Editorial

The International Conference on Built Environment and Engineering 2024 (IConBEE2024) is a conference that has served as a platform for the discussion, dissemination and exchange of cutting-edge knowledge in the fields of built environment and engineering. With the overarching theme of "Smart, Sustainable and Environmental Solutions for Societal Resilience", the conference organiser eagerly invites submissions of research papers, working papers, industry initiatives and graduate students' research symposiums or presentation proposals. The conference was successfully hosted by the School of Construction and Quantity Surveying, Faculty of Built Environment, Universiti Teknologi MARA, Shah Alam, in Pulau Pinang on 15th to 17th October 2024.

The global construction industry serves as a critical barometer of national economic growth, primarily because governments frequently act as the sector's principal clients. With the advent of the 21st century and the rapid progression into the digital era, the industry has undergone significant transformations. The integration of advanced digital technologies has enabled key stakeholders to collaborate seamlessly across distances and geographical boundaries, spurring the emergence of new trends and innovative approaches to longstanding challenges. While technological advancements continue to reshape the sector, equal emphasis must be placed on the "soft" dimensions – particularly the human capital that underpins the effective operation and management of these advanced systems. The successful delivery of cutting-edge projects increasingly depends on the skills, knowledge and adaptability of the workforce in navigating both hard and soft technological landscapes.

This special issue of the *Journal of Construction in Developing Countries* (JCDC) explores the interplay between construction technology and the broader business and management domains, with a particular focus on the theme "Smart, Sustainable and Environmental Solutions for Societal Resilience". The included articles examine a range of pressing issues and challenges facing the construction industry and propose strategies to address them. Each contribution has undergone a rigorous peer-review process, conducted by independent experts well-versed in the respective subject areas, ensuring the highest standards of academic rigour and relevance.

By presenting insights from business and management perspectives, this special issue aims to illuminate the multifaceted nature of the construction industry and the potential for multidisciplinary research within the built environment. The discussions underscore the pivotal role of human capital as implementers of policies, practices and technologies that drive innovation and resilience in the global construction sector. This collection offers valuable

contributions to both academic and professional audiences, equipping practitioners with foresight into future challenges and practical solutions to navigate them effectively.

Nik Siti Fatimah Nik Hassin and Alamah Misni examine the impact of design features on the thermal performance of Melaka houses, highlighting the contrast between traditional and modern architecture. Using fieldwork and thermal data measurements, the study quantified the heat transfer coefficient (HTC) and identified key determinants such as material properties and surface area. Results revealed that rumah tengah had the highest HTC (14,362,526.42 W), while the anjung recorded the lowest (600.08 W), both with zinc roofing. Factors like roof height influenced air circulation, while floor area and elevation showed no significant impact on HTC. The findings contribute to sustainable design practices for modern residential architecture.

Nurul Afiqah Yunus, Natasha Khalil, Kharizam Ismail, Nurul Azhani Yunus and Evie Sendi Ibil address the challenges of implementing life cycle costing in green building projects, particularly the fragmented understanding of life cycle costing components. Using a questionnaire survey targeting 84 stakeholders involved in GBI-rated office projects in Kuala Lumpur, the study identifies 23 life cycle costing components essential for planning green construction initiatives. Analysis via the relative importance index highlights the 10 most critical components, including material cost, initial cost, management cost and green building certification cost. These findings provide a structured framework for stakeholders to make informed planning decisions, advancing sustainable practices and cost-efficiency in green building development.

Mohd Khairul Fitri Othman, Siti Suhana Judi, Zulhabri Ismail, Syamimi Liyana Amat Rais and Low Sui Pheng investigate key factors contributing to these disputes through a questionnaire survey involving 257 industry professionals, including G7 contractors, private clients, and Quantity Surveying consultants. Eight critical factors were identified: delays in evaluation, complexity of variation claims, approval issues, disagreements on valuations, poor record keeping, late submissions and cost overruns. The findings provide insights for stakeholders to adopt effective management practices, minimise disputes, and ensure the successful and timely resolution of final account processes.

