TeMA

Journal of
Land Use, Mobility and Environment

print ISSN 1970-9889 e-ISSN 1970-9870
FedOA press - University of Naples Federico II

DOAJ anvur Rivista scientifica di classe A - 08/F1 Scopus WEB OF SCIENCE

NEW CHALLENGES FOR XXI CENTURY CITIES

Multilevel scientific approach to impacts of global warming on urban areas, energy transition, optimisation of land use and emergency scenario

Vol.18 n.2
August 2025

TeMA Journal was established with the primary objective of fostering and strengthening the integration between urban transformation studies and those focused on mobility governance, in all their aspects, with a view to environmental sustainability. The three issues of the 2025 volume of TeMA Journal propose articles that deal with the effects of Global warming, reduction of energy consumption, immigration flows, optimization of land use, analysis and evaluation of civil protection plans in areas especially vulnerable to natural disasters and multilevel governance approach to adaptation.

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Land Use, Mobility and Environment

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Published by
Laboratory of Land Use, Mobility and Environment
DICEA - Department of Civil, Building and Environmental Engineering
University of Naples Federico II, Italy

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Editor-in-Chief: Rocco Papa
print ISSN 1970-9889 | online ISSN 1970-9870
Licence: Cancelleria del Tribunale di Napoli, n°6 of 29/01/2008

Editorial correspondence
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e-mail: redazione.tema@unina.it

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TeMA Journal was established with the primary objective of fostering and strengthening the integration between urban transformation studies and those focused on mobility governance in all their aspects, with a view to environmental sustainability. In other words, the mission of this initiative is to contribute to developing a novel theoretical and methodological framework that transcends the boundaries separating these research domains and develops innovative solutions for issues currently being addressed with methods and techniques rooted in the scientific culture of the last century.

The three issues of the 2025 volume of TeMA Journal propose articles that deal with the effects of Global warming, reduction of energy consumption, immigration flows, optimisation of land use, analysis and evaluation of civil protection plans in areas especially vulnerable to natural disasters and a multilevel governance approach to adaptation.

In this issue, the section "Focus" contains three studies.

The first paper, titled "Aging population and the accessibility of public transportation services: policy perspective for Turkey" by Süleyman Nurullah Adahi Şahin, Abdulkadir Ozden, Ardeshir Faghr, and Michael L. Vaughan (Sakarya University of Applied Sciences in Turkey and University of Delaware in the USA), offers a comprehensive evaluation of Turkey's national public transportation accessibility policies and explores their potential relevance for other countries. The findings underscore the need for standardised design, more vigorous policy enforcement, and more inclusive digital and physical mobility solutions to ensure active ageing and social participation.

The second contribution is "The role of renewable energies in landscape transformation. Methodological proposal and application to the Valdagno case study", by Elena Mazzola (University of Padua in Italy), which examines the significance of harmonising energy requirements with landscape conservation, emphasising the imperative for strategic and methodological approaches to integrating renewable energies into landscape and social contexts. The objective is to propose an analytical methodology that ensures a balance between energy efficiency and landscape conservation, thereby fostering careful design and conscious integration in order to minimise visual and environmental impacts while contributing to energy sustainability. The methodology is then applied to the case study of the Municipality of Valdagno in Italy.

The last contribution of the section is "Land transformation and new road infrastructures. An analysis on direct and indirect impacts due to the Brebemi highway" by Rossella Moscarelli and Marialaura Giuliani (Politecnico di Milano in Italy). The paper investigates the impacts on land transformations and the increase in soil sealing resulting from the construction of new road infrastructure, such as highways. The analysis focuses on land transformations producing soil consumption, namely on the transformation of natural soil (rural or wooded) into urbanised and sealed areas.

The section "LUME" includes three papers. The first contribution of the section is "Mobility changes occasioned by COVID-19 lockdown measures: evidence from an emerging economy" by Ernest Agyemang, Samuel Agyei-Mensah, Aruna Sivakumar, Ricky Nathavni and Majid Ezzati (University of Ghana and Imperial College London in the UK). This research aims to fill that gap by examining the effects of government-imposed travel restrictions on people's attitudes and mobility behaviour in urban Ghana. Using a combination of data sources, including surveys and photographic evidence, it analyses the spatial variations in mobility patterns during the COVID-19 lockdown.

The second contribution is "An evaluation on the change of natural areas: the case of Eastern Black Sea settlements" by Doruk Görkem Özkan, Sinem Dedeoğlu Özkan, Seda Özlü (Karadeniz Technical University in Turkey), which analyses land use/land cover changes depending on natural environmental elements in the settlements of the Eastern Black Sea Region for approximately 20 years. The data set of the study was provided by CORINE and TUIK, and Two-Step Clustering Analysis was used as the method. As a result of the study, the changes over time of the districts in similar and different clusters according to their natural environment components were evaluated by comparative discussion.

The third article, "Mode choice patterns and socio-spatial equity in contrasting transitional urban mobility systems" by Muhammad Mashhood Arif, Ahmad Adeel, Nida Batool Sheikh (Katholieke Universiteit Leuven and Ghent University in Belgium and German University of Technology in Oman), explores a comparative analysis of mode choice behaviour in Bundang and Ilsan, two distinct new towns in the Seoul Metropolitan Area, using the Nested Logit Model (NL) to unravel how socio-demographic, trip-specific, and land-use variables interact with urban morphology to shape mobility preferences.

The Review Notes section proposes five insights on the themes of the TeMA Journal.

The Urban planning practice section of Review Notes, "Positive Energy Districts for urban energy transition: regulatory challenges and implementation strategies", by Valerio Martinelli, analyses the role of Positive Energy Districts (PEDs) in the urban energy transition, highlighting key regulatory barriers and the potential of Renewable Energy Communities (RECs) as an enabling tool. Through an examination of the European legislative framework, the text emphasises the importance of integrated urban planning. It proposes policy recommendations to facilitate the widespread implementation of PEDs in European cities.

The second section, "Digitalisation in urban planning: new digital technologies for sustainable cities", by Annunziata D'Amico, explores how digitalisation is transforming cities, which are becoming increasingly human-scale, relying on the development of so-called "smart cities" and "resilient cities" to address current pressing challenges, such as climate change and resource management, and to influence urban governance toward sustainability principles.

The third contribution, "Competitive climate adaptation. European startups driving climate change adaptation in cities", by Stella Pennino, explores the contribution of innovative climate-oriented startups to urban climate adaptation and competitiveness. Within the broader debate on the relationship between urban planning, environmental challenges, and territorial transformation, the note highlights the strategic role these entities can play in supporting resilient urban transitions in Europe. Three exemplary cases are described, offering insight into the relevance of these initiatives in shaping adaptive and competitive urban futures.

The fourth section, "Exploring open and green space characteristics for climate change adaptation: a focus on flooding phoenomenon", by Tonia Stiuso, provides an in-depth analysis of emerging issues in urban planning, mobility and the environment. The aim is to shed light on practical approaches and innovative strategies to deal with flooding events and how different characteristics of urban open and green spaces contribute to climate adaptation.

The last section, "Global warming reports: a critical analysis of NGOs publications", by Laura Ascione, aims to provide a comprehensive understanding of Non-Governmental Organisations (NGOs) perspectives on climate change, examining their role as intermediaries between scientific research and public awareness, while critically assessing both the strengths and potential limitations of their reporting approaches.

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