

SANTU KAR, Ph.D.

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EDUCATION

- **Ph.D.**, Civil Engineering (**Construction Technology and Management**), Indian Institute of Technology Delhi (**IIT Delhi**), New Delhi, India [2021]
- **MTech.**, **Construction Technology and Management**, Indian Institute of Technology Delhi (**IIT Delhi**), New Delhi, India [2013]
- **Bachelor of Civil Engineering**, **Jadavpur University**, Kolkata, India [2009]

EXPERIENCE

- **Assistant Professor, Indian Institute of Technology Guwahati (IIT Guwahati)**, Guwahati, India [October 2021 – Till date]
- Assistant Professor, Mahindra University, Hyderabad, India [July 2021 to October 2021]
- Early-Doc. Fellow, Indian Institute of Technology Delhi (IIT Delhi), New Delhi, India [April 2021 to July 2021]
- **Expert lectures** on Project Management and its application using MS Project and Primavera P6 in different programs, including training and development for RVNL, SPCL, CRPF, IIT Jodhpur, CLW, faculty development program at NIT Patna, Eruditus executive education program, and IIT Delhi TEQIP-III program [From 2018]
- Assistant Professor, Jaypee University of Information Technology, HP, India [April 2015-July 2017]
- **Assistant Manager, Larsen & Toubro (L&T) Construction**, Chennai, India [July 2009-March 2015]

AWARDS, HONORS, AND FELLOWSHIPS

- Early-Doc Fellowship, IIT Delhi, India [April 2021 to July 2021]
- MoUD Award, Transportation Research and Injury Prevention Programme (TRIPP), IIT Delhi, India [August 2019-July 2020 and August 2018-July 2019]
- Build India Scholarship Award, Larsen & Toubro Construction, Chennai, India [July 2011-June 2013]
- **Editor's Best Paper** in **ASCE Journal of Construction Engineering and Management** [2021]

RESEARCH INTERESTS

- Construction Project Management
- Material Management
- ICT and Automation in Construction
- Decision Support System
- Advanced Statistical Techniques and Optimization in Construction Management
- Building Information Modelling
- Sustainable Construction
- Risk Management
- Green Building
- Construction Productivity

PUBLICATIONS

Peer Reviewed Journals

- **Kar, S.,** Jha, K. N. 2023. “Examining the effect of material management practices on material availability and waste reduction in construction projects.” *ASCE Journal of Construction Engineering and Management*. 149 (8), 04023065. DOI: 10.1061/JCEMD4/COENG-13589
- Arora J., **Kar, S.,** Jha, K. N. 2023. “Assessment of the significance of identified attributes affecting the rebar fixing productivity using multiple regression.” *ASCE Journal of Construction Engineering and Management*. 149 (6), 04023039. DOI: 10.1061/JCEMD4/COENG-12861.
- **Kar, S.,** Jha, K. N. 2021. “Investigation into lead time of construction materials and influencing factors.” *ASCE Journal of Construction Engineering and Management*. 147 (3), 04020177. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001998](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001998) [Selected as **Editor’s Best Paper**]
- **Kar, S.,** Kothari, C., Jha, K. N. 2021. “Developing an optimum material procurement schedule by integrating construction program and budget using NSGA-II.” *ASCE Journal of Construction Engineering and Management*. 147 (4), 04021017. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002028](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002028)
- **Kar, S.,** Jha, K. N. 2021. “Exploring the critical barriers to and enablers of sustainable material management practices in the construction industry.” *ASCE Journal of Construction Engineering and Management*. 147 (9), 04021102. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002125](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002125)
- **Kar, S.,** Deb, S. K., Bhattacharjee, B. 2021. “Roller compacted concrete used in pavement.” *The Indian Concrete Journal*. 95 (7), 14-22.
- **Kar, S.,** Jha, K. N. 2020. “Examining the effect of material management issues on the schedule and cost performance of construction projects based on a structural equation

model: Survey of Indian experiences.” *ASCE Journal of Construction Engineering and Management*, 146 (9), 05020011. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001906](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001906)

- **Kar, S.**, Jha, K. N. 2020. “Assessing criticality of construction materials for prioritizing their procurement using ANP-TOPSIS.” *International Journal of Construction Management*. <https://doi.org/10.1080/15623599.2020.1742637>
- **Kar, S.**, Shiv, A., Panwar, A., Jha, K. N., Singh, A. 2020. “River water project disputes and their implications.” *ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 12 (4). 05020012. [https://doi.org/10.1061/\(ASCE\)LA.1943-4170.0000423](https://doi.org/10.1061/(ASCE)LA.1943-4170.0000423)
- Viswanathan, S. K., Panwar, A., **Kar, S.**, Lavingiya, R., Jha, K. N. 2020. “Causal Modelling of Disputes in Construction Projects.” *ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 12 (4). 04520035. [https://doi.org/10.1061/\(ASCE\)LA.1943-4170.0000432](https://doi.org/10.1061/(ASCE)LA.1943-4170.0000432)

Peer Reviewed Conference Proceedings

- **Kar, S.**, Jha, K. N. 2020. “Exploring the current material management practices and their influences on material availability in construction projects of developing countries.” *In Construction Research Congress 2020: Project Management and Controls, Materials, and Contracts*, 8-10 March 2020, Tempe, Arizona, US, American Society of Civil Engineers, 963-972. <https://doi.org/10.1061/9780784482889.102>
- **Kar, S.**, Jha, K. N. 2019. “Assessment of criticality of materials in a construction project.” *In Proceedings of the 35th Annual ARCOM Conference*, 2-4 September 2019, Leeds, UK, Association of Researchers in Construction Management, 679-688.

