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RECEIVED 21 February 2024

ACCEPTED 18 March 2024

PUBLISHED 26 March 2024

CITATION

Gavriletea MD, Akkucuk U and Sasmaz MU (2024), Editorial: Determinants of sustainable development from a global perspective. *Front. Environ. Sci.* 12:1389339. doi: 10.3389/fenvs.2024.1389339

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Editorial: Determinants of sustainable development from a global perspective

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KEYWORDS

SDG, sustainability, OECD, risk management, water management, green banking

Editorial on the Research Topic

Determinants of sustainable development from a global perspective

Welcome to this Research Topic of *Frontiers in Environmental Science*, focusing on the multifaceted determinants of sustainable development from a global perspective. In an era marked by increasing environmental challenges and economic complexities, understanding the interplay between various factors influencing sustainable development is paramount. Through the lenses of spatial analysis, economic dynamics, risk assessment, and policy interventions, the articles in this Research Topic contribute valuable insights to this crucial discourse.

The first article, “The spatial analysis of green economy indicators of OECD countries,” delves into the spatial distribution and dynamics of green economy indicators across OECD nations. By employing sophisticated spatial analysis techniques, the authors uncover patterns and disparities in green economic performance, shedding light on regional variations and identifying areas for targeted interventions. This study underscores the importance of spatial considerations in crafting effective policies to promote sustainable development on a global scale (Atalay et al.).

Shifting focus to China, the second article, “Local government debt, resource misallocation, and green total factor productivity in China,” examines the intricate relationship between local government debt, resource allocation efficiency, and green total factor productivity. Through empirical analysis, the authors demonstrate how excessive debt burdens can lead to resource misallocation, hindering progress towards environmentally sustainable economic growth. This research underscores the urgency of addressing fiscal imbalances and improving resource allocation mechanisms to enhance sustainability outcomes (Deng et al.).

In the third article, “Risk analysis of waterlogging in a big city based on a bow-tie Bayesian network model, using the megacity of Wuhan as an example,” the authors use advanced risk analysis techniques to assess the vulnerability of megacities to waterlogging events. Focusing on the case of Wuhan, China, the study develops a bow-tie Bayesian network model to identify key risk factors and evaluate mitigation strategies. By integrating probabilistic modeling with scenario analysis, this research provides valuable insights for enhancing resilience and adaptive capacity in the face of urban waterlogging risks (Li et al.).

Finally, the fourth article, “Green credit policy and digital transformation of polluting firms: a quasi-natural experiment from China,” investigates the impact of green credit policies on the digital transformation of polluting firms in China. Through a quasi-natural experiment approach, the authors examine how access to green financing influences firms’ adoption of digital technologies and environmental management practices. This study underscores the potential synergies between financial incentives and technological innovation in promoting sustainable business practices (Gu and Wang).

Collectively, these articles offer a comprehensive exploration of the determinants of sustainable development from diverse perspectives, spanning spatial, economic, environmental, and policy dimensions. By uncovering underlying mechanisms, identifying critical challenges, and proposing actionable solutions, these studies contribute valuable insights to both academic scholarship and real-world policymaking.

As editors of this Research Topic, we hope that the research presented here stimulates further inquiry and inspires collaborative efforts towards achieving global sustainability goals. By fostering interdisciplinary dialogue and knowledge exchange, we can collectively navigate the complexities of sustainable development and pave the way for a more resilient and equitable future for all.

We extend our sincere gratitude to the 13 authors for their scholarly contributions, the reviewers for their insightful feedback, and the readers for their continued engagement with this important Research Topic. Together, let us embark on a journey towards a more sustainable and prosperous world.

Author contributions

MG: Writing–original draft, Writing–review and editing. UA: Writing–original draft, Writing–review and editing. MS: Writing–original draft, Writing–review and editing.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

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