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Editorial: Carbon neutrality approaches in buildings and agriculture sectors

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Editorial on the Research Topic
Carbon neutrality approaches in buildings and agriculture sectors

Climate change is a critical global challenge. Carbon neutrality has become a grand and imperative goal to cope with this challenge (Chen et al., 2022; Yang et al., 2022). In the context of carbon neutrality, green policy, green innovation, green behaviors, and green industrial transformation have triggered increasing research interests (Si et al., 2020; 2022; Zhao et al., 2020; Wang et al., 2021; 2023). It is noteworthy that the building sector consumes more than 40% of global energy and accounts for approximately 40% of global greenhouse gas emissions (He et al., 2020; Wang et al., 2021). The building sector is under particularly high pressures to transform its development paths (Zhang et al., 2022). Therefore, this Research Topic is launched to produce a comprehensive reflection of research on carbon neutrality, especially the research related to the transformation of the building sector. The guest editors aim to highlight avenues for new research by capturing the current state-of-the-art in carbon neutrality research and practice and supporting the foundation for future work. This Research Topic welcomed carbon neutralization studies in the field of economics and management and embraces diverse research methods and article types, including systematic literature review, conceptual framework development, analytical and simulation modeling, quantitative and qualitative empirical studies, and other rigorous research. Twelve papers, including this editorial, were finally included in this Research Topic. In the next section, we briefly describe the contributions of these papers.

The paper can be divided into three levels, including the micro-behavioral level, the meso-industry level (especially in the building sector), and the macro-development level. First, there are three papers rooted in the micro-behavioral level. Wen and Qiang developed a Bayesian network model to address the complexity of stakeholder concerns and optimize the decision-making process in green building projects from the perspective of social sustainability. The feasibility of the Bayesian network model was verified by the case of the Wuhan International Commerce Center. This study facilitates a better accommodation of social sustainability in the decision-making process for green buildings. Liu conducted face-to-face surveys in North China and revealed conflicting perceptions of different stakeholders on the pathways to improve air quality. This study helps to better balance the concerns of different stakeholders in the process of developing air quality improvement policies. Ao et al. conducted a questionnaire survey in areas affected by the natural disaster (i.e., Wenchuan

earthquake) to investigate the status of post-disaster reconstruction and the level of satisfaction of residents in these areas. This study contributes to enriching research on residents' satisfaction as well as reconstruction practices after natural disasters.

Second, there are five papers rooted in the meso-industry level. Guo and Li developed a "mi" shaped conceptual framework for the collaborative development of intelligent construction and building industrialization. This framework, which includes the four dimensions of the driving force, resource supply, collaborative operation, and trust guarantee, contributes to clarifying the development directions of intelligent construction and building industrialization. Tang et al. provided a bibliometric analysis of 296 papers on government behaviors in carbon emissions and developed a framework for aligning carbon emissions policies in the building sector. This study revealed the transmission path of government behaviors toward carbon emissions in the building sector and shed light on potential directions for future research. Xia et al. developed an evaluation index system that considers the stability of the tunnel construction process and the level of carbon emission and proposed an intelligent decision method to better assess the utility of excavation schemes. The decision indicator system and method can be applied to the selection of the excavation scheme in engineering projects. Lu and Juan conducted questionnaire surveys to analyze the differences between developers' and users' perceptions of green building technologies and developed an optimal decision-making model taking into account developers' incremental cost and benefit assessment to assist in selecting green building technologies. Li and Lu introduced the green credit guidelines as a quasi-natural experiment and applied PSM-DID to examine the effects of green credit policy on the performance of construction energy-saving firms, with consideration of the mediating role of firms' debt. This study revealed the nuanced effects of green credit policy and provided implications for facilitating the development of energy-saving firms in the context of carbon neutrality.

Third, there are three papers rooted in the macro-development level. Xie selected Chinese-listed firms from the Rankins index between 2009 and 2017 as the sample and examined the effect of corporate social performance on green technology, with consideration of the moderating role of slack resources. This study provided implications for promoting green technology innovations. Khurshid et al. examined the effect of climate change shocks on economic growth using non-linear analysis. This study revealed the asymmetrical effects of CO_2 emissions and mean temperature on

economic growth both in the long run and short run and provided macro-level policy suggestions for mitigating climate change. Wang et al. analyzed China's policies related to carbon neutrality and provided suggestions for aligning the carbon policy system.

In summary, the contributed papers focus on topics related to carbon neutrality, climate change, and sustainable development at three levels, including the micro-behavioral level, the meso-industry level, and the macro-development level. The meso-industry level studies are mainly focused on the building sector. There is a huge potential to explore carbon neutrality in the agriculture sector.

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Conflict of interest

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