

# BEYOND ALL LIMITS CONGRESS 2018

International Congress on Sustainability in  
Architecture, Planning, and Design

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Proceedings Book of The Extended Abstracts



ÇANKAYA UNIVERSITY



Università  
degli Studi  
della Campania  
*Luigi Vanvitelli*



UNIVERSITY OF  
PLYMOUTH

October  
17-18-19  
Ankara, Turkey

Proceedings Book of Extended Abstracts

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in Architecture, Planning, and Design

ÇANKAYA UNIVERSITY  
MAIN CAMPUS

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## FOREWORD

It is our great pleasure to welcome you to BEYOND ALL LIMITS 2018 - International Congress on Sustainability in Architecture, Planning, and Design, a joint collaboration of Çankaya University (Ankara-Turkey), Università degli Studi della Campania “Luigi Vanvitelli” (Caserta-Italy) and University of Plymouth (Plymouth-United Kingdom). The congress takes place in the Congress Hall of Çankaya University, Ankara, Turkey, on October 17-18-19, 2018 and supported by SID “Società Italiana Design”, SITdA “Società Italiana della Tecnologia dell'Architettura”, LeNS “The Learning Network on Sustainability” and GRID “Architecture, Planning and Design Journal”.

The congress aims to discuss and redefine the term sustainability with its all dimensions such as environmental, economic and sociocultural in various disciplines including architecture, planning and design, to extend the term’s boundaries through fulfilling it with scientific, genuine, innovative and inspiring studies and to foster cooperation within and between different disciplines at international level. Besides, workshops and special sessions are organized.

The scientific program consists of keynote speeches, plenary and parallel sessions of presentations and workshops. The 3-day congress has more than 200 contributing academicians, experts, researchers and professionals attending from several countries of the world. More than 100 presentations are planned in 28 sessions in 2 days. The third day is devoted to workshops which are organized by 8 different groups of academicians and professionals from related various fields. In addition to the contributed presentations and workshops, two invited keynote speeches are given: by Prof. Dr. Susan ROAF, Heriot Watt University’s Emeritus Professor of Architectural Engineering and Prof. Dr. Birol KILKIŞ, Başkent University’s Professor of Energy Engineering.

This proceedings book of extended abstracts comprises written contributions of the presentations, keynote speeches and workshops contents. Before the congress, all participants were expected to submit extended abstracts of their presentations in a format formed by a short abstract with keywords, introduction, methods, findings and discussion, conclusion and references, not exceeding 1500 words. All submitted extended abstracts were blind peer reviewed and accepted ones now take part in this book.

**BEYOND ALL LIMITS 2018:** International Congress on Sustainability in Architecture,  
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As being Congress Organization Committee, we would like to express our gratitude to all contributing members of Çankaya University, Università degli Studi della Campania “Luigi Vanvitelli” and the University of Plymouth for their superior efforts and enormous support. Furthermore, we would like to thank all participants of the congress for their outstanding contributions for sharing their knowledge, expertise and vision.

Congress Organization Committee

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## Cities seek resilience: a network for a revalue urban identity

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**Abstract:** How to address climate change in cities and human settlements in the future represents one of the most pressing challenges facing urban policy-makers today. This because climate change will affect extreme events as well as health effects associated with impacts on air quality. So the principal questions to respond for the future city designers and architects will be: How city in the future facing climate change? What are the urban models we want? What spatial innovations? These questions require critical answers that call into question both the environmental and spatial implications as result of the proposals made by architects and urban planners, and the proposed urban growth model till now, which does not take into account the effects of urban concentration without an ecological balance. This paper offers a brief overview on a method for projects of urban areas and infrastructures related to consequences of Climate Change.

**Keywords:** Resilience; urban network; environmental quality

### Introduction

Growing awareness of climate change as well as the exhaustion of non-renewable resources, have led to a growing interest in the development of new technologies for use cleaner and cheaper energy sources but first along to an urban approach more balanced. This transition is not merely technical; it has impacts on all spheres of human society, including on industrial networks, infrastructures, social practices, regulations and landscapes (Smil, 2010).

So what lessons can we learn from tangible and intangible relationships, both among the components of the urban systems (natural and artificial) as well as between the systems itself and the urban environment? The climate change in cities swill affect extreme events (such as heat waves) as well as health effects associated with impacts on air quality. So the principal questions to respond for the future city designers and architects will be: How city in the future facing climate change? What are the urban models we want? What spatial innovations?

