

# TeMA

Journal of  
Land Use, Mobility and Environment

The 10th volume of the TeMA Journal will promote the debate on the definition and the implementation of methods, tools and best practices aimed at improving energy efficiency at the neighbourhood level while increasing the capacity of urban systems to adapt to natural changes and/or man-made changes.

Tema is the Journal of Land use, Mobility and Environment and offers papers with a unified approach to planning and mobility. TeMA Journal has also received the Sparc Europe Seal of Open Access Journals released by Scholarly Publishing and Academic Resources Coalition (SPARC Europe) and the Directory of Open Access Journals (DOAJ).



METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY  
OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES

Vol.10 n.2 August 2017

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

## METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES

2 (2017)

**Published by**

Laboratory of Land Use Mobility and Environment  
DICEA - Department of Civil, Architectural and Environmental Engineering  
University of Naples "Federico II"

TeMA is realized by CAB - Center for Libraries at "Federico II" University of Naples using Open Journal System

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

**Editorial correspondence**

Laboratory of Land Use Mobility and Environment  
DICEA - Department of Civil, Architectural and Environmental Engineering  
University of Naples "Federico II"  
Piazzale Tecchio, 80  
80125 Naples  
web: [www.tema.unina.it](http://www.tema.unina.it)  
e-mail: [redazione.tema@unina.it](mailto:redazione.tema@unina.it)

Cover Image: Tabiat pedestrian bridge in Tehran, Iran by Leila Araghian from Diba Tensile Architecture – Photo by Mohammad Hassan

TeMA. Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.

The Italian *National Agency for the Evaluation of Universities and Research Institutes* (ANVUR) classified TeMA as scientific journal in the Area 08. TeMA has also received the *Sparc Europe Seal for Open Access Journals* released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe) and the *Directory of Open Access Journals* (DOAJ). TeMA is published under a Creative Commons Attribution 3.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

#### **EDITOR IN-CHIEF**

Rocco Papa, University of Naples Federico II, Italy

#### **EDITORIAL ADVISORY BOARD**

Mir Ali, University of Illinois, USA  
Luca Bertolini, University of Amsterdam, Netherlands  
Luuk Boelens, Ghent University, Belgium  
Dino Borri, Polytechnic University of Bari, Italy  
Enrique Calderon, Polytechnic University of Madrid, Spain  
Roberto Camagni, Polytechnic University of Milan, Italy  
Derrick De Kerckhove, University of Toronto, Canada  
Mark Deakin, Edinburgh Napier University, Scotland  
Aharon Kellerman, University of Haifa, Israel  
Nicos Komninos, Aristotle University of Thessaloniki, Greece  
David Matthew Levinson, University of Minnesota, USA  
Paolo Malanima, Magna Græcia University of Catanzaro, Italy  
Agostino Nuzzolo, Tor Vergata University of Rome, Italy  
Rocco Papa, University of Naples Federico II, Italy  
Serge Salat, Urban Morphology and Complex Systems Institute, France  
Mattheos Santamouris, National Kapodistrian University of Athens, Greece  
Ali Soltani, Shiraz University, Iran

#### **ASSOCIATE EDITORS**

Rosaria Battarra, National Research Council Institute of Studies on Mediterranean Societies, Italy  
Luigi dell'Olio, University of Cantabria, Spain  
Romano Fistola, University of Sannio, Italy  
Carmela Gargiulo, University of Naples Federico II, Italy  
Thomas Hartmann, Utrecht University, Netherlands  
Markus Hesse, University of Luxemburg, Luxemburg  
Seda Kundak, Technical University of Istanbul, Turkey  
Rosa Anna La Rocca, University of Naples Federico II, Italy  
Houshmand Ebrahimpour Masoumi, Technical University of Berlin, Germany  
Giuseppe Mazzeo, National Research Council Institute of Studies on Mediterranean Societies, Italy  
Nicola Morelli, Aalborg University, Denmark  
Enrica Papa, University of Westminster, United Kingdom  
Dorina Pojani, University of Queensland, Australia  
Floriana Zucaro, University of Naples Federico II, Italy

