

PROCEEDINGS
of the
INTERNATIONAL CONFERENCE
on
CHANGING CITIES V
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions



Changing Cities V, Corfu, 20-25 June 2022

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Corfu Island, Greece, June 20-25, 2022

Organised by
Department of Planning and Regional Development, University of Thessaly
Laboraty of Urban Morphology and Design

in collaboration with
Department of History, Ionian University, Greece

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University of Thessaly, Volos, Greece

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FORWARD

The series of international conferences on *CHANGING CITIES* aspires to bring together urban planners and designers, architects, landscape designers, urban geographers and historians, urban economists, urban sociologists, and urban policy makers, and investigate new challenges concerning cities and their future. The conference aims at becoming an international forum of transaction of ideas on cities' transitions. We have so far organized five conferences, with peer-reviewed Proceedings, taken place always in June, in venues with unique urban and natural landscape.

- *CHANGING CITIES I: Spatial, Morphological, formal and socioeconomic dimensions, 18-21 June 2013, Skiathos Island, Greece.*
- *CHANGING CITIES II: Spatial, Design, Landscape and socioeconomic dimensions, 22-26 June 2015, Porto Heli, Peloponnese, Greece.*
- *CHANGING CITIES III: Spatial, Design, Landscape and socioeconomic dimensions, 26-30 June 2017, Syros Island, Greece.*
- *CHANGING CITIES IV: Spatial, Design, Landscape and socioeconomic dimensions, 23-28 June 2019, Chania, Crete Island, Greece.*
- *CHANGING CITIES V: Spatial, Design, Landscape, Heritage and socioeconomic dimensions, 20-25 June 2022, Corfu Island, Greece.*

All Changing Cities conferences have been welcomed by the academic community worldwide, usually attracting over 300 presenters from more than 50 countries - Greece and Europe, USA and Canada, Latin America, Middle East and North Africa, Asia, Far East, and Oceania.

On this basis, we believe that despite the difficult conditions of the pandemic crisis, the energy crisis, and the war in Ukraine, the 5th Changing Cities conference will also be a successful academic event. This year, 400 abstracts from Greece and other 32 countries around the world have been submitted, while 13 special sessions have been pre-organised by distinguished academics. Besides, the relatively high percentage (about 40%) of contributions by scholars from abroad indicates the international character of the conference. The 5th Changing Cities conference puts an emphasis on transformations of cities caused by COVID '19 pandemic; the main theme is '*Making our cities resilient in times of pandemics*'. It also highlights issues of *heritage management in cities* validating the co-organisation of the conference with History Department, Ionian University. The strong interest in the 5th CC conference by academic communities, yet under difficult global conditions, allows us to have thoughts about organising the 6th Changing Cities conference on another Greek island in two years' time.

I would like first to thank the Organising Committee, the keynote speakers, and the members of the international scientific board who supported enthusiastically the academic organization of this conference. I would especially like to thank those colleagues of the Scientific Committee who have also pre-organized special sessions in this conference. I would like to thank all the academic and state organisations which supported this conference in many ways: University of Thessaly; The Ionian University in which the conference has been hosted; The Greek Ministry of Environment and Energy - The Green Fund; The Greek Ministry of Maritime Affairs and Insular Policy for offering their aegis and financial support.

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of the series of Changing Cities Conferences