An urban open space network is characterized not only by the set of isolated spaces but also, by the connective tissue that detects the system of relationships established between them, relationships that influence the users' way of enjoying, both physically and perceptually, the city itself. It is therefore possible to read a network through two dimensions that co-exist, the physical and formal, as well as the relational one in terms of connections and interactions (Pinto, Remesar, Brandão, Nunes da Silva, 2010).How to address climate change in cities and human settlements represents one of the most pressing challenges facing urban policy-makers today

and require critical answers that call into question both the environmental and spatial implications and the proposed urban growth model till now, which does not take into account the effects of urban concentration without an ecological balance. Today many concrete solutions exist; they only require to be set up in order to create a real alternative to the existing development model based on global cities competition and limitless growth.

### **A systemic methodology**

Public spaces in a resilient city should not be regarded as places that are “nice to have”, but rather as places that “must be had”: this is what emerges from the analysis of the case studies that are part of an interesting study, “The City Resilience Index”, carried out by the Arup group and supported by the Rockefeller Foundation. Reconsidering the role of our public spaces can no longer be delayed, especially in light of the rapid urbanization and climate change that have led to new scenarios affecting different project areas which can restore places capable of supporting the resilience: from the multifunctional dimension to that of real and virtual networks, from the spatial-functional flexibility to the ecological-environmental dimension.

The study involved the development of a network model that works in different ways: connects major points of a given urban context (cultural sites, environmental or strategic areas from a functional point of view); It provides an integrated system of connection and resting/shared spaces maximizing the accessibility and soft mobility; increases the ecological environmental quality interfacing (overlapping or intersection) with the local ecological network (De Martino, Franchino, Frettoloso, 2016).

From a methodological point of view, the construction of a network implies identifying the system of relationships between the different nodes of the network. This approach, with a technological matrix, includes an analysis of the urban context where the intervention is to be carried out, with it being divided into the following two levels: the first, oriented towards highlighting the aspects of the ecosystem type and the second, the technological/environmental ones. Starting from the identification of the requalification objectives, it will be possible to define the needs framework which can be fulfilled by identifying the requirements of the system that is the basis for the definition of meta-project interventions necessary to ensure sufficient quality to the network elements and, more generally, the quality of life in the urban context.

### **Findings and Discussion about the connectivity issue**

The proposed model is characterized by an organized set of functional areas that constitutes the backbone of the network upon which it will be possible to attach, depending on the application context, additional elements. The connectivity of these spaces will characterize the articulation and readability of the network highlighting, if present, the hierarchy of elements set in place. The pedestrian/cycle network will therefore, be the primary connection system that can allow either physical (paths, roads, and bike paths) and/or perceptual communication between the elements of the network facilitating the accessibility of the individual areas and increasing the use of the entire system without creating barriers and promoting new ways of use.

The connection areas, that part of the territory where there is such an overlap/intersection between the open spaces of the functional network and the territorial ecological network, has a key role in the model and is characterized by a higher naturalness than the other functional areas. Thinking in macro terms, from a performance point of view, these areas should ensure the permeability of the soil, contribute to a rational management of rainwater and, in general, be a place of experimentation of strategies aimed at reducing the environmental impacts resulting from anthropic activities. Maintaining high levels of environmental quality will have a positive effect on urban quality, creating, first of all, more comfortable open air living conditions that are appropriate to the needs of the users.

The connection areas, however, require some sort of interface with the urban context. The area assigned this task in the model is defined as a buffer and will be placed at the edge of the connecting areas with a dual purpose: to protect and preserve the environmental values of the ecological network intercepted as well as bring the city nearer to the users, to its use in the perspective of a responsible use of the environment and the participation in the exploitation mechanisms that the network should trigger (Pagano, 2006).

