

TeMA

Journal of
Land Use, Mobility and Environment

There are a number of different future-city visions being developed around the world at the moment: one of them is Smart Cities: ICT and big data availability may contribute to better understand and plan the city, improving efficiency, equity and quality of life. But these visions of utopia need an urgent reality check: this is one of the future challenges that Smart Cities have to face.

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

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

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REVIEWS PAGES

METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

Starting from the relationship between urban planning and mobility management, TeMA has gradually expanded the view of the covered topics, always remaining in the groove of rigorous scientific in-depth analysis. During the last two years a particular attention has been paid on the Smart Cities theme and on the different meanings that come with it. The last section of the journal is formed by the Review Pages. They have different aims: to inform on the problems, trends and evolutionary processes; to investigate on the paths by highlighting the advanced relationships among apparently distant disciplinary fields; to explore the interaction's areas, experiences and potential applications; to underline interactions, disciplinary developments but also, if present, defeats and setbacks.

Inside the journal the Review Pages have the task of stimulating as much as possible the circulation of ideas and the discovery of new points of view. For this reason the section is founded on a series of basic's references, required for the identification of new and more advanced interactions. These references are the research, the planning acts, the actions and the applications, analysed and investigated both for their ability to give a systematic response to questions concerning the urban and territorial planning, and for their attention to aspects such as the environmental sustainability and the innovation in the practices. For this purpose the Review Pages are formed by five sections (Web Resources; Books; Laws; Urban Practices; News and Events), each of which examines a specific aspect of the broader information storage of interest for TeMA.

01_WEB RESOURCES

The web report offers the readers web pages which are directly connected with the issue theme.

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02_BOOKS

The books review suggests brand new publications related with the theme of the journal number.

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03_LAWS

The law section proposes a critical synthesis of the normative aspect of the issue theme.

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04_URBAN PRACTICES

Urban practices describes the most innovative application in practice of the journal theme.

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05_NEWS AND EVENTS

News and events section keeps the readers up-to-date on congresses, events and exhibition related to the journal theme.

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评述页：

提高城市系统对自然及人为变化顺应能力的方法、 工具和最佳实践

TeMA 从城市规划和流动性管理之间的关系入手，将涉及的论题逐步展开，并始终保持科学严谨的态度进行深入分析。在过去两年中，智能城市（Smart Cities）课题和随之而来的不同含义一直受到特别关注。

学报的最后部分是评述页（Review Pages）。这些评述页具有不同的目的：表明问题、趋势和演进过程；通过突出貌似不相关的学科领域之间的深度关系对途径进行调查；探索交互作用的领域、经验和潜在应用；强调交互作用、学科发展、同时还包括失败和挫折（如果存在的话）。

评述页在学报中的任务是，尽可能地促进观点的不断传播并激发新视角。因此，该部分主要是一些基本参考文献，这些是鉴别新的和更加深入的交互作用所必需的。这些参考文献包括研究、规划法规、行动和应用，它们均已经过分析和探讨，能够对与城市和国土规划有关的问题作出有系统的响应，同时还对诸如环境可持续性和在实践中创新等方面有所注重。因，评述页由五个部分组成（网络资源、书籍、法律、城市实务、新闻和事件），每个部分负责核查 TeMA 所关心的海量信息存储的一个具体方面。

01_WEB RESOURCES

网站报告为读者提供与主题直接相关的网页。

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02_BOOKS

书评推荐与期刊该期主题相关的最新出版著作。

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03_LAWS

法律部分提供主题相关标准方面的大量综述。

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04_URBAN PRACTICES

城市的实践描述了期刊主题在实践中最具创新性的应用。

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05_NEWS AND EVENTS

新闻与活动部分让读者了解与期刊主题相关的会议、活动及展览。

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METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

REVIEW PAGES: WEB RESOURCES

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In this number

IDEAS AND APPROACHES TO FACE CLIMATE CHANGE IN CITIES

Climate change is a systemic challenge for cities (EEA, 2016). It is influenced by environmental and socio-economic factors of urban contexts. While lifestyle, consumption and production affect the amount of GHG emissions, hence the mitigation challenge, the spread presence of cities in risk areas reduces the capacity of urban systems to respond effectively to climate change impacts (i.e. heatwaves, extreme rainfalls, sea level rise, etc.). Therefore, cities have started to implement different measures of urban adaptation.

Considering that urban areas can be seen as melting pots for human activities and often hit by several climate change impacts simultaneously, adaptation measures need to cover a broad range of issues, including technological, informational, organizational, etc., at various governance levels, as well as sectoral and cross-sectoral levels (Biesbroek et al., 2010; Papa et al., 2015). Indeed, climate impacts vary significantly from country to country. Therefore, different adaptation measures are defined considering the specific urban context. Many of those actions are part of long-term strategy, but the majority of them are low-cost and soft measures, such as emergency plans, institutional procedures and behavioral advice. Today, although the definition of climate change adaptation promoted by IPCC (2014) is largely shared, different approaches are adopted in order to face climate change and to build up resilient cities. Moreover, in the last years, many efforts have been oriented toward a definition of a methodology to develop adaptation strategies in different urban contexts (Carter et al., 2015).

In this number, three websites are presented in order to describe different methodological approaches aimed at improving the capacity of urban systems to face future changes associated with climate change. The first one is the website of research project TURAS, which has developed a twinning approach bringing together decision makers in local authorities with SMEs and researchers to improve and fulfill urban resilient strategies and measures; the second website is FRC – FloodResilientCity, an EU-funded project for implementing urban resilience in eight cities of North West Europe to the increasing likelihood of floodings due to sea-level rise and increased flood flows on rivers, streams or due to extreme rain (pluvial flooding). Finally, the third website is the one developed by ISET-International, a non-profit research, training and technical support organization, which supports sustainable solutions to improve the resilient capacity of local communities and urban areas, in particular in the cities of developing countries of Asia.



