PRABHAKAR SHARMA

Department of Agricultural Eng. & Tech., School of Eng. & Tech., Nagaland University, Meriema, Kohima, 797004, Nagaland, India

Education

2004—2007: Ph.D. in Land & Water Engineering at Biological Systems Engineering, Washington State University, Pullman, WA, USA.

2002—2004: M.S. in Water Resources Engineering and Management at Institute of Hydraulic Engineering, Stuttgart University, Stuttgart, Germany.

2000—2002: M.Tech. in Aquacultural Engineering at Agricultural & Food Engineering, Indian Institute of Technology, Kharagpur, India.

1995—2000: B.Tech. in Agricultural Engineering at Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, India.

Professional Experience

From Oct 2023: Professor & Head, Department of Agricultural Engineering & Technology, Nagaland University, Dimapur, Nagaland, India.

Jun 2024-Jun 2024: Visiting Scientist, Dept. Soil and Environmental Resources, China Agricultural University, Beijing, China.

Oct 2014-Sep 2023: Assistant Professor, School of Ecology and Environment Studies, Nalanda University, Rajgir, Nalanda, Bihar, India.

Dec 2018-Dec 2018: Visiting Scientist, Dept. Soil and Environmental Resources, China Agricultural University, Beijing, China.

Feb 2018-Feb 2018: Visiting Scientist, Disaster Prevention Research Institute, Kyoto University, Japan.

Nov 2017-Dec 2017: Visiting Scientist, Dept. Soil and Environmental Resources, China Agricultural University, Beijing, China.

Jun 2017-Jul 2017: Visiting Scientist, Dept. Crop and Soil Sciences, Washington State University Research Center, Puyallup, WA, USA.

Jun 2015-Jul 2015: Visiting Scientist, Environmental Sciences Group, Royal Military College, Kingston, Ontario, Canada.

Feb 2011-Sep 2014: Assistant Professor, Geohydrology Section, Department of Earth Sciences, Uppsala University, Uppsala, Sweden.

Feb 2010-Jan 2011: Postdoctoral Research, Civil and Environmental Engineering, The University of Western Ontario, London, Ontario, Canada.

Feb 2008-Jan 2010: Postdoctoral Research, Section of Environmental Engineering, Aalborg University, Ålborg, Denmark.

Research Interests

- Colloid and colloid-facilitated contaminant transport.
- Transport and retention of microplastics and emerging pollutants in soil and water.
- Biochar application for remediation and soil improvement.
- Transport and leakage of CO_2 gas through the heterogeneous subsurface system.
- Long-term impact on Groundwater quantity and quality after surface water recharge.

Professional Services & Extra-curricular Activities

- Member of PAC (Project Allocation Committee) on Earth, Ocean and Atmospheric Sciences of DST (Department of Science & Technology) International Cooperation Division (2022-2026).
- Editorial Board Member: Materials Science & Energy Technologies, Academia Environmental Sciences and Sustainability, Frontiers in Environmental Science (guest editor); Frontiers in Water: Environmental Water Quality, Groundwater for Sustainable Development (guest editor).
- Reviewer of several leading journals: Environmental Science & Technology, Journal of Physical Chemistry, Water Research, Journal of Hazardous Materials, Environmental Pollution, Journal of Hydrology, Water Resources Research, Science of the Total Environment, Biochar, etc.

Awards and Honors

2023: Best paper award by Journal of Irrigation & Drainage Engineering, American Society of Civil Engineers for "*An integrated site selection criterion for aquifer storage and recovery*"

2018: Editor's Citation for Excellence in Review Award for Vadose Zone Journal for excellent service as a reviewer.

2016: Certificate of Excellence in Reviewing, in recognition of the excellent quality of peer review, contributed to Chemosphere journal.

2004–2006: Subsurface Science Graduate Research Fellowship, Inland Northwest Research Alliance (INRA), USA.

Membership in Academic Societies

2016 – present: Indian Geophysical Union.

2016 – present: Association of Hydrologists of India.