Book Chapters

- Jha, K. N., **Kar, S.** 2021. “Optimization for project resource management,” *Application of mathematics and optimization in construction project management*, Springer, 185-211. https://doi.org/10.1007/978-3-030-81123-5_8
- Jha, K. N., Sinha, A. K., Vishwanathan, S., **Kar, S.**, Johari, S. 2022. “Project management in developing countries – A case of Indian construction industry,” *Building a body of knowledge in project management in developing countries*, World Scientific Ltd.

RESEARCH EXPERIENCE

Doctoral Research, IIT Delhi (Advisor: Prof. K. N. Jha) [July 2017-April 2021]

Developing a decision support system for effective material management in construction

Ph.D. Theses Supervised (Ongoing)

- Developing a sustainability framework for optimizing multi-modal activities in construction
- Integrating BIM with AR/VR to improve construction project performance
- Development of a risk management model to assess the performance of power projects in India

MTech. Theses Supervised (Completed)

- Building information modelling integrated decision support system for optimizing labor acquisition in construction using NSGA II
- An investigation towards lead time in material procurement of residential and commercial projects
- A decision support system for sustainable supplier selection and its impact on project success
- Exploring the concepts of smart cities: An empirical study of smart city Indore
- Risk management in highway projects
- Modeling and comparison of energy efficient green building with conventional building for different climatic zones
- Scheduling and cost estimation of underground work in hydroelectric project
- Smart solution to design Shimla as smart city
- Risk management in hydro-electric projects
- Delay analysis in construction projects
- Success or failure analysis of hydropower projects

TEACHING

PG Courses Taught

- Construction Methods and Equipment Management
- Project Management in Construction
- Construction Techniques
- Construction Financial Management
- Construction Planning and Control
- Construction Contracts and Laws
- Construction Methods Improvement
- Construction Cost Analysis
- Project Management Laboratory

UG Courses Taught

- Construction Technology and Management

- Construction Techniques
- Engineering Drawings

NPTEL Online Certification Course [2020-2021]

Prepared lecture slides; prepared assignments and their solutions; prepared questions and solutions for the main exam

Course Assisted: Introduction to Accounting and Finance for Civil Engineers

Instructor: Prof. Sudhir Misra, IIT Kanpur; Prof. K.N. Jha, IIT Delhi

Invited Lectures

- Online session on project scheduling and monitoring using MS Project and Primavera P6 for the officials of Rail Vikas Nigam Limited (RVNL), CRPF, Shapoorji Pallonji and Company Private Limited (SPCL)
- Online session on project scheduling and monitoring using MS Project and Primavera P6 for faculties and students at the short-term course on construction project management in the IIT Delhi TEQIP III program
- Project management using MS Project and Primavera P6 in the training program for the officials of Chitranjan Locomotive Works
- Training program on project management using MS Project and Primavera P6 at IIT Jodhpur
- Invited lecture on project management using MS Project at NIT Patna
- Invited lecture on fundamentals of partial least square structural equation modeling (PLS-SEM) using SmartPLS at NICMAR
- Earned value management application in projects and resource management, tracking, and report generation in MS Project, IITD's certificate program in project management

INDUSTRY EXPERIENCE

Larsen & Toubro (L&T) Construction, Chennai, India [July 2009-March 2015]

Involved in planning and execution work, including schedule preparation, progress monitoring, resource management, defining effective construction techniques, rate analysis, preparation of bar bending schedule, preparation of invoice, and cost allocation in the following projects:

- Western Dedicated Freight Corridor Project (1483 km) in Rajasthan
- Ratle Hydro-electric Project (850 MW) in J&K
- Subansiri Lower Hydro-electric Project (2000 MW) in Assam

SPONSORED PROJECT

Project Title: A Building information modelling integrated decision support system for automated and optimized material management in construction

Funding Agency: IIT Guwahati

Principal Investigator: Dr. Santu Kar

Duration/Starting Year: 2022 (2 Years)

CONSULTANCY PROJECTS

- **Performance audit** of implementation of Phase-III of Delhi Mass Rapid Transit System by **Delhi Metro Rail Corporation Limited**
- **Performance audit** of implementation of Phase I and II of **Bangalore Metro Project**
- Valuation of assets of 850 MW GVK Ratle Hydro Electric Project, Jammu & Kashmir
- Technical and financial vetting of the executed work for the construction of administrative office building for Greater Noida Industrial Development Authority (civil work)

MEMBERSHIP OF PROFESSIONAL BODIES

Member of the panel for preparing the Draft of IS 15883 (Part 7) on Procurement Management; attended panel meetings organized by the **Bureau of Indian Standards** and contributed to preparing and reviewing the **draft of IS 15883 (Part 7)**

REVIEWER OF REPUTED INTERNATIONAL JOURNALS

- ASCE Journal of Construction Engineering and Management
- ASCE Journal of Management in Engineering
- ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction
- International Journal of Construction Management
- Built Environment Project and Asset Management