

Special Issue Reprint

Advances in Urban Green Development and Resilient Cities

Edited by
Marco Devecchi, Fabrizio Aimar and Matteo Caser

mdpi.com/journal/sustainability

Advances in Urban Green Development and Resilient Cities

Advances in Urban Green Development and Resilient Cities

Editors

Marco Devecchi

Fabrizio Aimar

Matteo Caser



Basel • Beijing • Wuhan • Barcelona • Belgrade • Novi Sad • Cluj • Manchester

Editors

Marco Devecchi
Department of Agricultural,
Forest and Food Science
(DISAFA)
University of Turin
Grugliasco
Italy

Fabrizio Aimar
Department of Architecture
Texas A&M University
College Station
United States

Matteo Caser
Department of Agricultural,
Forest and Food Science
(DISAFA)
University of Turin
Grugliasco
Italy

Editorial Office

MDPI AG
Grosspeteranlage 5
4052 Basel, Switzerland

This is a reprint of articles from the Special Issue published online in the open access journal *Sustainability* (ISSN 2071-1050) (available at: www.mdpi.com/journal/sustainability/special_issues/9VP58YIIY7).

For citation purposes, cite each article independently as indicated on the article page online and as indicated below:

Lastname, A.A.; Lastname, B.B. Article Title. <i>Journal Name</i> Year , <i>Volume Number</i> , Page Range.
--

ISBN 978-3-7258-1762-7 (Hbk)

ISBN 978-3-7258-1761-0 (PDF)

doi.org/10.3390/books978-3-7258-1761-0

© 2024 by the authors. Articles in this book are Open Access and distributed under the Creative Commons Attribution (CC BY) license. The book as a whole is distributed by MDPI under the terms and conditions of the Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) license.

Contents

About the Editors	vii
Preface	ix
Angie Campbell, Victoria Chanse and Mirjam Schindler Developing a Conceptual Framework for Characterizing and Measuring Social Resilience in Blue-Green Infrastructure (BGI) Reprinted from: <i>Sustainability</i> 2024 , <i>16</i> , 3847, doi:10.3390/su16093847	1
Hadas Shadar and Dalit Shach-Pinsly Maintaining Community Resilience through Urban Renewal Processes Using Architectural and Planning Guidelines Reprinted from: <i>Sustainability</i> 2024 , <i>16</i> , 560, doi:10.3390/su16020560	33
Mengqi Ding and Qijie Gao The Impact of E-Commerce Transformation of Cities on Green Total Factor Productivity Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 16734, doi:10.3390/su152416734	52
Teresa González, Pia Berger, Claudia N. Sánchez and Faezeh Mahichi Sustainability of Urban Parks: Applicable Methodological Framework for a Simple Assessment Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 15262, doi:10.3390/su152115262	72
Luca Battisti, Fabrizio Aimar, Giovanni Giacco and Marco Devecchi Urban Green Development and Resilient Cities: A First Insight into Urban Forest Planning in Italy Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 12085, doi:10.3390/su151512085	94
Zahra Nowzari, Rachel Armitage and Mohammad Javad Maghsoodi Tilaki How Does the Residential Complex Regulate Residents' Behaviour? An Empirical Study to Identify Influential Components of Human Territoriality on Social Interaction Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 11276, doi:10.3390/su151411276	113
Dwi Purnomo, Gregorio Laulasta Sitepu, Yoga Restu Nugraha and Muhammad Bayu Permana Rosiyan Social Metabolism in Buruan SAE: Individual Rift Perspective on Urban Farming Model for Food Independence in Bandung, Indonesia Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 10273, doi:10.3390/su151310273	137
Kai Yuan, Biao Hu, Xinlong Li, Tingyun Niu and Liang Zhang Exploration of Coupling Effects in the Digital Economy and Eco-Economic System Resilience in Urban Areas: Case Study of the Beijing-Tianjin-Hebei Urban Agglomeration Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 7258, doi:10.3390/su15097258	157
Nikko Torres Ner, Seth Asare Okyere, Matthew Abunyewah, Louis Kusi Frimpong and Michihiro Kita The Resilience of a Resettled Flood-Prone Community: An Application of the RABIT Framework in Pasig City, Metro Manila Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 6953, doi:10.3390/su15086953	185
Xinyu Hu, Chun Dong and Yihan Wang Coupled and Coordinated Analysis of Urban Green Development and Ecological Civilization Construction in the Yangtze River Delta Region Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 5955, doi:10.3390/su15075955	208

