

# TeMA

Journal of  
Land Use, Mobility and Environment

This Special Issue of TeMA - Journal of Land Use, Mobility and Environment, collects ten contributors that deals with emergency planning conceived as a component of the city and territory management process. The focus especially refers to the need of integrating emergency plans and land use proposing a relevant line of research for the mitigation of risks that affect human settlements at different scales.

TeMA Journal offers papers with a unified approach to planning, mobility and environmental sustainability. With ANVUR resolution of April 2020, TeMA journal and the articles published from 2016 are included in the A category of scientific journals. From 2015, the articles published on TeMA are included in the Core Collection of Web of Science. It is included in Sparc Europe Seal of Open Access Journals, and the Directory of Open Access Journals.

*Special Issue 1.2021*

**The Emergency Plan for the use  
and management of the territory**

# TeMA

Journal of  
Land Use, Mobility and Environment

*Special Issue 1.2021*

## THE EMERGENCY PLAN FOR THE USE AND MANAGEMENT OF THE TERRITORY

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**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)

The cover image is a photo of the landslide that hit the municipality of Amalfi (Italy) in February 2021.

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## THE EMERGENCY PLAN FOR THE USE AND MANAGEMENT OF THE TERRITORY

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## EDITORIAL PREFACE

Special Issue 1.2021

The emergency plan for the use and management of the territory

Rosa Anna La Rocca\*, Annunziata Palermo \*\*, Maria Francesca Viapiana \*\*

\* Department of Civil, Architectural and Environmental Engineering (Dicea), University of Naples Federico II  
e-mail: larocca@unina.it

\*\* Department of Civil Engineering, University of Calabria  
e-mail: annunziata.palermo@unical.it; mf.viapiana@unical.it

The issue of emergency planning in areas exposed to natural hazards cannot be yet considered as a focus within the scientific literature, probably because it has been judged as “too operative” for the interest of academic research. The topic of land use planning, spatial planning, and urban planning in risky areas, conversely, has gained attention in recent years. Nevertheless, the examples of good practices that involve ordinary master plans embedding mitigation concerns are still limited. Generally speaking, it is possible to observe that most planners and urban developers, till now, seem to be unaware of the importance that the locational decisions have on defining the exposure and vulnerability to hazard of urban systems. The Emergency Management as discipline, again, can be considered relatively new if referred to the exigence to look for different approaches, based on the definition of mitigation actions and policies, thought as one of the possibilities to face the risks that can occur inside a territory or a city (Bullock et al., 2017). The need of integrating the exigencies of emergency conditions with the contribution of the land use discipline seems to be the meeting point of the recent research concerning risk management. At the same time, this integration is still not actualized but just touched upon in civil protection documents in some countries (such as Australia, New Zealand, Canada). This lack is much more evident when it refers to the operative level, in which the examples of the integration between the emergency plans and the land use plans are very rare. It is also necessary to underline how the issues of risk management are truly close to the concept of territorial and social sustainability and much more of resilience as the capacity to face the emergence at social as well as at territorial level (Molavi, 2018). In this regard, at the international level, great attention is posed to the definition of strategies and actions aimed at the implementation of the disaster risk reduction (DRR) also to define the real responsibilities in preventing and reducing disaster risk as well as to equip states and communities with the tools they need to prevent the creation of new risks. This also depends on the present global pandemic emergency that, if it would have been needed, has shown the fragility of the present economic, social, and territorial organization. The recent Sendai Framework for Disaster Risk Reduction 2015-2030, adopted by the Third UN World Conference on Disaster Risk Reduction in 2015, for instance, ensuring the continuity with the previous documents (International Strategy for Disaster Reduction of 1999, the Yokohama Strategy for a Safer World of 1994, and the International Framework of Action for the International Decade for Natural Disaster Reduction of 1989), introduces some innovative elements and aspects mainly focussing on the awareness that disaster risk management is not to be considered a “sector” in itself, but a practice to be applied across sectors. The Sendai Framework, thus, puts forward a disaster risk management paradigm also based on integration, proposing, among its guiding principles the coherence of disaster risk reduction and sustainable development policies, plans, practices, and mechanisms, across different sectors. The efforts within policies at the global level also concern the will of joining the targets of the disaster risk reductions expressed in the Sendai Framework with the focuses of the 2030 Agenda for Sustainable Development, to improve resilience. Particularly involved in this target are the *SDG 1*: End poverty in all its

