

Title: Indicators, Challenges and Strategies in Implementing Net-Zero Carbon Construction Projects

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Abstract: The global construction industry, responsible for over 10% of worldwide greenhouse gas emissions, particularly in carbon dioxide (CO₂) from energy use, contributes a substantial 38% to global emissions. Unchecked emissions pose a serious risk of hastening climate change impacts. To secure a habitable future, collective responsibility is incumbent upon all construction stakeholders to mitigate the carbon footprint. The prospect of a more sustainable environment lies in proactive emission reduction and the pursuit of net-zero carbon construction. This study investigates the indicators, challenges, and strategies in implementing net-zero carbon construction projects. Employing an explorative qualitative approach, twenty project managers and environmental officers were interviewed, and thematic analysis identified management, project attributes, and technology as crucial indicators. Despite increased global awareness, the implementation of net-zero carbon in construction faces significant challenges, including financial constraints, governance issues, management, lack of competency, and limited access to green technologies. Effective strategies necessitate incorporation of governance, knowledge, management, and technology elements. Ultimately, this study enhances understanding of the construction industry by delineating indicators, challenges, and strategies in achieving net-zero carbon construction.

Keywords: Net-Zero Carbon, Construction, Indicators, Challenges, Strategies

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