



**PROCEEDINGS OF**

# **Urban Planning and Architectural Design for Sustainable Development (UPADSD) – 6<sup>th</sup> Edition 2021**

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# Urban Planning and Architectural Design for Sustainable Development

Proceedings of Urban Planning and Architectural Design for Sustainable Development (UPADSD) – 6th Edition 2021

## Preface

As many countries around the globe continue their struggle with the Covid-19 pandemic, the world can now see how a single occurrence could tip the scales and influence almost every aspect of our lives, leaving a mark on our cities that will echo for generations. Early research on its effects in cities mainly concerns four themes including environmental quality, socio-economic impacts, transportation, and urban design as well as management and governance, all of which provide planners, practitioners, and policymakers with the best opportunity to contribute to creating more resilient and sustainable cities.

That being said, with this challenge comes a positive secondary impact as it sparks debate, the introduction of innovative solutions, and an improved response to current and future crises. Therefore, it has become vital that new approaches to city planning are introduced to achieve a more resilient and sustainable use of public spaces in the future.

One of the key measures in combating Covid-19 in the past was a complete restriction on the use of public spaces. So how will we adjust to this new normal, and what will happen to those spaces? Questions like these and many others arose in the span of only two years that made us rethink our relationship with public spaces and our environment. A new holistic approach to city planning should be the center of focus in support of climate mitigation, better health, better water and waste management, a more resilient and inclusive Circular Economy, and an effective urban service provision.

This book is a collection of innovative research submitted to the 6th edition of the International Conference on Urban Planning & Architectural Design for Sustainable Development, as well as the 1st edition of the Circular Economy for Sustainable Development. It provides a brief glimpse into the measures that need to be taken to achieve sustainable urban planning and development in a post-COVID world as well as preserve and manage our cultural heritage, improve energy efficiency in buildings, and address issues of urban infrastructure.

Over the past two years, urban vulnerabilities and underlying patterns and effects of the pandemic have been the focus of research published. In this abstracts book, we showcase valuable insights of researchers across the globe who introduce urban models for a post-COVID future, investigate user behaviors towards public building designs and public transport systems and contribute to the development of pandemic-resilient urban development.

## **Acknowledgements**

IEREK would like to express its appreciation to all the members of the staff, scientific committee, chairpersons, and editors for contributing to the tremendous growth of this institution and for making the 6th edition of the International conference on Urban Planning and Architectural Design for Sustainable Development and the 1st Edition of the Circular Economy for Sustainable Development International conferences a success.

IEREK would also like to thank the conference chairpersons, Professor Francesco Alberti and Professor Fabio Pollice, who are the core reason as to why this conference was transformed from a mere vision into real life success. This institution is greatly indebted to IEREK's advisor and Italian Alliance Director, Prof. Ferdinando Trapani. IEREK takes distinct pride in being an institution that amasses a highly qualified and competent team who restlessly worked for months to make this conference what it is today. As for the success of this conference, any step forward towards the ultimate goal of creating a well-rounded society was made possible by the highly reputable scientific committee that worked competently to prepare for and revise research papers. It would also like to give thanks to all the members of the Scientific Committee who made it their duty to help this institution spread knowledge to the masses.

## WORD BY THE CONFERENCE CHAIRPERSON

For the second year in a row, IEREK Conference on Urban Planning and Architectural Design for Sustainable Development, organized with the scientific support of the Department of Architecture of the University of Florence, has migrated onto the web because of the Covid-19 pandemic.

A big debate has arisen worldwide on what will be the long-time consequences of this dramatic experience, which, differently from the last edition of the Conference, is often mentioned by the authors of the submitted papers as the current state of affairs.

It is a widespread opinion that when we will have left the sanitary emergency behind, never will be the same. So, the question is: will we be better off?

The only possible answer is: it just depends on us, as well as for all other emergencies about the planet's and its inhabitants' health and survival that have been temporarily obscured by the pandemic: global warming, pollution, soil consumption and depletion, exploitation of natural resources above their thresholds for reproduction, reduction of biodiversity. Without forgetting that such environmental emergencies go hand in hand with the social and economic sustainability ones called into question by the seventeen SDGs of the United Nation Agenda 2030.