#### **EDITORIAL STAFF**

Gennaro Angiello, PhD student at University of Naples Federico II, Italy  
Gerardo Carpentieri, PhD student at University of Naples Federico II, Italy  
Stefano Franco, PhD student at Luiss University Rome, Italy  
Marco Raimondo, Engineer, University of Sannio, Italy  
Laura Russo, PhD student at University of Naples Federico II, Italy  
Maria Rosa Tremitera, PhD student at University of Naples Federico II, Italy  
Andrea Tulisi, PhD at Second University of Naples, Italy

# TeMA

Journal of  
Land Use, Mobility and Environment

METHODS, TOOLS AND BEST PRACTICES TO INCREASE  
THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO  
NATURAL AND MAN-MADE CHANGES  
2 (2017)

## Contents

**137** EDITORIAL PREFACE  
Rocco Papa

### FOCUS

**139** **The End-Use Electric Energy Consumption in Urban Areas: a GIS-Based Methodology**  
Gerardo Carpentieri, Federica Favo

### LAND USE, MOBILITY AND ENVIRONMENT

**157** **Between Community Spaces: Squares of Minor Centers of Calabria**  
Mauro Francini, Rosario Chimirri, Annunziata Palermo, Maria Francesca Viapiana

**179** **Urban Green Network Design: Defining Green Network from an Urban Planning Perspective**  
Andrea Tulisi

**193** **Decision-Making Tools for Urban Regeneration Processes: from Stakeholders Analysis to Stated Preference Methods**  
Marta Bottero, Giulio Mondini, Giulia Datola

**213** **Metropolitan Governance for Territorial Cohesion**  
Francesca Pirlone, Ilenia Spadaro, Selena Candia

## **229** REVIEW PAGES

Gennaro Angiello, Gerardo Carpentieri,  
Maria Rosa Tremiterra, Laura Russo, Andrea Tulisi

## CALL FOR PAPERS: TEMA VOL. 11 (2018)

### The Resilience City/The Fragile City. Methods, tools and best practices.

The fragile/resilience city represents a topic that collects itself all the issues related to the urban risks and referred to the different impacts that an urban system has to face with. Studies useful to improve the urban conditions of resilience (physical, environmental, economical, social) are particularly welcome. Main topics to consider could be issues of water, soil, energy, etc.. The identification of urban fragilities could represent a new first step in order to develop and to propose methodological and operative innovations for the planning and the management of the urban and territorial transformations.

The Journal also welcomes contributions that strategically address the following issues:

- new consideration of the planning standards, blue and green networks as a way to mitigate urban risks and increase city resilience;
- the territorial risks and fragilities related to mobility of people, goods, knowledge, etc.;
- the housing issue and the need of urban regeneration of the built heritage;
- socio-economical behaviour and the "dilemma" about emergency and prevention economy;
- the city as magnet of the next future's flows (tourism, culture, economy, migration, etc.).

Publishing frequency is four monthly. For this reason, authors interested in submitting manuscripts addressing the aforementioned issues may consider the following deadlines

- first issue: 10<sup>th</sup> January 2018;
- second issue: 10<sup>th</sup> April 2018;
- third issue: 10<sup>th</sup> September 2018.

## CALL FOR PAPERS: GENERAL CALL.

### Papers in Transport, Land Use and Environment

The Journal welcomes papers on topics at the interdisciplinary intersection of transport and land use, including research from the domains of engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science, and complex systems

# TeMA

Journal of  
Land Use, Mobility and Environment

## EDITORIAL PREFACE: TEMA JOURNAL OF LAND USE MOBILITY AND ENVIRONMENT 2 (2017)

### METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES

ROCCO PAPA

DICEA - Department of Civil, Architectural and Environmental Engineering

University of Naples Federico II

e-mail: rpapa@unina.it

The 10th volume of TeMA Journal, given the relevance of the topics, dedicates the three issues of 2017 to promote the scientific debate on the definition and the implementation of methods, tools and best practices aimed at improving, in the forthcoming decades, the capacity of the urban areas to cope a range of climate, technological and socio-economic challenges that will require the development of integrated and adaptive strategies. The articles published in this second issue address some themes, such as the resilience capacity of urban system, the energy consumption, the geographical information system, the community spaces, the urban green network design, the urban regeneration processes and the territorial cohesion.