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TABLE of CONTENTS

Welcome ADRESSES	1
1. Prof. Aspa Gospodini, Chair of the Organizing Committee, University of Thessaly	1
2. Prof. Efthimios Bakogiannis, Secretary General of Spatial Planning and Urban Environment, The Greek Ministry of Environment and Energy	1
3. Manolis St. Koutoulakis, Secretary General of the Aegean and Island Policy, The Greek Ministry of Maritime Affairs and Insulae Policy	1
4. Prof. Maros Finka, President of AESOP and SPECTRA CE EU at STU in Bratislava.	1
5. Prof. Athanasios Efstathiou, Dean of Faculty of Humanities, Ionian University	1
6. Prof. Sofia Laiou, Hed of the Department of History, Ionian University	1
7. Christos Voskopoulos, Architect, Mayor of the Municipality of Kaisariani, Athens – Greece	1
KEYNOTES SPEECHES	1
The landscape design for the resilient city	3
Prof. Em. Achille Maria Ippolito	3
The footprint of the pandemic on Mediterranean cities: states of exception vs permanent urban transformation	4
Prof. Em. Lila Leontidou	4
Is de-growth good for cities? Socially and politically controversial reflections on cities and urban planning in de-growth economics	5
Prof. Izabela Mironowicz	5
Cities in the “new normal”	6
Prof. Maros Finka	6
Changing Places during Covid-19 pandemic: new approaches for mapping and design	8
Prof. Marichela Sepe	8
Transitional Visions for “Heritage Open Space in Transformation” in the Post-Covid City	9
Prof. Dimitra Babalis	9
Planning towards creativity and circular economy for urban revitalization and sustainable development of historic cities	10
Prof. Em. Sophia Avgerinou Kolonia	10
Resilience and sustainable development of historical towns. The case of Corfu	11
Prof. Em. Eleni Maistrou	11
Urban agony and political uncertainty: from Mary Shelley’s fictional narratives to real Covid19 pandemics cities	12
Prof. Em. Konstantinos Moraitis	12

A ‘Trans-Urban’ structure: is it a building, is it an open-air public space, is it a landscape project?	19
<i>A. Chelidoni, Dr. K. Moraitis</i>	19
Positioning Maritime Spatial Planning (MSP) in the core of spatial planning debate.	26
<i>Prof. Stella Kyvelou</i>	26
Individual Actions for the Implementation of the 17 Global Goals of Sustainable Development in Cities	27
<i>Prof. Roido Mitoula</i>	27
The Covid 19 pandemic and Tourism: old stories, new challenges, lessons learned;	28
<i>Prof. Paris Tsartas</i>	28
The reuse of industrial buildings as lever to upgrade the urban environment of cities	29
<i>Prof. Em. Kostas Adamakis, Evdokia Tzavella, A. Ioannou</i>	29
Aristotle’s Mosaic: The pandemic’s hybrid landscape and the intangible presence of the past	30
<i>Prof. Em. Nikos Kalogirou</i>	30
Post-pandemic reforms of the post-Generic City	32
<i>Assoc. Prof. Alcestis Rodi</i>	32
The municipality of Kaisariani, a small city with a great history: 100 years of cultural and political output	33
<i>Chr. Voskopoulos</i>	33
PRE-ORGANIZED SPECIAL SESSIONS	35
THE ROLE OF THE DESIGNER FOR THE RESILIENT CITY	36
<i>Organized and chaired by Prof. Em. Achille Maria Ippolito</i>	36
The landscape design for the resilient city	38
<i>Prof. A.M. Ippolito</i>	38
Cultural heritage’s management in contemporary cities	51
<i>A. Marcuccetti, T. Grisi</i>	51
Improving the life in today’s Cities	52
<i>A. Oliverio Ferraris</i>	52
Ecosystem Services and Urban Green Design: the Case Study of Barge (Italy)	53
<i>L. Battisti, G. Brancucci, M. Devecchi, M. Magistris</i>	53
Future cities, between technology and environment	62
<i>J. Ruggiero, V. Lleshi</i>	62
Sustainable Tourism and Landscape Design: their interrelated relationship as a tool for reactivating the Caiafa Lake area and its impact on the resilience and the Urban development of local regional area	69
<i>I. Konaxis</i>	69

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
 Corfu Island, Greece • June 20-25, 2022
 ISSN: 2654-0460
 ISBN: 978-618-84403-6-4