TURAS (Transition towards Urban Resilience and Sustainability) is the website of an EU funded project, started in October 2011 and finished in September 2016. The project aimed to bring together urban communities, researchers, local authorities and firms for a total of 26 project partners (specifically, 11 local authorities, 9 leading academic research institutions and 6 SMEs) to develop, realize and disseminate strategies and measures in order to improve the resilience capacity of European cities. The specific challenges addressed in TURAS included: climate change adaptation and mitigation; natural resource shortage and unprecedented urban growth. Therefore, TURAS has developed a framework and a process for collecting data at neighborhood scale through a geospatial ICT infrastructure. Such data were used to develop and test new approaches to increase urban resilience and reduce the urban ecological footprint of each participating city to the project.

The main results are articulated in six work packages:

- geospatial ICT – Support Infrastructure for Urban Resilience;
- greening Public and Private Green Infrastructure;
- urban/Industrial Regeneration, Land Use Planning and Creative Design;
- climate Change Resilient City Planning and Climate-Neutral Infrastructure;
- limiting Urban Sprawl;
- short-Circuit Economies.

The TURAS website presents four sections: *About TURAS*, *Results*, *Resources* and *Contact us*. The *About TURAS* section is composed by the homepage of the website with general information about the projects, a list of project partners and a useful sitemap for website users. The second section, *Results*, contains 85 TURAS solutions, divided into four categories:

- *TURAS tools*: such tools consist in analytical toolkits, process methodology, community engagement tools and implementation guidelines to help cities respond to a broad range of urban challenges from climate change adaptation. For instance, the *Space-Engagers* is a tool made of guidelines and online platform to identify the underused urban spaces in order to improve the strategic urban planning to “address multiple challenges and facilitate the transformation of social and ecological systems in the city”;
- *Integrated Transition projects*: these projects combine the above-mentioned TURAS tools in an integrated cross-disciplinary approach to dealing with large scale urban challenges;
- *TURAS Pilots*: TURAS Pilot projects are implemented by TURAS participants. In total, there are 33 Pilots and each project reports obstacles and resources limitations faced by stakeholder for implementing the solutions;
- *Place-based Strategies*: Place-based Strategies presents the experience and lessons learned from TURAS cities through combination, adaptation, implementation and check.

Instead, the *Resources* section is articulated in eight pages which collect a wide variety of materials which are related both to the TURAS project itself and to the related topics. *Videos* page contains several interviews to project partners related to different initiatives’ topics. *Blog* and *News* report information about TURAS activities. In *TURAS Events* there is a list of events organised by TURAS or to which has taken part and the *Images* page collects several photos of such events. In *Documents* and *Deliverables* pages more than hundred documents and research reports can be freely downloaded. Finally, about the *Contact us* section for each project outcome there is a nominated contact person for further information, even if the project is finished.



The FRC project (acronym of FloodResilienCity) is a project funded within the INTERREG NEW – the EU Programme aimed at promoting the economic, environmental, social and territorial future of the North-West Europe. The main aim of the FRC project is to enable public authorities in eight cities across North West Europe region to better cope with floods in urban areas, also thanks to a combination of transnational cooperation and regional investments. What it is worth to note is that the project brings together experts (e.g. water engineers and flood managers) and public authorities, but it also involves “*people who have interests in other aspects of water management such as for supporting ecosystems*”. The purpose and the main structure of the website are described in the page *Using this Website*. Indeed, this website has been developed with a twofold goal:

- to communicate and disseminate the detailed results of the FRC project for people involved in urban design and water management, as well as university researchers and the people in the FRC partner organisations. The specific section *FRC Output* includes these results and it is can be seen directly from the home page;
- to represent an on-line resource for introducing of the flood management topic “*to all the people affected by or interested in flooding and whose jobs and roles may make them stakeholders in flood management*”. In order to reach this goal the section *Adaptation in the built, natural and water environments* has been added to the homepage.

Specifically, the user interested to FRC results can access the *FRC Output* where contents are grouped into 4 sub-sections:

- the *Our end conference*, where the final presentations can be downloaded;
- the *Sharing learning and experience* pages, which share the knowledge and experience developed into the project framework;
- the *Flood resilient actions in FRC*, where the actions to improve resilience to different types of flooding taken by the eight case studies are described,
- the *Training* part that collect material to understand flooding concepts, flood management and resilience for towns and cities as well as the FRC project framework and results.

However, if the user prefers to investigate the FRC topics in accordance with the project framework, he can click on the *Adaptation in the built, natural and water environments* tab from the homepage. Then, the user can access the topics in three different ways: depending on the topics by means of the navigation tools *Themes*, depending on the type of water (e.g. water supply and drought) thanks to the navigation tool *Water types* or typing the terms directly in the *Search website*, available on the top of the above mentioned navigation tools. In addition to this, the website provides the users with the *Glossary* section where technical contents are explained in order to increase awareness about the flooding in urban context using simple language.

Since one of the aims of the FRC project is to provide as many people as possible with useful information and materials, there is also a section about the *Links* section where related projects are briefly explained, as well as the possibility to translate the site in other five languages, which are the ones of the project partners. The importance of dissemination and communication is also highlighted by the presence of links to two image hosting and video hosting websites (i.e. YouTube and Flickr channels). Finally, on the bottom part of the website, there is a sliding bar that allows users to visualise the logos of the partners involved in the project. In detail, project's partners are equally constituted by research institutes and public administrators.



ISET-International – namely Institute for Social and Environmental Transition – is involved in the development of strategies to improve the resilience and the adaptation capability of the cities (mainly Asiatic ones) towards natural resource, climatic, environmental and social challenges. It is important to note that this foundation has some core principles (e.g. Partnership, strategic thinking, communication, and commitment) as the basis for its research, training and implementation activities.

