

## **CURRICULUM VITAE**

**Dr. SARAT KUMAR DAS, M.Tech (IIT Kanpur, India), Ph.D (IIT Kanpur, India)**

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Dr. Sarat Kumar Das is a Professor of Civil Engineering Department, IIT(ISM) Dhanbad, India. He has completed his M.Tech and Ph D from IIT Kanpur and post-doctoral under Endeavour Fellowship, Government of Australia. Prof. Das over 20 years of research, teaching and consulting experience within the broad fields of civil, geotechnical, and geoenvironmental engineering. His research expertise includes: Valorization of Industrial and mining waste, life cycle assessment and sustainable engineering, artificial intelligence and optimization methods. His research is funded by the Department of Science & Technology, Ministry of Education, Government of India, Tata Steel, Coal India, ESL Vadanta, etc. His research includes laboratory studies leading to practical solutions to the real-world problems. Dr. has published more than 80 journal papers, 3 edited books and conference proceedings, 10 book chapters, and more than 25 full conference papers.

Prof. Das is Editorial Board member of *Environmental Geotechnics*, *ICE*, *London*, *International Journal of Geotechnical Engineering*, and *Indian Geotechnical journal* and guest Editor for *Sustainability* and Reviewer of more than 70 Journals.

Prof. Das is also active member of Technical committees like TC201 and TC221 of **ISSMGE** and Indian Road congress. As part of other assignment he has served as Independent Director of Jharkhand Infrastructure development corp (JUIDCO), Govt of Jharkhand and Building advisory committee of NIFFT, Ranchi, Jharkhand.

The list of **International Collaborative Research** includes: (i) Geotechnical and Geoenvironmental issues of Coal mine overburden, **SPARC Project, University of Illinois, Chicago** sponsored by MHRD, Govt of India. (ii) **GREEN SOIL** – The Sustainable Option for Infrastructure Growth, with **University of Manchester**, UKIERI- DST (iii) Valorization of Industrial wastes, with **University of Vigo, Spain**, Under GIAN- Govt of India (iv) bilateral Student/researcher program with **TUM, Germany as part of DAAD**.

Prof. Das has guided more than 6 Ph.D research scholars on valorization and sustainable aspects of industrial and mining wastes. One of the patent has been granted and in the process of commercialization. He has executed research and consultancy projects of more than 20 million Indian rupees. Some of the current research publications and research project is listed as follows:

### **Recent Journal Publications:**

1. Mishra, A., **Das, S.K.**, Reddy, K.R.(2023) Life cycle triple bottom line sustainability assessment of coal mine overburden sand versus river sand. ***Resources Policy***, 2023, 86, 104140 **IF- 10.4**. <https://doi.org/10.1016/j.resourpol.2023.104140>.
2. Mishra, P.N., Tiwari, **S.K Das**, ...Scheuermann, A., Bore, T. (2023) Biological perspectives in geotechnics: theoretical developments Jain, S., ***Reviews in Environmental Science and Biotechnology***, 2023, 22(4), pp. 1093–1130, **IF- 14.4**
3. Mishra, A., Das, S.K., and Reddy, K.R. (2023), “Life cycle assessment of processing alternate sands for sustainable construction: Coal mine overburden sand versus manufactured sand,” ***Journal of Building Engineering***, Elsevier, pp. 107042. <https://doi.org/10.1016/j.jobe.2023.107042>, **IF- 6.4**.
4. Mishra, A., Das, S.K., Reddy, K.R.(2023) Characterization and environmental sustainability of open pit coal mine overburden waste rock as pavement geomaterial.

**Transportation Geotechnics**, 2023, 42, 101094.  
<https://doi.org/10.1016/j.trgeo.2023.101094>. **IF- 5.3.**

5. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Effect of grass species root for enhanced slope protection in amended coalmine overburden dump soil. **Plant and Soil**, **IF- 4.9, Q1.**
6. Tiwari, S., Das, S.K. (2023) Intelligent Prediction of Critical State Parameters for Non-plastic Tailings and Soils Using Evolutionary Algorithms, **Mining, Metallurgy and Exploration**, **IF-1.9, Q2**
7. Mishra, A., Das, S.K., Reddy, K.R.(2024) Potential Use of Coal Mine Overburden Waste Rock as Sustainable Geomaterial: Review of Properties and Research Challenges. **Journal of Hazardous, Toxic, and Radioactive Waste(ASCE)**, 28(1), 04023039 , **IF- 2.7**
8. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Investigation of root traits of Dendrocalamus strictus cultivated on organically amended coalmine overburden and its potential use for slope stabilization. **International Journal of phytoremediation**. <http://dx.doi.org/10.1080/15226514.2023.2208235> . **IF-4.00**
9. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Phytostabilization of coalmine overburden waste rock dump slopes: current status, challenges, and perspectives. **Bulletin of Engineering Geology and the Environment**, 82(4), 130. <https://doi.org/10.1007/s10064-023-03159-7>, **IF- 4.130**
10. Mishra, A., Das, S.K., Reddy, K.R.(2023) Valorization of Coalmine Overburden Waste Rock as Fine and Coarse Aggregate of Mortar and Concrete: Corrosion Resistance Evaluation. **Waste and Biomass Valorization**, <https://doi.org/10.1007/s12649-023-02102-x>. **IF-3.449.**
11. Anshumali Mishra; Sarat Kumar Das; Krishna R Reddy (2023) Use of Coalmine Overburden as Sustainable Fine Aggregate in Cement Mortar , **Journal of Materials in Civil Engineering, ASCE**, **IF-3.2.**
12. Mahasakti Mahamaya; Surabhi Jain; Sarat Kumar Das; Rajdeep Paul (2023) Engineering Properties of Cementless Alkali Activated CLSM using Ferrochrome Slag. **Journal of Materials in Civil Engineering, ASCE**, DOI [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0004620](https://doi.org/10.1061/(ASCE)MT.1943-5533.0004620). **IF-3.2**

#### **PATENT Granted –**

13. Das, Sarat Kumar, Garanayak, L., Mahamaya, M. (2020) A corrosion resistant cementitious material from industrial waste, Inventors:, Patent No. 329880.

#### **Recent Research Projects:**

Name of the Project	Organization	Amount (Rs) Lakhs	Remarks
Corrosion potential of Industrial waste as a geomaterial using Inverse dielectric spectroscopy	SERB, DST, Govt of India	32.71	Cont.
Feasibility Study of M-Sand from Coal OB	Tata Steel, India	20.53	Cont.
Geotech & Geoenv. Issues of Coal Mine Overburden	SPARC, MHRD	43.92	Complete
Characterization and Utilization of red mud as a Structural fill and Embankment Material	SERB, DST, Govt of India	36.7	Complete

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28<sup>th</sup> January 2024

Sarat Kumar Das