

Sustainable Indicators for the Built Environment in Developing countries- An Indian Perspective

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Abstract: Construction industry primarily consumes non-renewable resources and produces a significant level of emissions and construction/demolition wastes. As the population and economy continue to grow, construction stakeholders face the challenge of meeting the demand for new infrastructure, which, in turn, creates more demand for resources and energy to meet the requirements. This will deplete our natural resources and endangers the environment. To resolve this problem, an immediate action is required to meet the present and future demands without disturbing the ecology. For this purpose, Sustainable Construction (SC) practices are very much required. Further, it is essential to promote, implement and uphold the concept of SC in developing countries like India. Therefore, there is a substantial need to identify a well-defined set of sustainable performance indicators to advance and implement the concept of SC in developing countries.

The aspects of sustainability changes with location, climate variations, local context, topographical, culture, and heritage. In the present investigation, the concept of quadra-bottom line approach (i.e., Environment, Social, Economic and Technological aspects) has been adopted for achieving SC in the Indian context. The objective of the study is to identify and establish interrelationship among criteria and indicators and to prioritize overall sustainable performance-based indicator using a Multi-Criteria Decision-Making (MCDM) technique. The purpose of this study is to develop a model that interrelates the criteria and indicators of sustainable construction. The method is based on calculating the weights of the criteria and indicators. Based on the integrated approach of Fuzzy AHP, a Sustainable Building Performance Index (SBPI) to evaluate the sustainability of buildings is proposed.

The feasibility of assessing the sustainability of a building using the SBPI is that it permits the decision makers to study the potential improvement. The results facilitate the development of a sustainable building assessment tool for achieving the sustainable construction. This adopted framework will enable the decision/policy makers to interpret and implement the sustainable approaches, models, strategies, and appraisals for achieving sustainability in the construction industry.

Keywords: Sustainable indicators, Sustainable criteria, Multi Criteria Decision Making, Fuzzy, AHP

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