The website is subdivided into 4 main sections, and an additional section with the contact form. The four sections are the followings:

- Projects: in this section, the projects where ISET has been involved are collected year by year, since 2006. The projects are related to the topics of urban resilience, the resilience assessment, disaster risks, resource management, etc...
- Resources: within this section, there are several materials such as reports, case-studies, discussion papers, journal articles and resources and training materials to support the needs and approaches of different groups, as well as videos and conference presentations.
- Network Capacities: as already introduced, the partnership and communication are strategic principles for ISET. In order to foster the collaboration between partners, a presentation of ISET core activities is shown. Moreover, also the members and the collaborators are listed in order to provide information about possible contact persons.
- Blog and news: thanks to the contributions of the partners and the collaborators, this section includes information and news about their research from all over the world. In detail, the section leads to another website (blog.i-s-e-t.org) where information and news are subdivided into specific categories.

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IMAGE SOURCES

The images are from: <http://www.turas-cities.org/about>; <http://www.floodresiliency.eu/>; <http://i-s-e-t.org/welcome.html>

METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF
URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

REVIEW PAGES: BOOKS

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In this number
THE URBAN ADAPTATION TO CHANGES

The urban areas and especially the cities have become the most desired place to live. In fact, the population living in cities is greater than the rural population. In recent years this has caused significant migratory movements that have no comparisons in human history. This urbanization process is which will significantly influence the economic, political and social transformation of societies and their spatial impacts. It is evaluated that up to 70% of the global population will be living in cities by 2050. So, spatial and functional interrelations between cities, settlements and their surrounding rural areas are increasing and the metropolitan scale is gaining more and more relevance for integrated urban and city-regional planning, governance, financing, and implementation. The urban areas are becoming spatially, functionally and economically interdependent with their surrounding areas constituting metropolitan regions. The need for holistic approaches to govern these urban agglomerations becomes ever more pressing. Local authorities, planners, decision makers as well as the international development community consequently need to look beyond traditional administrative and jurisdictional boundaries. This is why there is now an increasing focus on metropolitan governance as an essential mechanism for cooperation beyond city boundaries, achieving efficiency gains for cost effectiveness, improving delivery of basic services for all, ensuring equitable distribution of resources, promoting balanced territorial development, and many other needs.

An additional challenge, that the cities are facing, concern the evident and worrisome effects of climate change. So for the urban areas it is necessary to forecast some long term adaptation strategies to reduce the negativeness. In fact, climate change seems to currently represent the main threat to urban development in the near future: cities are indeed the main contributors to energy consumption and GHG emissions paying, at the same time, the highest price for increasing climate impacts (Papa et al., 2015). There are many challenges to cope especially for the local authority. The financial crisis has reduced the municipality and metropolitan budget and public and private investors are hard to find.

According to these themes, this section suggests three books and reports that help to better understand the issue of this number: Metropolitan Governance: A Framework for Capacity Assessment, The lightweight city. Smart city and operative planning and Smart Governance Successful Initiatives and Financing urban adaptation to climate change.



Title: **Metropolitan Governance: A Framework for Capacity Assessment**

Author/editor: Jenny Pear son

Publisher: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Publication year: 2016

ISBN code: -

The Sector Project “Sustainable Development of Metropolitan Regions”, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), develops action-oriented advisory services on the role of metropolitan regions as drivers for sustainable development. This Framework for Metropolitan Governance Assessment – Guidance Notes and Toolbox forms part of the publication series “Sustainable Development of Metropolitan Regions” that gives conceptual guidance and recommendations for hands-on approaches for development organizations as well as partner countries in the field of sustainable development of metropolitan regions.

The Metropolitan Capacity Assessment Methodology (MetroCAM) presented here has been developed to offer a set of tools for actors in metropolitan regions who want to initiate change, and for the agencies planning to support them do so. It is a generic methodology that provides guidance about what needs to be covered when assessing the governance capacity of a metropolitan region, starting with existing capacity, future needs, and potential trigger points and then identifying what else is needed to deal with a particular need or challenge (e.g. mobility, resilience, social inclusion).

The MetroCAM presented here has been developed to offer a framework and accompanying tools for any actors in metropolitan regions who want to initiate change, and for the agencies planning to support them do so. It is a generic methodology that provides guidance about what needs to be covered when assessing governance capacity of a metropolitan region. The approach stresses the need to start with understanding existing capacity as the first step and then to identify what else is needed to deal with a particular need or challenge. As important as the capacity assessment itself, the MetroCAM is also a process to build consensus. The whole assessment process is a way to foster dialogue and get political buy-in to initiate or deepen a reform.

The Part A provide guidance and a structure to lead decision making about: start up activities; how to conduct the assessment process - through steps such as stakeholder mapping, gathering core data, conducting consultative workshops, and so on; a framework for assessment and analysis; and using the analysis to identify recommendations and next steps for action. There is also guidance on issues such as resources considerations and working on a theme. Part B is a selection of useful tools for conducting the relevant activity steps.

The ultimate aim of the MetroCAM is to lead to an informative analysis of key issues, capacities and needs, that in turn result in recommendations for initiatives that would contribute to solving problems, creating innovations, or improving existing services and conditions.

In conclusion the tool is useful for two purposes:

- (i) as a workshop exercise, to get participants engaged in a discussion about the current state of services and the priorities for change or improvements in the specific sector;
- (ii) it can be used as part of the decision making process at the end of the assessment, when reviewing key findings and recommendations, to help decide which challenges or initiatives should be addressed first.



Title: Financing urban adaptation to climate change

Author/editor: European Environment Agency

Publisher: European Commission

Publication year: 2017

ISBN code: 978-92-9213-845-5

This report was written through a collaboration between European Environment Agency (EEA) and European Topic Centre on Climate Change Impacts, Vulnerability and Adaptation (ETC CCA).