Taking Over The Streets. Re_imaging Badia's urban landscape identity	70
<i>S. Bartumeus Ferre and P. Karamanea</i>	70
The role of the design disciplines in times of pandemic. Relationship between legislative planning and urban form	80
<i>S. Damiano, M. Marino</i>	80
The tower houses of Mytilene as symbols of cultural and historical development for the preservation of the local architectural heritage in North Aegean	86
<i>K. Gougoula</i>	86
In between the sea & the city: approaching the topography of waterfront interface in the city of Alexandroupolis	87
<i>C. Maltezou</i>	87
Complex urban systems. Design and new professions. Cultural heritage's management in contemporary cities	88
<i>R. Anele</i>	88
RESILIENT CITIES AND HISTORICAL CENTERS MANAGEMENT. THE CASE OF CORFU	100
<i>Organized and chaired by Prof. Em. Eleni Maistrou</i>	100
Resilient Cities and Historical Centers Management. The case of Corfu	102
<i>E. Maistrou</i>	102
IRC-Hermes: A digital tool that can contribute to urban resilience	103
<i>Y. Kourmadas, E. Angeli</i>	103
Assessing the Impacts of Climate Change at a historic settlement: The case of the Old Town of Corfu	104
<i>E. Maistrou, V. Pougkakioti, M. Lazoglou</i>	104
The contribution of modern geodetic methods in the creation of geometric diagrams/plans for the management of historic centers. The Old & New Fortress of Corfu	105
<i>G. Pantazis, V. Zafiris, N. Kanellopoulos, S. Ioannidou, G. Garoufos and A. Iliodromitis</i>	105
The importance of registration and historic research in the administration of cultural heritage. The example of Old and New Fortress in Corfu	115
<i>J. Vobiri</i>	115
Corfu: Multicultural identity, issues of Promotion	116
<i>E. Konstantinidou</i>	116
Effects of climate change on the historical building materials in the town of Corfu, Greece	117
<i>P-N. Maravelaki, K. Kapetanaki, N. Avgerou, E. Maistrou</i>	117
SOCIO-SPATIAL TRANSFORMATIONS OF EVERYDAY PRACTICES IN PUBLIC SPACES DURING THE PANDEMIC	119
<i>Organized and chaired by Prof. Athina Vitopoulou</i>	119
Between temporary and permanent. Exploring users' experience of open-air market before and during the pandemic	121
<i>M. Nikolaidou, A. Vitopoulou</i>	121

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
Corfu Island, Greece • June 20-25, 2022
ISSN: 2654-0460
ISBN: 978-618-84403-6-4

Cultural expression in the public space: a pandemic encounter	131
<i>N. Chrysikou, K. Sakantamis</i>	131
Urban space and quality of life in Greek cities before and during COVID-19: Seeking pandemic resilient city planning	132
<i>K. Mouratidis, A. Yiannakou</i>	132
Public space transformations in the covid era: implications for Mediterranean cities urban planning	133
<i>G. Gemenetzi</i>	133
From plazas to balconies: counterbalancing the lack of space, contact, action, entertainment	141
<i>N. Chrysikou, K. Sakantamis</i>	141
Rethinking urban planning in the time of COVID-19: From “urban voids” to “urban commons”	151
<i>A.R. Vouza, S. Manika, A. Gospodini</i>	151
SENSORY PLACEMAKING: REIMAGINE THE FUTURE RESILIENT CITY AND PUBLIC SPACES THROUGH SENSES AND MEMORIES	153
<i>Organized and chaired by Ass. Prof. Maro Sinou</i>	153
Small urban space network: the perspective of a green network including small and very small urban spaces as an answer to the scarcity of available public space in city centers	155
<i>Dr. M. Sinou, K. Timotheou, C. Chantiona, S. Koutsanitis</i>	155
The architecture of the senses and the understanding of space through technology and smart systems for people with reduced perception	165
<i>M. Poli, K. Malagas, S. Nomikos, and A. Papapostolou</i>	165
The relationship between disability, technology, and sustainable development: the Greek reality	166
<i>M. Poli, K. Malagas, S. Nomikos, A. Papapostolou</i>	166
International Experience on Sustainable Public Spaces: Exploring Athens beyond the Dichotomy of Periphery and Center through the Athens Riviera	176
<i>A. Chernila, D. Brown, E. Tousi</i>	176
Urban screen based narratives as social experiences	177
<i>O. Venetsianou</i>	177
Smart Sensory City as the new public place: investigate resilience and sustainability of urban public spaces to promote healthier environments and community participation	186
<i>R. Perakaki, Dr. Maro Sinou</i>	186
Participatory activities in Piraeus Municipality through proGlgreg –H2020 project	196
<i>J.N. Tzortzi, L. Guaita</i>	196
Memories created, memories recalled; interpretations of sensory spatial design in exploring cultural identity and heritage	208
<i>A. Efstathiou</i>	208

