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).

CITIES, ENERGY AND CLIMATE CHANGE

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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.

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REVIEW PAGES

CITIES, ENERGY AND CLIMATE CHANGE

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.

author: Raffaella Niglio
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02_BOOKS
The books review suggests brand new publications related with the theme of the journal number.

author: Gerardo Carpentieri
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e-mail: gerardo.carpentieri@unina.it

03_LAWS
The law section proposes a critical synthesis of the normative aspect of the issue theme.

author: Laura Russo
TeMALab - Università Federico II di Napoli, Italy
e-mail: laura.russo@unina.it

04_URBAN PRACTICES
Urban practices describes the most innovative application in practice of the journal theme.

author: Gennaro Angiello
TeMALab - Università Federico II di Napoli, Italy
e-mail: gennaro.angiello@unina.it

05_NEWS & EVENTS
News and events section keeps the readers up-to-date on congresses, events and exhibition related to the journal theme.

author: Andrea Tulisi
TeMALab - Università Federico II di Napoli, Italy
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TeMA
有关土地使用、交通和环境的杂志

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评述页

城市、能源与气候变化

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 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。因此，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。

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01

CITIES, ENERGY AND CLIMATE CHANGE

REVIEW PAGES: WEB RESOURCES

RAFFAELLA NIGLIO
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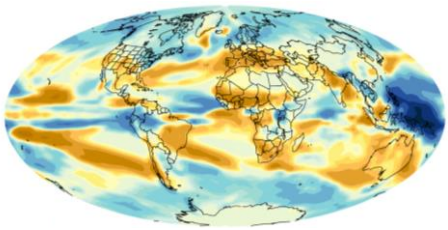

In this number
PLANNING FOR SUSTAINABILITY AND CLIMATE CHANGE

Over 50% of the world population lives in cities. More than two thirds of the world's largest cities are vulnerable to rising sea levels as a result of climate change. Millions of people are being exposed to the risk of extreme floods, storms, temperatures and winds. Moving to the causes of the mentioned phenomena, the GHG emissions are widely recognized as the main contributors to climate change: carbon dioxide (CO_2) is the most important anthropogenic GHG and recent data confirm that consumption of fossil fuels accounts for the majority of global anthropogenic GHG emissions. Researchers and policy makers are devoting their attention to outline strategies for urban adaptation to climate change, both at European and local scale.
Two are the main typologies of strategies that at global, European and local level are currently put in place:

- mitigation measures, aimed at reducing GHG emissions;
- adaptation measures, aimed at adjusting natural or human systems in response to actual or expected climatic stimuli or their effects.

The two types of strategies also differ one from each other, both from a temporal and a spatial perspective. Mitigation measures are generally the result of international strategies, although applied at national or local levels, and are referred to a long-term perspective. Adaptation measures are strongly characterized as site-specific measures; they generally refer to the scale of the impacted system and are undertaken at local level, although based in some cases on a wider common platform at national or upper level (Galderisi, Ferrara 2012).
In this number three websites are presented; they are related to three theoretical and methodological approaches to urban adaptation to climate change, depending on the context. The first one addresses the significant extents of the city of Rotterdam, which is an international seaport city with a strong industry sector based on fossil fuels and raw materials but has great ambitions to realize 50% reduction of CO_2 emissions and to become 100% climate proof in order to maintain its international top position and to benefit optimally from the economic opportunities that are created in this context. The second website describes the Italian experience of BLUE UP project whose aim is to provide Bologna with a Local Adaptation Plan, to make the town more resilient in the face of climate change. In the end, the SymbioCity website offers the Sweden conceptual framework for support to climate change challenges in low and middle income countries.

ROTTERDAM CLIMATE INITIATIVE
http://www.rotterdamclimateinitiative.nl/

The Rotterdam approach to climate change is unique in the world. The Rotterdam Climate Initiative (RCI) is a partnership between the Port of Rotterdam, the companies of the industrial port district, the municipality and the environmental protection agency Rijnmond, with the goal of reducing CO_2 emissions by 50% by 2025, as compared to the level in 1990, and to address the issue of climate change through mitigation and adaptation policies in combination with economic growth in the Rotterdam Region. It was launched in November 2006 by an advisory body of the Mayor and Aldermen of Rotterdam as part of the international Clinton Climate Initiative. One year after the collective initiators joined their forces to participate in an international climate programme for metropoles. Since the end of 2013, Rotterdam has had its own adaptation strategy which has set out the course that the city wishes to take to prepare for climate change. The focus of attention in the RCI is on energy conservation, sustainable energy and capture, reuse and storage of CO_2. Through knowledge development, innovation and sustainable area development, Rotterdam furthermore responds to the challenge of changing water levels as a result of climate change. Moreover, the international network of stakeholders helps new companies motivated in reducing CO_2 emissions and adapting to climate change to set up their business in a global market.

RCI website is a rich source of information for those who are interested in the comprehensive climate file. It is organized into seven sections: Publications, Press releases, Contact, About us, Projects, Clips and News.

The section *Publications* lists all of the publications in English published by the RCI from 2008 to 2014. In this section users have free access to interesting reports, programmes, brochures and flyers which provide answers to questions about the effects of global climate change for Rotterdam or about how can inhabitants of Rotterdam contribute to keep their city safe and habitable, now and in the future. Furthermore in compliance with the idea to support the free global exchange of knowledge all the publications can be easily accessed on line and downloaded.

Press release section contains all of the press releases published by the RCI as well as the press releases of the RCI adaptation programme, Rotterdam Climate Proof (RCP). In the section *About us* users can find short information about the RCI board and its relations with the Rotterdam municipality departments, the government bodies and the NGOs and knowledge institutes. Also some information on the mission and the ambition of the network are given.