As the network penetrates the city, it is necessary to intervene, with a capillary action, with the natural and artificial systems oriented to regenerating, from a microclimate and energy point of view, the urban fabric and open spaces. These areas, defined as mitigation and adaptation areas, are intended not only to accommodate recreational, relaxation or cultural activities but, in particular, small green spaces which share the functional and environmental principles of pocket parks. The current debate on the challenge that sustainable cities must face in meeting the ambitious carbon neutral goal, orientates the urban and building projects to focus on the issue of mitigation and adaptation to the climate (Roma Capitale, 2014). Thus, the

inclusion in the model of such functional areas can help to increase the resilience of the urban environment through the correct balancing of the surfaces that characterize the lay-out of the space (in terms of reflection and permeability coefficients) and implementing strategies for the rational management of the water cycle.

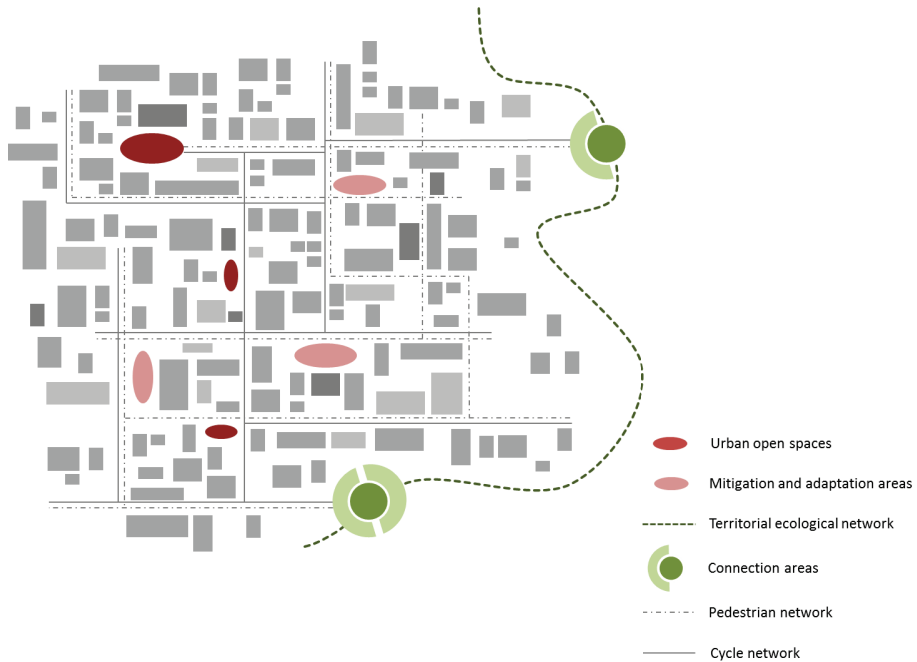


Figure 1. Development of a network model (Frettoloso, 2017).

## Conclusion

Adaptation and mitigation, as well resilience and sustainability are parallel and complementary terms; they should be implemented as urban policies, strategies and actions, at different levels to respectively limit the effects and act on the causes of climate change. The proposal network approach allows a territorial natural resources conservation to reduce the climate change effect, all the while take into consideration all the connections between natural and artificial city systems to enhance landscape values and urban identity quality.

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**Note:** The paragraphs "Introduction" and "Conclusion" are edited by Paola Gallo. The paragraphs "A systemic methodology" and "Findings and Discussion about the connectivity issue" are edited by Caterina Frettoloso.

## References

- De Martino R., Franchino R., Frettoloso C. (2016), Sistemi di reti e connettività nei processi di rigenerazione dei contesti antropizzati, *TECHNE* 11, 209-216.
- Pinto A. J., Remesar A., Brandão P., Nunes da Silva F. (2010), Planning Public Spaces Networks Towards Urban Cohesion. In Proceedings of the 46th ISOCARP Congress, Nairobi, KEN.
- Pagano, C. (2006), "Reti di aree verdi, reti ecologiche e riqualificazione urbana" in Fonti, L. (Ed.), *Parchi, reti ecologiche e riqualificazione urbana*, Alinea editrice, Firenze.
- Roma Capitale (2014), *Roma Capitale per i quartieri climaticamente neutrali, Esperienze europee a confronto*. Retrieved from [https://www.comune.roma.it/PCR/resources/cms/documents/CLUE\\_Pubblicazione.pdf](https://www.comune.roma.it/PCR/resources/cms/documents/CLUE_Pubblicazione.pdf).
- Smil, V., (2010). *Energy Transitions: History, Requirements, Prospects*. Praeger, Santa Barbara, CA. DOI: 10.1016/j.eist.2011.10.007

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