Notwithstanding the global, European and national efforts to unlock climate change finance, this is a major challenge for relevant authorities and private stakeholders. To advance adaptation measures in municipalities, it is important to improve the capacity to find these sources, apply for funding and negotiate the various financing streams. The report supports the public and private stockholders who wants to make use of the experience of a specific case study to get in direct contact with the relevant municipality, and eventually to set up a peer-to-peer learning process. In the first part of report, the authors list and describe some main local adaptation financing measures, that are: Governmental sources - mostly grants, including international and EU funding instruments, national, regional and local municipality budgets; Banks and other financial institutions provide loans or guarantees, either directly or in partnership with local retail banks; Private stakeholders, including foundations, real estate developers, companies, house owners and individuals, that invest in measures directly or via crowdfunding and green bonds; Free/low-cost solutions exist through early integration of adaptation needs into urban planning and design, mainstreaming of adaptation measures into other municipal areas such as water management, health, nature, etc., or through supporting regulations such as building standards. In the second part, the report proposes short and schematic descriptions of eleven European case studies that have adopted some financial models for implementing adaptation measure, so to provide an insight into the different ways to finance urban adaptation actions. The cases featured in the report can inspire and share valuable practical experience but require creative handling and adjustment to specific local conditions to make them work elsewhere.

After the analysis of the case studies the report proposed a summary of interesting lessons can already be learned from this limited set of studies, that are collect in three different paragraph listed below:

- Wise use of financial sources. Many successful instances of financing adaptation measures, European cities and municipalities combine different types of financing from various sources in different sectors and from different governmental levels;
- Essential capacities are needed in or for cities. Some of key factors for advancing adaptation action in municipalities is to establish the capacity to identify, apply for and negotiate various financing streams. This requires an expert staff, which is a problem in particular for smaller municipalities, where adaptation is often only an office with one staff member;
- Communication, reasoning, convincing. Implementing measures successfully requires more than financial resources. It also requires sufficient awareness and support among decision-makers in the public and private domain, and among citizens and other stakeholders. An adaptation strategy or plan often helps to raise such awareness.

In conclusion, financing of the adaptation measures, that change the way a city is built and organised, can be easy or difficult to implement. Because the measures often fall under the responsibility of many different sectors. However, taking the comprehensive perspective of integrated and long-term urban development, and considering the municipality as a whole, can result in lower overall costs and many additional benefits.



Title: The lightweight city. Smart city and operative planning

Author/editor: Giuseppe Mazzeo

Publisher: Fedoa press

Publication year: 2016

ISBN code: 978-88-6887-005-8

This book has been published on the open access platform FedOABooks of the University of Napoli Federico II, in the series Smart City, Urban Planning for a Sustainable Future. This research work is a further advancement of the SEM project - Smart Energy Master to development a model of governance for energy saving and efficiency of the territory with reference to both the urban areas. The project was financed within the Smart Cities and Communities PON projects and ended in January 2016.

The aim of this book is to analyse urban structures and knowing what features could have to contrast the two opposing forces acting on the same scene: on the one hand the unabated urbanization process, on the other the ever growing demand for real sustainability. So, the author proposes an urban planning response focused on the transformations of urban sectors to be achieved using innovative operative tools. The goal is to include in the cities innovative actions that can provoke a domino effect with repercussions on the entire urban structure. The book is divided in five sections, that are briefly described below: the first one addresses the issue of urbanization and the development of the urban systems, with the related implications in terms of resource consumption and concentration of people and functions; the second part discusses some models that explain the mechanisms of urban sprawl and the derived scenarios; the third part deals with one of the key nodes of the relationship between urban systems and environmental resources, namely the energy; the fourth part analysis some international and European case studies to extrapolate recurring characteristics that can affect the operative planning in terms of sustainable and smartness; the fifth part, finally, it deepens the structure and elements that must be part of this new type of plan, with the aim to start in the cities localized innovative actions such as to involve the entire urban structure.

In conclusion, this book seeks to start the development of scientific debate and good practice of implementing urbanism that are weak of theoretical bases and lack of interest in the management level. One of the ways, in which it is possible to give consistency and coherence to the study of urban systems is to steer the growth and development of the cities fairly and sustainably. So that the interaction between technology and man is able to make the city balanced in consumption and efficient of energy.

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METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

REVIEW PAGES: LAWS

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URBAN PLANNING AND GOVERNANCE IN EUROPEAN METROPOLITAN AREAS

European cities have been facing very serious economic, environmental, social and demographic challenges during recent years, especially in urban areas. If, on one hand, economic growth has driven the fast spatial expansion of urban areas in the last decades, on the other hand, European local governments have not updated their territorial architecture, which has remained unaltered for decades in most countries. Therefore, in many cases *"the 'economic city' has become much larger than the 'administrative city'. With the outdated institutional and territorial structures, public interests are poorly represented and remain a long way behind the dynamism of private actors"* (Tosics, 2011).

In this context, as globalization moves forward, European countries have been trying to modernize their government structure and their spatial organization in order to promote growth and innovation. Hence, new governance models on functional spatial levels have emerged for integrating urban planning strategies and decision-making processes (Barresi & Pultrone, 2013).

The conceptual idea of metropolitan cities (or regions) was born based on these considerations. In particular, *"the hypothesis at the basis of Metropolitan cities concern the idea that, within metropolitan areas, the main city and the smaller edge towns are characterized by close economic and social interdependences, which are, however, beyond the jurisdiction of individual municipal governments"* (Crivello & Staricco, 2017). In this light, different European States have promoted territorial reforms and, according to a study by the Thomas More Institute (2009), *"encouraged by the European Union, regions will become the frame of reference for European regional politics, aiming to promote the development of competitive territories whilst maintaining their cohesion"*. Therefore, this issue of TeMA focuses on the different territorial organization and governance models of three European countries:

- Italy, which recently changed its administrative structure introducing fourteen metropolitan cities;
- France, which reorganized its territorial architecture reducing the number of regions from twenty-two to thirteen, strengthening the role of metropolitan cities;
- Germany, with its eleven metropolitan regions assigned by the Ministerial Conference on Regional Planning between 1997 and 2005.

Three different names for similar urban conurbation, which have been created for similar reasons, such as better managing economic and social growth, reduce public costs and promote more equality across territories.



