

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).



EXTREME WEATHER EVENTS CAUSED BY CLIMATE CHANGE

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Cover Image: Wind travels across Lake Washington, buffeting the 520 floating bridge as the storm grows in strength. (Steve Ringman / The Seattle Times).

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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REVIEWS PAGES

EXTREME WEATHER EVENTS CAUSED BY 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.

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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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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。

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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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EXTREME WEATHER EVENTS CAUSED
BY CLIMATE CHANGE

REVIEW PAGES: WEB RESOURCES

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In this number

WHAT ARE CITIES REALLY DOING TO TACKLE CLIMATE CHANGE?

Climate change is undeniably one of the greatest challenge of the 21st century. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change, presented in Stockholm in 2013, pointed out that global warming is unequivocal and that since the 1950s many of the observed changes are unprecedented over the past millennia. Moreover, the report confirms it is “extremely likely” that human activities have caused this exceptional rise in global temperature, due to the concentration of carbon dioxide in the atmosphere, almost entirely related to the burning of fossil fuel and deforestation (IPCC, 2013). Unquestionably, cities play a determinant role since more than the 50% of world’s population lives in urban areas. Indeed, they are responsible for 75% of global greenhouse gas emissions, with transport and buildings being key contributors (UNEP). On the other hand, cities are the most vulnerable places to the effects of climate change, if we consider the share of population living and also the quantity and quality of economic activities exposed (Galderisi, 2014). In addition, the specific urban texture can increase some climate-related phenomena, causing serious problems to the livelihood of the population (Stone et al., 2010). In order to face such a threat to human civilization, major efforts have been addressed to reduce urban vulnerability and to increase cities’ recovering capacity. In this context, there is an ever-increasing need for global and local policies to enhance urban resilience at different scales, taking into consideration both the mitigation and the adaptation strategies. Many communities all over the world have taken up the challenge, outlining combined strategies to cope with disastrous events such as floods, droughts, sea level rise, but also non-climate-related events such as earthquakes and volcanic eruptions. With the aim of giving a wide panorama of the actions undertaken by academia, international organizations and local communities, this section presents three websites: Climate-KIC, EU Commission’s Climate Action and 100 Resilient Cities. The Climate-KIC is Europe’s largest public-private partnership focusing on Climate Change, consisting of academic institutions, public sector and companies. The second webpage is the portal of the Directorate General for Climate Action of the European Commission, whose aim is to lead EU’s efforts to tackle climate change at international level. The last website presented is a virtual hub to support the adoption and incorporation of a view of resilience within urban policies. Pioneered by the Rockefeller Foundation, 100 Resilient Cities is dedicated to helping cities around the world to improve resilience measures and to share them with each other.



CLIMATE-KIC

<http://www.climate-kic.org/>

The Climate-KIC is a community of researchers, public institutions and companies whose common aim is to support climate change mitigation and adaptation. Created in 2010 by the European Institute of Innovation and Technology (EIT), as one of the three Knowledge and Innovation Communities (KICs), it now represents one of the EU's largest hub for students, entrepreneurs and public bodies to exchange knowledge and turn creative ideas into economically viable products or services in the field of green economy.

Composed of 13 European centers, each managed by a director, Climate-KIC is a non-profit association, receiving funding from academic and private sector partners, as well as grants from the European Commission. Its vision is to enable Europe to lead the global transformation towards sustainability through innovative projects, often developing new products or services, taking them to market through existing businesses or spin-off companies.

The webpage is user-suited for different profiles, offering several services. Entering student's section, a wide range of educational opportunities are offered: students are given the chance to deepen their knowledge and develop their own business in the green sector: Master's Degree, PhDs, Summer schools and Business education opportunities are available. The entrepreneur section is dedicated to help people transform innovative ideas into business products and services. This section provides business accelerator, idea competitions, courses, placement programs. Whereas, the businesses section is meant to bring together partners to find climate-friendly solutions, linking suppliers to end-users. For public bodies, Climate KIC offers special support not only to combat climate change but also to create economic opportunities for cities and regions. The community addresses climate change across four priority themes: urban areas, land use, production systems, climate metrics and finance.

The leitmotif is education, in the belief that young people are the next generation of climate leaders. For instance, students are offered the opportunity to have a journey in one of the European country to integrate a Master program or simply for a couple of weeks in summer schools.

As regards projects, there is a variety of themes and goals to accomplish. For instance, "Adaptation tool for local authorities" and "Adapting water use in the agricultural sector" aim at implementing adapting measures at local scale, working side by side with Local Bodies, companies and farmers organizations. Conversely, some other projects are oriented towards developing models to predict future scenarios and outlining strategies. "Behavioral change for sustainable urban mobility" and "Open access catastrophe models" fall within this group: the first is focused on developing business models to engage the private sector in sustainable urban mobility, the latter provides a new open-source model to tackle natural disasters, by addressing the uncertainty and the setbacks of the existing models.

To sum up, climate change is such a challenge that regions cannot face alone. Countries are becoming aware that being in a community is compulsory to make the measures effective. Indeed, there is a need for multidisciplinary integration of adapting and mitigation actions in each European territory in order to outline effective strategies to reduce global warming and its consequences. In this context, Climate-KIC is an interesting experiment of multicultural interdisciplinary partnership focused on climate change mitigation and adaptation.