forms everywhere, *SDG 11*: Make cities and human settlements inclusive, safe, resilient, and sustainable, and *SDG 13*: Take urgent action to combat climate change and its impacts. In the Disaster resilience Scorecard for cities elaborated in 2017 by the United Nations Office for Disaster Risk Reduction (UNDRR) ten *Essentials* for making cities resilient have been pointed out. The Ten Essentials refer to three macro-categories of issues that cities have to address to become disaster-resilient: a) governance and financial capacity; b) the many dimensions of planning and disaster preparation; c) the disaster response itself and post-event recovery. Basing on the concept of resilience meant as the ability of a system, community, or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its Essential basic structures and functions through risk management, the Scorecard insists on the need both of integration between approaches for the risk reduction and of collaboration between the several actors that operate within the urban and territorial systems at different levels (decisional, operative, political, ownership, stakeholders, investors, residents, academia, and so on); these ranges of actors have roles to play in maintaining and improving city resilience. What links resilience and risk management, thus, is, on one hand, the awareness essentially by the residents and people who live and use the city, on the other hand, the process of urbanization and planning as the physical secure basis for making a city resilience to disasters. Another aspect that must be underlined concerns the prevention of the risks for communities and decision-makers. The debate about the importance of the prevention for the reduction of the negative impacts due to hazards natural as well as anthropical is still thought-provoking both the academic environment and the political level. The theme is still difficult to address, especially for the Italian situation. Italy, in fact, is characterized by a large and diffuse condition of fragility both for its specific geographical morphological features and for its lack of efficient policies aimed at reducing this fragility. In recent years, indeed, also in Italy the theme of prevention has become central even due to the catastrophic seismic events that occurred in Abruzzo in 2009 and then in Central Italy in 2016, as usually for Italy, some regulatory measures have followed (L. 77/2009; D.L. 189/2016; D.L. 205/2016) that have been especially focused on the distribution of economical sources to face the post-emergency phase, normally devoted to the reconstruction. It is meaningful that the Civil Protection Department has been founded in the early Eighties after one of the most relevant catastrophic event for Italy (the Irpinia earthquake) especially if it is referred to the fact that Italy with its concentration of natural risks (volcanic, seismic, hydrogeological, tsunami, fire, climatic) could be a significant practical laboratory for experimenting new approaches, practices, and theories for the prevention, the mitigation, the adaptation and the management of territorial risks, both natural and not. The Recovery Fund, universally recognized as a unique occasion for the reprise from the impacts of the pandemic event of Covid-19, is the forthcoming challenge for Italy in the sense of being able of planning resources for a real transition towards resilience and sustainability. In the framework of these considerations, this special issue of TeMA Journal of Land Use, Mobility and Environment proposes to point out the topic of the emergency plan for the territorial management and use, trying to underline the need of making these tools more dynamic and appropriate to the exigencies of territory meant as dynamical and complex systems. To this end, this special issue collects and compares the opinions of researchers and technicians around the complicated topic of natural and anthropic risks to contribute to the planning of the management of risks. The basic idea in proposing this Special Issue, in fact, born from the need to analyze the effects caused by natural and anthropic risks, without leaving reactions and answers to the territorial systems' spontaneity (Holling, 1973; Colucci, 2012; Bettini, 2014), while it is necessary to guide and direct these responses (Jabareen, 2012). To achieve more effective results to promote resilient processes of territorial systems, several strategies could be pursued: thinking of new plans and/or programs capable of offering precise and targeted guidelines; reconsidering some plans and/or programs already present. It also aspires to be a useful opportunity to reorganize some operational or territorial management plans in a more "resilient" way, preparing them to deal with the crisis from different points of view (structural, ecological, social, and economic), interlacing specific issues of risk mitigation with those of territorial planning. Moreover, considering that the state of the art for many years now has intertwined issues of risk mitigation with those of territorial planning, this special issue aims to investigate useful approaches to enriching in terms of space and operational plan such as the emergency plan. These plans are the operational plans of the rescue forces. They are the plans in which all the activities and procedures that must be adopted to face a calamitous event expected in a given territory are mainly coordinated, to guarantee the effective and immediate use of the resources necessary to overcome the emergency and the return to normal living conditions (Lindell, 2013). Over the years, the legislative instruments supporting the strengthening of the Civil Protection bodies have paid more attention to forecasting and prevention activities rather than just managing events that occurred. Consequently, this has led us to consider the planning and management of emergencies not as separate processes, but rather as

