

Curriculum Vitae

Dr Atul Kumar, PhD

Scientist B, ICWMR, TERI School of Advanced Studies, Vasant Kunj, New Delhi-110 070

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SUMMARY:

Sustainability professional with interdisciplinary research experience in life cycle assessment (LCA) and solid waste management. Proven expertise in waste-to-energy technologies, carbon footprinting, and GHG emissions estimation. Passionate teacher with a strong commitment to student development and academic excellence. Adept at leading projects and training professionals, driving impactful environmental solutions in diverse settings.

SKILLS:

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| ❖ <u>Solid Waste Management</u> | ❖ <u>Prediction Modelling</u> |
| ❖ <u>Life Cycle Assessment</u> | ❖ <u>Plastic Waste Management</u> |
| ❖ <u>Carbon & Water Footprint analysis</u> | ❖ <u>SimaPro Software</u> |
| ❖ <u>GHG Accounting (Scope 1, 2, & 3)</u> | |

PROFESSIONAL EXPERIENCE:

Scientist B

ICWMR, TERI School of Advanced Studies, New Delhi, India

July 2023 - Current

- ❖ Leading a thematic area related to LCA, waste management, footprint assessment & GHG accounting.
- ❖ Doing research and consultancy in the field of LCA and Waste Management.
- ❖ Teaching and training for the students and mid-career professionals.

Postdoctoral Research Scientist

Rothamsted Research, Devon, United Kingdom

July 2022 - Jun 2023

- ❖ Worked as a research scientist for the sustainability assessment of the Agri-food system in the Department for Environment, Food and Rural Affairs (Defra) funded project.
- ❖ Analyzed the life cycle assessment of some of the prolifically consumed food commodities in the United Kingdom.

Project Fellow

IIT (ISM) Dhanbad, India

February 2022 - July 2022

Audited various hazardous waste-generating industries located in Jharkhand and prepared a report as part of the MoEFCC-funded project.

Graduate Engineer Trainee

Coca-Cola, Ghaziabad, India

June 2012 - January 2013

Explored various fields such as environment, health, safety, and production as a graduate engineer trainee.

EDUCATION:

Degree	Discipline	Institution	Duration	Division/ CGPA/ Percentage
Ph.D.	Environmental Science & Engineering	IIT (ISM), Dhanbad	July 2015 – Feb 2022	-
M.Tech	Environmental Science and Engineering	IIT (ISM), Dhanbad	July 2013 – June 2015	First Class with Distinction (CGPA: 9.1/10)
B.Tech	Mechanical and Automation Engineering	GGSIPIU, Delhi	Aug 2008 – May 2012	First Class (75%)
B.E. (AMIE)	Civil Engineering	Institution of Engineers (India), Kolkata	Sep 2017 – Mar 2021	First Class (CGPA: 7.55/10); Distance mode
PG Diploma	Environmental Law and Policy	WWF-India & NLU, Delhi	July 2021 – July 2022	First Class (CGPA: 7.5/10); Distance mode

TEACHING, TRAINING, AND STUDENT MENTORSHIP:

- ❖ **Course Instruction** (Delivered full-length courses):
 - ✓ *Solid Waste Management*
 - ✓ *Life Cycle Assessment (LCA)*
 - ✓ *Circular Economy and Sustainable Resource Management*
- ❖ **Student Supervision:**
Mentored five postgraduate and two undergraduate students in independent research projects.
- ❖ **Professional Training in Life Cycle Assessment:**
Served as a lead trainer for professionals and students in *Life Cycle Assessment* under the SkillS 1.0, 2.0, 3.0, 4.0 programs, conducted by the ICWMR at TERI SAS.

