MAIN ORGANISER:

OFFICIAL COLLABORATORS:

THE INTERNATIONAL COMPETITION ON SUSTAINABLE EDUCATION

20TH AUGUST 2025

TRANSFORMING EDUCATION, DRIVING INNOVATION AND ADVANCING LIFELONG LEARNING FOR EMPOWERED WORLD

SUSED2025
THE FOURTH INTERNATIONAL COMPETITION ON SUSTAINABLE EDUCATION 2025
e-PROCEEDING
20TH AUGUST 2025
ACADEMY OF LANGUAGE STUDIES
UNIVERSITI TEKNOLOGI MARA
NEGERI SEMBILAN BRANCH
KUALA PILAH CAMPUS
MALAYSIA

A METHODOLOGY TO INVESTIGATE FINANCIAL CHALLENGES AND STRATEGIC RESPONSES OF NET ZERO BUILDING IN MALAYSIA

Nur Ameera Batrisyia Mohd Taharill* & Mohd Fairullazi Ayob

Department of Quantity Surveying, Kulliyyah of Architecture and Environmental Design, International Islamic University Malaysia*

ameerabatrisyia7@gmail.com*

ABSTRACT

Net Zero Buildings (NZBs) have become a crucial element in supporting Malaysia's commitment towards achieving environmental sustainability and carbon neutrality. To achieve this imperative goal, the buildings in Malaysia have been demanded to design with a balanced energy consumption and renewable energy generation for providing zero net carbon emissions throughout the entire service life. Despite the noteworthy environmental and economic benefits of NZB, its present implementation in the Malaysian construction industry is still limited due to significant challenges particularly in terms of financial feasibility and sustainability in operating and maintaining the NZB buildings over the life span. This video is prepared with the objective to present a methodology proposed for the study to investigate financial challenges and strategic responses in the implementation of NZBs practice in Malaysia. A qualitative research strategy is proposed as methodology for the study, embedding a comprehensive literature review with interview approach to interview people that have established knowledge, skills or experience in the green building projects. The study will be focusing on identifying the quality of available data used as inputs in the estimation of initial and future costs of NZB building and evaluating the effectiveness of current financial incentives provided to foster the NZB implementation in the Malaysian construction industry. The study is expected to highlight major barriers that hinder the NZB implementation and include with the appropriate strategies for recommendation to enhance the financial viability and adoption of NZB implementation in Malaysia. The study findings could serve as a valuable reference to stakeholders and policymakers in helping them to improve the economic framework in the NZB implementation roadmap to be in line with Malaysia's sustainable development goals and National Energy Transition Roadmap (NETR).

Keywords: *Net Zero Building; Sustainability; Methodology; Financial challenges*

INTRODUCTION

The global shift toward environmental sustainability has heightened the need for innovative building designs that support carbon reduction targets. In this context, Net Zero Buildings (NZBs) play an increasingly important role. These buildings are developed to ensure a balance between energy usage and renewable generation, thereby achieving a net-zero carbon impact throughout their lifecycle (Abdullah et.al, 2024). In Malaysia, NZBs align with national commitments such as the National Energy Transition Roadmap (NETR) and Sustainable Development Goals (SDGs). However, despite the environmental imperative, NZB adoption in the country is still in its infancy. A major limitation is the financial viability of such buildings, which continues to be a concern for developers, contractors, and clients alike.

Significant issues arise from the lack of accurate cost estimation data, unclear return on investment, and limited access to sustainable financial support mechanisms. The absence of a comprehensive financial roadmap and inadequate incentives further hinders progress. Therefore, there is a critical need to investigate the financial challenges hindering NZB implementation and identify practical strategies that stakeholders can adopt to foster its wider adoption.

PROPOSED METHODOLOGY

To achieve the objectives of this study, a qualitative research strategy is proposed. This approach is deemed suitable given the nature of the research, which involves understanding perceptions, experiences, and strategic responses among industry players. The methodology consists of two core components:

1. **Comprehensive Literature Review**
   A review of existing academic and industrial literature will be conducted to examine the financial dimensions of NZB projects, including capital and lifecycle costing methods, available incentives, and implementation models both locally and globally. This review will also identify gaps in Malaysia's current financial framework supporting NZBs.

2. **Semi-Structured Interviews**
   Interviews will be conducted with key stakeholders, including quantity surveyors, architects, sustainability consultants, developers, and government representatives. These interviews aim to gather insights into the financial challenges faced during the planning, construction, and post-occupancy phases of NZB projects. Respondents will also be asked about the effectiveness of existing support mechanisms and suggestions for improvement.

This dual-pronged approach enables the study to generate in-depth findings based on expert experience and supported by documented evidence. The qualitative data will be thematically analysed to extract common themes, identify recurring challenges, and formulate strategic recommendations.

CONCLUSION

This study proposes a structured methodology to examine the financial limitations and strategic responses surrounding Net Zero Building implementation in Malaysia. By employing a qualitative research strategy that integrates a literature review with stakeholder interviews, the research will offer critical insights into the financial viability and institutional readiness for NZB adoption. The outcomes are expected to aid policymakers, industry players, and financial institutions in crafting more effective support mechanisms. Ultimately, the methodology and findings will contribute to enhancing Malaysia's green building landscape in line with national and global sustainability targets.

ACKNOWLEDGEMENTS

This study forms part of the first author's undergraduate dissertation for the Bachelor of Quantity Surveying programme at the Kulliyyah of Architecture and Environmental Design, International Islamic University Malaysia. The research is carried out under the supervision and guidance of the second author, whose invaluable expertise and continuous support are gratefully acknowledged. The authors also wish to thank the Department of Quantity Surveying, KAED, for providing academic and technical support throughout the course of this study.

REFERENCES

Abdullah, A., Mohamed Yusof, L., & A. Rahman, R. (2024). Indicators, Challenges And Strategies In Implementing Net-Zero Carbon Construction Projects. *Planning Malaysia*, 22(3), https://doi.org/10.21837/pm.v22i32.1509

Darmansah, N. F., Abdullah, N., Baddiri, A., Kamaruddin, S. S., Mazlan, E. M., Francis, M.C., & Bakar, R. A. (2025). Challenges in Sustaining Net Zero Buildings in Malaysia. *International Journal of Research and Innovation in Social Science*, IX(II), 582–593. https://doi.org/10.47772/ijriss.2025.9020047