closely related and interdependent, inserted in a wider cyclical process that also includes the phases of mitigation and restoration of normality. The emergency plan, therefore, can be considered the ideal operational plan to pursue risk mitigation strategies, also aimed at favoring the pursuit of the customer status of specific territorial contexts. This above all if it is increased in terms of defining optimal solutions for areas at greater risk and with complex management problems. It is therefore opportune to assign emergency plans a more articulate and dynamic sense, especially in terms of connection with the discipline of land uses and assets. With this aim, the special issue embraces the most recent research developments that pursue a planning/design using a more holistic approach. Based on the contributions of scholars coming from different disciplinary backgrounds, this number of TeMA allows for defining the state of the art about the need to manage and address the different hazards that can occur. In detail, the first paper *Water-related risk reduction in urban development plans. Recommendations for resilient planning practices from a Sicilian case study investigation* deals with the complex relationships existing between land use planning and disaster risk reduction focusing on water-related risks. The paper aims at exploring and defining a set of proposals for increasing the effectiveness of actions taken by local administrations, at the stage of drafting and implementing local land use masterplans, so to enhance all aspects of disaster risk reduction in the planning practice. The second paper *Evaluation vs Landscape Planning in the Italian framework. Is risk prevention a utopia?* concerns the question of whether landscape planning is able or not to prevent and protect against the risks deriving from poor management of the territory. The author wonders about the role of the planning tool in the protection of the territory and the landscape underlining the lack of planning activities, both at general and sectoral levels. The definition and experimentation of a particular model of basic Knowledge System is the focus of the third paper - *Spatial knowledge for risk prevention and mitigation. The civil protection planning of the Abruzzo Region* - in which authors describe the result of a research concerning the theme of Civil Protection Planning at Regional level and Disaster Risk Management. An original analytical methodology of the Knowledge System has become the basis for the experimentation of a Regional Management Risk Plan (case study Abruzzo Region), a part of the Regional Civil Protection Plan, which allows identifying the Hotspots, i.e. areas characterized by very high and probably simultaneous risks, in which it is strictly necessary to identify prevention and mitigation interventions, the 'Territorial Prevention and Recovery Projects' that concern the structural activities of civil protection. The rural areas are the focus of the fourth paper *Climate change as a stressor in rural areas. Vulnerability assessment on the agricultural sector* in which authors define a methodology to quantitatively assess the level of vulnerability to climate change based on climatic and context analysis at the municipality scale, particularly referring to rural areas. The methodology is based on numerical and statistical computation operations on a set of indices of climate exposure, sensitivity and adaptive capacity to provide an aggregate Vulnerability Index. The paper presents the results of the application to the Calabrian territorial context of the Grecanica Area (Italy). In the fifth paper *Emergency and spatial planning towards cooperative approaches Challenges and opportunities in the multi-risk area of Campi Flegrei*, authors focus on a specific area of Campania intending to highlight both the main criticalities of the emergency plans recently carried out for the selected Municipalities and the difficulties and opportunities related to better integration between spatial and emergency planning at the municipal scale. The theme of risks connected to the presence of dams has been pointed out in the sixth paper *Territorial aspects of Emergency Plans for Dams*. Based on a recent experience carried out within a collaboration framework with the Lombardia Region, the paper provides indications on the current problems and opportunities related to risk management, emergency preparedness and planning in presence of dams considering technical, social and public policies decision-making issues as key. The paper also proposes initial reference to the national and international experience on the topic to discuss more in-depth how territorial aspects have contributed substantially to shape emergency plans for dams and what are the consequent impacts on ordinary urban and regional plans at different scales. In the seventh paper - *Assessing the potential of green infrastructure to mitigate the hydro-geological hazard. Evidence-based policy suggestions from a Sardinian study area* - authors propose a better understanding of the role that could be played by green infrastructures (GI) as regards hydro-geological hazard is gained, and policy recommendations aimed at mitigating the associated risks are identified. A methodological framework is defined to assess the relations between GI and hydro-geological hazard through inferential analysis based on dichotomous-choice Logit models, under the assumption that the implementation of GI within planning policies could enhance environmental protection and people's wellbeing. The eighth paper *Environmental quality of emergency areas. A methodology to assess shelter areas liveability* presents the first results of a research aimed at identifying and assessing the factors useful to ensure an adequate environmental quality of the shelter areas, defined following the comparative study of evaluation systems used in different countries. In this paper, the authors underline the goal of the research to provide the opportunity for a broader reflection on the