The section *Project* is mostly dedicated to an in-depth analysis of the new or currently underway works which help Rotterdam urban region to achieve his climate proof objectives. They are new or renovated adaptive urban spaces which benefit the city environment such as a tidal park; a full-scale water square; floating constructions; green roofs; multi-functional rowing courses; waterway corridors; underground water storages; playgrounds doubling as water storage; dynamic traffic management practices; green façades. In this section users can find also guidelines, researches, reports, videos, apps and games to adapt to climate changes by achieving maximum benefit for residents and businesses. The topics are not only energy saving, sustainable energy, electric mobility but also the capture, reuse, transport and underground storage of carbon dioxide (CSS). The section *Clips* offers a large variety of video products and interviews for sharing knowledge about methods used by cities to manage climate risks such as extreme rainfall, flood risks and high temperatures. Watching these videos users can learn from extreme incidents or can gather information about adaptation measures and instruments for decision making. In the end, the section *News* collects the latest announces about current events, ongoing projects and the new steps forward in the field of mitigation and adaptation to climate change.

BLUEAP | BOLOGNA ADAPTATION PLAN FOR A RESILIENT CITY

https:// http://www.blueap.eu/

BLUE AP (Bologna Local Urban Environment Adaptation Plan for a Resilient City) is a LIFE + Project (LIFE11 ENV/IT/119) for the implementation of the Plan of Adaptation to Climate Change for the city of Bologna.

The project kicked off on October 1, 2012 and is going to end on September 30, 2015.

The Municipality of Bologna is the coordinator of the project which involves three other partners: a non-profit organization, Kyoto Club; Ambiente Italia that is an expert European center for urban and environmental policies; ARPA Emilia Romagna which is the Regional Government's Agency for Environmental Protection and Prevention.

The project is aimed to provide some concrete measures which can be implemented at the local level in order to make the city less vulnerable and able to positively react in case of floods, droughts and other consequences of climate change.

Bologna will be a pilot-city addressing in Italy the challenge of climate change which is nowadays considered a priority at European and national level.

The creation of a Local Climate Profile and the involvement of relevant stakeholders as well of citizens have been paramount for the development of the projects. Once BLUEAP is completed, within the site users will find guidelines useful for the redaction of similar Adaptation Plans as a model framework which could be adopted by other medium size Italian cities.

The goal of the website is to create specific information on adaptation issue, which has been attracting a growing interest in recent years. In order to encourage the widest possible dissemination of the project contents and materials, the BLUE AP website is simple and user-friendly.

It consists of six sections: *News, About, Project, Scientific board, Documents, Calendar, Forum* and *Contact*.

The *News* section provides to users the most interesting informative articles published in media dealing not only with climate change, adaptation and resilience but also with water management, drought, heat islands, and greening initiatives; only a small summary is published and original sources or individual authors are indicated at the bottom of each article.

Moreover, in this section also technical articles and press releases reporting the activities carried out by the BLUEAP Scientific Board are collected.

In the section *About* the most relevant information on the project partners are given. They include also contacts. The section *Projects* contains the description of the six pilot actions planned by the BLUEAP project and aimed to build resilient communities and to raise awareness about the risks associated with climate change. In the section *Documents* users can access and download the results and the products created within the project: informative brochure; dissemination and communication plan; Local Climate Profile analysis; best practices in the field of adaptation to climate change; local strategies; adaptation plan; questionnaire for visitors to the site and surveys.

In order to effectively reach on time bodies and organizations concerned with the project goals and topics of the project, direct communication with the identified target audience is crucial. For this reason, BLUEAP is also present on the new communication channels such as Facebook, Twitter and Linkedin.

Furthermore, at the bottom of every section of the website users have the opportunity to subscribe for the newsletter.

SYMBIOCITY | SUSTAINABILITY BY SWEDEN
www.symbiocity.org

SymbioCity is a Swedish government initiative on the issue of sustainable urban development. Founded in 2008, the primary goal of the program is to export the knowledge of Sweden experience on sustainable cities. The Swedish Association of Local Authorities and Regions (SALAR) and its subsidiary SKL International has been commissioned by Sida to foster and develop the Symbio City Approach between 2010 and 2013. According to the holistic and integrated approach of SymbioCity, environmental and economic gains result from unlocking synergies between urban systems, integrating different technologies and functions of the city. For example, waste can be transformed into energy, waste water can turn into fuel, and excessive heat from an industrial area can warm up a household. A sectoral approach should be replaced by a multi-disciplinary approach in order to succeed in solving combined problems. The conceptual framework collects the Swedish methodology and experiences, with a focus on the practices of local government. It is scalable framework and it can be adaptable to any climate.

In the homepage of Symbiocity website users can find a slideshow gallery that combines short texts with images in order to communicate the concept of the initiative. On the right of the slideshow gallery there are fast links to the main sections of the website. Moreover, there are small overviews, organized into a grid, aimed at promoting the approach and at showing some successful cases of industrial districts transformed into sustainable urban environments, e.g. the case of Western Harbour in Malmo or the district of Gårdsten in Gothenburg. At the end of the homepage the latest news about SymbioCity are presented.

The website is organized into four main sections each of them have a bar menu. The section *DISCOVER* collects information about the methodology which can be applied from single blocks to entire urban areas. The seven building blocks in which SymbioCity works are: Architecture; Energy; Landscape Planning; Traffic & Transport; Waste Management; Urban Functions, Industry and Buildings; Water Supply and Sanitation. In this section some experiences and cases are listed. The *DEVELOP* section shows the six steps to achieve the holistic partnerships that will drive to transition to sustainability. Furthermore, this section offers a toolbox to help users to reach sustainable development. In the toolbox users can find useful instruments, for example organizational diagrams for planning and review work; SWOT analysis for identifying and weighing up the negative and positive qualities of an urban territory; some set of indicators for tracking progress in planning and development. At the bottom of this section there is the opportunity to launch a game in which sustainable scenarios, depending on differing conditions and cultures, are shown. Information about tailor made visiting programs, access days or specific training programs can be found in *GET GOING* section. Finally the *NETWORK* section shows a list of companies affiliated to Symbiocity which can be filtered by business area and geographic position. The list of companies is kept continuously up to date. At the bottom of the section users can find also contacts and address of the organization.

