

Editorial

Special Issue on "Architecture, Engineering and Construction (AEC) Sector Role to Urbanise India"

India is experiencing unprecedented urbanization and this special issue discusses the role of AEC sector to Urbanise India. This issue discusses research conducted to study factors for improving technology adoption, management and productivity in construction projects and at the industry level. Seven papers included in this issue are produced by 17 authors representing Indian construction industry and academia. These papers discuss various topics including: manpower and equipment productivity, construction waste management in power plants, community participation in providing affordable housing, benchmarking for technology adoption for affordable housing projects, causes of delays and cost overruns in construction of road over bridges, energy consumption pattern and conservation potential at Indian airports, and Construction Industry Improvement Initiative India (Ci3 India).

Parthasarathy, Murugasan, and Murugesan critically review factors affecting manpower and equipment productivity in tall building construction projects. Studying 72 tall building projects across India, their paper concludes that human factors and planning factors are more influential and affect manpower and equipment productivity significantly. They opine that the results are useful for Contract Managers and Cost Engineers to make allowance while analysing productivity and estimating costs for tall buildings. Furthermore, results would help Planning Managers to avoid productivity losses during execution of projects.

Seethapathy and Henderson examine five power plant projects for causes of construction waste generation and management. They have identified the causes of waste generation and have emphasised proper awareness to be created for waste generation and management through training. Data analysis reveals that at the material usage stage, reinforcement steel is one of the major contributors towards wastage followed by concrete. The authors conclude that findings and recommendations of the paper would help in enhancing project productivity during construction, by saving 1.667%–1.941% of project cost and minimizing the extraction of natural resources. Study also identifies that waste generation has direct link with proper project planning, design, and engineering management.

The next two papers discuss research in reference to the Government of India initiative "Housing for All by 2022". Johar discusses inclusion of community perspective while Paul and Seth discuss objectives for technology adoption. Johar explores community participation as an instrument for providing affordable housing for urban poor in India and abroad. The author attempts to provide a framework and point out the key housing initiatives. Studying five projects, the development model related to these projects were identified. Furthermore, projects in Thailand and Pakistan have been discussed. Paper concludes by stating that empowerment through participation can be achieved by addressing community based capacity needs, which are to be developed to ensure communities are able to identify problems and consider solutions. Paul and Seth use Quality Function Deployment (QFD) as a tool for benchmarking and objective selection of technologies for developing

affordable housing. House of quality is developed for design requirements and technology requirements. The authors conclude that there are inconsistencies among performance on various parameters and there are inadequacies in the current approach to technology assessment. Moreover, the authors argue that to achieve the target of providing quality housing within the specified time constraint, the selection of new technologies has to be based on an objective methodology analysing against the defined parameters and with reference to the established benchmarks of performance.

Venkateswaran and Murugasan have studied various causes that contribute to time delay and cost overrun of Road Over Bridge (ROB) projects. Their participants of the questionnaire survey included varied stakeholders from public and private organisations, which included contractors, consultants, and owners involved in the construction of these projects. Spearman rank correlation and factor analysis revealed concerned factors, of which land acquisition and legal hurdles are identified as one of the causes that do not surprise the readers. Authors have identified 29 factors that will help all stakeholders of ROB projects in India to understand the factors and thereby reduce time delays and cost overrun.

Malik reports the assessment of energy consumption in three Indian airports and suggests energy conservation potentials in lighting, heating, cooling, and temperature control. The author makes a recommendation that airports should set specific performance metrics.

Loganathan, Srinath, Kumaraswamy, Kalidindi, and Varghese examine Construction Industry Improvement Initiative India (*Ci3 India*) conceived by researchers from the authors' institute in conjunction with a group of large building clients. They have identified critical issues and verified these through four focus groups to develop 10 action items. In this paper authors have discussed engagement with large building construction clients, academicians, and invited experts. Authors suggest that looking further, construction clients must engage their construction supply chains and bring on board design consultants, project management consultants and contractors for a "common manifesto", which could provide the drive for demonstration projects and system improvements in the construction industry.

The above documented research would provide information regarding the varied role of AEC sector in contributing towards urbanization of India by construction, related research, and establishment of best practices. The guest editors would like to acknowledge the critical contribution of reviewers, editorial team, the whole publication team, and the paper contributors for choosing this special issue in this journal as the publication outlet for their research works.

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