URBAN PLANNING & GOVERNANCE IN ITALY

Italian Metropolitan Cities were first introduced by the Law 142/1990, which identified nine urban areas – Torino, Milano, Venice, Genoa, Bologna, Firenze, Rome, Bari, and Naples – that should have become metropolitan cities. However, the legislative provisions have been only on paper for over twenty years because of bureaucracy and political impasse (Piolette, Soriani). Only in 2014, with Law 56/2014 (also called Delrio Law) the nine metropolitan cities became effective, and by January 2016, they become operative. In addition to the nine metropolitan cities defined by the Delrio Law, five new metropolitan cities have been instituted between 2016 and 2017: Reggio Calabria, Catania, Palermo, Messina and Cagliari. Therefore, up to now, Italy has fourteen metropolitan cities, whose administrative boundaries correspond to those of the former Provinces. Crivello and Staricco (2017) argue that the Delrio reform had three main objectives: (1) *"first, it aimed at cost containments and savings, as the newly appointed councillors of the remaining Provinces and Metropolitan cities do not receive a salary"*; (2) *"second, the law tried to promote inter-municipal cooperation as the main governance approach at the intermediate level between Municipalities and Regions"*; (3) *"third, the law conferred to Metropolitan cities not only functions originally held by Provinces but also new ones concerning infrastructures, services and national and international relations"*.

Nevertheless, several issues have emerged since the law has been approved, especially with regard to the third goal identified by Crivello and Staricco (2017). In particular, there is still lack of transparency involved in the distribution of competences among regions, metropolitan cities and municipalities. Indeed, the different roles often overlap, thus slowing down the empowerment of metropolitan cities.

A clear example of this ambiguity in the division of roles concerns the adoption of the *metropolitan general spatial plan*. According to the Law 56/2014, metropolitan cities should develop and adopt this new urban planning tool, but the content of this plan is not specified in the Law, which gives this responsibility to the twenty Italian regions, according to their specific planning regulations. This type of administrative organization inevitably reduces the power of metropolitan cities and their functions.

Another critical issue about the role of metropolitan cities is funding streams. By replacing former provinces, indeed, metropolitan cities have access to provinces' budget, which has been severely cut during the last years; at the same time, the number of the strategic competencies of metropolitan cities has increased, thus bringing to light the need for additional funds. This issue has been substantially addressed by the European Commission in 2015 with the adoption of the National Operational Programme (PON) "Metropolitan cities 2014/2020". The total budget of the program for the fourteen Italian metropolitan cities amounts to about 893 million. The program was born in the framework of the European Urban Agenda and aims at strengthening the role of big urban areas by investing in the modernization of public services as well as in improving social inclusion, especially in disadvantaged territories. The program focuses on four priority axes: (1) digital metropolitan agenda; (2) sustainability of services and of urban mobility; (3) public services for social inclusion; (4) infrastructure for social inclusion. Based on these four main areas, the program identifies three groups of expected results that include the following: (1) regarding the digital agenda, one of the goal is providing 70% of metropolitan citizens with digital interactive services; (2) regarding urban sustainability, the PON aims to modernize lighting systems, reducing electricity consumption for public lighting by 8.8%, increase cycling and the number of passengers of public transport systems; (3) regarding social inclusion, one objective is to create and renovate over two thousand apartments for disadvantaged families.



URBAN PLANNING & GOVERNANCE IN FRANCE

A new map of France reorganized its internal administration, reducing the number of regions from twenty-two down to thirteen. After months of debate, resistance, changes, and much reshuffling of cartography, the 13-region version was adopted by the *Assemblée Nationale* – the lower house of the bicameral Parliament of France – with effect in January 2016 with the aim to simplify bureaucracy and save costs.

The French state is decentralised territorially in order to coordinate and deliver state functions more effectively. While French regions do not hold legislative authority – they do not write their own laws – they do indeed have considerable discretionary power over infrastructure and operational spending in education, tourism, public transit, universities and research, unemployment, and assistance to businesses.

The new map ratifies the merging of the following regions:

- Alsace, Lorraine and Champagne-Ardenne;
- Nord-Pas-de-Calais and Picardy;
- Burgundy and Franche-Comté;
- Upper Normandy and Lower Normandy;
- Rhône-Alpes and Auvergne;
- Midi-Pyrénées and Languedoc-Roussillon;
- Aquitaine, Limousin and Poitou-Charentes.

And six unchanged regions:

- Brittany;
- Corsica;
- Ile-de-France;
- Centre;
- Pays de la Loire;
- Provence-Alpes-Côte d'Azur.

There are two main principles behind the French reform: (a) simplify the administrative organization by strengthening the couple region/inter-municipal grouping at the expense of the historic couple (inherited from the French Revolution), department/municipality (these two levels do not disappear); (b) clarify the competences between levels of local governments with specific roles, avoiding duplication and rationalizing public spending.

Furthermore, The French government wanted to give its regions a "European size" in order to compete with its European neighbors. The redrawing, indeed, has increased the size of French regions, which were generally smaller than regions in other EU member states. Four French regions are part of the 50 most-populated regions in Europe, including Champagne-Picardie, Normandy, Alsace-Lorraine and the Centre-Poitou-Limousin.

Lastly, the territorial reform aims *"to give new impetus to economic development and to address the challenges of sustainable and inclusive growth, relying on the metropolitan cities and the regions as the two main levers. The metropolitan reform could have a significant impact on long-term GDP growth if it is implemented effectively without recreating intermediate layers that could diminish its impact"* (OECD, 2014).