REFERENCES

Galderisi, A., & Ferrara, F. (2012). Enhancing urban resilience in face of climate change: a methodological approach. *Tema. Journal Of Land Use, Mobility And Environment*, 5(2), 69-88. doi:http://dx.doi.org/10.6092/1970-9870/936

IMAGE SOURCES

The images are from: www.climatemonitor.it; www.rotterdamclimateinitiative.nl; www.blueap.eu; www.symbiocity.org.

02

CITIES, ENERGY AND CLIMATE CHANGE

REVIEW PAGES: BOOKS

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In this number
ENERGY CONSUMPTION AND CLIMATE CHANGE IN URBAN AREAS

Cities are undergoing a renaissance, with a huge growth in urban population. In 1900, about 13 per cent of the global population was urban, but by 2000 this proportion was 47 per cent, and the 50 per cent threshold was reached in 2007 when 3.3 billion people lived in urban areas. By 2050, nearly 70 per cent (6 billion) of the global population (9 billion) will be living in urban areas. This enormous urban growth are causing congestion, traffic, polluting air, noise and energy consumption, also due to the high density of urban activities. The combination of environmental effects clearly measurable and the energy price crisis produced by the explosion of global demand, reveals strongly the urgency to afford the problem in a multi-sectorial and systemic perspective (Gargiulo et al., 2012).

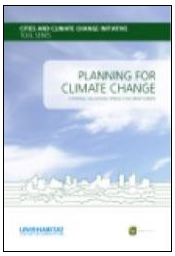
Besides population, in the cities are concentrate disproportionate parts of the economy, resource consumption and the decision making power in most countries. Nearly 75 per cent of the global economic production takes place in urban areas. Cities are responsible for 67 per cent of the total global energy consumption and more than 70 per cent of greenhouse gas emissions and these trends significantly intensify the severity of some of the two great challenges of our time: climate change and energy security (UN Habitat, 2011).

It is not cities, or urbanization per se , that contribute to greenhouse gas emissions, but rather the way in which people move around the city, sprawling urban development, the amount of energy people use at home and to heat buildings that make cities the great consumers of energy and polluters that they are.

In particular, urban density and spatial organization are crucial elements that influence energy consumption, especially in transportation and building systems (World Bank, 2010).

So changes to the built environment both to adapt to climate change and to limit emissions require long lead times, which heightens the urgency of implementing land-use zoning, spatial, building and transportation policies now (OECD, 2010).

According to these brief considerations, this section proposes three documents that help to better understand the issue of this number: the first document Planning for climate change is a guide for city planners and other professionals to help the urban communities in low and middle-income countries; in the second document City Resilience Framework is collected and analyzed a set of indicators that useful to describe the fundamental attributes of a resilient city; in the third document Transport, Climate Change and the City seeks to develop achievable and low transport CO_2 emission futures in a range of international case studies.



Title: Planning for climate change
Author/editor: John Ingram and Colleen Hamilton
Publisher: UN-Habitat
Download: http://www.unhabitat.org
Publication year: 2014
ISBN code: 978-92-1-132400-6

This guide published by the UN agency UN-HABITAT for a Better Urban Future. It describes a strategic values-based approach for urban planners was developed for city planners and other professionals to better understand, assess and take action on climate change at the local level. While climate change is a global issue, this guide is specifically intended for urban communities in low and middle-income countries where the challenges are unique and the stakes of planning for climate change are particularly high. The primary audience for this guide is city planners working in cities in low and middle-income countries who have a basic knowledge of climate change and the desire to address it.

An another group that can use this guide are the elected representatives, non-government professionals, civil society groups, donor agencies and private sector organizations who individually and collectively affect how cities manage climate change risks, impacts and vulnerabilities.

To help the diversity of users, their differing capacities, available resources, experience, and the range of political contexts that they will find themselves in, this guide presents a broad range of tools and information.

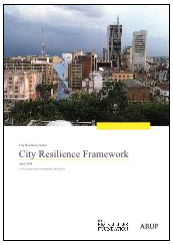
This guide's planning process is organized around a four-module strategic planning approach that incorporates innovative decision-making tools with a participatory, community-based methodology. It can be used to support city climate change planning processes and as a stand-alone capacity building resource and training tool. To help integrate climate change planning into current planning and urban development initiatives, and make it easier for urban planners to take action on climate change, this guide is organized around a four step strategic planning approach that incorporates innovative decision-making tools with a participatory, local values-based methodology.

Each module asks a specific planning question and requires guide users to go through a corresponding set of individual steps, which are supported by 42 different planning tools. The planning tools are provided in a companion document, Planning for Climate Change: A strategic values-based approach for urban planners toolkit.

This guide takes the approach that climate change planning can, and should, augment and be integrated and mainstreamed with existing city plans, planning processes and development activities across all sectors. climate change is simply another piece of information that should be considered during every planning process, or when existing plans are modified and updated.

fundamentally, good city planning practices are, by their nature, also climate smart planning practices. This is because most climate change planning actions are consistent with planners' responsibilities, including:

- Minimizing risk and improving land development activities that occur in or near flood, slope or coastal hazard areas;
- Improving infrastructure for storm water management, solid and liquid waste management, access to safe drinking water, and the movement of goods and people;
- Protecting ecosystems and environmentally sensitive areas in and around towns and cities;
- Improving disaster risk reduction, including the improvement of response capacities for disasters (particularly weather and climate-related events);
- Supporting local economic development to reduce poverty and improve quality of life.



Title: City Resilience Framework
Author/editor: Jo da Silva, Braulio Morera
Publisher: The Rockefeller Foundation and ARUP
Download: http://publications.arup.com/Publications/C/City_Resilience_Framework.aspx
Publication year: 2014
ISBN code: n.d.

The City Resilience Framework provides a lens through which the complexity of cities and the numerous factors that contribute to a city's resilience can be understood.

In addition, cities need to ensure that their development strategies and investment decisions enhance, rather than undermine, the city's resilience. This analysis comprises a set of twelve key indicators that describe the fundamental attributes of a resilient city.