CLIMATE ACTION
<http://ec.europa.eu/clima/>

Climate Action is the official website of the Directorate-General for Climate Action (DG CLIMA) of the European Commission, whose mission is to formulate and implement policies and strategies at EU and international level to fight climate change. The website collects all the documents about EU strategies, international negotiations, emission trading systems and reports about emissions monitoring in the European territory. It is structured into seven sections: Home - About us - Climate Change - EU Action - Citizens - News&Your voice - Contact&Grants. The first section gives a panorama of what you are expected to see in the following pages, such as news and highlights. The second section describes what the DG CLIMA for European Commission does to face climate change and what are the main issues it deals with. "Climate Change" section provides a useful summary of the main climate change consequences and climate-related catastrophic events due to human activities. "EU Action" section is the highlight of the website: it collects the foremost strategies developed by the EU and the targets set in the very next future to lead Europe towards a low- carbon economy. In particular, there are insights of the key targets set by the EU for the 2020 and 2030, described in detail in the 2050 low-carbon roadmap. In detail, the 2020 package is a combination of regulation to ensure that the EU meets three key targets for the 2020:

- 20% of reduction in GHG emissions (from the 1990 level);
- 20% of total energy consumption from renewable;
- 20% improvement of energy efficiency in buildings, transportation and industry.
- The package includes also special targets for social inclusion and smart growth.
- The 2030 strategy sets three key targets as well, but the achievements are far more ambitious:
- At least 40% of reduction in GHG emissions (from the 1990 level);
- At least 27% of total energy consumption from renewable;
- At least 27% improvement of energy efficiency.

This strategy is meant to go further the 2020 package and lead the EU towards a competitive low carbon economy in 2050, as stated by the Roadmap for low carbon Economy 2050, Energy Roadmap 2050 and the Transport White paper. This section provides also a special area where documents are available to download: EU conclusions, communication, assessments, reports, green paper and so on.

"Citizens" section offers the ordinary citizen a shortcut to EU information, giving explanation for the key issues related to climate change and providing a full overview of EU policies and long-term goals. In particular, this section also has videos about each topic and useful links to follow up on the questions.

"News&Your voice" section collects the latest news regarding international regulations, agreements, council calls, consultations, conferences, release of new reports and any useful information for people and stakeholders involved in the green sector. The last section, "Contacts&Grants" is dedicated to those interested in a partnership agreement with the Directorate-General or applying for funding. Indeed, here is provided a list of contracts and grants made available for companies or organizations who want to work with the EU offices in projects to combat climate change. To conclude, EU commission's Climate Action is an official web-resource where people interested in learning more about climate change and European policies can find a wide panorama, where news about climate actions are always updated and where companies and organizations are informed about the latest calls for partnership.

100 RESILIENT CITIES

100 RESILIENT CITIES
<http://www.100resilientcities.org/>

100 Resilient Cities (100 RC) is a website dedicated to helping urban areas around the world become more resilient to physical, economic and social challenges related to climate change hazards but not only. The Rockefeller Foundation has been financing this project since 2013, when it first started working 32 cities, receiving 330 applications in 2014, and achieving the successful accomplishment of 100 cities in 2015.

100 RC's aim is to support the adoption of a view of resilience within cities' policies, that includes natural hazards such as earthquakes, floods, droughts, volcanic eruptions but also other threats related to human activities and social organization. In other words, it emphasizes the stresses that weaken fabric of a city on a day to day, such as: high unemployment, an overtaxed or inefficient public transportation system etc. 100 RC works in the direction of addressing both the shocks and the stresses, in order to help cities become more able to respond to adverse events, so they are overall better able to deliver basic functions in both good times and bad, to all populations. Cities applying for 100 RC network are expected to receive special support to develop their own roadmap to resilience along four main pathways:

- financial and logistical support to establish a Chief Resilience Office within the city government;
- expert support to develop a robust resilience strategy;
- access to a wide network of partners from the private, public and NGO sectors;
- enter an international network where each city can upload its strategy and share them with each other.

Basically, to promote a resilience view, 100 RC set challenges for cities to demonstrate which are the most 100 resilient cities in the world, in some specific ambits. For instance, Bristol proved to have outlined a successful strategy to fight food shortage; Da Nang, Mandalay, New Orleans, New York City, San Juan and Tulsa have performed effective policies to address tropical storms.

In conclusion, 100 RC represents a successful experience of cities involved in the process of sharing information and expertise to increase the overall knowledge on adaptation and mitigation to natural and anthropic hazards, providing cities all over the world with the skills to fight the challenges of tomorrow.

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IMAGE SOURCES

The images are from: www.planningclimatechange.org/; <http://www.climate-kic.org/>; <http://ec.europa.eu/clima/>; <http://www.100resilientcities.org/>.

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REVIEW PAGES: BOOKS

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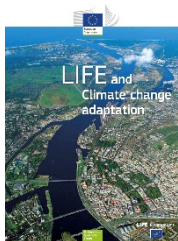
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In this number
ADAPTATION TO CLIMATE
CHANGE

The climate change is a strong challenge for cities around the world, especially in developing countries where urbanization is proceeding at high speed. In the last years to building resilience and adapting to climate change is increasingly a high priority for urban areas. Besides mitigation, on which efforts have largely focused in the past, cities should today play a larger role in adaptation. The Climate change impacts range from an increase in extreme weather events and flooding to hotter temperatures and public health concerns. The urban areas in low-elevation coastal zones, for instance, face the combined threat of sea-level rise and storm surges. The individual impacts on each urban area will depend on the actual changes in climate experienced, which will vary from location to location. The urban areas face important consequences of climate change, both now and into the future. These impacts have theoretically serious consequences for human health, livelihoods, and assets, especially for the urban poor area, informal settlements, and other vulnerable groups.

