earth Science, Government of India*

Ph.D. Thesis review

- Physical Research Laboratory- Indian Institute of Technology Gandhinagar, *2022*
- Indian Institute of Technology Gandhinagar, *2022*

- Bhaba Atomic Research Centre, 2021
- Indian Institute of Technology Dhanbad (ISM), *2020*
- University of Kashmir, 2020
- Indian Institute of Technology Roorkee, *2019*
- Indian Institute of Science, Bangalore, *2018, 2022*
- Indian Institute of Technology Guwahati, *2018*
- JadavpurUniversity, *2017*
- Jawaharlal Nehru University, India*2015*
- AnnaUniversity, India *2014*
- University of Girona, Spain*2013*

Technical Conference/Committee Organization

- *Chair* (with Alice Aureli, UNESCO, Prosun Bhattacharya, KTH, Sweden, Alan MacDonald, BGS, Roger Sathre, ITT and David Kreamer, IAH/UNLV) of "Groundwater Security Towards Sustainable Development", Geological Society of America Annual Meeting, Denver, Colorado, USA 2022
- *Chair* (with Alice Aureli, UNESCO, Prosun Bhattacharya, KTH, Sweden, Karen Villholth, IWMI, Alan MacDonald, BGS, Roger Sathre, ITT and David Kreamer, IAH/UNLV) of "Secured Groundwater Towards a Sustainable Earth", Geological Society of America Annual Meeting, Portland, Washington, USA 2021
- *Chair* (with Manisha Jain, Leibniz Institute of Ecological Urban and Regional Development, Germany) of "Sustainable Earth", Indo-German Fronteirs of Sciences, Alexander Humboldt.-DST, 2021
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Saugata Datta, Kansas State University, Madeline Schreiber, Virginia Tech., Manish Kumar, IIT Gandhinagar, Arslan Ahmed, KTH) of "Arsenic, Manganese, Chromium, and OtherGeogenic Contaminants, Including Radionuclides inHydrological Systems—Source, Biogeochemical Cycling,Toxicity, and Removal", Geological Society of America Annual Meeting, Indianapolis, Indiana, USA 2018
- *Chair* (with Alan MacDonald, British Geological Survey) of "Groundwater contamination and low cost treatment techniques", International Ground Water Congress, New Delhi, India 2017
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Saugata Datta, Kansas State University, Md. Alauddin, Wagner College, Karen Johannesson, University of Tulane) of "Arsenic and Other Geogenic Contamiants in Groundwater Resources: Linking Water Quality, Food Security and Treatment", Geological Society of America Annual Meeting, Seattle, Washington, 2017
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Karen Johannesson, University of Tulane, Saugata Datta, Kansas State University, Md. Alauddin, Wagner College) of "Cycling of Arsenic and Other Associate Trace Elements in Global Geohydrological Systems and Management", Geological Society of America Annual Meeting, Denver, Colorado, USA, 2016
- *Chair and Committee Member*, Scientific Committee, The Sixth International Congress on Arsenic in the Environment, Stockholm, Sweden, June, 2016

- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Alan Fryar, University of Kentucky, Saugata Datta, Kansas State University) of "Arsenic: Source to Sustainability", Geological Society of America Annual Meeting, Balitimore, Maryland, USA, 2015
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Karen Johannesson, University of Tulane, Saugata Datta, Kansas State University) of "Groundwater and surface-water arsenic: from source to sink", Geological Society of America Annual Meeting, Vancouver, Canada, 2014
- *Convener,* International Workshop on Groundwater Geophysics, conducted USGS and funded by Govt. of West Bengal and World Bank, IIT Kharagpur, Nov, 2014
- *Chair and Committee Member*, Scientific Committee, The Fifth International Congress on Arsenic in the Environment, Buenos Aires, Argentina, May, 2014
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Karen Johannesson, University of Tulane, Md. Alaudin, Wagner College) of "Environmental Arsenic: The nexus of natural occurrences and human health", Geological Society of America Annual Meeting, Denver, Colorado, USA 2013
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Karen Johannesson, University of Tulane) of "Recent advances in study of arsenic", Geological Society of America Annual Meeting, Charlottesville, North Carolina,USA October 2012
- *Chair,* (with Prosun Bhattacharya, KTH, Sweden, Kazi Matin Ahmed, University of Dhaka) of "Sustainable groundwater availability", International Congress on Arsenic in Environment, Cairns, Australia, 2012
- *Chair and Leader,* Research of Arsenic Research in India, National Science Foundation Conference, Hanoi, Vietnam, 2011
- *Special Session Convener* (representing India), 4th International Congress on Arsenic in the Environment, 2012, Cairns, Australia
- *Chair* (with Prosun Bhattacharya, KTH, Sweden, Holly Michael, University of Delaware, USA and D. Kirk Nordstrom, USGS) of "Recent advances in study of arsenic", Geological Society of America Annual Meeting, Minneapolis, Minnesota, USA, October 2011
- *Convener*, NGWA *Darcy Lecture*, 2010 for Alberta Geological Survey/University of Alberta
- *Chair* (with Prosun Bhattacharya, KTH, Sweden and Alan E. Fryar, University of Kentucky, USA, David Polya, University of Manchester) of "Arsenic in geologic systems", Geological Society of America Annual Meeting, Denver, Colorado, USA, October 2010
- *Committee Member*, Scientific Committee, The Third International Congress on Arsenic in the Environment, Tainan, Taiwan, 2010
- *Chair* (with Prosun Bhattacharya, KTH, Sweden and Alan E. Fryar, University of Kentucky, USA) of "Arsenic and other toxic elements in groundwater", Geological Society of America Annual Meeting, Portland,Oregon,USA, 2009
- *Chair* (with John Cherry and Beth Parker, University of Guelph, Tony Lemay, AGS and Ben Rostron, University of Alberta, Canada,) of "Groundwater in sedimentary basins" American Geophysical Union Joint Assembly, Toronto, ON, 2009
- *Chair* (with Prosun Bhattacharya, KTH, Sweden and D. Kirk Nordstrom, USGS) of "Global problem of arsenic contamination of groundwater", Geological Society of America Annual Meeting, Houston, TX, USA, 2008

- *Chair* (with Jean-Phillipe Nicot, University of Texas at Austin) of "Arsenic Contamination and Mobilization in Natural Groundwater Systems", American Geophysical Union, San Francisco, CA, USA, 2007
- *Chair* (with Prosun Bhattacharya, KTH, Stockholm, Sweden, Alan H. Welch, USGS, and Jochen Bundschuh, Instituto Costarrivense de Electridad, Costa Rica) of "Arsenic: from nature to human", Geological Society of America Annual Meeting, Denver, CO, USA, 2007
- *Committee Member*, Scientific Advisory Committee, International Conference on Coastal Zone Environment and Sustainable Development, 2007
- *Chair* (with Prosun Bhattacharya, KTH, Stockholm, Sweden, Kaye Savage, VanderbiltUniversity, and Andrea Foster, U.S. Geological Survey) of "Arsenic and related metalloids in groundwater and surface water systems" topical session, Geological Society of America Annual Meeting, Philadelphia, PA, USA, 2006
- *Chair* (with Alan E. Fryar, University of Kentucky, and Alan Welch, U.S. Geological Survey) of "Arsenic occurrence and fate in hydrogeologic systems" topical session, Geological Society of America Annual Meeting, Salt Lake City, Utah, USA. 2005
- *Convener*, Graduate and undergraduate research symposium, Department of Geological Sciences, University of Kentucky, 2003
- *Convener*, Green Circle of India (a non-governmental environmental research organization), 1999-2001

