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Editorial

Sustainable Transport and Land Use for a Sustainable Future

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In line with the United Nations' Sustainable Development Goals, the pursuit of sustainable transport and land use is essential to advancing urban sustainability [1]. The interdependence between transport and land use constitutes a fundamental nexus shaping the physical, social, and economic fabric of cities and human settlements. It is widely recognized that transport influences land use by shaping accessibility [2,3], whereas land use affects transport through the spatial distribution of human activities (Figure 1). More specifically, land use acts as a catalyst for activity demand, profoundly influencing residents' trip generation, destination choice, spatial distribution of trips, and mode choice [4,5]. Conversely, transport systems alter patterns of accessibility and stimulate urban development. The evolving dynamics of urban space, accelerated by technological advancements and shifting societal norms, underscore the need for innovative and sustainable solutions in land use planning and transport systems. In this context, effective geovisualization can improve the communication and interpretation of complex geospatial information, thereby supporting more informed planning and decision-making [6].

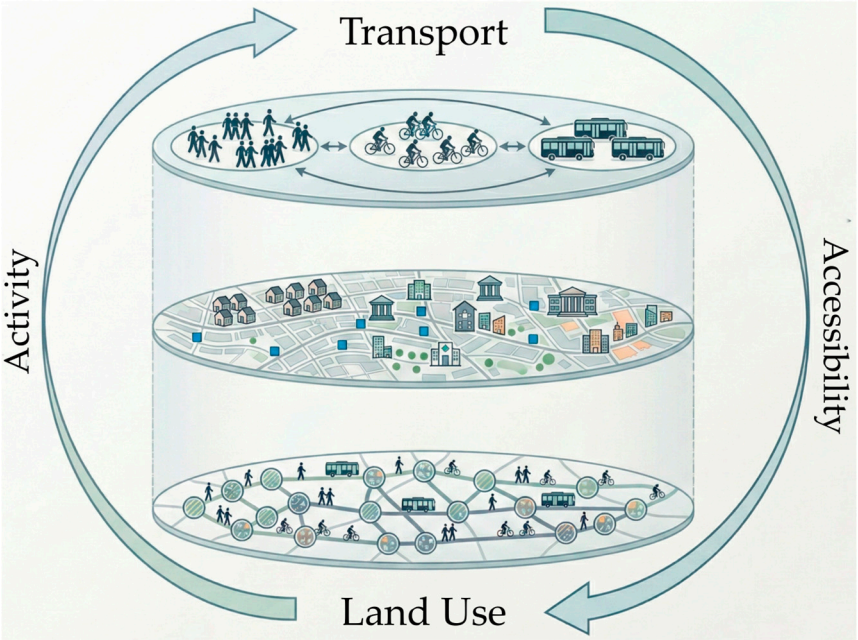


Figure 1. Conventional transport-land use interaction loop.

This Special Issue, published in the "Sustainable Urban and Rural Development" section of Sustainability, is closely aligned with the United Nations' Sustainable Development Goals. It provides a platform for original and interdisciplinary research that advances understanding of travel behavior, active and shared mobility, the built environment, urban

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form, risk-informed planning, and related topics. The guest editorial team for this Special Issue consists of four early-career scholars: Linchuan Yang (Southwest Jiaotong University), Wei Lv (Wuhan University of Technology), Hongliang Ding (Southwest Jiaotong University), and Hongtai Yang (Southwest Jiaotong University).

This Special Issue includes ten papers. They cover a wide geographical scope, including China, Australia, Spain, Thailand, South Africa, and Japan. Methodologically, these papers employ a diverse set of analytical approaches, including spatial analysis, cluster analysis, structural equation modeling, spatial econometrics, discrete choice modeling, and machine learning. They can be broadly categorized into four themes: green travel, travel demand under disruptions, disaster-resilient infrastructure, and urban spatial dynamics.