URBAN PLANNING & GOVERNANCE IN GERMANY

Germany has eleven metropolitan regions, seven of which were identified by the Standing Conference of Federal and State Ministers Responsible for Spatial Planning in 1997 – Berlin/Brandenburg, Hamburg, Munich, Rhine-Ruhr, Rhine-Main, Stuttgart and Halle/Leipzig-Saxon Triangle – and four of which were added in 2005 – Nuremberg, Hanover, Bremen and the Rhine-Neckar Triangle. According to the German Federal Office for Building and Regional Planning (BBR) and the German Federal Ministry of Transport, Building and Urban Affairs (2006), metropolitan regions are *"primarily high-density urban agglomerations with at least 1 million inhabitants. They are spatial and functional locations whose prominent functions extend beyond international borders and are the main driving forces behind societal, economic, social and cultural development"*.

As presented in the document "Concepts and Strategies for Spatial Development in Germany" (BBR, 2006), four main factors are crucial for the functional sphere of influence and cooperative activities of the eleven German metropolitan regions:

- the concentration of political and economic centres of power and the control of international flows of capital and information;
- a high density of scientific and research establishments and the presence of high-quality cultural facilities and creative environments;
- good international accessibility provided by high-quality transport infrastructure and many and varied options for the exchange of goods, knowledge and information;
- a high degree of significance in historical, political, cultural and urban development terms and a corresponding international reputation.

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Fig. 1 https://commons.wikimedia.org/wiki/File:Flag_of_Europe.svg; Fig. 2 <https://pixabay.com/it/photos/italy%20flag/>; Fig. 3 https://it.wikipedia.org/wiki/File:Flag_of_France.svg; Fig. 4 https://it.wikipedia.org/wiki/File:Flag_of_Germany.svg

METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

REVIEW PAGES: URBAN PRACTICES

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In this number

PLANNING FOR BIKE SHARING: TWO CASE STUDIES IN THE U.S.

Sustainable mobility planning, as a relatively new approach in transport planning, requires the implementation of policy measures that produce a modal shift towards non-motorized form of transport such as walking and cycling (Banister, 2008; Morelli et al., 2013). Cycling, in particular, offers a number of environmental and health benefits, and represent a fast and cheap transportation option for short-distance trips in urban areas (Fraser and Lock, 2011). Accordingly, in recent years, transport planners and policy makers have focused much of their attention in promoting the use of bicycles in urban areas as an alternative to intensive car use (Pirlone e Candia, 2015).

One way in which cities can seek to capitalize the benefits associated with an increase in the use of bicycle is by implementing bike sharing schemes (BSS) to facilitate short term bicycle rental in urban areas. Typically a BSS involves the provision of a pool of bicycles across a network of strategically positioned bike sharing stations, which can be accessed by different types of users for short-term use, allowing point-to-point journeys (Meddin, 2015). By addressing the storage, maintenance, and secure parking aspects of bicycle ownership, BSS can encourage cycling among users who may not otherwise use bicycles. Additionally, the availability of a large number of bicycles in multiple dense, nearby locations frequently can creates a “network-effect,” further encouraging cycling and, more specifically, the use of public bike-sharing for regular trips (Parker et al., 2013). BSS have existed for almost fifty years but only in the last decade they have significantly grown in prevalence and popularity to include over 800 cities across the world and a global fleet exceeding 900,000 bicycles (Meddin, 2015). Technological advances, such as bike tracking, solar powering, telecommunicating and on-line shopping, have helped transform bike-sharing from an aspiration to reality.

In the United States, bike sharing has steadily increased year-over-year, from four systems in 2010 to 55 systems in 2016. In addition, 80% of systems that have been in operation for more than a year have expanded since they launched (NACTO, 2016). A number of U.S. cities, such as Detroit, New Haven, and New Orleans, have either selected vendors or are planning to launch systems, and many existing systems are also rolling out major expansions. The expansion and densification of bike sharing systems across the United States has helped many cities in moving bike share towards realizing its potential as an integrated, low-cost part of city transportation systems. This contribution presents two relevant U.S. case studies where BSS have been successfully implemented in recent years: i) Los Angeles and ii) Philadelphia.



LOS ANGELES

The County of Los Angeles is the most populous county in both the United States and the state of California. With over 10 million inhabitants, the county is home to more than one-quarter of California residents and is one of the most ethnically diverse counties in the U.S.. Despite its reputation as a car-oriented city, Los Angeles (and its county) has made huge investments in recent decades to improve its once-nonexistent public transportation system. This city now has a network of nearly 200 bus lines and six rail lines, as well as an extensive regional commuter rail system, mainly operated by the Los Angeles County Metropolitan Transportation Authority, also known as Metro.

In 2016, Metro launched the *Metro Bike Share*, the first regional bike share program that establishes the business model to bring bike share to more cities within L.A. County. In particular, the planning document “*Regional Bikeshare Implementation Plan*” envisions a bike share system that is accessible to Los Angeles County residents, students, workers and visitors, and that integrates with existing Metro services to improve the reliability, efficiency and usefulness of Metro’s transportation system. The Plan envisions a pilot bike share system of 99 stations in downtown L.A., implemented in two phases, and three future expansion phases, comprising 155 stations in eight communities.

Four interesting features make the *Metro Bike Share* a particularly interesting case study:

- *Integration with the public transport system.* Not only unique for its regional administrative plan, *Metro Bike Share* is also purpose built for regional accessibility. Indeed, it is the first U.S. large regional bike share program to offer transit fare integration, introducing bike share as a component of, rather than a compliment to, transit. At the *Metro Bike Share* website, customers can register their transit fare card to ride Metro bikes, using the same card to also ride Metro buses and trains. Integration is also accomplished by shared branding, service area and fare media.
- *Equity considerations.* A transportation equity perspective illuminates the plan. For the stations located in Downtown Los Angeles, Metro performed an analysis of the share of minority population within a quarter-mile and half-mile radius of the bike share stations, ensuring that stations are placed near neighborhoods and transit lines that low-income riders use in order to increase the likelihood that they can integrate the system into their regular travel.
- *Public engagement.* Metro and the city of Los Angeles worked closely with downtown L.A. community stakeholders, taking into consideration crowdsourced public input to select initial station locations that will better connect people to key neighborhood destinations. Special consideration was given to locations that created better access to museums, libraries, schools, retail, employment, residential areas and transit hubs.
- *The development of a Bikeshare Suitability Index.* In order to identify the most efficient locations for bicycle stations, Fehr & Peers, the transportation consultant that supported Metro in the development of the plan, developed a Regional Bikeshare Suitability Index. The index is based on a combination of basic variables associated with high bikeshare ridership. Integrating this index with other criteria for financial, political and community support resulted in a ranked list of potential expansion communities. Fehr & Peers then analyzed the effect of the demographic and built environment characteristics on ridership levels in four established bikeshare systems and applied the resulting regression models to estimate

