



Indian Concrete Institute
Chennai Centre

Technologies for Low-Carbon and Lean Construction (TLC2) Lecture

on

Should a System's Approach be used for Ensuring Carbon Neutral Constructions and Improving Construction Productivity?



by **Prof. P A Muhammed Basheer, Univ. of Leeds, UK**

PhD, DSc, FREng, FIAE, FICE, FStructE, FACI, FICT, FIAAM, FIOM3, MICS, MICI, MIEI, CEng

From 5:30 to 7 pm on Thursday, 18 August 2022

at ICSR Auditorium, IIT Madras

Abstract: Historically, there is a huge productivity gap between the construction industry and other manufacturing sectors due to some of the root problems which existed in the construction sector. This has recently been aggravated by the Covid pandemic when the construction work force could not engage directly in construction activities. Further, construction industry is slow in resorting to new technologies for improving the productivity. Similarly, the primary focus of carbon neutral constructions is on reducing the use of Portland cement in constructions, thereby addressing the up to 8% carbon footprint of concrete infrastructure, although the carbon footprint of infrastructure is of the order of 40%. That is, a closer look at both the productivity gap and efforts to address carbon footprint of concrete infrastructure would suggest that perhaps a systems approach might be better to address these issues. In this presentation, the productivity issues in the construction industry and key contributors to carbon footprint of concrete infrastructure will be highlighted initially. Some of the recent technological innovations which could contribute to the systems approach in dealing with these issues: viz. precasting and 3D printing, construction robotics, Artificial Intelligence and construction informatics, structural health monitoring, whole life management of the infrastructure and circular economy, will be introduced. Through a small number of examples dealing with these topics, the objective of this talk is to demonstrate how the productivity and carbon challenges could be addressed and progress could be made. The role of both education and training to disseminate these technological advances to the construction workforce is also highlighted. The talk ends with a call for professional bodies, Government organisations, higher education institutions and industries to work together both nationally and internationally to achieve this.

About the Speaker: Basheer is Chair in Structural Engineering and former Head of School of Civil Engineering at University of Leeds, Leeds, United Kingdom. He is also the current president of the Institute of Concrete Technology (ICT), UK and a guest professor at both Chongqing University and University of Jinan in China. He has been an educationalist and researcher in the field of Civil (Structural) Engineering for nearly 40 years, with primary focus on the Science, Technology and Performance of Structural Materials, including non-destructive evaluation and structural health monitoring. His research on non-destructive tests and structural health monitoring resulted in him establishing two University spin-outs, Amphora Non-destructive Testing Limited and Sengenja Limited. Basheer has secured research income in excess of £19 million, supervised 35 PhDs to successful completion and published nearly 400 refereed technical publications. He has received numerous awards/prizes for his contributions to research, including a lifetime achievement award from the Civil Engineering Research Association of Ireland and CANMET/ACI award for his sustained contributions to the field of concrete technology.

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After online registration, the selected attendees will receive a confirmation e-mail.

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