It just depends on us - where "us" stands both for members of the human race and specifically for researchers, professionals and educators in the fields concerning the human habitat: urban planner and designers, architects, engineers, landscape designer, agronomists, etc.

The papers presented at this edition of the UPADSD Conference are a significant testament to how disciplinary research is already able to provide advanced analysis tools and innovative design approaches to address the challenges we face.

The hope is therefore that the Covid-19 pandemic can be soon left behind and remembered as a painful but decisive turning point in the collective awareness and assumption of responsibility, so that research lines and concepts such as those presented in this anthology can germinate and grow worldwide.



**Professor Francesco Alberti**

Professor at the Department of Architecture (DiDA),  
University of Florence, Florence Italy.

## **Word from the Chairman of the Board of IEREK**

First, I would like to state that it is my honor to be launching this joint conference on the vital themes of Urban Planning for Architectural Design and Sustainable Development (UPADSD) 6th edition and Circular Economy for Sustainable Development (CESD) 1st edition of its kind.

Second, I would like to praise IEREK's efforts in establishing this successful event. IEREK- International Experts for Research Enrichment and Knowledge Exchange - is an institution that began pursuing its goal of reaching excellence in the research field in 2013, and since then has been linking scholars from around the world and providing them with a platform that would advance all their innovative efforts. All the while achieving IEREK's main goal of building international relationships with prestigious universities and institutes worldwide, spreading knowledge, and enhancing research around the world, through collaborating with trustworthy partners who share its same vision.

With this undertaking, IEREK hopes to present the world with a conference that positively contributes to its field and paves the way for scholars to combine their ideas for the greater purpose of discovering new and innovative solutions to today's issues, along with the aid of our scientific committee of distinguished professors and researchers from a range of established universities from around the globe.

Finally, I hope that the conference succeeds in delivering its message to the world of professionals in the various concerned disciplines to inspire that their work be made a reality. I also welcome all audiences, from undergraduate to postgraduate students, and all who could benefit the most from this conference. I look forward to seeing you all and to collaborating on this prosperous experience.



**Mourad S. Amer**

Architect, B5c, DSc, MSc, PhD

IEREK CEO

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**Part IV**  
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# Liveable urban open spaces for health and wellbeing. Towards the Careggi Campus landscape masterplan for the Florence University Hospital.

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## Abstract

Spatial fragmentation and congestion have more and more involved cities also because of functional specialization of open spaces. Such phenomena also affects accessibility of public realm and so urban liveability. Dealing with this main topic with regard to the public open spaces it seems necessary to turn them into dynamic and flexible places able to induce wellbeing and to develop a shared identity. Among all urban open spaces, those related to hospitals and universities play a double role concerning both the specific functions of care, research, learning, innovation and the overall liveability of the city in which they provide collective services. The ongoing research “Careggi Campus” deals with the case study of the Florence University-Hospital as an important part of the wider urban network of public open spaces. In this complex over twenty thousand people per day live fragmented and cluttered open spaces with a clear lack of accessibility and liveability. The research aims to carry out a landscape masterplan focused on a concept of transition from a street-based model of mobility and accessibility towards a people-based network of liveable places. In such a context accessibility is a complex driving criterion for landscape design to investigate how the hospital open spaces could perform as a high-quality network and sustain health by providing wellbeing and feeding lifestyles changes. A main topic of research is how this collective system can host the existing wide variety of permanent functions and spontaneous uses without creating conflicts and dysfunctions. As a vision of innovation about public transport, active mobility, intermodal parking-lots is promoted by the new Urban Sustainable Mobility Plan, we suggest that rethinking hierarchies between vehicles and people's active mobility within the University Hospital could lead to a sustainable transformation of its landscape.

## Keywords

*University hospital; Urban open spaces; Liveability; Accessibility; Health campus.*

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## 1. Context

Spatial fragmentation and congestion have more and more involved cities also because of functional specialization of open spaces. Fragmentation is not just a key concept in ecological landscape studies, but also in the sociological urban ones (Piroddi & Colarossi, 1991; Madanipour, 1999, 2005; Parker et al., 2012; Mela, 2014; Dayo-Babatunde et al., 2019; Kärholm & Wirdelöv, 2019). Fragmentation is also considered with regard to the relationships between single open spaces and the urban landscape (Romaniak et al., 2014; Kilić et al., 2019) and to the concept of tissue (Piroddi & Colarossi, 1991), but it matters at the single open space scale too (Carmona, 2010), especially in the urban landscape and with regard to the public realm. The splitting of open spaces in sections with functional specialization makes every part less than the whole, not just about the unitarity and expressivity of its image but also considering its ‘breath’ and the related capacities to meet and support different needs and loads of use. Such phenomena affected accessibility of public realm and so urban liveability.