Multisensory urban design as a complement to sustainable regeneration projects, in Euro-Mediterranean metropolises: the case of Athens	209
<i>N. Bobolos</i>	209
New Emerging Urbanities. Vacillations, transformations and challenges in the post-Covid urban condition	220
<i>M. Moira, D. Makris</i>	220
Transformative Designs of Hospitality Spaces in During the Period of a Pandemic	227
<i>D. Fragkou, I. Barkouta</i>	227
“The Intangible Victory”, Interactive Audiovisual Installation	234
<i>K. Tsioutas, P. Pangalos, K. Tiligadis, A. Sitorengo</i>	234
Experience the city: designing an info kiosk for the promotion of the Sparta’s city brand	242
<i>E. Goude, E. Romoudi, T. Fokidou</i>	242
Digital Art as a Form of Public Art	243
<i>G. Touliaou</i>	243
Performance art: A tool to redefine public space	251
<i>V. Manaridou & S. Kopelia</i>	251
THE MEMORY OF PLACES: BUILT ENVIRONMENT, CULTURAL LANDSCAPE AND HISTORICO-POLITICAL IDENTITY	266
<i>Organized and chaired by Ass. Prof. Elena Konstantinidou & Prof. Em. Konstantinos Moraitis</i>	266
Virtual promotion of historical memory: digital guidance narratives ‘inscribed’ in public urban space or correlated to cultural landscape visiting itineraries	268
<i>A. Chelidoni, Dr. K. Moraitis</i>	268
The memory of places–The places of memory	269
<i>E. Konstantinidou</i>	269
Accessibility as a strategy to investigate historical strata	270
<i>C. Lipa, F. Micocci</i>	270
New Metabolism: ‘Placeless’ solutions strategies for unplanned scenarios	271
<i>Y. Zavoleas and N. Patsavos</i>	271
Breaking the Fourth Wall: On Tools to Explore the <i>Terra Incognita</i>	281
<i>N.R. Harag</i>	281
Memory in Transit. Integrating archaeological heritage into the daily commute	282
<i>M. Pasia</i>	282
Digging in time: the loss of memory of Citânia de Santa Luzia	283
<i>W. Lollino</i>	283
The Memory of Place in the World of Augmented Reality	294

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ISSN: 2654-0460
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<i>E. Maistrou, K. Moraitis, Y. Maistros, K. Boulougoura, A.M. Konidi and K. Moretti</i>	294
The boundary between urban and natural landscape	295
<i>J. Ruggiero</i>	295
Mapping the historical memory of places	300
<i>A. Vasilara, E. Konstantinidou</i>	300
The mnemonic formation of the public space: The example of the main avenue of the city of Ioannina, Epirus, Greece	310
<i>C. Merantzas</i>	310
In the intimacy of the Mediterranean Sea: an eternal story of Palimpsest	320
<i>R. Sassine</i>	320
The urban stratigraphy of the subsoil of Eleonas area as a monument of the 'Anthropocene' period in the Athenian landscape	321
<i>M. Benissi, K. Moraitis</i>	321
Khans in the Cypriot built environment	333
<i>D. Athanasiou, M. Philokyprou</i>	333
Riverbank Mélange to Fusion Stream: City Junkyards as Junctures	334
<i>A. Dimitrakopoulos</i>	334
Memorials of Industry and Monuments of Ruination: the case of abandoned quarries	348
<i>S. Kallea</i>	348
A cultural mnemonic experiment: memories of Art History and of an important neoteric Didactic Approach, depicted on a contemporary school building	359
<i>D. Vasalos, Dr. K. Moraitis</i>	359
Urban Synergies in the design process; Place Identity as a catalyst for the formation of space	367
<i>M. Hadjisoteriou</i>	367
Genius loci et temporis. Time capsules for recording memories	377
<i>E. Giani</i>	377
Placing collective memory in Displaced Architecture	387
<i>A. Swiny</i>	387
INNOVATIVE URBAN PLANNING APPROACHES	399
<i>Organized and chaired by Prof. Konstantinos Serraos</i>	399
Sparta Greece. A historic city in transition. Planning attempts from the 19th to the 21st century	401
<i>K. Serraos</i>	401
Colouring Athens - A Crowdsourcing Platform for the Collection of Data on Athens' Building Stock	402