ridership for the network of stations proposed for Downtown Los Angeles, Pasadena, and Santa Monica. Comparing the resulting ridership level estimates with the operating characteristics of other established bikeshare systems informed recommendations for the needed number of bikes and docks to support bikeshare demand.



PHILADELPHIA

Philadelphia is the largest city in the Commonwealth of Pennsylvania and the fifth-most populous city in the United States, with an estimated population of 1,567,442 and more than 6 million in the seventh-largest metropolitan statistical area, as of 2015. Philadelphia is considered to be one of the most bike-friendly cities in the U.S. with dedicated bike lanes on city streets, hundreds of miles of trails and a growing number of bicycle commuters.

In the spring of 2015, Philadelphia launched *Indego*, the first city's bike sharing programme. Based on the findings of a 2009 bike share feasibility study, the City of Philadelphia has worked to build support and funding for a bike sharing system. A *Bike Share Working Group* was formed to evaluate business models and develop a feasible business plan. The Working Group includes the City of Philadelphia Mayor's Office of Transportation and Utilities, the Bicycle Coalition of Greater Philadelphia, the Delaware Valley Regional Planning Commission and the Pennsylvania Environmental Council.

In 2013, the Working Group developed the *Bike Share Business Plan*. The plan examines the potential for success of a proposed bike share program in Philadelphia. It includes a comprehensive planning-level analysis of the bike share concept while also exploring key ancillary issues—such as bike-lane infrastructure and interoperability with public transit—that are likely to influence the potential success of the system. The program envisioned for Philadelphia entails an initial deployment of approximately 1,750 bicycles in a defined “core” area that will be further developed in a flexible way, according to the result of the first phase.

Key features of the Philadelphia bike sharing programme can be summarized as follows:

- *A clear definition of goals and objectives.* According to the business plan, Philadelphia's bike share system will establish a new form of public transportation for Philadelphia, one that is healthy and safe, is environmentally friendly, affordable for users, and financially sustainable to operate. Bike share will be an important part of the city's integrated public transportation network, connecting communities to more destinations across the city.
- *The definition of key performance measures.* The purpose of the performance measurements is to provide stakeholders and the public a clear and concise way to measure the effectiveness of the Philadelphia bike share program. A set of measures have been developed that fit within the overall framework of the program's vision, goals, and objectives. Each objective has one or more performance measurements that can be tracked over time. These measures can be grouped in four main domains: i) Personal Mobility; ii) Livability & Economic Competitiveness; iii) Health & Safety and iv) Finances & Transparency.
- *The development of a solid business plan.* Philadelphia's bike share system has been developed to be a financially self-sufficient system that requires neither operating subsidy nor additional capital funding from the City of Philadelphia. For this reason, the plan identifies the necessary actions to raise operating

revenue through three main channels: memberships, usage fees, and station advertising. In order to project revenue from memberships and usage fees, a revenue model was created and a market analysis was performed in order to assess as best as possible the potential level of bike share usage in Philadelphia. In order to achieve this, it was also critical to acknowledge both the experiences of other bike share cities as well as specific travel demand patterns in Philadelphia. In addition, it was important to identify local factors likely to influence the outcome of the Philadelphia bike share program, including climate, topography, demographics (populations of user groups), mode split, and infrastructure.

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IMAGE SOURCES

The image shown in the first page is from <http://dribbble.com/>; the image shown in the second page is from: <http://architecturaldigest.com/>; the image shown in the third page is from <http://visitphilly.com>.

METHODS, TOOLS AND BEST PRACTICES TO INCREASE THE CAPACITY OF
URBAN SYSTEMS TO ADAPT TO NATURAL AND MAN-MADE CHANGES 1(2017)

REVIEW PAGES: NEWS AND EVENTS

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In this number

GREEN INFRASTRUCTURE AS DUAL-USE SYSTEM FOR ADAPTIVE PLANNING

Rapid urbanization and rapid growth of urban centers have been accompanied by the rapid growth of highly vulnerable communities, many of which settle on land at high risk from extreme weather. This rising complexity of urban structure, together with the expecting negative impacts of climate change, has brought a great deal of attention to the seductive theory of resilience through its capacity to evoke systemic adaptation before and after disasters. It is in fact increasingly shared the awareness that the possibility to support climate change adaptation via effective city governments goes through the thorough understanding of the complex inter-dependent system of city. Nevertheless, one of the main limits of this theory consists in the practical and economic difficulty for local governments of investing in preventive actions for adequately addressing the security and emergency response needs without a clear economic and political return.

In their paper *Toward Inherently Secure and Resilient Societies* Allenby & Fink (2005) offered an interesting perspective on this issue proposing the concept of dual-use systems. In their vision the urban systems should be redesigned by "implementing dual-use technologies that offer societal benefits even if anticipated disasters never occur".

In this perspective green infrastructure could represent an efficient dual-use system for adaptive planning. In fact, on the one hand, the implementation of green infrastructure represents one of the main key strategies to moderate the expected increases in extreme precipitation (Zellner et al., 2016) or temperature (Gargiulo et al., 2016; Salata & Yiannakou 2016); while on the other, it represents an important contributor for improving human health and air quality, lowering energy demand, expanding wildlife habitat and recreational space, and even increasing land-values (Foster et al., 2011).