A resilient city is a city where there is or are: Minimal human vulnerability; Diverse livelihoods and employment facilitated; Adequate safeguards to human life and health; Collective identity and mutual support; Social stability and security; Availability of financial resources and contingency funds; Reduced physical exposure and vulnerability; Continuity of critical services; Reliable communications and mobility; Effective leadership and management; Empowered stakeholders; Integrated development planning. The twelve indicators fall into four categories:

- the health and wellbeing of individuals (people);
- infrastructure and environment (place);
- economy and society (organization);
- leadership and strategy (knowledge).

They represent the fundamental elements of a resilient city. They are what enable people to survive and thrive and businesses to prosper despite adverse circumstances.

For each category, it is reported a best case which represents a resilient city, and a worst case which equates to breakdown or collapse.

The indicators are complemented by qualities that distinguish a resilient city from one that is simply livable, sustainable or prosperous.

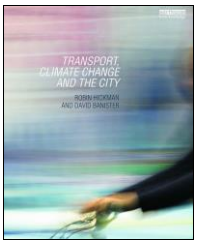
This guide incorporates a strategic planning approach with the belief that all planning is more effective if it's strategic. This is because no matter the type of planning, all of it is ultimately about making the best long-term decision possible. To plan for climate change adaptation using a more strategic approach will not only help communities decide what to do, but also how to do it and when to do it, making decision-making more transparent and objective.

This climate change planning process is not linear. Although it follows a step-by-step process, it is designed to let cities revisit steps as new information becomes available, new stakeholders become involved, or other circumstances change.

This guide is designed to allow users to enter the strategic planning process at different steps or modules. It is anticipated that guide users and their cities will:

- Be at different stages of climate change planning;
- Be using the guide for different purposes;
- Have different planning structures and processes;
- Have different resources and capacities.

Primary audience for City Resilience Framework is municipal governments. But, the framework, indicators and variables are also intended to support dialogue between other stakeholders who contribute to building more resilient cities globally.



Title: Transport, Climate Change and the City
Author/editor: Robin Hickman and David Banister
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Cities have become the centers of humanity and in the last 10 years, in particular, much discussion has focused on sustainability, reducing greenhouse gas (GHG) and carbon dioxide (CO_2) emissions. Within this, there are aspirations towards sustainable travel. This book takes this difficult context as its starting point, developing its approach from an exciting body of work in scenario analysis and futures thinking. It draws on the conceptual origins from Thomas More's (1516) Utopia, and others such as Herman Kahn and Pierre Wack. Futures analysis has developed into a wide literature field: scenarios have been well used in many domains, notably in business and corporate strategy, and also in energy futures and, to an extent, in transport and city planning. The authors view scenarios from the tradition of Herman Kahn, encompassing a wide range of external and internal factors, such as changed environmental, economic and cultural factors, into composite images of different potential future lifestyles forming a structured view of the future and framework for analysis. This is different to much of the common parlance in transport planning, where scenarios are conflated with option analysis, considering marginal changes, such as route alignments or changes in frequency of service. They use scenario analysis to explore much more fundamental possibilities for changed travel behaviors.

The authors propose the analysis the climate change transport problems and the differents solutions in five different urban areas of the world:

- Ambitions towards sustainable mobility (City of London);
- Affluent rurality and car dependence (City of Oxford);
- Breaking the projected (City of Delhi);
- Building a new world (City of Jinan);
- Urban dispersal and high motorisation (City of Auckland).

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03

CITIES, ENERGY AND CLIMATE CHANGE

REVIEW PAGES: LAWS

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In this issue

EUROPEAN AND ITALIAN STRATEGY ON ENERGY AND CLIMATE CHANGE

The gradual increase of the average global temperature, which today is 0.8°C higher than that registered in the pre-industrial period, is only one of the many effects of climate change; in Europe, the temperature has been rising faster, as shown by data that indicates a difference of 1.3°C with the pre-industrial levels (EEA 2012). Furthermore, together with global warming, other alarming consequences of climate change, related to the greater frequency of extreme weather events such as heat waves or heavier rainfall, are challenging the EU territory which therefore must focus its attention on this issue, considering it a priority for the sustainable development of our society.

In line with the goal of facing the impacts of climate change, the European Union has been promoting mitigation and adaptation efforts based on a policy framework for climate and energy with ambitious and pioneering efficiency targets. Indeed, as long as global warming represents a dangerous risk for our planet, it is crucial to impose a number of actions aimed at reducing greenhouse gas emissions, as well as at increasing the shares of renewable energy, in order to encourage the transition towards a more sustainable energy system and to limit further changes in the earth's climate.

Both at national and international level, the efforts to promote a more sustainable development have been increasing in the last decade and, not surprisingly, Europe is at present a global leader in addressing this challenge. However, the largest emitters of carbon dioxide are China (29%) and the United States (16%), while Europe is just in third position, with the 11% of global emissions. Although the concern for air pollution and energy security has pushed China to invest in renewable energy, its CO_2 emissions do not seem to slow down, on the contrary, in 2012 US emissions have decreased by 4% (EEA 2012).

In 2008 the European Commission has adopted its first policy for climate and energy (EU 30/2008), defining two key targets: a reduction of at least 20% in greenhouse gases by 2020 and a 20% share of renewable energies in EU energy consumption by 2020. These ambitious measures have been updated with the approval of a new policy framework, at the beginning of 2014 (EC 15/2014), which includes new key achievements to be attained by 2030. This document will be described in this number of the journal, together with the EU strategy on adaptation to climate change (EC 216/2013), which sets out a number of measures to improve the resilience of the EU territory. In conclusion, the Italian strategy on adaptation to climate change (MATTM 2014) will be investigated in order to identify the group of actions the Italian government intends to implement to face the impact of climate change at national, regional and local scale.

COM(2014) 15 – A POLICY FRAMEWORK FOR CLIMATE AND ENERGY IN THE PERIOD FROM 2020 TO 2030

Many steps forward have been made since the EU has established the 20/20/20 targets in 2008. However, now the time has come for the European Union to evaluate what has been done and, even more important, what needs to be done by 2030 in order "to drive progress towards a low-carbon economy which ensures competitive and affordable energy for all consumers, creates new opportunities for growth and jobs and provides greater security of energy supplies and reduced import dependence for the Union as a whole" (EC 15/2014). With these goals, in 2014, the EU has adopted a new policy framework for climate and energy, defining two new energy targets for 2030:

- a reduction of greenhouse gas emission (GHG) of 40% in 2030 compared to 1990;
- a share of renewable energy of at least 27% by 2030.