The section "Focus" contains the article "The End-use Electric Energy Consumption in Urban Areas: A GIS-based methodology. An application in the city of Naples." by Gerardo Carpentieri and Federica Favo (University of Naples Federico II) offers a GIS-based methodology that allows the knowledge, classification and representation of end-use electric energy consumption by the use of Big and Open Data. The results constitute a cognitive asset that local administrations can use to improve the energy sustainability, by providing the classification and representation of electric energy consumption for domestic and non-domestic users.

The section "Land Use, Mobility and Environment" collects four articles. The first one, titled "Between Community Spaces. Squares of Minor Centers of Calabria", by Mauro Francini, Rosario Chimirri, Annunziata Palermo and Maria Francesca Viapiana (University of Calabria), analyse the theme of "community spaces" or public spaces has led, in recent years, to important interdisciplinary issues also if the reading of smaller towns, in city planning, historical-anthropological and geographical terms appears less extended. For this reason, the paper introduces the first results of a research that want to reinterpret the specific characteristics of these areas in small towns placing the region of Calabria. Through this reading the authors want to emphasise how urban planning, in synergy with other disciplines, can operate to give back to these spaces the meaning of "center", or urban-community landmark.

The second article, titled "Urban Green Network Design: Defining green network from an urban planning perspective", by Andrea Tulisi (University of Naples Federico II), provides a lexical analysis of the literature on the urban green network from an urban planning perspective. In order to overcome the ambiguities of the literature in handling both terms of the concept "green network", the paper suggests a unique definition

of the terms that takes into account both the network system theory and greenspaces as public services in the wider perspective of ecosystem services

The third article, titled "Metropolitan Governance for Territorial Cohesion", by Francesca Pirlone, Ilenia Spadaro and Selena Candia (University of Genoa), analyses in deep the case of the Italian metropolitan cities proposing a new governance approach to increase the capacity of urban systems to adapt to natural and man-made changes, considering the hinterland as a strong point rather than a disadvantage. Strategic and spatial plans drive the growth of metropolitan areas in a competitive space-economy and support sustainable development policy by ensuring a balance between urban areas with strong competitiveness and inland areas.

The fourth article, titled "Decision-making tools for urban regeneration processes: from Stakeholders Analysis to Stated Preference Methods", by Marta Bottero, Giulio Mondini and Giulia Datola (Politecnico di Torino), proposes an integrated evaluation approach for addressing decision problems in the context of urban regeneration operations. Starting from the real case of the regeneration programme of the city of Collegno (Italy), the contribution proposes an original evaluation model based on the combined use of Stakeholders Analysis and Stated Preference Methods.

The section "Review Pages" defines the general framework of the issue's theme, with an updated focus on websites, publications, laws, urban practices and news and events on the subject of energy reduction consumption in the transport sector. In particular, the Web section by Maria Rosa Tremiterra describes three web resources of: (i) European Climate Adaptation Platform; (ii) U.S. Climate Resilience Toolkit and (iii) Resiliencetools.org – Empowering Resilient Cities. The Books section by Gerardo Carpentieri briefly reviews three relevant books related to the Issues' theme: (i) Evaluating Urban Resilience to Climate Change: A Multi-Sector Approach; (ii) Urban Perspectives: Climate Change, Migration, Planning and Finance - A New Generation of Ideas and (iii) Integrating Land Use, Transport and Energy Planning. The Law section by Laura Russo keeps readers up to date with comparison between two legislative documents, in order to highlight the main innovations and present the key planning instruments (England and Nederland). The Urban Practices section by Gennaro Angiello presents two Car-Sharing Italian case study: (i) Milano and (ii) Rome. The News and Event section by Andrea Tulisi, proposes a selection of conferences on the topic of decision support tools where developed for supporting adaptation and mitigation policies at urban scale.