Danial Ezryafif Nor Ashikin, Kharizam Ismail, Nor Suzila Lop and Muhammad Imran Zin Zawawi focus on the implementation of an electronic tendering (e-tendering) system in Malaysia's construction procurement that aims to replace traditional tendering processes. However, challenges such as limited system capabilities, frequent crashes, difficulties with Excel-based tender documents, and inadequate notification mechanisms have led to user dissatisfaction. This qualitative study, involving 11 experienced contractors and public authorities, utilised semi-structured interviews and Atlas.ti 9©

for data analysis. Findings highlight critical issues disrupting the tendering process and impeding system efficiency. The study provides insights to inform the development of a robust and user-friendly e-tendering system, ultimately enhancing system performance and user satisfaction in Malaysia's public procurement.

Puteri Sidrotul Nabihah Saarani, Asniza Hamimi Abdul Tharim, Zulkefle Ayob, Asmalia Che Ahmad and Osman Mohd Tahir highlighted that the agriculture sector in Malaysia faces structural challenges, including labour shortages, low productivity, reliance on foreign labour, and limited automation, exacerbating food insecurity. Smart urban farming techniques are promoted as a solution, but their adoption is hindered by high initial costs and limited life cycle cost data. This study employs a triangulation method, combining Delphi surveys and case studies, to identify life cycle cost components and phases relevant to SUF practices. Iterative rounds of expert interviews and real-world case studies refined the findings, ensuring robust, expert-driven insights. The study provides a comprehensive framework for sustainable, cost-effective smart urban farming systems.

Norulelin Huri, Zarita Ahmad@Baharum, Wan Norhishamuddin Wan Rodi and Ting Kien Hwa focus on the property stigma, encompassing physical, non-physical and psychological factors, significantly impacts property overhang in Malaysia. This study evaluates the relationship between property stigma dimensions and residential property overhang, analysing data from 69 real estate professionals in Selangor using partial least squares structural equation modelling (PLS-SEM). The findings reveal that non-physical and psychological stigma are the primary contributors to property overhang, while physical stigma is less significant. These insights highlight the need for targeted strategies by government agencies and developers to address stigma-related issues, enabling more informed development planning and fostering stability in Selangor's property market.

Aiman Al Fahmi Abdul Kashaf, Yusfida Ayu Abdullah@Mohd Zain and Nurulhusna Qamaruz Zaman address that flash floods are a recurring issue in Malaysia, particularly during the monsoon season, causing significant damage to infrastructure and posing risks to human safety. This study examines the applicability of the sponge city concept in mitigating flash floods, leveraging international best practices from countries like China, Australia, Thailand, Indonesia and Singapore. These case studies highlight strategies such as green infrastructure, smart water management, and community engagement. The findings emphasise the importance of developing supportive policies, securing funding, fostering public-private collaboration and building technical capacity. By adopting these approaches, Malaysia can enhance urban resilience and transform cities into sustainable, flood-resistant environments.

Tamanna Faruque Nawme, Mohd Reza Esa and Khalida Mohd Sukur underlined that Bangladesh's construction industry generates substantial waste, with daily waste production projected to reach 47,000 tonnes by 2025, threatening natural resources. This study explores the implementation of the circular economy concept to enhance construction and demolition (C&D) waste management. Structured interviews with nine industry professionals identified key obstacles, including limited knowledge and awareness among practitioners, insufficient training, and inadequate regulatory frameworks. The findings emphasise the need for enhanced education, clearer policies, and stricter enforcement to promote sustainable practices. This research provides a foundation for integrating circular economy into C&D waste management, supporting resource efficiency and waste minimisation in Bangladesh's construction sector.