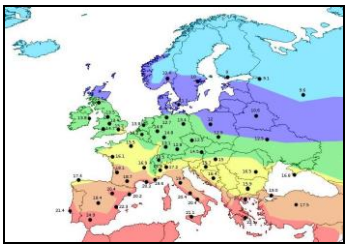
In addition to these two targets, the policy framework identifies a number of different aspects to be considered. For example, improving energy efficiency represents a crucial element for mitigating the impacts of climate change; even tough the objective of 20% by 2020 seems still far at the moment, the Commission has calculated that the GHG emissions reduction target of 40% would require an increased level of energy savings of approximately 25% in 2030.

Furthermore, the EU considers high levels of competition in the internal energy market a further priority for the achievement of energy policy goals: "it will provide the key tools to contain energy prices for business and households. A fully integrated and competitive energy market could result in cost savings of between €40-70 billion up to 2030 as compared to today" (EC 15/2014). The achievements just described are promoting by the EU so as to preserve the flexibility for Member States to set national goals that, however, must be consistent with the European governance framework; in fact, in order to guarantee the respect of energy targets established at European level, Member States should adopt national plans that include precise domestic objectives for "the delivery of a competitive, secure and sustainable energy system" (EC 15/2014). A three steps process will support the drawing up of such plans, which should be implemented well before 2020:

- The Commission will define the content of national plans in detail;
- Member States will draw up the plans based on the Commission guidance and on the consultation with neighboring countries;
- The Commission will evaluate the plans in order to verify if the national goals are adequate for the achievement of the Union's energy targets.

Nevertheless, the EU considers these plans necessary but not sufficient to ensure that the policy framework for climate and energy is fulfilled; for this reason, the Commission will monitor progress over time by measuring a number of key indicators, that should asses the respect of the energy objectives with a more accurate and scientific approach.

In conclusion, the new 2030 climate and energy policy framework, in line with the 20/20/20 targets, promotes the reduction of GHG emissions, the increase of the share of renewable energy, higher competition in the Member States' energy market and the definition of an European governance process based on national plans with the common goal of encourage the sustainable development of our planet and mitigate the impacts of climate change.



COM(2013) 216 – AN EUROPEAN STRATEGY ON ADAPTATION TO CLIMATE CHANGE

Climate change has become a matter of global concern since its impacts have negatively affected territories from an environmental, social and economic perspective. The rise in the number of extreme weather events – e.g. heat waves, heavier precipitation and flooding – is likely to increase the magnitude of disasters, leading to significant economic losses, public health problems and deaths (EC 216/2013). In Europe, despite some territories are more vulnerable than others, just think to the coastal areas or the Artic regions, no country can consider itself safe from the risks related to climate change. For this reason it is necessary to implement adaptation measures to limit the consequences of global warming regardless of the positive results that might be achieved by mitigation actions.

In line with this awareness, the EU has approved the strategy on adaptation whose goal is "to contribute to a more climate-resilient Europe. This means enhancing the preparedness and capacity to respond to the impacts of climate change at local, regional, national and EU levels, developing a coherent approach and improving coordination" (EC 216/2013).

Eight actions can be envisaged to implement the strategy:

- The Commission will provide instructions to foster all Member States to adopt adaptation strategies;
- The Commission will financially support adaptation activities through the LIFE funding (2013-2020);
- Adaptation in cities will be introduced in the Covenant of Mayors framework;
- The knowledge gap will be refined in order to better investigate different aspects related to adaptation actions, such as their real costs and benefits, or the most appropriate methodology for monitoring and evaluating them;
- A more effective interaction between the Climate-ADAPT platform – launched in 2012 to facilitate the spread of data on adaptation strategies implemented in the different EU States – and other national and local adaptation portals will be supported in order to strengthen the role of Climate-ADAPT;
- The Commission will ease the integration of adaptation measures under the Common Agricultural Policy, the Cohesion Policy and the Common Fisheries Policy;
- The construction of more resilient infrastructures will be encouraged;
- The Commission will foster insurance and other financial products for resilience in investment and business decisions.

As well as for the EU policy framework for energy and climate described above, the EU strategy on adaptation to climate change includes the development of indicators for monitoring and evaluating the effectiveness of adaptation actions.

In conclusion, the strategy aims at improving the resilience of the EU territory promoting the implementation of adaptation measures through the increase of the climate-related expenditure to at least 20% of the EU budget. These efforts represent a serious commitment from the European Union to address the issue of climate change, but they cannot be considered sufficient: current strategies seem to be mainly focused on some important factors (efficiency, cooperation and knowledge), ignoring others (diversity, redundancy, creativity), which could also be very significant in improving urban resilience (Galderisi, Ferrara 2012).

ELEMENTS FOR A NATIONAL STRATEGY ON ADAPTATION TO CLIMATE CHANGE

The lack of a coordinated national vision on adaptation strategy to climate change in Italy has been overcome with the adoption of the National Strategy in 2014. The final document provides a scenario of the possible consequences of climate change in different sectors – social, economic and environmental – and it defines a set of actions and adaptation measures to deal with those impacts. Therefore, its goal is to reduce risks due to global warming, to improve the ability of urban systems to adapt to them, as well as to take advantage of the possible opportunities that might be provided by new climate conditions.

The Strategy has been shared among all stakeholders, which have been involved in the process through an on-line survey in 2012 and with a number of meetings.

Twelve areas of actions or sectors have been identified because considered more at risk than others:

- Water resources;
- Hydrogeological instability;
- Forests;
- Coastal areas;
- Health;
- Infrastructures;
- Desertification;
- Biodiversity;
- Agriculture and fishing;
- Tourism;
- Urban settlements;
- Energy.