Publications (See also at: http://orcid.org/0000-0003-0894-0809 or https://scholar.google.co.in/citations?hl=en&tzom=-330&user=lCoSrI8AAAAJ) (**h-index: 34; cumulative impact factor: >425**)

1. Tatavarthi, P.; Katam, K.; **Sharma, P**.; Singh, P. 2025. Assessing downstream heavy metal contamination and risks in the Godavari River Basin: Implications for irrigation and water quality management. *J. Irrig. Drainage Eng.* Accepted.
2. Kumar, G.; **Sharma, P**.; Sharma, A. 2025. Revisiting community-based traditional irrigation systems in India. *Heliyon*. 11(1): e41684.
3. **Sharma, P**.; Singh, S.; Ramamurthy, P.C.; Singh, J.; Biswas, J.K. 2025. Regenerative resource recovery from wastewater: State-of-the-art biobased soft technology. *Curr. Opin. Environ. Sci. Health* 43: 100587.
4. Shrivastava, A.; Abhishek, K.; Gupta, A.K.; Jain, H.; Kumari, M.; Patel, M.; **Sharma, P.** 2024. Removal of micro- and nano-plastics from aqueous matrices using modified biochar – A review of synthesis, applications, interaction, and regeneration. *J. Hazard. Mater. Adv.* 16: 100518.
5. Sinha, R.K.; Kumar, R.; Phartyal, S.S.; **Sharma, P.** 2024. Interventions of citizen science for mitigation and management of plastic pollution: Understanding sustainable development goals, policies, and regulations. *Sci. Total Environ.* 955: 176621.

6. Gallitelli, L.; …… **Sharma, P**. et al. 2024. Monitoring macroplastics in aquatic and terrestrial ecosystems: expert survey reveals visual and drone-based census as most effective techniques. *Sci. Total Environ.* 955: 176528.
7. Pan, Y.; Yin, Y.; Sharma, P.; Zhu, S.; Shang, J. 2024. Field aging slows down biochar-mediated soil carbon dioxide emissions. *J. Environ. Manage.* 370: 122811.
8. Kikon, L.; Imyanglula; Lairenjam, C.; **Sharma, P**.; Zimik, W. 2024. Spatio-temporal analysis of land use changes and their impact on temperature and vegetation in Dimapur district. *Afr. J. Bio. Sci.* 6(14):249-274.
9. **Sharma, P**.; Abhilasha; Abhishek, K.; Bhattacharya, S.; Sengupta, S.; Seth, C.S. 2024. Removal of lead in water by potassium hydroxide-activated biochar developed from *Syzygium cumini* stem. *Discover Chemical Engineering* 4:17.
10. **Sharma, P**. 2024. Microplastic contamination in food processing: Role of packaging materials. *Food Science Engineering* 5(2):271-287.
11. Kumar, R.; Kundu, D.; Kormokar, T.; Joshi, S.; Rose, P.K.; Kumar, S.; Sahoo, P.K.; **Sharma, P.**; Lamba, J. 2024. A review on phytoremediation of heavy metals for agricultural and industrial wastewater treatment. *Desalin. Water Treat.* 319: 100505.
12. Islam, M.A.; Kumar, R.; **Sharma, P**.; Zhang, S.; Bhattacharya, P.; Tiwari, A. 2024. Wastewater-based surveillance of Mpox (Monkeypox): An early surveillance tool for detecting hotspots. *Current Pollution Reports* 10: 312–325.
13. **Sharma, P.;** Vidyarthi, V.K. 2024. Impact of microplastic intake via poultry products: Environmental toxicity and human health. *J. Hazard. Mater. Adv.* 14: 100426.
14. **Sharma, P.** 2024. Biochar application for sustainable soil erosion control: A review of current research and future perspectives. *Front. Environ. Sci.* 12: 1373287.
15. **Sharma, P**.; Sharma, P.; Abhishek, K. 2024. Sampling, separation, and characterization methodology for quantification of microplastic from the environment. *J. Hazard. Mater. Adv.* 14: 100416.
16. Kundu, D.; **Sharma, P.;** Bhattacharya, S.; Gupta, K.; Sengupta, S.; Shang, J. 2024. Kinetics of Methylene Blue dye removal using biochar derived from leaf and stem of *Lantana camara* L. *Carbon Res.* 3:22.
17. **Sharma, P**.; Sharma, P. 2024. Micro(nano)plastics: Invisible compounds with a visible impact. *F1000Research* 13:69.
18. Rakib, M.R.J.; Sarker, A.; Nezha, M.; Islam, A.R.M.T.; Kumar, R.; **Sharma, P**.; Idris, A.M. 2024. Spatiotemporal distribution, trophic transfer, and research uncertainty of heavy metals in a subtropical highly polluted river: A critical review. *Reg. Stud. Mar. Sci.* 69: 103327.
19. Sharma, P.K.; Singh, R.K.; Kumar, R.; Kumar, N.; Ghosh, A.; **Sharma, P**.; Kumar, A. 2024. Synthesis and exploration of physical properties of nanobiochar from rice straw for its applications in arsenic remediation from water. *Materials Today: Proceedings* 113: 299-306.
20. **Sharma, P**. 2023. Biochar colloids mobilization by consecutive fluid displacement in unsaturated condition. *Groundw. Sustain. Dev.* 23: 101030.
21. Elkhlifi, Z.; Lahori, A.H.; Shahib, I.I.; Iftikhar, J.; Wang, S.; He, L.; Meili, L.; Gendy, E.A.; **Sharma, P**.; Chen, Z. 2023. Comparative assessment of phosphate adsorption properties and mechanisms on Mg/Al-engineered sewage sludge biochar in aqueous solution. *J. Water Process Eng.* 56: 104443.
22. Sharma, P.K.; Singh, R.K.; Kumar, R.; Kumar, N.; Ghosh, A.; **Sharma, P**.; Kumar, A.; Bhattacharya, P. 2023. Adsorptive behavior of Fe/Zn-modified nanobiochar for arsenic removal from naturally contaminated groundwater. *Groundw. Sustain. Dev.* 23: 101011.
23. Rose, P.K.; Poonia, V.; Kumar, R.; Kataria, N.; **Sharma, P**.; Lamba, J.; Bhattacharya, P. 2023. Congo red dye removal using modified banana leaves: Adsorption Equilibrium, kinetics, and reusability analysis. *Groundw. Sustain. Dev.* 23: 101005.