Xiaofen Zhang, Zibibula Simayi, Shengtian Yang, Yusuyunjiang Mamitimin, Fang Shen and Yunyi Zhang Vulnerability Assessment of Ecological–Economic–Social Systems in Urban Agglomerations in Arid Regions—A Case Study of Urumqi–Changji–Shihezi Urban Agglomeration Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 5414, doi:10.3390/su15065414	234
Yunchang Li, Xia Cao and Can Cui System Dynamics Theory Applied to Differentiated Levels of City–Industry Integration in China Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 3987, doi:10.3390/su15053987	251
Spyridoula Kakia, Georgia Pozoukidou and Dimitra G. Vagiona Providing an Integrated Vulnerability Assessment Indicator System (VAIS) to Measure the Spatial Vulnerability of Areas near Seveso Establishments in Thessaloniki (Greece) Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 2303, doi:10.3390/su15032303	268
Kenton L. Sena, Zachary J. Hackworth, Julia Maugans and John M. Lhotka Twenty Years of Urban Reforestation: Overstory Development Structures Understory Plant Communities in Lexington, KY, USA Reprinted from: <i>Sustainability</i> 2023 , <i>15</i> , 1985, doi:10.3390/su15031985	286
Emilio Ramírez-Juidías, José-Lázaro Amaro-Mellado and Jorge Luis Leiva-Piedra Influence of the Urban Green Spaces of Seville (Spain) on Housing Prices through the Hedonic Assessment Methodology and Geospatial Analysis Reprinted from: <i>Sustainability</i> 2022 , <i>14</i> , 16613, doi:10.3390/su142416613	303

About the Editors

Marco Devecchi

Marco Devecchi graduated in Agricultural Sciences from the Faculty of Agriculture of the University of Turin and holds a Ph.D. in “Landscape Study and Planning”.

His scholarly interests focus on floriculture, landscaping, parks, and gardens. As an associated professor, he coordinates the Interuniversity Degree Course in “Progettazione delle aree verdi e del paesaggio” for the Department of Agricultural, Forest and Food Science of the University of Turin. Since 2008, he has been deputy of the University of Turin in the General Assembly of the European Network of Universities for the implementation of the European Landscape Convention (UNISCAPE).

Additionally, Devecchi coordinates a research team of the Department of Agricultural, Forest, and Food Science that carries out research in urban green areas, historic gardens, and rural landscapes. Recently, the group was involved in several research projects on landscape topics, in collaboration with Italian and international universities and research centres. His research activities mainly concern the knowledge, safeguarding, and valorisation of rural landscapes and green technologies. He cooperates on national and international projects.

Devecchi is a member of the “Società Orticola Italiana” and of International Society for Horticultural Science (ISHS). Since May 2003, he has been president of the “Osservatorio del paesaggio per il Monferrato e l’Astigiano”. From 1 January 2010 to 1 January 2013, he was the coordinator of the Observatory Network of Landscape of Piedmont. Since 2023, he has been president of the Agricultural Academy of Turin.

He has authored about 140 scientific publications about rural landscapes, floriculture, and historic gardens and also serves as a peer reviewer for international academic journals.

Fabrizio Aimar

Fabrizio Aimar, Architect, Ph.D. with honours in Urban and Regional Development from the Polytechnic University of Turin, Italy, has been an assistant professor of Practice in the Department of Architecture at Texas A&M University, USA. He also directs the Center for Heritage Conservation and holds the Woodcock Endowed Professorship in Historic Preservation. Previously, he served as a lecturer and the department head of Architecture and Civil Engineering at POLIS University, Tirana, Albania (2021–2023).

In 2021, Aimar was on the Advisory Board of the Italian Pavilion at the 17th Architecture Venice Biennale, while in 2023, he participated as a speaker in the collateral event “Students as Researchers” at the 18th Architecture Venice Biennale. Moreover, he was a visiting researcher at ICCROM, Italy and collaborated with the Responsible Risk Resilience Centre at the Polytechnic University of Turin, Italy (2019–2022).

His expertise includes urban resilience, sustainable development, built and cultural heritage, landscape resilience, and cultural landscapes. He has authored numerous peer-reviewed articles, book chapters, and conference proceedings, including the monograph “The Resilience of Cultural Landscapes: Perspectives from UNESCO World Heritage Sites” (Springer, 2024). Aimar has been a scientific committee member for journals such as *archiDOCT* (ISSN 2309-0103, Scopus Index), *Urbanistica* (ISSN 0042-1022), and the *GeoProgress Journal* (ISSN 2384-9398).