Therefore, green infrastructure approaches help to achieve different goals over a range of outcomes, in addition to climate adaptation.

In this perspective, the value of green infrastructure can be calculated in terms of benefits, by comparing the costs of green practices to "hard" infrastructure alternatives, the value of avoided damages, or market preferences that enhance value, like property value.

Green infrastructure benefits generally can be divided into five categories of environmental protection:

- land-value;
- quality of life;

- public health;
- hazard mitigation;
- regulatory compliance;

For these reasons, green technologies and infrastructure solutions should be implemented by considering a comprehensive accounting of their multiple benefits.

The selected conferences represent a fertile level playing field of the latest methods to address the issue of green infrastructure and its multiple-use role in the increasingly pressing challenges that cities have to face.



GRAY TO GREEN CONFERENCE

Where: Toronto, Canada

When: 8-10 May 2017

<https://greytogreenconference.org/>

The main conference topic is “quantifying green infrastructure performance”; it aims at analyzing and quantifying the many benefits of investing in living green infrastructure such as urban forests, green roofs and walls by exploring the latest in performance, economic valuation, design, policy, and technology.

Grey to Green conference also includes different activities, like workshops, tours of outstanding networking events, and presentations of Toronto projects such as the Toronto's new Green Streets Guideline and the Province of Ontario's new Stormwater Design Guidelines.

The core of the conference will be the six unique workshops organized in the following tracks:

- green Roof Professional Exam;
- green Wall 101: Systems Overview & Design;
- how to Properly Construct Low Impact Development Stormwater Management Practices;
- integrated Water Management for Buildings & Sites;
- introduction to Rooftop Urban Agriculture;
- lighting for Indoor Vegetable and Medicinal Crop Production and Living Walls.

Another interesting initiative is the Green Infrastructure Charrette: A one-day Green Infrastructure Design Charrette where multi-disciplinary volunteers are tasked to redesign specific neighborhoods in need, with 15 generic types of green infrastructure as their tools.



RESILIENCE 2017: RESILIENCE FRONTIERS FOR GLOBAL SUSTAINABILITY

Where: Stockholm, Sweden

When: 20-23 August 2017

<http://resilience2017.org/>

The Anthropocene is a proposed epoch dating from the beginning of significant human impact on the Earth's geology. Based on this, the Resilience 2017 conference intends to discuss resilience as a key lens for biosphere-based sustainability science, aiming to set out future directions for research. A main focus will be on global sustainability, which today is influenced by the speed, scale and connectivity of the Anthropocene. A resilience thinking approach tries to investigate how the interacting systems of people and nature – or social-ecological systems – can best be managed to ensure a sustainable and resilient supply of the essential ecosystem services on which humanity depends.

Under this thread the conference will be articulated in four major themes:

- social-ecological transformations for sustainability;
- connectivity and cross-scale dynamics in the Anthropocene;
- multi-level governance and biosphere stewardship;
- approaches and methods for understanding social-ecological system dynamics.



EUGIC 2017

Where: Budapest, Hungary

When: 29-30 November 2017

<http://eugic.events/>

EUGIC 2017 conference provides a forum for the coming together of research, policy and practice in urban green infrastructure to share nature-based solutions for resilient cities. It will explore how urban centers are addressing climate change and biodiversity loss, managing water, air quality and energy, and designing for health and wellbeing by working with nature.

The conference is organized in different sessions. Session 3, called “Key Urban Green Infrastructure Discussions”, represents the core of the conference and it will be articulated in the following main tracks:

- the Green Infrastructure Fabric of Europe: the EUGIC Vision;
- implemented Green Infrastructure Projects;
- how do we evaluate Green Infrastructure in the urban realm?;
- what can we learn from each other?.



ICUGSPHEJ 2017: 19TH INTERNATIONAL CONFERENCE ON URBAN GREEN SPACE, PUBLIC HEALTH, AND ENVIRONMENTAL JUSTICE

Where: Istanbul, Turkey

When: 21-22 December 2017

<https://www.waset.org/conference/2017/12/istanbul/ICUGSPHEJ/call-for-papers>

The conference will bring together leading academic scientists, researchers and scholars from around the world, focusing the debate on the main topics of Urban Green Space, Public Health, and Environmental Justice. The conference proposes a huge list of more specific topics for submission; in particular the focus on the roles of green infrastructure in the urban planning is declined in many aspects, thus underlining the multiple functions of urban green areas and their different relationships with other urban system elements especially connected with urban risk topics. The following are just few example of this very rich list:

- green Infrastructure and Renewable Energy;
- green Infrastructure and Urban Flooding;
- green Infrastructure and Water Management;
- green Infrastructure for the City;
- green Infrastructure for Urban Climate Adaptation;
- green Infrastructure in Urban Land Use;
- green Infrastructure: Planning for Sustainable and Resilient Urban Environment.



ICGIUR 2018 : 20TH INTERNATIONAL CONFERENCE ON GREEN INFRASTRUCTURE FOR URBAN RESILIENCY

Where: London, UK

When: 24-25 April 2018

<https://www.waset.org/conference/2018/04/london/ICGIUR/home>

Green Infrastructure is considered one of the most widely applicable, economically viable and effective tools to combat the impacts of climate change and help people adapt to or mitigate the adverse effects of climate change. Is not a case that *The Land Use, Land Use Change and Forestry* (LULUCF) as defined under the UNFCCC's Bali Action Plan of the Kyoto Protocol, encourages Green Infrastructure initiatives in the agriculture and forestry sectors that have a positive effect on carbon stocks and the greenhouse gas balances in Member States, thus helping to put EU climate policies into practice. Therefore green infrastructure solutions that boost disaster resilience, against climate change related risks, are an integral part of EU policy on disaster risk management.

Based on these premises the conference provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Green Infrastructure for Urban Resiliency.

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IMAGE SOURCES

The image shown in the first page is taken from:

<http://rym.fi/results/ecosystem-services-approach-in-urban-forest-planning/>

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