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
 Corfu Island, Greece • June 20-25, 2022
 ISSN: 2654-0460
 ISBN: 978-618-84403-6-4

<i>G. Panagiotoulos, K. Serraos, E. Tsigkas, A. Vlachou</i>	402
Development of a multicriteria decision making system for the evaluation of the cultural assets of a place	403
<i>E. Linaki</i>	403
A proposal for a spatial strategy methodology. The Vamvakou case	404
<i>V. Charalampidou</i>	404
Control of off-plan development through access roads: from “roadless mountains” to “roadless areas”	405
<i>G. Spiliopoulou</i>	405
The role of metropolitan spatial planning in adopting SDGs in Greece	406
<i>E. Asprogerakas, A. Tasopoulou</i>	406
Investigating the Role of Spatial Resilience in the Light of Climate Change: An Innovative Approach for Coastal Cities	407
<i>M. Lazoglou</i>	407
A methodological approach for developing institutionalized integrated sustainable energy and climate action plans: The 2ISECAP project	408
<i>A. Tasopoulou, C. Zuidema, M. Fernández Maroto, C. Tourkolias, I. Giannouli, R. Spijkerboer, C. Christidou</i>	408
Memory and cultural heritage as drivers for spatial design	418
<i>R. Lava</i>	418
Working with communities. Promoting SDGs in design and planning workshops	419
<i>B. Ioannou, L. Nicolaou, G. Kalnis</i>	419
Built-up area, population density and carrying capacity estimation: A new methodological approach	420
<i>P. Vourellis, A. Koudouni, M. Tziraki, C. Karakizi, K. Serraos</i>	420
Environmental planning directions in peri-urban residential areas and scattered settlements vulnerable to forest fires	421
<i>N. Pangas, E. Apostolidis</i>	421
Acting as a Healthy City	433
<i>K. Asikis, M. R. Serra, S. Aivalioti, S. van Herk, I. Kakaitza</i>	433
Redefining 21st century’s planning through soil and culture: The case-study of the historic Greek city of Sparta	435
<i>C. Tzamou</i>	435
Cycling in Athens in light of the institutionalized standards for cycling infrastructure planning	436
<i>C. Kyriakidis, T. Papagerasimou-Klironomou, I. Chatziioannou and E. Bakogiannis</i>	436
Reconsidering sustainable mobility patterns in urban business clusters’ planning: Kifisias Avenue, Athens	437
<i>P. Kanellopoulos, C. Kyriakidis and E. Bakogiannis</i>	437
Innovative approaches of planning and design in the coastal landscape	451

<i>A. Pagonis</i>	451
Planning and designing across a living trace: the case of the Pelion railway	452
<i>M. A. Deffner</i>	452
Reclaiming disused railway infrastructure through innovative urban planning practices. The case study of “Kozani’s OSE City Park”	453
<i>G. Gkoumopoulou, A. Koudouni, K. Serraos</i>	453
Urban scale digital twins and socio-technical perspectives: Big Data in urban planning decision-making	454
<i>M. Charitonidou</i>	454
Considering spatial dimensions of civil protection in urban planning: The case of Special Spatial Plan of Mati, Attica, Greece	466
<i>M. Dandoulaki</i>	466
Phoenix regeneration of Mati settlement in Attica	467
<i>P. Avgoustinou, D. Chantzakou</i>	467
SUSTAINABLE REGENERATION AND HEALTHY AND LIVABLE PUBLIC SPACES	469
<i>Organized and chaired by Prof. Marichela Sepe</i>	469
Cultural sites and livable spaces: a case of intangible resources sustainable enhancement	471
<i>M. Sepe</i>	471
Art and public space: a case of cultural regeneration	481
<i>A. Martone, M. Sepe</i>	481
Healing places, healing people: Insights on spontaneous critical placemaking from the Bellhaven Harm Reduction Centre, Durban, South Africa	491
<i>S. Moodley, M. Marks</i>	491
The city that resists	505
<i>M.A. Bedini, F. Bronzini</i>	505
Regeneration or speculation? A socio-spatial analysis on liveability within Valletta	506
<i>A. Zammit</i>	506
Diversity, community and participation: how Covid-19 has boosted the main issues of public space design	516
<i>C. Peraboni, S. Campioli</i>	516
Transformations and the resilient city. Lessons from the <i>Reinventing Cities</i> competitions in Milan	526
<i>L. Pogliani</i>	526
Urban green spaces and environmental justice: a debate on “healthy cities”	535
<i>A. Giampino, G. Lisi, F. Schilleci</i>	535
Strategic scenarios for urban and environmental regeneration. A master plan for ancient Kroton	536

