



Green Urbanism (GU) 8th Edition, 2024

A Book of Abstracts



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Green Urbanism (Gu) - 8th Edition

A Book of Abstracts submitted to the 8th edition of the international conference on **Green Urbanism** (Gu) 07-08 October 2024.



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Acknowledgements

IEREK would like to express its immense gratitude to all members of its staff and scientific committee for having such an impact on the growth of this establishment and for making our conference on Green Urbanism the success it is today. IEREK would like to, especially, thank the honorable conference chairperson, Professor Ferdinando Trapani, Associate professor, Department of Architecture (DARCH) of the University of Palermo (UNIPA), national board of Italian Society of Landscape Ecology, and the honorable conference co-chair, professor Carmelina Bevilacqua, Associate professor at Sapienza University of Rome (UNIROMA1), who had a significant role in making this conference as effective by providing the necessary scientific support. IEREK prides itself in being an institution that incorporates a highly capable team that works diligently towards making this event this conducive for the evolution of a well-rounded society. Finally, we cannot neglect to mention the prominent role undertaken by our Editors who made it their sole duty to support this institution in its mission to make knowledge accessible to the masses.

Foreword

We are pleased to present the Abstract Book of the Eighth International Conference on 'Green Urbanism'. With environmental sustainability at the center of global discussions, green urban planning is emerging as a crucial element for designing cities of the future. This conference brings together experts, researchers, practitioners, and policymakers from all over the world, who share a common aim of developing innovative solutions to address urban environmental challenges.

Steffen Lehmann in 2011* reminded us that it is not enough to have a proper use of environmental sensors and innovative technologies for the sustainable management of production flows of energy, water and waste from cities around the world. Instead, policymakers and technicians need to be able to (re)think a common sense urbanism because in the future, Green urban planning must become the norm for all urban developments to establish sustainable urban development and encourage best practice models. Lehmann, based on several case studies where innovative ways of intervention have been used in this respect. For him, the principles of Green Urbanism form a sustainability matrix that will allow the urban designer - to use the words of Richard Buckminster Fuller - "to be able to use these principles to do more with less". Once again we remember these principles as if they were the components of the tool box of the professional of green urbanism today and tomorrow: 1: climate and context; 2: renewable energy for zero co2 emissions; 3: zero-waste city; 4: water; 5: landscape, gardens and urban biodiversity; 6: sustainable transport and good public space: compact and poly-centric cities; 7: local and sustainable materials with less embodied energy; 8: density and retrofitting of existing districts; 9: green buildings and districts, using passive design principles; 10: livability, healthy communities and mixed-use programs; 11: local food and short supply chains; 12: cultural heritages, identity and sense of place; 13: urban governance, leadership and best practice; 14: education, research and knowledge; 15: strategies for cities in developing countries.

Green Urbanism is not just about architecture or urban planning, it's a philosophy of life that incorporates sustainability into every aspect of urban planning and management. From the design of green spaces and sustainable infrastructure to the promotion of lifestyles that reduce the ecological footprint, the contributions collected in this volume reflect the diversity and depth of contemporary reflections on how to transform our cities into more livable and resilient environments.

Each abstract presented here represents a step on the path towards a shared vision of cities that not only respect the environment but draw inspiration from it to innovate and thrive. In this sense, the conference stands as a platform for the exchange of ideas and good practices, helping to outline the guidelines for a more sustainable urban future.

We hope that this Abstract Book will serve not only as a testament to the work done so far, but also as a source of inspiration for further research, projects, and collaborations. We thank all participants for their commitment and contribution to promoting truly green urbanism, and we are confident that the outcomes of this conference will leave a lasting mark on the scientific and professional communities around the world.

Enjoy the reading!



Professor Ferdinando Trapani

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Word from the Chairman of the Board of IEREK

It is my honor to be launching this conference on Green Urbanism (Gu) the 8th Edition of its kind.

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 connecting the world's scholars and providing them with a platform that would advance all their endeavors. Building international relationships with prestigious universities and institutes worldwide is one of IEREK's main goals, spreading knowledge and enhancing research around the world, along the way, through collaborating with trustworthy partners who share its same vision.

That said, IEREK continues to hope to present the world with a conference that positively contributes to its relative field and makes way for scholars to combine their ideas for the greater goal of discovering new and innovative solutions to the issue at hand, with the aid of our scientific committee comprised of distinguished professors and researchers from a variety of international, established universities.

Finally, I hope that the conference succeeds in delivering its message to the world of professionals in the various concerned disciplines in order for their work to be put into motion. I also declare our welcome to all audiences, from undergraduate to postgraduate students, and all who will benefit the most out of this conference. I am looking forward to meeting you all and collaborating within this successful experience.

A handwritten signature in black ink, appearing to read 'M. Amer', with a horizontal line underneath.

Mourad S. Amer

Architect, BSc, DSc, MSc, PhD
IEREK GmbH CEO & Founder

Word By the Conference Chairperson

The common opinion on green urban planning concerns the issue of governing the city in a sustainable way, where the latter is mainly understood from an environmental point of view. The color 'green' is an adjective that concerns only the field of problems related to the study of the problems resulting from the interaction of man on the natural environment in the case of the construction from scratch or the management of the existing city and its foreseeable future development.

