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Toward a five themes sustainability concept in developing countries: Case study of a national sustainable building assessment system in Oman

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Most cities are in a trend of non-sustainability, against that, the concept of sustainability development has immerged and gave rise to Green Building Movement. The Brundtland Report 1987 considered as a Triple Bottom Line (TBL) based on environmental, economic and social issues. Pioneering eco-cities such as Masdar in UAE, Hammarby in Sweden and Dongtan in China have introduced the concept of sustainability, renewable energy sources, zero-carbon and zero-waste ecology. This study is to develop a framework for sustainable building in Oman. The structure of the proposed system development is composed of 5 themes (environmental, economic, social, cultural and governance requirements), 11 categories and 86 indicators. This study involves two main stages; the first stage concentrates on the formulation of the proposed system structure in relation to Oman by reviewing the literature on sustainable development and buildings, as well as analyzing international and regional sustainability-rating systems. The second stage focuses on formulating assessment categories and their relevant performance indicators which are validated through conducting a survey including different stakeholders of the industry from building engineers, building regulators and sustainability experts. Pairwise and direct ranking method comparisons are used as data collection methods to examine the relative importance and weights of each category and each indicator respectively. The analysis of survey data shows that a prominent relative importance and balanced weights are given to indoor environment quality, natural and human resources, social and governance requirements. The research output will help and promote future studies to develop a detailed assessment system for sustainable construction in Oman. The proposed framework is named Oman Building Environment Certificate (OMBEC). It is used as a pilot rating system for homes at present and then to be further expanded in the future to address other building types. The proposed rating system follows a hierarchy of three levels: Categories, indicators and parameters.

Biography

Muhannad Al Jebouri is currently a PhD candidate at Architecture Department, Faculty of Engineering and Built Environment, UKM, Malaysia. He has completed his MSc and has experience in architectural practical field. Presently, he is a Lecturer and has published two technical papers in reputed journals.

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