The governments often lack powers to raise the revenues required to finance infrastructure investments and address the climate change agenda. When governance capacity is weak and constrained, cities are limited in their abilities to take programmatic action on climate change mitigation and adaptation (McCarney et al., 2011). Although progress is being made, leaders of urban areas are not usually at the table when international protocols and agreements on climate change are discussed by member states and when states decide on whether to sign and support these international agreements. The vulnerability of urban areas to climate change risks is largely underestimated in these negotiations. Without established data and standardized indicators on climate change, it is more challenging for urban areas to enter into these global discussions. With increasing urban vulnerability being recognized however, estimated simply by the fact of the increasing dominance of city dwellers worldwide and the increasing visibility of climate change vulnerabilities in cities, it has become more pressing for governments of urban areas to be considered as new sites of governance in global negotiations on climate change and in decision-making related to risk assessments. According to these considerations, this section suggests three books that help to better understand the issue of this number: LIFE and Climate change adaptation; Adaptation to climate change in the Netherlands Studying related risks and opportunities; US Housing and urban development climate change adaptation plan.



Title: LIFE and Climate change adaptation

Author/editor: Environment and Climate Action Directorates-General

Publisher: EU

Download:n.d.

Publication year: 2015

ISBN code: 978-92-79-52307-6

The European Structural and Investment Funds represent more than 43% of the EU 2014-2020 budget. These funds have a significant role to play in reaching the “at least 20%” overall target for climate related expenditure and contribution to Europe’s transition to a low carbon and climate-resilient economy. From the preliminary data shows that the overall share of climate-related expenditure in the indicative European Structural and Investment Funds budget for 2014-2020 will be about 25%. This money will support such climate change-related actions as development of renewable energy sources, energy efficiency, sustainable urban mobility, climate adaptation measures, green infrastructure, ecosystem services, sustainable agriculture and forestry, climate-related innovation, business development and green jobs. The EU Strategy on adaptation to climate change, adopted by the European Commission in April 2013, sets out a framework and mechanisms for taking the EU’s preparedness for current and future climate impacts to a new level. This strategy has three objectives: Encourages all Member States to adopt comprehensive adaptation strategies and will provide guidance and funding to help them build up their adaptation capacities and take action; Promoting better informed decision-making by addressing gaps in knowledge about adaptation and further developing the European Climate Adaptation Platform; Promoting adaptation in key vulnerable sectors through agriculture, fisheries and cohesion policy, ensuring that Europe’s infrastructure is made more resilient, and encouraging the use of insurance against natural and manmade disasters. Furthermore, the implementation of the EU Adaptation Strategy is based on eight actions. One of these actions expected to provide new LIFE funding to support capacity building and step up adaptation action in Europe (2014-2020). The LIFE has been one of the main funding sources for demonstration projects that have facilitated the implementation and enforcement of EU climate adaptation policy and mainstreamed adaptation in many other policy areas. Since 2000, the LIFE programme has co-financed nearly 150 projects that focus on climate change adaptation topics. This programme, in these years, has mobilised some € 307 million for climate change adaptation (with an EU contribution of €152 million). The LIFE has helped mainstream adaptation in many policy areas, bringing stakeholders together to work on common objectives and raising awareness on adaptation issues. The programme has been most active in mainstreaming climate adaptation in water policy (43 projects), including a strong focus on water scarcity and floods; in agriculture (25 projects); and in creating resilient urban and suburban areas (22 projects). The implementation of adaptation policies and measures is still at a relatively early stage. This, together with the need to maintain political commitment to adaptation and related expenditure, makes it imperative to understand which adaptation actions work in which contexts and to know the reasons why.

The LIFE 2014-2020 funding can support projects that help monitoring and assess the progress of adaptation measures. To do this, proxies for measuring “reduced vulnerability” or “increased resilience” will have to be developed. Projects can also help in developing indicators that provide evidence that a certain condition exists or certain results have or have not been achieved. The current funding period offers significant scope to finance projects that improve or extend best practices developed by earlier LIFE projects in areas such as adaptation planning, forestry practices or green/blue infrastructure.



Title: Adaptation to climate change in the Netherlands Studying related risks and opportunities

Author/editor: Willem Ligtoet, Rijk van Oostenbrugge, Joost Knoop, Hanneke Mulwijk and Marijke Vonk

Publisher: Netherlands Environmental Assessment Agency

Download: n.d.

Publication year: 2015

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This publication is realized by Netherlands Environmental Assessment Agency, the national institute for strategic policy analysis in the fields of the environment, nature and spatial planning. It contributes to improving the quality of political and administrative decision-making, by conducting outlook studies, analysis and evaluations in which an integrated approach is considered paramount. Policy relevance is the prime concern in all our studies. The climate is changing worldwide, therefore also in the Netherlands. Temperatures are going up, it is getting in dryer and heatwaves are occurring more frequently, while precipitation events are becoming more extreme and more intense.

