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Editorial: Exploring the role of construction in achieving UN Sustainable Development Goals

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Editorial on the Research Topic

Exploring the role of construction in achieving UN Sustainable
Development Goals

Recent research, including a study by [Opoku \(2024\)](#), shows the complex connection between the built environment and the Sustainable Development Goals (SDGs), which focus on five key areas: People, Planet, Prosperity, Peace, and Partnerships. There are still gaps in understanding of how construction and facilities management (FM) can effectively support the goals related to Planet, Prosperity, and Partnership. Closing these gaps is important for creating better solutions based on life cycle assessments. By using sustainable construction and FM practices, we can reduce energy, water, and waste throughout the entire life cycle, from building to maintenance and operation. [Collins et al. \(2019\)](#) studied the divide between sustainable buildings and FM. They emphasized the need to unite design, construction, and FM. FM is now focusing more on sustainability by including the United Nations SDGs in their decision-making processes ([Lok et al., 2023](#)).

Recent studies from [IFMEC \(2018\)](#) and [Klungseth et al. \(2022, 2023\)](#) show that using technologies like artificial intelligence (AI) and the Internet of Things (IoT) in FM can help achieve SDG 9, which is about industry, innovation, and infrastructure. [Opoku and Lee \(2022\)](#) note that FM is moving toward a long-term view that considers the social, environmental, and economic impacts of business decisions. To contribute to the UN SDGs, we need more research to explore the full potential and limitations of these technologies and strategies in meeting broader sustainability goals.

This Research Topic invited studies on construction and facilities in the built environment to the UN SDGs. We aim to explore how sustainable practices improve environmental, economic, and social outcomes while assessing the effectiveness of current standards and technologies. This requires collaboration with key stakeholders to create strategies that enhance health, safety, and wellbeing. A comprehensive plan should align investments, management, design, construction, operations, and services. Those sectors are focusing on long-term strategies, such as better practices, using digital technology, building partnerships, and following international standards.

In our topic we feature three types of contributions: conceptual, empirical, and review. This topic includes eight international publications, comprising three Community Case Studies, two Literature Reviews, and three Original Research Articles.

1. [Rush et al.](#)—Bioenergy projects from cellulosic urban waste feedstock in Hawaii for sustainable aviation fuel.

There is a lack of research on how Hawaiian residents engage with and perceive bioenergy projects and sustainable aviation fuel. To address this gap, a study was conducted to gather insights through community-scale surveys, interviews, and town meetings. The findings indicate the importance of community involvement in the design process and the acceptance of new sustainable infrastructure.

2. [Ababneh et al.](#)—Gender equality in smart sustainable cities.

The concept of smart cities is considered. However, there is limited research exploring the relationship between smart cities and gender equality. This study uses a bibliometric review technique to analyze the existing literature related to SDG 5 & 11, and smart cities comprehensively. The findings reveal a significant gap regarding the connection between smart cities and gender equality.

3. [Jia et al.](#)—Modular integrated construction as a development strategy in Hong Kong.

The Hong Kong Special Administrative Region Government through construction strategies has started implementing Modular Integrated Construction (MiC), which industrializes the construction process. This initiative is supported by enhanced infrastructure and digital skills.

4. [Mukhlis et al.](#)—Stakeholder dynamics and sustainable waste management: actor interactions in Indonesia.

The roles and interactions of stakeholders involved in the TPS3R (Reduce, Reuse, Recycle Waste Processing Site) program in Tulungagung Regency are not well understood. This study uses the MACTOR (Matrix of Alliances and Conflicts: Tactics, Objectives, and Recommendations) methodology to analyze the interactions among 15 key professional stakeholders. Localized stakeholders interact in peri-urban areas and offers actionable recommendations.

5. [Munonye and Ajonye](#)—Energy-driven circular design in the built environment.

The integration of circular design principles into the built environment raises important questions about how to support the development of sustainable, low-carbon cities and buildings. By adopting a multidisciplinary approach, energy-driven circular design can significantly minimize the environmental impact of the built environment. It also presents pathways for achieving climate resilience and sustainability goals.

6. [Gong et al.](#)—Decision-making in the adaptive reuse of industrial buildings into hotels in third-tier cities in northern China.

Vacant industrial buildings in third-tier cities have become significant resources, playing an essential role in reducing urban carbon emissions. This study used the fuzzy hierarchical analysis method to identify and rank the factors influencing this process in descending order: market, sustainability, economy, building physics, legal policy and location environment. The findings provide the adaptive reuse of industrial buildings in third-tier cities of developing countries and help stakeholders make more informed decisions regarding transformation strategies.

7. [Kottala et al.](#)—Exploring Electric Vehicle Consumer Behavior: Digital Innovation, Environmental Concern, Perceived Value, and Social Influence on Purchase Intentions.

There is currently no model for analyzing electric vehicle consumer behavior. This study presents a moderated mediation model based on a cross-sectional survey of drivers familiar with EVs. Perceived value influences both sustainability perception and purchase intentions. Additionally, it identifies household income, technology trust, and environmental knowledge as moderating factors that impact the relationship between perceived value and these outcomes.

8. [Abdulkasoud et al.](#)—Adoption of Biomimicry in the UAE Construction Industry.

Biomimicry enhances sustainability in the construction sector of the UAE. This study examines the key factors shaping stakeholders' perceptions of biomimicry as a sustainable strategy. This model was tested using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) based on data from construction professionals. There is a need for targeted educational programs, transformative policy reforms, and effective risk mitigation strategies to facilitate the integration of biomimicry into the sustainability agenda.

In the future, we need to focus on construction in urban resilience of the post-pandemic period. Future research should help build the systems, practices, and structures that make cities better able to withstand future crises. This new Research Topic aims to examine how sustainable practices in construction and FM can amplify environmental, economic, and social outcomes.

Author contributions

KL: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing, Funding acquisition. CC: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – review & editing. AS: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision,

Validation, Writing – review & editing. MB: Data curation, Investigation, Methodology, Resources, Validation, Writing – review & editing. JY: Data curation, Investigation, Methodology, Validation, Writing – review & editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/frsc.2025.1706878/full#supplementary-material>

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