In addition to this list, two *special cases* have been added: the areas of Alps and Apennines and the hydrographical district of the Po river, considered relevant for their role in terms of impacts on environment and economy. For each sector a different number of actions have been defined, distinguishing between *grey, green* and *soft* measures, according to the White Paper "Adapting to climate change: Towards a European Framework for Action" (EC 2009).

In the final part of the Strategy, a critical analysis identifies the elements that are still missing to Italy for building an efficient adaptation system; those are a national platform on adaptation, the development of a national Plan and a reliable monitoring method to evaluate the progress achieved.

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04

CITIES, ENERGY AND CLIMATE CHANGE

REVIEW PAGES: URBAN PRACTICES

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In this number

PLANNING FOR ADAPTATION TO CLIMATE CHANGE: THREE CASE-STUDIES

According to the United Nations (UNFCCC, 1992), the climate change can be defined as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere". While debates, so noted in the mainstream media and in the academic literature, persist about whether or not climate change is due to anthropogenic causes (Hoffman, 2011), it is clear that new weather and climate patterns are emerging and that these changes are putting urban residents and settlements at risk (World Bank, 2010). Some cities have already seen changes in rainfall, resulting in more floods. Others have experienced changes in temperatures that have contributed to extended heat waves and droughts. Still others have encountered storm surges, coastal erosion, and the disappearance of wetlands (U.N.-Habitat, 2011). As these and other changes become more pronounced in the coming decades, they will likely present challenges to our urban environment (Salat and Bourdic, 2012).

The challenges imposed by the changing climate have been traditionally addressed from international and national initiatives under the umbrella of the United Nations Framework Convention on Climate Change and the Kyoto Protocol. However, in the last fifteen years, there has been a considerable effort to reframe this debate towards the local scale and focus on local causes and impacts of climate change (Urwin and Jordan, 2008). As a result, international and national programmes to assist local jurisdictions to develop local climate action plans emerged, and formal planning for climate change adaptation is rapidly accelerating (Baker et al., 2011). Today cities worldwide are increasingly recognizing the need to prepare for the impacts of climate change and, in the last decade, some have introduced new planning instruments finalized to ensure long-term, cost-effective adaptation measures. These measures are generally part of broader adaptation plans aimed to facilitate the adjustment of urban settlements and ecological systems to altered climate regimes. In this section, three relevant case studies of European cities that have recently developed climate change adaptation plans are illustrated:

- Copenhagen (Denmark);
- London (United Kingdom);
- Rotterdam (the Netherlands).

COPENHAGEN

Copenhagen is the capital and most populated city of Denmark, with an urban population of over 1,2 million. The city, well reputed for its initiatives aimed to combine economic growth and sustainability, is currently working towards achieving carbon neutrality while also preparing for the extreme weather expected in the next decades. In August 2011, the city approved the "Climate Adaptation Plan" aimed to prepare Copenhagen for the future by developing the Danish capital as a climate proof, attractive, and green city. The climate change adaptation plan has been developed to ensure adaptation measures are undertaken in the most cost-effective and efficient way. The plan is based on the analysis of a long-term scenario witch has led to the identification of the two must relevant threats resulting from climate change (City of Copenhagen, 2011):

- More and heavier downpours. The cloudbursts over the last few years have smacked the city budget. The heavy storm in 2011 alone cost the city over one billion of euros. Precipitation in Copenhagen is expected to increase by 30 to 40% by 2100.
- The rise of the sea level. With most of the city only having an average altitude of 9 meters above the sea level and with a significant number of people and amount of property lying close to the water level, Copenhagen is potentially vulnerable to the effects of natural variability in sea level and, on decadal timescales, anthropogenic sea level rise. Water levels around the city are likely to rise by up to 1 metre over the next hundred years.

Regardless the issue of the increasing precipitations, two main and complementary strategies have been identified. The first deals with the improvement of the drainage systems, so that they will be capable of coping with major downpours. To this end, a range of tools will be used for better rainwater management including rain and sewage reservoirs, permeable paving, filters and infiltration trenches and other sustainable urban drainage tools. The second strategy deals with the improvement and the connection of the urban green areas. The number of green areas – including 'pocket' parks, and green roofs and walls – will be increased to slow rainfall run-off. Green roofs not only will capture 60% of rainfall, but will also improve air quality, vegetation and wildlife habitat, while reducing urban heat-island effects. Regardless the issue of the rise of the sea level, there is an option to establish a barrier at Nordhavnen and Kalveboderne and to raise the rest of the coastline out towards Øresund. The barriers will be established so that they will protect the city against storm-surge events but without disrupting harbour operation at the same time. The plan take into consideration the future urban expansion and proposes that new constructions and new buildings in areas that are at risk of flooding from the sea and rising groundwater levels will be equipped and designed considering site-specific solutions. An interesting aspect of the plan is that adaptation is not only considered as a negative measure but also as an occasion to increase the quality of life for the city's inhabitants and create synergies with other planning initiatives. For instance, the "green" perspective embodied in the adaptation plan, while increasing the urban resilience, is expected to attract new private investments and, at the same time, expand and improve the quality of public spaces. The plan is the result of a 2 years public hearing and political discussions during witch detailed studies of the most relevant topics was executed together with stakeholder involvement as basis for the new climate change adaptation plan including risk assessments and economical consequences as well as suggestions for specific projects for implementation. Positive impacts of the adaptation plan will occur in the next decades. However, the plan provides a robust economic argument for timely and preventative measures for adaptation to the changing climate.

LONDON

London is the capital and most populous city of England and the United Kingdom, with an urban population of more then 9,7 million. As one of the top financial centres in the World, London is considered an alpha world city in the global economic system. The city has a long tradition of planning and revitalization projects aimed to promote sustainable development, including mitigating and adapting to the impacts of climate change, as well as promoting health and equality.