Mohd Reza Esa, Noor Sahidah Samsudin and Azizan Abdul Aziz unfold that the rapid growth of Malaysia's construction industry has led to increased construction waste, causing environmental and resource challenges. This study integrates economic, social and governance principles with Construction 4.0 technologies to address inefficiencies in construction waste management. Using the circular economy concept as a foundation, a comprehensive waste management framework was developed through the Delphi method, incorporating expert insights from contractors, consultants, developers and government agencies. The study identifies key barriers to successful implementation and emphasises overcoming these challenges to ensure the framework's effectiveness. This initiative provides a pathway for sustainable and efficient construction waste management.

Md Yasir Arafat, Mohd Reza Esa, Nurulhudaya Abdul Hadi and Balkhiz Ismail reveal that off-site construction (OSC) has the potential to enhance efficiency and quality in construction, yet its adoption in Bangladesh remains limited. This study identifies key barriers to OSC implementation, including stakeholder unawareness, insufficient government support, inadequate skills, limited transportation infrastructure, high initial costs, resistance to change, lack of local manufacturing capacity and weak industry-government-academia collaboration. Data from semi-structured interviews with nine construction professionals were thematically analysed. Proposed strategies include education and training programmes, supportive policies, infrastructure investments, local manufacturing development, innovation promotion, risk management and streamlined environmental processes. These insights guide policymakers and industry leaders in advancing OSC adoption in Bangladesh.

Wang Su Qi, Emma Marinie Ahmad Zawawi and Qie Ji Kwong explore that rural residential buildings often suffer from high energy consumption due to inefficient designs. This study uses an orthogonal test design method to

evaluate the impact of structural modifications on energy efficiency. Factors examined include insulation thickness, heat transfer coefficients, window-to-wall ratios, and shading. The optimal configuration—featuring 120 mm wall insulation, 120 mm roof insulation, triple-layer insulating glass and strategic window-to-wall ratios—reduced annual energy consumption to 6,579.72 kWh, achieving 49.52% energy savings compared to the benchmark model. The findings highlight the efficacy of targeted building envelope enhancements in reducing energy demand and demonstrate the orthogonal design method's efficiency in optimising building performance.

Siti Rashidah Hanum Abd Wahab, Muhd Fazreel Muhammad Rosli and Norazian Mohamad Yusuwan examine the implementation of the Internet of Things (IoT) in facility management using the technological-organisational-environmental framework. A systematic literature review of 28 articles (2014–2023) was conducted following PRISMA guidelines, using Scopus, ScienceDirect and Google Scholar databases. The analysis was conducted with ATLAS.ti version 9, identified three critical themes: technological, organisational and environmental factors influencing IoT adoption. Key findings highlight challenges such as integration, standardisation, data security, resistance to change, stakeholder involvement and regulatory compliance. This study offers comprehensive insights to guide researchers, practitioners and policymakers in advancing IoT adoption and improving facility management efficiency and sustainability.

Mohd Ashraf Mohd Fateh, Mohd Nizam Daut, Mohd Sofiyan Sulaiman and Cheng Siew Goh examine the work-life balance (WLB) challenges and initiatives within Malaysia's East Coast Rail Link (ECRL) project, aligning with the *Construction Industry Transformation Plan 2021–2025*. Three objectives were pursued: assessing the existing WLB culture, identifying constraints, and recommending WLB initiatives. A quantitative survey distributed to 300 personnel via WhatsApp revealed four key constraints: new technology, long commute times, ad-hoc tasks and organisational policies. Preferred initiatives included reward systems, flexible working arrangements, and enhanced organisational support. The findings offer insights into mitigating WLB challenges in mega-projects, promoting productivity and fostering sustainable practices in Malaysia's construction industry.

It is anticipated that readers will derive significant benefit from the scientific content and high quality of the 14 compelling articles presented in this special issue, which collectively address the theme of "Smart, Sustainable and Environmental Solutions for Societal Resilience".

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