Environmental sustainability is only one of the three main components of general ecosystem sustainability (environmental, economic, social). In the preliminary list of the components of the green city, Lehmann, in addition to the main structural aspects (water, waste, energy, transport, etc.) to be holistically included in a Life-Cycle process logic, also includes something else: a) create a vibrant sense of place and authentic cultural identity, where existing districts are densified and make use of urban mixed-use infill projects, b) have a local food supply through community gardens and urban farming and which achieve high food security and reduced 'food miles', and c) use multi-disciplinary approach, best practice for urban governance and sustainable procurement methods. For Lehmann, in fact, physical aspects and social and economic aspects must always be considered together as components of the social sustainability and a healthy community: all of them need to be part of any vision of the future of the cities in the world.

In accordance with the principles of green urbanism (Lehmann, 2011), the reflection on urban and territorial planning practices, integrated with studies on sustainable economic development and social innovation in the key of spatial justice, must include a transdisciplinary experimentation in the following practical and reflective operational fields of a new kind of urban and regional regeneration planning integrate with economic development and societal innovation:

A) Essential components of human life in urban and territorial settlements: A1. Primary Utilities (Water, Waste-Energy: Single Integrated Regional Cycle; A2. Functional polarities: Health, Primary and secondary education, Higher education, Transport (LPT, Health emergency, Civil protection)

B) Territorial organization (B1. Landscape Planning and Statutory Conservation and Valorisation; B2. Environmental risks; B3. Direct anthropogenic risks; B4. Risk of indirect anthropogenic origin

C) Sustainability (C1. Agenda 2030-17 SDG's, ecc.; C2. Environmental Impact Assessment-Environmental Strategic Assessment; C3 Life-Cycle Assessment and Circular Economy; C4 Ecosystem services and Nature Based Solution in participative urban planning design practices)

D) Accountability (D1. Ecosystem Services D2 Specific programming fiscal requirement (taxation for support public services)

E) New Science (Transdisciplinary Approach): E1 Co-Planning (public domain); E2 co-creativity (business domain) and E4 Co-Operation (Third Sector/Civil Economy domain).

We need a new science of the city that starts from Lefebvre's right to the city and that is capable of anchoring development policies to the relationship between form and substance, that is, between the physical structure of the physical urban components that interact over time and the non-physical sphere of economic and social relations according to a fair use of the space of the places of the city.

Green Urbanism should be for us, having reached the eighth international conference and taking into account the scientific literature produced and published, a manifesto of attention and care for the City of Man, the Common Home, the Earth, so that no one can take advantage of short-term interventions that create great economic gains to the detriment of others without realizing that - in reality - they are building the foundations of many other problems that will then affect all human beings in the media and long distance of time.



Professor Ferdinando Trapani

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Part I:
Urban Resilience and Future Transitions

Nature–based Climate-adaptive urban regeneration of streetscapes. A design-oriented Framework

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Abstract:

The need to integrate climate-adaptive design into urban regeneration through green and blue strategies is becoming apparent at various scales and geographies due to the escalating impact of climate change. Cities worldwide are transforming their streetscapes through the implementation of Nature-based solutions (UNEP/EA.5/Res.5: NbS) to be more prepared and proactively adjust to present and future climate impacts, simultaneously addressing social, economic and environmental issues considered from a spatial design perspective. Grounded on a theoretical framework that explores the interconnectedness between urban regeneration practices and policies of Nature-based solutions for climate adaptation and urban resilience, the contribution aims to overcome conceptual and operational gaps concerning the design and implementation of Nature-based Climate-Adaptive design strategies in the new city streetscapes. Inside two European-funded research, the paper, besides exploring limits and opportunities, aims to define design principles and procedures for the urban streetscape's regeneration based on Nature-based Climate Adaptive design strategies. To go beyond present limits, a three-phase research-by-design methodology has been adopted made by: (a) research for design, i.e., taking knowledge from other disciplinary fields; (b) research of design, i.e., learning from design experiences of urban regeneration based on NbS and Climate-adaptive strategies; (c) research driven design, applying principles and procedures deducted from (b) to experimental projects. Within the design phase, a database of Nature-based Climate-adaptive regenerative urban Streetscapes' projects has been developed. Furthermore, from the comparison of Streetscapes' projects, the research defines the design-oriented conceptual Framework for Nature-based, Climate-adaptive and Regenerative Streetscapes, which aims to define a taxonomy of design principles and procedures, to support Nature-based Climate-Adaptive regeneration of Streetscapes, enhancing space quality and wellbeing and contributing to improve urban resilience. In conclusion, the paper introduces mid-term considerations on the impact of NbS on regeneration projects for city streetscapes, supporting a more complete understanding of the spatial design phenomenon from a social, environmental and cultural point of view.

Keywords:

Streetscapes; Nature-based Solutions; Climate-adaptive; Urban Regeneration; Design; Research by Design