XV. Selected Interviews and Media coverage*(Links provided at the end)*

- Groundwater Depletion causing Ganges river Drying all major Indian News print media sources (including **The Hindu, Business-Standard, Economics Times, Times of India** etc.), Radio (All Indian Radio), TV media (e.g. **Times Now, Zee News, NDTV etc**.) and dedicated episode (**Rajya Sabha TV***of Indian Parliament Upper House*)
- Drying Ganga could stall food security and prevent achieving SDGs, major Indian News print media sources (including **Hindustan Times, Business-Standard Economics Times. India Today)** and major International News media sources **(Sunday Guardian, Nature Asia, Asia Times, Irrigation Australia, Mongabay etc.)**
- Groundwater Gains of India, September 2017, **NASA Image of the Day**
- Groundwater Replenishment in India, August 2017, all major Indian News print media sources (including **The Times, Business-Standard Economics Times.India Today** etc.) and TV media (e.g. **Times Now, Republic TV etc**.)
- *3-D subsurface urban study in Varanasi*, July 2017, major Indian News media sources (including **The Outlook, Economics Times.India Today** etc.)
- *Ganga pollution, July, 2017*, major Indian News media sources (including **News18** etc.)
- *Groundwater quality and quantity issues of Indus Ganges Brahmaputra basin*, August, 2016, **Science, The Guardian, The Sun, Nature News** and all other major Indian and Bangladesh News media sources (including **The Hindu, Times of India, Hindustan Times** etc.)
- *SmartCity Development of Varanasi,* July, 2016, major Indian News media sources (including **Indian Express, India Today** etc.)
- *Ganga monitoring and rejuvenation,* July, 2016major Indian and Bangladesh News media sources (including **Business Standard, Economic Times,Indian Express,**etc.)

- Witness to Estimate Committee, 2014, September, 2014, **Parliament of India**
- *Researchers float plan of "water security bill"*, August 22, 2014, **Times of India**
- *Poison in our Paani,* December 02, 2012, **Times of India**
- *See it's easy,* March 15, 2012, **Down To Earth**
- *Conflicting studies fueling arsenic debate*, October, 2011, **Nature**, vol. 478, 437-438
- *Panchayat empowered with water distribution* (translated from Bengali), June, 2011, **Anandabazar Patrika**
- *Deep wells having possibilities of arsenic pollution* (translated from Bengali), June, 2011, **Anandabazar Patrika**
- *Alarming arsenic contamination in drinking water in several districts of South Bengal- the losing ground of Environment*, June, 2011, **Aluminet IIT-KGP**
- *Arsenic: over-pumping may lead to contamination of previously safe-aquifers in West Bengal, India*, November, 2007. **IRC Neatherlands** (web: www.irc.nl/page/38211)

XVI. PUBLICATIONS

(* Corresponding author, #Student)

IF: Journal Impact Factor, Cit: Citations; source: Google Scholar, accessed February 2023
h-index -42, i10-index -102,Total citations - 6190

GoogleScholar Link |**ORCID** ID: **0000-0002-0555-0875** | **Publon**s ID: **AAI-2995-2021**

Book

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[4]Mukherjee, A. (ed.), 2022. Riverine Systems: Understanding the Hydrological and Hydrosocial Dynamics. Springer-Capital Publishing, 445p. ISBN 978-3-030-87066-9 https://link.springer.com/book/10.1007/978-3-030-87067-6

[3] Mukherjee, A., Scanlon, B., Aurelia, A., Langan, S., McKenzie. A., Guo,H., (eds.), 2021. Global Groundwater: source, scarcity, sustainability, security and solutions. Elsevier, 676 p. ISBN 978-0-12-818172-0 https://www.sciencedirect.com/book/9780128181720/global-groundwater

[2]Mukherjee, A. (ed.), 2018. Groundwater of South Asia. Springer, ISBN 978-981-10-3888-4, 799 pgs. https://www.springer.com/gp/book/9789811038884

[1]Ramanathan, A., Johnston, S., **Mukherjee, A.**, Nath, B. (eds.), 2015. Safe and sustainability use of arsenic-contaminated aquifers in the Gangetic plain. Springer, ISBN 978-3-319-16123-5. https://www.springer.com/gp/book/9783319161235

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[33] Das, P., **Mukherjee, A**., Haldar, A., Shaw, A., Layek, M.K., 2022. Ganges groundwater interaction at Varanasi. In Mukherjee, A. (ed.): *Riverine Syatems*. Springer, Cham, ISBN. 978-3-030-87066-9, 57-66 pp. https://doi.org/10.1007/978-3-030-87067-6_3

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Journal Articles

[* Corresponding author, #Student, IF: Journal Impact Factor, Cit: Citations (Google Scholar)]

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