24. Ivy, N.; Bhattacharya, S.; Dey, S.; Gupta, K.; Dey, A.; **Sharma, P.** 2023. Microplastic and arsenic in soil-plant environment: Individual, synergistic, and/or antagonistic effects. *Chemosphere* 338: 139542.
25. Sangkham, S.; Islam, M.A.; Adhikari, S.; Kumar, R.; **Sharma, P**.; Sakunkoo, P.; Tiwari, A. 2023. Evidence of microplastic contamination in groundwater and human health risk assessment perspectives: A review. *Groundw. Sustain. Dev.* 23: 100981.
26. Verma, A.; Sharma, A.; Kumar, R.; **Sharma, P**. 2023. Nitrate contamination in groundwater and associated health risk assessment for Indo-Gangetic Plain, India. *Groundw. Sustain. Dev.* 23: 100978.
27. Kumar, R.; **Sharma, P.;** Sharma, P.; Kumar, N.; Rose, P.K.; Singh, R.K.; Sahoo, P.K.; Maity, J.P.; Kumar, M.; Bhattacharya, P.; Pandey, A. 2023. Rice husk biochar - A novel engineered bio-based material for transforming groundwater-mediated fluoride cycling in natural environments. *J. Environ. Manage.* 343: 118222.
28. Abhishek, K.; Parashar, N.; Patel, M.; Hait, S.; Srivastava, A.; Ghosh, P.; **Sharma, P.**; Pandey, A.; Kumar, M. 2023. Recent advancements in antimony (Sb) removal from water and wastewater by carbon-based materials: A systematic review. *Environ. Monit. Assess.* 195: 758.
29. Jolly, Y.J.; Rakib, M.R.J.; Kumar, R.; Sultana, S.; Rahman, S.M.M.; Kabir, J.; Akter, S.; Mamun, K.M.; Fatema, K.J.; Mehnaz, M.; Paul, P.; Bhat, E.A.; Paray, B.A.; **Sharma, P.**; Bhattacharya, P. 2023. Evaluation of surface water quality near pollution sources in Buriganga River and deciphering their probable emergence, ecological, and health risk aspects. *Reg. Stud. Mar. Sci.* 63: 102988.
30. Islam, M.A.; Hassan, M.N.; Tiwari, A.; Raju, M.A.W.; Jannat, F.; Sangkham, S.; Shammas, M.I.; **Sharma, P**.; Bhattacharya, P.; Kumar, M. 2023. An analysis of 23-years Dengue & meteorological correlation: persistent public health concern in Bangladesh. *Int. J. Environ. Res. Public Health* 20(6): 5152.
31. Rose, P.K.; Kumar, R.; Kumar, R.; Kumar, M.; **Sharma, P**. 2023. Congo red dye adsorption onto cationic amino-modified walnut shell: Characterization, RSM optimization, isotherms, kinetics, and mechanism studies. *Groundw. Sustain. Dev.* 21: 100931.
32. Kumar, R.; **Sharma, P.;** Rose, P.K.; Sahoo, P.K.; Bhattacharya, P.; Pandey, A.; Kumar, M. 2023. Co-transport and deposition of fluoride using rice husk-derived biochar in saturated porous media: Effect of solution chemistry and surface properties. *Environ. Technol. Innov.* 30: 103056.
33. Bhattacharya, S.; Abhishek, K.; Samiksha, S.; **Sharma, P**. 2023. Source, occurrence, transport, detection and disinfection of SARS-CoV-2 in wastewater streams. *J. Hazard. Mater. Adv.* 9: 100221.
34. Kumar, M.; Sridharan, S.; Sawarkar, A.D.; Shakeel, A.; Anerao, P.; Mannina, G.; **Sharma, P.**; Pandey, A. 2023. Current research trends on emerging contaminants pharmaceutical and personal care products (PPCPs): A comprehensive review. *Sci. Total Environ.* 859: 160031.
35. Kumar, R.; Verma, A.; Rakib, M.R.J.; Gupta, P.K.; **Sharma, P**.; Garg, A.; Girard, P. Aminabhavi, T.M. 2023. Adsorptive behavior of micro(nano)plastics through biochar: Co-existence, consequences, and challenges in contaminated ecosystems. *Sci. Total Environ.* 856: 159097.
36. Al Nahian, S.; Rakib, M.R.J.; Kumar, R.; Haider, S.M.B.; **Sharma, P.** 2023. Distribution, characteristics, and risk assessments analysis of microplastics in sediments and surface water of Moheshkhali river channel, Bangladesh of Bay of Bengal. *Sci. Total Environ.* 855: 158892.
37. Ivy, N.; Mukherjee, T.; Bhattacharya, S.; Ghosh, A.; **Sharma, P**. 2023. Arsenic contamination in groundwater and subsequent transmission through food chain in