INVITED ACADEMIC LECTURES:

- ❖ *“Plastic Waste: A Global Challenge to Health and the Environment”* – Earth Day 2025, OP Jindal Global University, Sonapat, Haryana.
- ❖ *“Solid Waste Management Techniques”* – AICTE-sponsored Faculty Development Programme, Prestige Institute of Management and Research, Bhopal.
- ❖ *“Life Cycle Assessment and its Application in Business Management”* – XLRI, Delhi-NCR Campus.
- ❖ *“Potential of Waste-to-Energy Technologies and Their Environmental Impacts”* – Short-term Course on Waste Management and Sustainability, Gargi College, University of Delhi.
- ❖ *“Evaluation of Waste-to-Energy Technologies for Sustainable MSWM”* – National Technology Day 2023, Sagar Group of Institutions, Bhopal.
- ❖ *“Air, Water Pollution & Solid Waste Management Practices”* – Three-Day Training Programme, IIT (ISM) Dhanbad.

AWARDS AND ACHIEVEMENTS:

- ❖ Got funding from the Dept. of Environment, Forest & Rural Affairs (Defra), Government of United Kingdom for pursuing postdoctoral research in the United Kingdom.
- ❖ Got awarded a DST-SERB fellowship under the International Travel scheme to attend an international conference in Greece in the year 2019.
- ❖ Created an International Collaboration with EEC, Columbia University, USA to establish a WtERT India centre at TERI SAS.
- ❖ One of the authored articles got featured in the top 10 most cited papers for three consecutive years in Waste Management Journal (IF: 7.1).
- ❖ Served as a Guest Editor of the *Sustainability* journal (Impact Factor: 3.3) for a Special Issue on “Treatment and Recycling of Municipal Solid Waste” in the year 2022-23.
- ❖ Graduate Aptitude Test for Engineers (GATE) Qualified.

PROFESSIONAL AFFILIATION:

- ❖ Associate Member of the Institution of Engineers India (Ltd.).
- ❖ Member of the International Solid Waste Association.
- ❖ Represent **WtERT-India** (<https://www.wtert.net/member/56257/AtulKumar.html>).

PROJECTS:

S. No.	Title of the Project	Nature of the Project	Funding Agency	Amount (INR)	Duration	Status	Role
1	Monitoring of public-private partnership project for collection, transportation, treatment, and disposal of municipal solid waste in five zones of the Municipal Corporation of Delhi (MCD).	Consultancy	Municipal Corporation of Delhi (MCD)	81,18,000	18 Months	Completed	PI
2	Vetting of DPR Report for Preparation of DPR and Transaction Advisory Services for Assessment, Remediation Measures, and Management of Legacy Waste at Kurbathang in Kargil, Ladakh	Consultancy	Urban Local Bodies, Ladakh	1,72,280	1 Month	Completed	PI
3	Estimation of impact-adjusted virtual water of a production unit for water credits: a beverage industry case study.	Consultancy	Bisleri Int'l Pvt Ltd.	14,00,000	6 months	Completed	Team Member
4	Measurement and delineation of 5.668 acres of land at Narela- Bawana MSW processing facility.	Consultancy	MCD & Ramky Enviro Engineers Ltd	2,94,800	1 month	Completed	Team Member
5	Impact assessment of plastic recycling and material recovery facilities of IPCA under SBI Cards' CSR initiative	Consultancy	SBI Cards	9,90,000	5 months	Completed	Team Member

PUBLICATIONS:

Published in International Journals (SCI Indexed) ([Google Scholar Citations: 2100+](#))

(h-index: 10; i-10 index: 10)