The Dutch Government, with its new Delta Programme, has made an important step forward towards national climate-resilience. However, the programme's adaptation strategy does not cover all the risks and opportunities for the Netherlands in relation to climate change. The Dutch Cabinet plans to have a national adaptation strategy in place by 2016. One of the main element of this strategy is the report containing all the available knowledge on climate change effects, providing the foundation for adaptation strategy. Instead, it focuses mainly on flood protection, freshwater supply, and spatial adaptation to urban flooding and urban heat stress. In addition, the climate is not the only thing that changes; society is also changing and this has various consequences for the Netherlands' vulnerability to climate change. For example, both ageing and the increasing population density within cities will result in greater vulnerability to heat stress and infectious diseases. In the Delta Programme, the main points of urgency for adaptation to climate change concern investments in critical infrastructure and networks, i.e. the power grid and ICT and transport, and in spatial development. This is related to the social importance and the long lifespan and lifecycle of these infrastructures and the related low flexibility for adjusting them to climate change. Therefore, the choices and investments that will be made over the coming years, in part, determine the degree of climate resilience of the infrastructure and networks in the longer term.

Looking at the most urgent climate risks reveals that provinces, municipalities and water boards also have the task of seriously addressing climate resilience in their spatial planning. In recent years, the national government has made considerable investment in knowledge development. Now it is time to utilise this knowledge in projects of implementation on regional and local scales. Climate change adaptation currently is not always incorporated in policy agendas and development projects. And yet they do offer opportunities for affordable climate adaptation. Such opportunities arise in the preliminary process of development, during regular maintenance work, when critical infrastructure needs to be replaced, and when investments are made in urban housing development and redevelopment. Opportunities that are missed will take dozens of years to present themselves again, on all levels: nationally, regionally and locally. The transition towards becoming a more climate-resilient country is no easy feat for the Netherlands; the effects of climate change are still uncertain, the risks and opportunities very divers and such transition requires input from many different parties. The different nature of the adaptation task also means that it is too early to present a fully detailed description of what should be the National Adaptation Strategy. What can be presented, however, are a number of anchors for such a strategy; thus, providing a framework for an effective approach.



Title: US Housing and urban development climate change adaptation plan

Author/editor: Department of Housing and Urban Development

Publisher: USA

Download: n.d.

Publication year: 2014

ISBN code: n.d.

Dealing with climate-related impacts is part of activities of the Department of Housing and Urban Development's to create strong, sustainable, inclusive communities, and quality affordable homes for all Americans. The Department is committed to identifying threats and adapting policies and investments to help communities to better prepare for and respond to the effects of climate change, including rebuilding after natural disasters. Since 2006, the US Congress has appropriated more than \$40 billion to Department of Housing and Urban Development's. The Department reinvest these funds in housing, economic development, and infrastructure in ways that prevent damage from future disasters, consistent with the National Disaster Recovery Framework. This Climate Change Adaptation Plan outlines a set of actions designed to address some of the risk posed by climate change to the Department's mission, programs, and operations. In order to develop these actions, the Department participated in an adaptation planning exercise that began with an identification of climate-related risk and vulnerabilities. The staff of Department was engaged to identify risks and vulnerabilities to their mission, programs, and operations. Then, they developed a set of proposed actions to address those risks and vulnerabilities. Each of the actions were vetted by the Resilience Council principals and incorporated into this plan. Afterwards the approval, the Resilience Council will continue to track the implementation of this plan, as well as focus on the following three core activities:

- 1. Create a structure and process to educate the Department's program managers on the evolving risks and vulnerabilities created by a changing climate and make key decisions regarding resilience;
- 2. Engage partners to access the latest climate risk information and build on their work to respond to and anticipate climate impacts and build community resilience;
- 3. Facilitate the completion of key deliverables for Department's resilience work.

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EXTREME WEATHER EVENTS CAUSED
BY CLIMATE CHANGE

REVIEW PAGES: LAWS

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ADDRESSING CLIMATE CHANGE: FROM THE SENDAI
FRAMEWORK TO THE
PARIS AGREEMENT

During the XXI Conference of Parties (COP 21) held in December 2015 in Paris, 195 Member States of the United Nations adopted the Paris Agreement, e.g. an ambitious deal to address climate change, which “represents an urgent and potentially irreversible threat to human society and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions” (UN, 2015a). The agreement will enter into force in 2020 if at least 55 Parties to the Convention accounting for at least 55% of the total GHG have signed it. The key element of the Paris Agreement is included in the first part of Article 2, which says that Governments agree to “hold the increase in the global average temperature well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”. Furthermore, the agreement strengthens the importance of adaptation measures for decreasing vulnerability to climate change (Article 7) and it stresses the importance of reducing loss and damage associated with the negative impacts of climate change (Article 8). In order to monitor States’ progress in the implementation of their emission targets, the agreement establishes that “each Party shall regularly produce a national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases” (Article 13).

As for every important deal on climate change, some analysts and environmentalists are skeptical about it and consider it a weak agreement. The main critic is that choosing 2023 for the first review of emissions reductions could be too late for achieving the determined emission targets if countries continue polluting as they have been doing by now. Despite the predictable critics, the ambitious agreement represents a historic success for the global society, and it is the result of years of intense negotiations amongst all members of the United Nations started six years ago with the Copenhagen climate summit and continued with the adoption of the Sendai Framework for Disaster Risk Reduction in March 2015, of the Addis Ababa Agenda in July 2015 and, finally, of the resolution “Transforming our world: the 2030 Agenda for Sustainable Development” in September 2015. In this issue of TeMA these three agreements are described in order to provide a useful framework for a better understanding of the Paris Agreement on climate change.