In October 2011, the city approved the "Climate Change Adaptation Strategy" as part of a series of strategies that together set out actions and policies to make London a sustainable and climate-resilient city. The strategy outlines a series of proposed actions the city should take in order to meet the challenges of climate change. Based on the analysis of a long-term scenario, the plan identifies three must relevant issues related to future changing climate (City of London, 2011):

- Flood risk. The UK Environment Agency has undertaken a study to identify the flood risk management options to protect London and the Thames Estuary from tidal flooding to 2100. Different adaptive measures were identified from raising the height of existing defences to constructing a second Thames Barrier. The thresholds to protection against rising sea levels provided by each of the options have been plotted against sea level rise. This approach helped decision makers to understand the suite of options open to them and how they can be combined into a 'decision pathways' that create a portfolio of measures through the century.
- Water resource scarcity. Over 600 million liters of treated water per day, nearly a quarter of all the water distributed in the mains network, is lost in leakage. This is due to the fact that nearly a third of the pipes that make up the distribution network are more than150 years old. To prevent water resource scarcity, the plan adopted a solution, referred to as 'water neutrality'. In principle, this means no net increase in demand despite a growth in the number of Londoners. To this aim, efficiency measures are planned for Londoners' homes at no cost to the householder.
- Ground condition. London's urban realm and land cover intensify many of the climate impacts. For example, the traditional construction of roads and buildings causes the loss of permeability and increase the risk of flash flooding while the loss of vegetation helps create the heat island effect. In this regard, the plan sets a target of increasing green cover in central London by 10% by 2050. The urban greening will help cool the city in summer and reduce the frequency and intensity of floods.

A number of cross cutting issues have been taken in consideration in the adaptation plan. These include the assessment of the consequences of climate change for urban systems such as health, well-being and economy. London's work on adaptation has benefited from strong and consistent political support, which has been the driving force for the setting up of other enabling factors such as financial support and a coordination unit in the form of the London Climate Change Partnership. An interesting aspect of the plan is the strong engagement of the city's residents. In this regard, digital media channels have been intensively used to ask Londoners what they could and should do to adapt. This included YouTube movies starring the Mayor and an interactive website where Londoners can give their ideas and vote on other peoples' ideas. This allowed a wide audience engagement in policy development and helped raise both awareness of the issue and ownership of the risk.

ROTTERDAM

Rotterdam is a thriving world port city with an urban population of over 1 million. The city has a long tradition of continually adapting to new circumstances and anticipating and benefitting from economic and social change.

In December 2012, the city adopted the "Climate Change Adaptation Strategy" that sets the course that will lead to a climate-proof city and provides insight into the opportunities that climate change presents. The Strategy provides the framework and the starting point for a future-proof development of Rotterdam and ensures that, in the future, topics such as water safety, accessibility and the robustness of the city are included as the basis for each (spatial) development right from the start of the process. The plan is based on the analysis of a long-term scenario and addresses five main themes:

- Flood management. Rotterdam is located in the delta of the rivers Rhine and Meuse. The vulnerability of Rotterdam to flooding is illustrated by several events in the 20th century. Rotterdam needs to be protected against flooding, both inside and outside the dykes. To this aim, the plan provide the construction of flood defensive works and high levelled embankments in order to protect the city against rising sea levels and make the Rotterdam harbour one of the safest ports in the world. Above this "structural" measures many others small-scale interventions have been proposed. These include water squares which relieve the sewage system, infiltration zones along infrastructures and the integration of trees and greenery in outdoor areas (both public and private), which also benefits the city environment. By frequently applying these small-scale measures to the 'capillaries of the city', the plan aims to reduce Rotterdam's vulnerability.
- Accessibility. Accessibility of the city and the port is recognized as an important aspect of the climate for establishing a business. If water plays a more significant role in spatial planning and more housing accommodation is realized on the water, by consequence, transport over water should equally be stepped up. By 2025, the transport infrastructure of the city and port will be climate proof and an intensive public transport network over water will contribute significantly to the accessibility of the city
- Urban water security. Climate change can lead to increased precipitation, but also to longer periods of aridity. In order to guarantee water security, flexible water level management in watercourses and ponds will be used to realize additional seasonal storage. In addition, large diameter water connections to the regional water system will be constructed to increase the supply of fresh water.
- Adaptive buildings. One of the objectives of the Rotterdam City Vision (2007) is to realize densely populated residential environments in the port areas in and around the city centre. Building in these areas requires a proactive response to the effects of climate change. In this regards, in two pilot areas of the city, the test of adaptive construction methods is ongoing. The results of the pilots will be used to develop new planning guidelines for future developments.
- City climate. The city climate is influenced by the layout and design of the city. In this regards, the plan stresses the need to pay attention in the future to the distribution of green/blue areas, heat stress resistance, presence of sheltered and cool places in the open space.

One of the most interesting aspect of the plan is that it seeks to find a balance between civil engineering and naturally functioning biological components, in order to make optimal use of potential ecosystem services and functions for the benefit of safety against flooding and freshwater availability.

The climate change adaptation strategy offers many opportunities to strengthen the economy of the city and the port, to improve the quality of life in neighborhoods and districts, to increase biodiversity in the city and to foster committed and active participation by Rotterdam residents in society.

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IMAGE SOURCES

The image shown in the first page is from http://www.grist.org; the image shown in the second page is from http://e-architect.co.uk; the image shown in the third page is from http://www.wikipedia.org; the image in the fourth page is from http://www.holland.com.

05

CITIES, ENERGY AND CLIMATE CHANGE

REVIEW PAGES: NEWS AND EVENTS

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In this number

SOLUTION SHARING STANDPOINT FOR THE CLIMATE CHANGE CHALLENGE

From the next November 30 until December 11, Paris will host the 21st Conference of the Parties (COP21); it represents an important step towards reaching a universal climate agreement by adopting and implementing new legal and political instruments applicable to all the members of the United Nations Framework Convention on Climate Change (UNFCCC). The main goal is keeping global warming below 2 degrees Celsius above preindustrial temperatures by reducing global emissions of greenhouse gases.