relationship that needs to be established between these evaluation systems and planning tools, in respect of which there is at present almost total independence. In the ninth paper *Fostering Holistic natural risk Resilience in Spatial Planning. Earthquake Events, Cultural Heritage and Communities* the authors propose to build a framework of knowledge to integrate perspectives of natural risk resilience (natural risk, cultural heritage, communities, spatial resources, and spatial planning) tested on research cases in areas affected by earthquakes in Italy and Croatia. The Heritage Urbanism approach is applied by comparing the Central Italy disaster and trends in the Croatian capital of Zagreb, providing identity factors and evaluation criteria to assist in reading existing resilience models and building new models. Structures to interrelate aspects of (land/urban) scape resilience and models of natural risk resilience contribute to enhancing risk reduction and resilience in urban planning in high-risk situations. In the paper *The Time Profile of Transformations in Territorial Governance. Towards a Meeting Point between Urban Planning and Risk Management* author mainly refers to a difficult balance between spatial and temporal projections in plans. The author highlights how this unequal development in planning contents, territorial governance has shown a worrying loss of authority, which tends to generate evident contradictions when territorial planning is called to contend with problems deriving from the management of areas where urban planning forecasts must coexist with extraordinary provisions adopted following an earthquake or other natural disaster. He also draws attention to the present transition period in which convergence of interests is needed not only in those areas cyclically affected by calamitous phenomena but also in territories preparing to host the most significant interventions of the PNRR that seem destined to undergo the next phase of intense transformations relying on the culture and tools of strategic planning. In the eleventh paper *Planning to prevent disasters. A short reflection on the correlation between ordinary planning and risk mitigation*, the author with methodological intent, tries to investigate how risk can be better understood and how town planning may influence its mitigation. In a conclusion, the author draws attention to the need for a change of attitude: to get out of the logic of the emergency, outlining the possibility to transpose the emergency into the administrative and decision-making processes in this helping in bringing out a civic awareness of the value of the common goods. The response to the call of this special issue suggests making some conclusive reflections about the issue of the emergency plans and in general about the engagement of the territorial planning for the improvement of their resilience. The contributions to the Special Issue have shown a quite unanimous convergence towards the awareness that policies, as well as the techniques, cannot more act according to sectorial and separate vision, a holistic approach, instead, has to be implemented to respect the complexity of territory and cities as systems.

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