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**BUILDING INFORMATION MODELING (BIM) BASED EVALUATION  
SYSTEM FOR THE DEVELOPMENT OF GREEN BUILDINGS IN  
TERMS OF USING LOCAL CONSTRUCTION MATERIALS**

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**Abstract:** The construction sector is a major driver of socio-economic growth, particularly in developing countries such as Sri Lanka. However, it is also one of the largest contributors to environmental pollution. The use of local construction materials is recognized as a sustainable strategy for reducing the environmental impact of building construction. However, evaluating the greenness of buildings in terms of local material usage remains complex due to the lack of standardized methodologies and tools. Various green rating systems, which typically involve manual point calculations, are employed globally. The advent of Building Information Modelling (BIM) is revolutionizing the conventional practices of the construction industry and has reinforced the impact of the design process on the building project's overall lifecycle. This paper proposes a BIM-based evaluation system to provide a comprehensive and standardized approach for assessing the sustainability of green buildings with respect to local construction material usage. The system involves applying alternative combinations of building materials to BIM models and analyzing them to determine embodied energy and greenhouse gas (GHG) emissions. The results show that using locally available construction materials generally results in lower carbon emissions and higher recyclability, as well as reduced fuel consumption associated with transportation and raw material extraction. These findings contribute to advancing green building practices by promoting the use of local materials and reducing environmental impacts. The proposed system can assist architects, engineers, and other stakeholders in making informed decisions during the design and construction phases, thereby fostering the development of more sustainable buildings and informing revisions to green rating system labels.

**Keywords:** Local Construction Materials; Green Building; Carbon Emission; Life Cycle Analysis; Building Information Modelling