After almost 20 years from the Kyoto protocol, in fact, the issue of climate change is increasingly present, as demonstrated by the 35-page of Summary for Policymakers of the Fifth Assessment Report, which confirm the robustness of scientific hypotheses about the planet climate changes occurred in the last century and the alarming expectations for the next decades. New evidence strengthens and confirms the data on climate change as result of an extensive series of scientific observations and models of new generation (IPCC, 2014). We can therefore say with a "very high level of confidence" that:

- Since the 1950s, many of the observed changes are unprecedented over decades to millennia;
- Human influence on the climate system is clear, and the main reason is linked to the emissions of greenhouse gases in the atmosphere.

There are two kind of strategies to face with those issues:

- preventive strategies through mitigation measures aimed at reducing GHG emissions;
- prefigurative strategies through the development of resilient systems (Colucci, 2012).

Till now the main approach used by the UNFCCC was based on a burden-sharing standpoint more than a solution sharing one; one of the most interesting news introduced in the COP21 is the *Agenda of Solutions* that propose a different approach to the climate change consisting in a "set of tangible initiatives and a demonstration of what is feasible by pioneers, encouraging all stakeholders to take action, share best practices and knowledge around low-carbon solutions, and contribute to the resilience of economies and the development of structuring projects" (www.cop21.gouv.fr). Therefore, the experience exchange became one of the crucial tools of this challenge.

In this perspective were selected some international events taking place in the coming months, that will contribute to the networking of experience, knowledge and best practices on the issue of climate change, thus enriching the topics of Paris conference.

RESILIENT CITIES 2015

Where: Bonn – Germany
When: 8 - 10 June 2015
http://resilient-cities.iclei.org/

Diversity of thoughts and approaches is the core of "Resilient Cities", the Annual Global Forum on Urban Resilience and Adaptation, hosted every year in Bonn. This International Congress, now in its fifth edition was created in 2010 thanks to the collaboration of Local Governments for Sustainability (ICLEI), with the World Mayors Council on Climate Change and the City of Bonn, the aim of the initiative was to create a network between members of the institutions and experts on the issues of the urban environment resilience. Mayors, councillors, commissioners and governors chiefs of sustainability, as well as global climate change and adaptation experts, urban regional planners, university students and researchers are invited to discuss together about a wide variety of topics; the main topics of the 2015 edition are:

- Urban risk and vulnerability including risk data and analysis;
- Adaptation planning and policy and integrated approaches;
- Communicating resilience and applying ICT solutions;
- Ecosystem-based adaptation and resource security;
- Creating resilient public health systems and communities;
- Resilient building, design and infrastructure;
- Capacity building, Governance and Collaboration;
- Financing resilience planning and development.

THE 2ND INTERNATIONAL CONFERENCE "CHANGING CITIES"

Where: Porto Heli – Greece
When: 22 - 26 June 2015
http://changingcities.prd.uth.gr/

The strategic role played by the urban development to address the climate change challenge is also one of the main topic of the 2nd international conference "Changing Cities", organized by the Department of Planning and Regional Development, University of Thessaly, under the aegis of the Greek Ministry of Environment, Energy & Climate Change.

The main conference themes come from the observation of the social, economical and environmental urban phenomena occurred in the last decades like the rise of post-industrial urban economies (mainly involving ICTs and leisure activities) or the formation of a multi-ethic and multi-cultural urban societies; those issues are closely related with the emerging new patterns of urban space morphology and landscape and represent the basis on which urban planners and designers, architects, landscape designers, urban geographers, urban economists, urban sociologists, and demographers, are called to investigate and propose ideas, visions and new challenges concerning cities and their future. In particular, this edition main topic is "planning and designing resilient cities under economic and environmental uncertainty"; it invites to reflect that the urban resilient strategies to be effective have to face also with economic and social contingencies.

OUR COMMON FUTURE UNDER CLIMATE CHANGE

Where: Paris – France
When: 7 - 10 July 2015
http://www.commonfuture-paris2015.org/

A similar concept is expressed in the call of the Conference "Our Common Future Under Climate Change", focused more on key issues concerning climate change in the broader context of global change. Also in this case the measures for climate phenomena are seen as closely connected to political and economical uncertainties; for this reason one of the key point of the conference is about the effort to "identify areas of consensus, and map controversies while taking stock of the multiple connections to development and environmental challenges within a large diversity of local, national and regional contexts" (www.commonfuture-paris2015.org). Therefore, a large emphasis is placed on transdisciplinary and integrative approaches, able to join different stakeholders and communities, thus encouraging multi-disciplinary and multi-lateral thinking. On these bases, the structure of the conference is organized in four daily themes:

- state of knowledge on climate change;
- landscape of our common future;
- responding to climate change challenges;
- collective actions and transformative solutions.

It starts with a session on the latest knowledge from both natural and social sciences and closes by exploring transformative solutions to climate change from different perspectives in order to reach integrated and shared solutions.

10TH CONFERENCE ON SUSTAINABLE DEVELOPMENT OF ENERGY, WATER AND ENVIRONMENT SYSTEMS

Where: Dubrovnik – Croatia
When: September 27 - October 3 2015
http://www.dubrovnik2015.sdewes.org/

One of the main issues concerning climate change challenge is related to the sustainable use of natural resources and the development of new knowledge based economy, taking into account methods for assessing and measuring sustainability of development, regarding energy, transport, water, environment and food production systems and their many combinations. The "10th Conference on Sustainable Development of Energy, Water and Environment Systems" is focused on the improvement and dissemination of methods, policies and technologies about sustainability. In this direction the conference proposes wide array of topics amongst which it is worth mentioning: green economy and better governance; decarbonisation policies; energy, transport, water and environmental policies; technology transfer and development; sustainable resilience of systems; smart energy systems; energy planning; transport management; renewable energy resources; energy markets; emission markets; political aspects of sustainable development. In particular, the Conference will address the core goals of the Energy Community like the creation of a competitive integrated regional energy market or the development of the Mediterranean power ring.

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WEB-SITES

Paris 2015, 21st Conference of the Parties: www.cop21.gouv.fr/en/choice-france/agenda-solutions

"Our Common Future Under Climate Change" Conference: www.commonfuture-paris2015.org

IMAGE SOURCES

The image shown in the first page is taken from: www.nextjuggernaut.com

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