2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

In September 2015 the United Nations presented the 2030 Agenda for Sustainable Development, announcing 17 new global Sustainable Development Goals (SDG) with 169 associated targets; eradicating poverty and achieving gender equality are the main priorities. This is a list of the new 17 SDG that will come into effect in January 2016 and should be considered by Member States as guideline principles for their development in the next 15 years (UN, 2015b):

- end poverty in all its forms everywhere;
- end hunger, achieve food security and improved nutrition and promote sustainable agriculture;
- ensure healthy lives and promote well-being for all at all ages;
- ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- achieve gender equality and empower all women and girls;
- ensure availability and sustainable management of water and sanitation for all;
- ensure access to affordable, reliable, sustainable and modern energy for all;
- promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- reduce inequality within and among countries;
- make cities and human settlements inclusive, safe, resilient and sustainable;
- ensure sustainable consumption and production patterns;
- take urgent action to combat climate change and its impacts;
- conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
- strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

The new Agenda highlights the importance of global partnership to ensure the effective achievement of the goals and, in particular, in continuity with the Addis Ababa Action Agenda, it introduces the Technology Facilitation Mechanism to promote the collaboration between States and support developing countries. The Mechanism will include three main elements: (1) a United Nations inter-agency task team on science, technology and innovation for the SDG; (2) a multi-stakeholder forum on science, technology and innovation for the SDG that will meet once a year to promote the spread of knowledge in different thematic areas; (3) an online platform to support the dissemination of information, experiences and best practices. Furthermore, another important aspect covered by the Agenda is that of *Follow-up and review* the progress achieved in the next 15 years. In order to facilitate the process at the national, regional and global level, the United Nations have just agreed a set of 230 global indicators developed by the Inter-Agency and Expert Group on SDG indicators that will constitute a unified framework for monitoring and measuring the implementation of the 2030 Agenda around the world.



ADDIS ABABA ACTION AGENDA – FINANCING FOR DEVELOPMENT

The Addis Ababa Action Agenda (AAAA) has been adopted in July 2015 by the 193 UN Member States that attended the United Nations Third International Conference on Financing for Development. AAAA's goal was to provide a holistic framework for implementing the global sustainable development agenda that world leaders adopted few months later, in September 2016, and which has been previously described.

The AAAA identifies a set of over 100 policy actions to financially support sustainable development and reach the SDG. Moreover, it provides a new global financing framework that aligns financial flows with public goals to achieve sustainable development in its three dimensions through promoting inclusive economic growth, protecting the environment, and promoting social equity (UN, 2015c). The concrete policy measures contained in the AAAA are structured into 7 *action areas*:

- domestic public resources: they are crucial for achieving sustainable development and States are called to improve the fairness, transparency and efficiency of their tax systems and reduce illicit financial flows by 2030 (UN, 2015c);
- domestic and international private business and finance: they play a fundamental role to the pursuit of sustainable development. The Agenda includes a number of actions that support access to finance for micro, small and medium sized enterprises and it establishes that the average costs of transmitting remittances across borders have to be reduced to below 3% by 2030;
- international development cooperation: developed countries are encouraged to support least developed countries providing them at least 0.2% of official development assistance by 2030;
- international trade as an engine for development: the Agenda highlights the positive results in multilateral trade negotiations achieved by the World Trade Organization (WTO) and it invites WTO members to increase their commitments;
- debt sustainability: the AAAA recognizes that developing countries need support in attaining debt sustainability and it calls for coordinated policies aimed at fostering debt financing, debt relief, debt restructuring and sound debt management (UN, 2015c);
- addressing systemic issues: the Agenda underlines the important role of the United Nations in promoting sustainable development and it highlights that financial stability represents one of the main elements to avoid volatility. Moreover, the AAAA invites States to give bigger space to developing countries in international law decisions;
- science, technology, innovation and capacity building: all of them are considered strategic for the implementation of the SDG and it is the AAAA that establishes for the first time the Technology Facilitation Mechanism previously described;
- data, monitoring and follow-up: the Agenda recognizes the importance of monitoring the implementation of the agreed measures and it introduces the Financing for Development Forum to be held once a year in order to present each State's progress in achieving the SDG. Furthermore, the AAAA invites the United Nation system to construct new indicators to measure progress because per capita income cannot be considered a reliable measurement anymore; the 230 global indicators approved at the beginning of March represent a practical good starting point.

In conclusion, the AAAA aims at addressing “the challenge of financing and creating an enabling environment at all level for sustainable development in the spirit of global partnership” (UN, 2015c).



SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted in March 2015 during the Third United Nations World Conference on Disaster Risk Reduction. The agreement follows the Hyogo Framework for Action (HFA) 2005-2015 and, in continuity with it, its goal is to “prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience” (UNISDR, 2015). The instrument is voluntary and it is not binding. Following the HFA, the Sendai Framework promotes a new approach more oriented towards disaster risk management rather than towards disaster management, and it considers primary responsibility of central Governments to prevent and reduce disaster risk but, at the same time, it encourages cooperation between national bodies and different stakeholders. The agreement identifies four priorities of action that States have to take into consideration in their strategy for achieving the Framework’s outcomes (UNISDR, 2015): (1) understanding disaster risk; (2) strengthening disaster risk governance to manage disaster risk; (3) investing in disaster risk reduction for resilience; (4) enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction. Together with these four priorities, the Sendai Framework also identifies seven global targets to be reached at national level by the different States that participate to the agreement: reduce global disaster mortality by 2030; reduce the number of affected people globally by 2030; reduce direct disaster economic loss in relation to global gross domestic product by 2030; reduce disaster damage to critical infrastructure and disruption of basic services by 2030; increase the number of countries with national and local disaster risk reduction strategies by 2020; enhance international cooperation to developing countries; increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030. In the end, this Framework provides States a set of directions to guide their action to prevent and reduce disaster risk as well as a number of specific targets to be achieved.