Bangladesh: Public health perspectives and mitigation. *Environ. Geochem. Health* 45: 1261-1287.
38. Rakib, M.R.J; Hossain, M.B.; Islam, M.S.; Hossain, I.; Rahman, M.M.; Kumar, R.; **Sharma, P**. 2022. Ecohydrological features and biodiversity status of estuaries in Bengal Delta, Bangladesh: A comprehensive review. *Front. Environ. Sci.* 10: 990099.
39. Sharma, A.; Maharana, P.; Sahoo, S.; **Sharma, P**. 2022. Environmental change and groundwater variability in South Bihar, India. *Groundw. Sustain. Dev.* 19: 100846.
40. Abhishek, K.; Shrivastava, A.; Vimal, V.; Gupta, A.K.; Bhujbal, S.K.; Biswas, J.K.; Singh, L.; Pandey, A.; **Sharma, P.**; Kumar, M. 2022. Biochar application for greenhouse gas mitigation, contaminants immobilization and soil fertility enhancement: A state-of-the-art review. *Sci. Total Environ.* 853: 158562.
41. Kumar, R.; **Sharma, P.**; Yang, W.; Shang, J.; Sillanpää, M.; Bhattacharya, P.; Vithanage, M.; Maity, J.P. 2022. State-of-the-art of progress on treatment of fluoride contaminated water: practical feasibility through transport studies and reusability of biochar-based materials. *Environ. Res.* 214(4):114043.
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44. Kumar, R.; Sinha, R.; Rakib, M.R.J.; Padha, S.; Bhattacharya, S.; Dhar, A.; **Sharma, P**. 2022. Microplastics pollution load in Sundarban delta of Bay of Bengal. *J. Hazard. Mater. Adv.* 7: 100099.
45. Sinha, R.; Kumar, R.; Abhishek, K.; Shang, J.; Bhattacharya, S.; Sengupta, S.; Kumar, N.; Singh, R.K.; Mallick, J.; Kar, M.; **Sharma, P.** 2022. Single-step synthesis of activated magnetic biochar derived from rice husk for hexavalent chromium adsorption: Equilibrium mechanism, kinetics, and thermodynamics analysis. *Groundw. Sustain. Dev.* 18: 100796.
46. Sinha, R.; Kumar, R.; **Sharma, P.;** Kant, N.; Shang, J.; Aminabhavi, T.M. 2022. Removal of hexavalent chromium via biochar-based adsorbents: state of art, challenges and future perspectives. *J. Environ. Manage.* 317: 115356.
47. Wani, I.; Kushvaha, V.; Garg, A.; Kumar, R.; Naik, S.; **Sharma, P**. 2022. Review on effect of biochar on soil strength: towards exploring usage of biochar in geoengineering infrastructure. *Biomass Convers. Biorefin.* doi: 10.1007/s13399-022-02795-5.
48. Al Nahian, S.; Rakib, M.R.J; Haider, S.M.B.; Kumar, R.; Mohsen, M.; **Sharma, P.;** Khandaker, M.U. 2022. Occurrence, spatial distribution, and risk assessment of microplastics in surface water and sediments of Saint Martin Island in the Bay of Bengal. *Mar. Pollut. Bull.* 179: 113720.
49. Kumar, R.; Ivy, N.; Bhattacharya, S.; Dey, A.; **Sharma, P**. 2022. Coupled effects of microplastics and heavy metals on plants: uptake, bioaccumulation, and environmental health perspectives. *Sci. Total Environ.* 836: 155619.
50. Shankar, U.; Das, S.B.; Kumar, V.; Kumar, N.; Kumar, R.; Singh, R.K.; **Sharma, P**. 2022. Studies on the structural, magnetic, and band gap engineering of novel Ag+ modified $MgFe_2O_4$ nanomaterials prepared by low-cost sol-gel method for multifunctional application. *J. Supercond. Nov. Magn.* 35: 1937-1960.
51. Kumar, R.; Manna, C.; Padha, S.; Verma, A.; **Sharma, P.;** Dhar, A.; Ghosh, A.; Bhattacharya, P. 2022. Micro(nano)plastics pollution and human health: How plastics can induce carcinogenesis to humans? *Chemosphere* 298: 134267.