Green travel has become a central theme in contemporary sustainability research, reflecting growing concerns over climate change, urban livability, and public health [7]. Yuan et al. (Contribution 1) evaluated cycling greenway potential in Chengdu, China, by integrating large-scale dockless bike-sharing data with multiscale geographically weighted regression analysis. Their findings highlighted the importance of mixed land use and human-scale design in promoting leisure cycling. This study underscores the value of evidence-based decision-making in prioritizing infrastructure improvements to enhance urban green mobility. Shifting from network potential to user experience, Du et al. (Contribution 2) examined the influences of built environment attributes on the travel satisfaction of bike-sharing users accessing public transit in first-/last-mile trips during winter in Shenyang, China. Using machine learning and asymmetric impact-performance analysis, they proposed a strategic framework for enhancing green mobility and resilience in cities with harsh winter climates and identified 19 key attributes. Vichiensan et al. (Contribution 3) conducted a willingness-to-pay analysis in Bangkok, Thailand, revealing that first-/last-mile travelers place substantial value not only on time savings, but also on safety and comfort attributes.

Understanding travel demand under disruptions, such as the COVID-19 pandemic, is essential for developing resilient urban transport systems. Chalabi and Dia (Contribution 4) demonstrated that remote work and attitudinal shifts have reduced commuting frequency and altered the use of both public transport and private cars. They indicated that the pandemic has reshaped behavioral habits in ways that may persist, necessitating a comprehensive revision of travel demand forecasting models for the post-pandemic era. González-Escobar et al. (Contribution 5) traced the decline and uneven recovery of bus demand using GIS and ticketing data, revealing differentiated recovery patterns across routes as well as between urban and interurban services. Wang et al. (Contribution 6) found that ride-sharing intention is positively associated with subjective norms, perceived behavioral control, and service satisfaction, whereas concerns related to COVID-19 continue to suppress both intention and actual usage.

Disaster-resilient infrastructure is pivotal to urban sustainability because it protects lives, property, critical services, and broader societal functions. Jing et al. (Contribution 7) assessed flood risk in Wuhan, China, by integrating natural, social, and economic indicators within a framework encompassing hazard, exposure, vulnerability, and disaster prevention and mitigation capacity. Their analysis further demonstrated clear spatial autocorrelation and differentiation in flood risk levels. Yang et al. (Contribution 8) evaluated emergency shelter accessibility in Shenzhen using a Gaussian-based two-step floating catchment area method combined with clustering analysis, showing that supply-demand relationships vary significantly across service radii and that population density strongly shapes patterns of mismatch.

Understanding urban spatial dynamics is important for aligning transport infrastructure with land use outcomes in support of sustainable urban development. Mokhele

(Contribution 9) examined the value of land accommodating logistics facilities in Cape Town, South Africa, using geographically weighted regression. This study highlighted the importance of road access, the seaport, and the central business district in shaping land values. It also revealed a weak relationship with rail-oriented locations, indicating a disconnect between logistics planning and broader spatial planning. Shu et al. (Contribution 10) investigated the correlates of urban vitality in Guiyang, China, using social media and geospatial big data from 2019 to 2024 and multiscale geographically and temporally weighted regression models.

A key direction for future research is the application of artificial intelligence (AI) to transport and land use planning. Recent studies have demonstrated the potential of AI-related methods in algorithmic urban planning, infrastructure optimization, and built-environment analysis [8–10]. Technologies such as machine learning and large language models hold considerable promise for enhancing planning processes, analytical capabilities, and decision-support systems. By integrating diverse data sources, AI can support the exploration of complex mechanisms and the simulation of built environments and urban dynamics. These capabilities can help planners and policymakers gain deeper insights, improve predictive accuracy, and optimize strategies aimed at enhancing living environments and residents' quality of life. Nevertheless, the integration of AI into transport and land use planning remains at a developmental stage, and continued research is needed to fully realize the potential of AI in sustainable urban development. A wide range of related topics warrants further exploration, including new AI frameworks, tools, and platforms for integration with transport and land use planning; AI-enhanced analysis of the role of built environments; transport and land use planning under human–AI interaction; AI-driven urban disaster risk assessment and emergency response systems; and the optimization of urban traffic flow and infrastructure planning using AI.

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