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EXTREME WEATHER EVENTS CAUSED BY
CLIMATE CHANGE

REVIEW PAGES: URBAN PRACTICES

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In this number

ADDRESSING VULNERABILITY OF URBAN
INFRASTRUCTURES TO CLIMATE CHANGE:
TWO 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, 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 areas 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).

Urban infrastructure lies at the heart of modern societies, representing an essential component of the contemporary cities. Buildings, water and waste systems provide the basic services that households and businesses require, while transportation and communications infrastructures enable people to participate in various activities, such as employment and learning opportunities, and to make use of local services, such as healthcare, food shops, and recreational facilities. Clean, efficient and well-maintained infrastructure supports a high quality of life in developed countries while the provision of such infrastructures in developing countries is critical to raising living standards in the context of future development (Kennedy and Corfee-Morlot, 2013).

As climate change may significantly affects the operational, financial, environmental and social performance of such infrastructures (Kennedy and Corfee-Morlot, 2013), it has become increasingly important to entail constructing or renovating infrastructure systems in order to make these systems, and the societies they serve, more adaptable to extreme weather conditions and rising sea levels. Cities worldwide are increasingly recognizing the need to prepare their infrastructures for the impacts of climate change and, in the last decade, some have introduced new planning tools to ensure long-term, cost-effective adaptation measures. These measures are generally part of broader adaptation strategies aimed to facilitate the adjustment of human settlements to altered climate regimes. In this section, two relevant case studies are illustrated:

- The New York City’s Department Of Environmental Protection’ Climate Change Adaptation Programme

- The Transport For London's Climate Change Adaptation Programme.



NEW YORK CITY'S DEPARTMENT OF ENVIRONMENTAL PROTECTION' CLIMATE CHANGE ADAPTATION PROGRAMME

With over 8.5 million inhabitants, New York City (NYC) is the most populous city in the United States and one of the most populous urban agglomerations in the world. The city has responded to a variety of significant environmental challenges in its history, and the latest one, which requires long-term strategic planning, is climate change, which is projected to have wide impacts on its critical infrastructures and population through higher temperatures, more intense flooding events, and sea level rise. According to a recent report (Horton et al., 2015), the impacts of climate change will be pervasive and profound in NYC. Most natural and man-made systems will be affected, and the City's water supply, drainage, and wastewater management systems are no exception. NYC's surface water is supplied from a network of 19 reservoirs and 3 aqueducts, providing approximately 1 billion gallons of safe drinking water daily. The City is served by one of the largest wastewater collection and treatment systems in the world, with 14 wastewater treatment plants and 96 pumping stations over 1.3 billion gallons of wastewater per day, using state-of-the-art technology.

To overcome the challenges of climate change, as stewards of the City's water systems, the New York City Department of Environmental Protection (DEP) is placing its response to climate change at the core of its strategic and capital planning. In essence, the Department's plan is to adapt the City's water systems to withstand climate changes and upstate watershed while simultaneously striving to help minimize those changes. The Adaptation Programme is the result of an ongoing decision-making process, started in 2004, when the DEP established partnerships with a range of scientists and engineers and created a formal Climate Change Task Force to oversee the Department's investigation of and preparation for the potential risks associated with climate change. The process continued in 2008 when the DEP published the Climate Change P Climate Program Assessment and Action Plan (NYC-DEP, 2008) including finding, recommendations and immediate action that the DEP is committed to undertaking in the near future to further address climate-related critical issues. The process continued in 2013 with a second report presenting a comprehensive assessment of wastewater facilities at-risk from future storms, potential costs, and suggesting measures to protect critical equipment and reduce the risk of damage and loss of services (NYC-DEP, 20113). The DEP Task Force identifies the main threats to the water supply system, including potential water quality and demand changes over time due to changes in the ecology of watershed and changing temperature. With respect to the wastewater and drainage the main threats come from more extreme storm surge events and continued sea level rise, resulting in high flooding risk in the future. Building on vulnerability study, the DEP sets forth cost-effective strategies for reducing flooding damage to wastewater infrastructure and safeguarding public health and the environment. In determining the benefits of resiliency measures and the level of acceptable costs, DEP considered not only the value of wastewater assets, but also the population and critical facilities in the service areas and potential impacts on beaches. Resiliency measures were then selected based upon costs and level of risk reduction. The result is a portfolio of strategies that will be "shovel ready" for funding opportunities and implementation as part of planned capital projects. Actions to make the wastewater transport system more resilient include the construction of static barriers around selected location, sealing structures with watertight windows and doors, sandbagging temporarily, the development of resiliency projects at the 58 pumping stations that are vulnerable to storm surge damage.



TRANSPORT FOR LONDON'S CLIMATE CHANGE ADAPTATION PROGRAMME

With over 7.3 million inhabitants, London is the capital and most populous city of England and the United Kingdom. Its position as a dynamic world city clearly depends significantly upon its transport system with 26 million trips made each day for work, education or leisure.