1. Aryan, Y., **Kumar, A.**, Vanjari, S., Dikshit, A.K., and Shinde, A.M. **(2025)**. Enhancing Sustainability in Municipal Solid Waste Management: An Integrated Approach to Assess Environmental Benefits and Opportunities in India. *Journal of Environmental Engineering* (In Press, corrected proof). **(Impact Factor: 1.6)**
2. Jebari, A., Pereyra-Goday, F., **Kumar, A.**, Collins, A. L., Rivero, M. J., and McAuliffe, G. A. **(2024)**. Feasibility of mitigation measures for agricultural greenhouse gas emissions in the UK. A systematic review. *Agronomy for Sustainable Development*, 44(1), 2. **(Impact Factor: 6.7)**
3. Aryan, Y., **Kumar, A.**, and Samadder, S.R. **(2023)**. “Environmental and economic assessment of waste collection and transportation using LCA: A case study”. *Environmental Research*, 231, 116108. **(Impact Factor: 7.7)**
4. **Kumar, A.**, and Samadder, S.R. **(2023)**. “Development of lower heating value prediction models and estimation of energy recovery potential of municipal solid waste and RDF incineration”. *Energy*, 274, 127273. **(Impact Factor: 9.4)**
5. **Kumar, A.**, Bharadwaj, S., and Samadder, S.R. **(2023)**. “Evaluation of methane generation rate and energy recovery potential of municipal solid waste using anaerobic digestion and landfilling: a case study of Dhanbad, India”. *Waste Management & Research*, 41 (2), 407 – 417. **(Impact Factor: 4.3)**
6. McAuliffe, G.A., Takahashi, T., Lee, M.R.F., Jebari, A., Cardenas, L., **Kumar, A.**, Pereyra-Goday, F., Scalabrino, H. and Collins, A.L. **(2023)**. “A commentary on key methodological developments related to nutritional life cycle assessment (nLCA) generated throughout a 6-year strategic scientific programme”. *Food and Energy Security*, p.e480. **(Impact Factor: 4.5)**
7. **Kumar, A.**, and Samadder, S.R. **(2022)**. “Assessment of energy recovery potential and analysis of environmental impacts of waste to energy options using life cycle assessment”. *Journal of Cleaner Production*, 365, 132854. **(Impact Factor: 10)**
8. **Kumar, A.**, and Samadder, S.R. **(2020)**. “Performance evaluation of anaerobic digestion technology for energy recovery from organic fraction of municipal solid waste: A review”. *Energy*, 197, 117253. **(Impact Factor: 9.4)**
9. **Kumar, A.**, Samadder, S.R., Kumar, N., and Singh, C. **(2018)**. “Estimation of the generation rate of different types of plastic wastes and possible revenue recovery from informal recycling”. *Waste Management*, 79, 781-790. **(Impact Factor: 7.1)**
10. Khan, D., **Kumar, A.**, and Samadder, S.R. **(2018)**. “Public Acceptance Study of Environmentally Suitable Landfill Sites: A Case Study”. *Current Science*, 115 (11), 2122-2129. **(Impact Factor: 1.0)**
11. **Kumar, A.** and Samadder, S.R. **(2017)**. “An empirical model for prediction of household solid waste generation rate- A case study of Dhanbad, India”. *Waste Management*, 68, 3-15. **(Impact Factor: 7.1)**

12. **Kumar, A.**, and Samadder, S.R. **(2017)**. "A review on technological options of waste to energy for effective management of municipal solid waste". *Waste Management*, 69, 407-422. **(Impact Factor: 7.1)**
13. Khan, D., **Kumar, A.** and Samadder, S.R. **(2016)**. "Impact of socioeconomic status on municipal solid waste generation rate". *Waste Management*, 49, 15-25. **(Impact Factor: 7.1)**

International Conference:

1. **Kumar, A.**, and Samadder, S.R. **(2019)**. "Effect of Cow Dung Inoculum on Biogas Generation from Anaerobic Digestion of Organic Fraction of Municipal Solid Waste – A Case Study of India" June 26-29, 2019. International Conference on Sustainable Solid Waste Management, Heraklion, Crete Island, **Greece**.
2. **Kumar, A.**, and Samadder, S.R. **(2016)**. "Do socioeconomic parameters govern the generation rate and characteristics of municipal solid waste?" April 1 – 2, 2016. International Conference on Waste Management (RECYCLE 16), Indian Institute of Technology, Guwahati, **India**.

National Conference:

1. **Kumar, A.**, Kumar, N., & Samadder, S.R. **(2016)**. "Assessment of status of municipal solid waste management in Dhanbad city" December 17 – 18, 2016. National Seminar on Environment and Development in Eastern India (Status, Issues and Challenges). Ranchi University, Ranchi, Jharkhand, India.
2. **Kumar, A.**, & Samadder, S.R. **(2018)**. "Municipal solid waste generation and composition based on family socioeconomic profile: a case study of Dhanbad" August 11-12, 2018. National Conference on Biogeochemical Cycles and Climate Change. Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India.

DR. ATUL KUMAR