Open spaces are often cluttered also because spatial congestion due to objects, signs and signals is added to factors of size of flows of people and vehicles. Dealing with this main topic it seems necessary to turn open spaces into dynamic and flexible places able to induce wellbeing and to develop a shared identity. Among most visionary, meaningful and effective contemporary experiences we consider the critical proposals by Jan Gehl (2010) and initiatives carried out by his agency (Tsay & Gold eds., 2017). Furthermore, according to Kathryn Gustafson, Neil Porter and Mary Bowman (2021), the research by designing of uncluttered and barrier-free places emerges as a key towards more healthy and liveable cities: it allows to 'clear' spaces, but also to foster the non-motorised mobility (Forsyth et al., 2009). Since the main Buchanan's work "Traffic in Towns" (MoT, 1963) brought to light the need to face the problem of cars in cities many contributions have been given both in the scientific discourse and in the professional practice on this issue. The design for sustainable mobility has become relevant, trying to figure out which quality features are needed to encourage walking and cycling and enhance places' identity in cities while reducing the danger produced by vehicles. Different approaches have emerged to accommodate by design all functions required to streets in this perspective. Among others "woonerfs", term first coined in 1965 by Niek de Boer, refer to residential areas where vehicles conform to pedestrians and cyclists rules, "complete streets" emphasize the need for a comprehensive design for users of all abilities and with all kind of transport. Besides, "democratic streets", in Mark Francis theory (2016), deal much more with the concept of collective use and social equity, and "shared streets", as promoted by Hans Monderman, concern the removal of signage for a self-regulated sharing of space among all users and vehicles. An insight of this last approach is also provided in this research to better explore its implications in landscape design.

## Credits

The research Careggi Campus is an initiative of the Department of Architecture of the University of Florence and of the General Direction of the Careggi University-Hospital Public Company. The process has been promoted by Gabriele Paolinelli and Saverio Mecca for the University and by Rocco Damone e Valentino Patussi for the Company, is coordinated by Gabriele Paolinelli and it's being carried out by Francesco Alberti, Nicoletta Cristiani, Giacomo Dallatorre, Lorenza Fortuna, Luca Marzi, Claudia Mezzapesa, Emanuela Morelli, Lorenzo Nofroni, Nicoletta Setola, Antonella Valentini. Several students are providing their collaborations in the master degree programmes in Landscape Architecture and in Architecture.

Pictures in this paper have the following specific credits: figures 1-6, Nicoletta Cristiani & Gabriele Paolinelli; figure 7-9 Nicoletta Cristiani & Giacomo Dallatorre; figure 10, Lorenza Fortuna & Claudia Mezzapesa; figure 11, Andrea Giorgi, Iliass Houbabi, Biagio Martino; figure 12 Alessandro Dallalibera & Giacomo Premoli.

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# Urban Planning and Architectural Design for Sustainable Development

## Proceedings of Urban Planning and Architectural Design for Sustainable Development (UPADSD) – 6<sup>th</sup> Edition 2021

This book is a collection of innovative research submitted to the 6th international conference on Urban Planning & Architectural Design for Sustainable Development, as well as the 1st edition of the Circular Economy for Sustainable Development. It provides a brief glimpse into the measures that need to be taken to achieve a sustainable urban planning and development in a post-COVID world as well as preserve and manage our cultural heritage, improve energy efficiency in buildings and address issues of urban infrastructure.

Over the past two years, urban vulnerabilities and underlying patterns and effects of the pandemic have been the focus of research published. In this abstracts book, we showcase valuable insights of researchers across the globe who introduce urban models for a post-COVID future, investigate user behaviors towards public building designs and public transport systems and contribute to the development of pandemic-resilient urban development.

