Dear Readers,

We are pleased to share with you this special issue of the ICJ on Circular Economy in Construction featuring collaborative contributions from UK and Indian researchers. The edition is guest edited by Dr Kaustav Sarkar.

Born and brought up in Chhattisgarh, Kaustav Sarkar obtained his B.E. (Hons.) in Civil Engineering from Pt. Ravishankar Shukla University, Raipur and M.E. (Hons.) in Structural Engineering from Chhattisgarh Swami Vivekanad Technical University, Bhilai. He later earned his Doctoral degree from IIT Delhi. His primary research interests pertain to the analyses of moisture transport in porous building materials and of the durability of structural materials in tropical climates. He has made important contributions towards the mapping of exposure severity to facilitate the sustainable design and management of steel and concrete structures in India. Dr Sarkar is also a passionate teacher. He has developed and delivered courses related to materials, design, and computational aspects of structural engineering for under- and postgraduate students. Presently, Dr Sarkar is an Associate Professor in the School of Civil and Environmental Engineering at IIT Mandi. He is also a member of the ICI, IBC, ISTAM, ISCMS and ISTE.

We hope you enjoy reading this edition and look forward to your feedback!

Best Regards,
Production Editor
Indian Concrete Journal

Rewiring Construction for a Circular Future: Insights from a UK–India Collaboration on Circular Economy for Construction Practices.

The evolving relationship between the United Kingdom and India in advancing sustainable construction offers a powerful lens through which to explore the global transition toward a circular economy. The UK's mature, regulation-driven framework—anchored in embodied-carbon targets—complements India's innovation-led, resource-efficient approaches tailored to local contexts. Together, they demonstrate how mature and emerging markets can collaborate to accelerate sustainable transformation. This collection of five papers, produced under the SPRAC–UKIERI funded research capacity-building project, "Towards a Circular Economy: Exploring Nanotechnology, Plastics, and Additive Manufacturing for the Production of Sustainable Concrete," sponsored by the Ministry of Education, India, and the British Council, UK, unites IIT Mandi, SVNIT, Nirma University, the University of Reading, London South Bank University, Northumbria University, and University College London in a shared pursuit of circular and sustainable construction practices.

The first paper is a Point of View which establishes a conceptual foundation for the cradle-to-cradle utilization of construction materials. It introduces a structured framework to assess materials for reuse, recycling, downcycling, or disposal and emphasizes material custodianship—the shared responsibility of stakeholders throughout a material's lifecycle. The paper also identifies policy incentives, standardized material passports, and intersectoral collaboration as essential mechanisms for translating circularity from concept to practice.

The second paper is another Point of View which broadens the focus to smart, low-maintenance materials, exploring how multifunctional nanocomposites—such as self-sensing concretes, photocatalytic coatings, and passive radiative-cooling films—can convert buildings from passive entities into active, self-regulating systems. It highlights the importance of durability validation, lifecycle costing, and performance-based standards, ensuring that technological innovation aligns with circular economy goals.

The third paper undertakes a comparative analysis of construction and demolition waste management in the UK and India. It reveals systemic barriers in India—limited infrastructure, weak enforcement, and inconsistent material quality—while showcasing the UK's advanced regulatory and recycling protocols. The paper recommends multi-stage processing, quality assurance systems, and digital tracking platforms as pathways to enhance resource recovery and align developing-market practices with international benchmarks.

The fourth paper continues the UK–India comparison by analyzing circular economy models for concrete construction, distinguishing between the UK's top-down, policy-driven model and India's bottom-up, innovation-led approach. It concludes that successful circular transitions depend on contextual alignment, integrating national socio-economic, technological, and governance realities.

Finally, the fifth paper explores how green building certification systems—including LEED, BREEAM, IGBC, and GRIHA—can serve as vehicles for circular transformation. It identifies a bias toward downstream strategies such as Reduce, Reuse, Recycle, and Recover while underrepresenting upstream principles like Rethink, Refuse, and Remanufacture. The paper proposes a six-stage implementation framework to embed the full 10R model, shifting certifications from checklist compliance to performance-driven circularity.

Together, these papers highlight that the future of construction will depend on cross-national collaboration, where mature and emerging economies learn from each other to foster innovation, accountability, and shared stewardship in the built environment. Lastly, I extend my sincere thanks to the reviewers from academia and industry in India and abroad for their insightful contributions, which enhanced both the rigor and relevance of these works. I hope that readers find inspiration and practical insight within these pages as we collectively work toward a circular and sustainable construction future.

With warm regards and best wishes for happy reading and an advance Happy New Year.

Dr Kaustav Sarkar
Indian Institute of Technology (IIT) Mandi

[1] Madanayake, U., Josa, I., Udeaja, C., and Wei, S. (2025). "Enhancing circular economy in construction: A review of reusable materials for cradle-to-cradle resource utilisation", *The Indian Concrete Journal*, Vol. 99, No. 12, pp. 7-18.

[2] Kellici, S., and Li, Y. (2025). "Encouraging sustainability through low-maintenance smart materials in construction", *The Indian Concrete Journal*, Vol. 99, No. 12, pp. 19-26.

[3] Yadav, A., Addo, C. Patel, K. A., and Sarkar, K. (2025). "Circular economy pathways for construction and demolition waste: A comparative analysis of UK and Indian practices", *The Indian Concrete Journal*, Vol. 99, No. 12, pp. 27-39.

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Indo-UK project team composed of students and faculty members at the OME in December'24.