Extreme weather in recent years has brought challenges to keeping London moving – flooding, heat waves and storms have all brought about delays and increased costs that have affected London's economy and the well-being of Londoners. According to a recent report (CCCA,2010), predicted climate change will increase the frequency and intensity of extreme weather on top of a general trend towards hotter, drier summers and warmer, wetter winters. In particular, predictions suggest that the London's transport systems will need to operate through warmer, wetter winters and hotter, drier summers, with increased incidences of storms and flooding. Transport for London (TfL), the local government body responsible for most aspects of the transport system in Greater London, has assessed and evaluated the future climate impacts on its assets and services, referencing the latest generation of climate projections, the 2009 United Kingdom Climate Projections. There are a number of elements of London's transport network that have the potential to be affected by weather related events, such as flooding, overheating, low temperatures and snow. As a transport provider it has a responsibility to operate a network that is as low-carbon as possible and resilient to the expected changes in the city's climate. TfL supports the delivery of the Mayor of London's strategy commitment of a 60% reduction in the Capital's CO₂ emissions by 2025, against 1990 levels. By then, the city's total number of residents is expected to have increased by one million and it is vital that TfL delivers the services London needs to support this growth while minimising its emissions and any resulting damage to the local environment. TfL is working to tackle climate change by changing the way people travel: encouraging people to operate their vehicles more efficiently; investing in lower carbon fuels and technology; and by looking at the way it manages its business activities. TfL is already taking steps to mitigate and adapt to the impacts of climate change through programmes/initiatives such as 'Cooling the Tube', and risk analysis work as detailed in the Providing Transport Services Resilient to Extreme Weather and Climate Change report (TfL, 2009). In this work TfL has assessed and evaluated and identifies three major transport risks from flooding. Within the underground system, stations, tracks, trains, depots and supporting infrastructure would be affected, causing delays and suspension of services. For surface transport, flooding of highways and greenway networks, including underpasses, subways and tunnels could cause diversions and delays. Regarding river transport, waterborne freight and the Woolwich ferry may be at risk due to closure of the Thames Barrier. Transport for London is preparing strategies addressing the climate resilience of the London transport network under a range of climate risks. With regard to London Underground, the current programme for upgrading lines and increasing capacity has prompted interventions to counteract temperature increases that will also address overheating due to climate change. These interventions include increasing air-conditioned carriages and chiller units on stations, as well as improving ventilation and raising passenger awareness. Air conditioning on mainline trains, currently at about 50% will also increase as stock is replaced. New buses are built to better heat - resilient standards while the existing fleet is being retrofitted with cooling systems. However, most of London's transport is dependent upon electricity or diesel and the Strategy urges TfL to consider the resilience of its energy supply

under extreme climate conditions. Implementation of measures to reduce flood risk, including source control (e.g. green roofs, pervious pavements), flood storage, have been planned. They include the construction of higher capacity drains, better drain maintenance, flood warning, and barriers to prevent water ingress to stations, and better information on flooding to transport users. Monitor temperatures and humidity in the Underground, both in trains and at stations is another important component of the TfL strategy.

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EXTREME WEATHER EVENTS CAUSED
BY CLIMATE CHANGE

REVIEW PAGES: NEWS AND EVENTS

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In this number
DYNAMIC FRAMEWORK APPROACH
FOR CLIMATE CHANGE

Significant changes in climate and their impacts are already visible globally, and are expected to become more pronounced in the next decades. It is widely accepted that our planet will face the impacts of climate change even if the greenhouse gas emissions will be significantly reduced in the coming decades through the implementation of mitigation policies worldwide. In this context, urban areas are the most likely to pay the higher social costs of global warming and, for this reason, is becoming increasingly urgent to adopt adaptation strategies at local scale to deal with the climate change effects. Due to the complexity of the urban system, climate change adaptation and mitigation strategies require a vision able to hold together the different political choices in a dynamic framework of analysis and scenarios, to be introduced in the territorial planning and building transformations, in order to change the forms and uses of space in both the city structure and architecture (De Gregorio Hurtado, 2015); the concept of adaptation doesn't mean just protection against the weather extremes, but also a greater flexibility of the cities for change by taking advantage of its possible benefits. In order to guarantee the protection of citizens, infrastructure, services and residences from the impacts of catastrophic events these strategies have to deal with a number of challenges which should be addressed to make progress on climate change adaptation. These include:

- improving the climate models and scenarios at urban and regional level, to reduce the vulnerability of the settlements;
- advancing understanding on 'good practice' in adaptation measures through exchange and information sharing on feasibility, costs and benefits in order to promote sustainable politics both economic and environmental;
- promoting low carbon policies in order to reduce the CO₂ emissions;
- involving the public and private sector, and the general public at both local and national level.

In this scenario the whole society should be involved. The collaboration among all the stakeholders (policy makers, NGOs, companies, citizens) is essential to create a sense of responsibility on climate adaptation policies, helping to increase the coherence in the adaptation action and developing a capacity for adaptation in the society as a whole; the implementation of new communication technologies is a useful tool to develop a more participated decision-making process. The following conferences could represent a fertile soil for the birth of a new awareness on this issue by comparing the different international experiences and studies.



ADAPTION FUTURE - 4TH INTERNATIONAL CLIMATE CHANGE ADAPTION CONFERENCE

Where: Rotterdam - Nederland

When: 10 - 13 May 2016

<http://www.adaptationfutures2016.org/>

The conference offers a platform to exchange new and practical ideas, experiences and insights for climate change adaptation promoting solutions across sectors, borders and communities.

Participants are asked to demonstrate how their findings might be applicable to other communities, countries or sectors. The conference is structured in three kind of sessions: science sessions, practice sessions and combined science-practice sessions. For the latter, companies and public authorities are invited to contribute to scientific research, showing the results of their practical experiences, relevant for the conference topic. The main themes are the following:

Cities and infrastructure food; forestry and rural livelihoods; fresh water availability and access Public health; ecosystems and ecosystem based adaptation; disaster risk reduction; the Arctic Seven; Around these themes there are three cross-cutting issues as guideline for the session proposals:

- Risk assessment, adaptation planning and evaluation;
- institutions and governance;
- finance, investment and business.