52. Kumar, R.; Singh, S.; Kumar, R.; **Sharma, P.** 2022. Groundwater quality characterization for safe drinking and irrigation water supply in Sheikhpura district of Bihar, India: A Geospatial Approach. *Front. Water: Environ. Water Quality* 4: 848018.
53. **Sharma, P.**; Verma, A.; Sharma, A.; Verma, P.; Bandyopadhyay, S. 2022. An integrated site selection criterion for aquifer storage and recovery. *J. Irrig. Drainage Eng.* 148(5): 04022009.
54. Sharma, P.K.; Kumar, R.; Singh, R.K.; **Sharma, P.;** Ghosh, A. 2022. Review on arsenic removal using biochar-based materials. *Groundw. Sustain. Dev.* 17: 100740.
55. Padha, S.; Kumar, R.; Dhar, A.; **Sharma, P**. 2022. Microplastics pollution in high altitude ecosystems: A review on source, extraction and distribution of microplastics in remote areas. *Environ. Res.* 207: 112232.
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58. Kumar, R.; Sinha, R.; Sharma, P.K.; Ivy, N.; Kumar, P.; Kant, N.; Jha, A.; Jha, P.K.; Gupta, P.K.; **Sharma, P.;** Singh, R.K.; Singh, R.P.; Ghosh, A.; Vara Prasad, P.V. 2021. Bioaccumulation of fluoride in plants and its microbially-assisted remediation: A review of biological processes and technological performance. *Processes* 9(12): 2154.
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66. Kumar, R.; **Sharma, P**. 2021. Microplastics pollution pathways to groundwater in India. *Current Sci.* 120: 249.
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and rhizospheric properties of Seabuckthorn shrub (*Hippophae rhamnoides* L.) in Spituk village of Leh district, Ladakh. *Annals of Arid Zone* 58: 91-98.

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carbon nanotubes in quartz sand under varying saturation. *Environ. Earth. Sci.* 71: 3751-3760.

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