Lastly, Aimar was elected to the Executive Board of the Order of Architects, Planners, Landscape Architects, and Conservators of the Province of Asti, Italy (2017–2021), and he previously served on its Culture Commission (2010–2016). He was an invited speaker at the 28th International Book Fair in Turin and the Chamber of Deputies of the Italian Parliament in Rome in 2015.

Matteo Caser

Matteo Caser is an assistant professor at the Department of Agricultural, Forest and Food Sciences of the University of Turin. He holds a Ph.D. in Agricultural, Forestry, and Food Sciences from the University of Turin, entitled “The role of DNA markers in biodiversity analysis and characterization of local ornamental germplasm: genera *Camellia*, *Rhododendron*, and *Campanula*”.

As a researcher, he has worked on many projects focusing on horticultural and floriculture crop systems by investigating the agronomic, physiological, and biochemical aspects. His studies are focused on production quality control, examining environmental sustainability in open fields as well as in vitro and in greenhouse cultivation. Caser has collaborated with Meiji University in Tokyo and at the Botanical Garden in Niigata (Japan); at the Kunming Institute of Botany, Chinese Academy of Sciences (Kunming, China), where he researched ornamental characteristics in azaleas and rhododendrons; at the Institute for Agricultural and Fisheries Research, Plant Sciences Unit (ILVO) in Ghent (Belgium), where he worked on flow cytometry, microscopy, and participated in a qPCR course as part of an integrated stage in the EU Marie-Curie action Project; and at the Eduardo Mondlane University (Maputo, Mozambique), where he worked on the propagation of endemic species.

Recently, he has been involved in four projects, one funded by the European Commission; another one by the Italian Ministry of Culture aiming at the “Regeneration of small cultural, cultural, religious, and rural sites”; and a “Program to enhance the identity of places: historical parks and gardens”. He authored about 100 scientific publications, published several books in the field of floriculture, and has participated in over 30 conferences.

He is a member of the “Società Orticola Italiana” and of International Society for Horticultural Science (ISHS) and serves as a peer reviewer of international academic journals.

Preface

The 21st century demonstrates that global cities face increasing pressures in the socio-ecological sphere. Despite digital dematerialization, urgent issues like climate change highlight the importance of the physical world and cities. Thus, disciplines such as urban planning, green urban design, architecture, and agricultural sciences are collaborating to propose future solutions for cities that go beyond mitigation and adaptation.

This reprint explores how these combined disciplines can produce resilient solutions to future-proof cities by 2050. The sustainable use of ecosystem services is crucial for urban futures. How should architecture and urbanism adapt to changing conditions? Which settlement models should address emergencies from a multi-level perspective? How can medicine influence planning choices? What contributions can agricultural, horticultural, forestry, and agronomic sciences offer beyond planning tools like green and blue infrastructures?

This reprint addresses theoretical proposals, practical case studies, and interdisciplinary research to build a registry of common actions and strategies that can discuss and update the UN SDG 11 (2015). It focuses on topics related to planning, such as integrated policies, regional development policies, and programs to future-proof cities. It also addresses architecture, focusing on city modifications related to climate, urban, and peri-urban protection and enhancement. Additionally, it explores agriculture and horticulture, urban horticulture, sustainable cultivation, urban green design, and ecosystem services, all aimed at contributing to social, environmental, and economic sustainability.

This Special Issue identifies recurring topics. Several papers discuss the role and benefits of urban green spaces, focusing on environmental sustainability and public health. The included studies explore enhancing city resilience to climate change through green infrastructure and sustainable planning. Another theme is integrating sustainability into urban development, including promoting green buildings and sustainable transportation. The included papers also address biodiversity preservation within urban environments, highlighting urban biodiversity conservation strategies. Additionally, there is a focus on the social dimensions of urban green development, including the role of green spaces in improving community well-being, social cohesion, and quality of life. Some papers examine the role of policy and governance in promoting urban green development, including implementing green policies and urban governance challenges. Innovations in technology for sustainable urban development, such as smart cities and digital tools for urban planning, are also recurring topics.

These subjects highlight a comprehensive approach to urban sustainability and resilience, emphasizing the multifaceted benefits and challenges of integrating green development into urban planning and architecture.

Marco Devecchi, Fabrizio Aimar, and Matteo Caser
Editors