The issue of poverty and inequality is a recurring topic under all seven themes and three cross-cutting issues: because the poorer communities are typically the most vulnerable, adaptation policies can help curb poverty and avoid magnifying existing inequality if their impacts on social development -for instance access to public goods and gender inequality- are considered.

The conference will prioritize contributions that demonstrate the added value of combining knowledge, experience and innovation across themes and issues.



CLIMATE ADAPTION 2016- CHANGE, CHALLENGE OPPORTUNITY

Where: Adelaide – United States

When: 5-7 july 2016

<http://climate-adaptation.org.au/>

The main topic of the conference is Change, challenge and opportunity; the purpose is to promote research and experiences that go beyond the simple ability of cities to limit damage of increasingly frequent catastrophic events, by transforming risk into opportunity.

The main goal is to create new awareness in order to implement policies able to change the current urban structure towards a more sustainable society. Representatives from public and private sectors, federal, state and local governments, researchers, practitioners, consultants, NGOs, students, are invited to share and network innovative proposals and to promote adaptive politics.



ICUR 2016 - INTERNATIONAL CONFERENCE ON URBAN RISK

Where: Lisbon – Portugal

When: 30 June - 2 July 2016

<http://www.ceru-europa.pt/icur2016/>

Given the significant impact that natural hazards and climate change will have on urban investments, increasing priority is now placed on adaptive planning to reduce and manage the potential for disasters and climate change; for this reason a lot of cities are experiencing methods and tools to embed risk reduction and awareness into the design of urban spaces to increase the resilience of local communities.

This conference offers a platform of discussion on this topic, addressing concepts and methods on risk management, and the assessment of a variety of risks, such as risks induced by natural hazards, environmental and health risk and societal risks;

The main goal of the conference is to share experiences and original research contributions for the reduction of the impact of natural and technological hazards on urban societies.



6TH INTERNATIONAL CONFERENCE ON BUILDING RESILIENCE

Where: Auckland – New Zealand

When: 7-9 September 2016

<http://buildresilience2016.nz/>

Planning for urban resilience, and specifically adaptation, is well under way in a number of cities around the world. The Building Resilience Conference is an annual meeting on this topic, now in its sixth edition; the aim of the conference is to explore the risk-based approaches used into urban governance and planning processes to help national and municipal stakeholders to make complex decisions in a more forward-looking and more sustainable way.

Resilience appears as new paradigm for urbanization and influences the way to manage urban hazards, as well as urban planning in general, incorporating the management of disasters and climate risks into urban investments. Key economic sectors —especially water, energy, and transport systems—deserve particular attention.

They are not only vital if cities and communities are to deal with a disaster and recover quickly, they are also sectors where careful investments can make a real difference in people's lives.

The Conference series brings together researchers and industry practitioners involved in natural hazards and disaster resilience across the globe, providing participants with a strong platform for knowledge sharing, collaboration, disciplinary reflections, institutional exchange and collective growth.



INPUT 2016 - 9THINTERNATIONAL CONFERENCE ON INNOVATION IN URBAN AND REGIONAL PLANNING

Where: Turin – Italy

When: 14-15 September 2016

http://www.input2016.it/conference_2016

The main topic of the conference is "e-*agorà* for the transition towards resilient communities". It starts from the assumption that the concept of resilience represents a dynamic element, subject to the changing circumstances in which the person plays an active and not given role (Rutter, 1985). Therefore, a community can be defined as resilient if the individuals who compose it represent an active part of the dynamic transformation of the city. According to the Smart City paradigm, the use of ICT in the planning process can represent an effective tool to generate a continuous dialogue between citizens, improving their awareness and resilient attitude to the unavoidable changes that cities are facing. This Ninth Edition of the conference aims at rising a debate on the Innovation and the use of ICT in planning, management and evaluation issues defining methods and techniques to improve the process of knowledge acquisition. The necessary multidisciplinary approach to deal with these issues calls into question not only technical or systemic methodologies, but also societal and ethical aspects, assigning a new kind of responsibility to the needed research and innovation efforts.

The main topics of the conference are the following:

- Sharing responsibilities;
- (e-*qual*)ity living;
- environment and land use;
- transition and innovation theories;
- maintenance, upgrading and innovation in cultural heritage;
- new economies;
- big data and data mining;
- *ict* & models: planning for communities.

REFERENCES

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Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147 (6) 598-611; doi: <http://dx.doi.org/10.1192/bjp.147.6.598>

IMAGE SOURCES

The image shown in the first page is taken from:

https://www.eda.admin.ch/content/dam/deza/en/documents/publikationen/Wirkungsberichte/234508-wirkungsbericht-2014-klimawandel_noorder_EN.pdf

AUTHORS' PROFILES

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Engineer, graduated in Environmental and Territorial Engineering at the University of Naples Federico II with a specialization in governance of urban and territorial transformations. Since 2014 he has been a PhD student in Civil Systems Engineering at the Department of Civil, Building and Environmental Engineering – University of Naples Federico II. In July 2013 he won a scholarship within the PRIN project on the “Impacts of mobility policies on urban transformability, environment and property market”. Since 2011 he represents the UISP (Italian Union Sport for all) in the Forum Civinet Italy. In December 2012 he started collaborating with TeMA Lab.

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