<i>D. Passarelli, F. Verardi</i>	536
A new piazza in Meolo near Venice in North-East Italy. Planning projects to regenerate a degraded historic place	545
<i>E. Pietrogrande, A. Dalla Caneva</i>	545
Cultural institutions as agents of urban and community regeneration in the (post-)pandemic city. The case of the «Laboratorio Zen Insieme» in Palermo	554
<i>S. Crobe, C. Giubilaro</i>	554
Porto Alegre & Rio Guaíba: Revive or Die!	555
<i>L. Castello, I. Castello</i>	555
Changing Cities for Resilience against Climate Changes: Architectural, Engineering and Human Health Implications – The H2020 Project HARMONIA	564
<i>J.N. Tzortzi, G. Barbotti, C.A. Castiglioni, A. Voza</i>	564
Earthquake and pandemic in Central Italy: urban regeneration of historical cities and the role of new public spaces in reshaping urban identity	576
<i>I. Pierantoni, S. Porfiri, L. Romagni, M. Sargolini, F. Stimilli</i>	576
Privileged places in the city: urban quality, livability, sustainability	577
<i>T. Cilona</i>	577
NO D.A.D: the classroom in open space	587
<i>Zhen Chen and P. M. Giordani</i>	587
Spatial memory, a stability factor in post-traumatic recovery at risk	596
<i>C.O. Gociman, C.I. Moscu, M.G. Ene</i>	596
Exploring formal and informal means of improving spatial quality in cities across Europe: the role of financial tools	607
<i>T. Gabrieli</i>	607
THE EXCEPTION AS THE RULE: THE DARK SIDE OF PLANNING	609
<i>Organized and chaired by Prof. Francesco Lo Piccolo & Prof. Vincenzo Todaro</i>	609
Space as an Actor: the Hidden Rules of the City	611
<i>M. Bovo, P. Briata, M. Bricocoli</i>	611
Affects, Bodies and Antipluralist “Activism”: The Dark Sides of Public Space Protests	612
<i>A. Gabauer, S. Knierbein</i>	612
Graying the Dark Side of Planning through Planning Education: an Autobiographical Account	613
<i>A. Raciti, L. Saija</i>	613
Spatial consequences of the COVID-19 state of exception: before and after scenarios through citizens' digital traces	614
<i>L. Serrano-Estrada, A. Bernabeu-Bautista, P. Martí, L. Moreno-Izquierdo</i>	614

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
 Corfu Island, Greece • June 20-25, 2022
 ISSN: 2654-0460
 ISBN: 978-618-84403-6-4

Nation, Nationalism, and the Politics of Space - Exploring the Tensions and Relations between Nationalism Studies and Urban Scholarship	615
<i>E. Kränzle</i>	615
CULTURE, COHESION AND PLANNING IN DIVERSE TERRESTRIAL AND MARINE ENVIRONMENTS	617
<i>Organized and chaired by Prof. Stella Sofia Kyvelou</i>	617
Near-shore Multi-use of marine space: potential and prospects on the Greek coasts	619
<i>S. S. Kyvelou, I. Pothitaki, D. Ierapetritis</i>	619
Balancing the management of the cultural and natural commons and market choices through Multi-use settings: towards evolutionary aspects of Maritime Spatial Planning (MSP)	620
<i>S. S. Kyvelou, D. G. Ierapetritis, M. Chiotinis</i>	620
The minor ports management: between opportunities and cooperation	621
<i>F. Carella, C. F. Dall'Omo, V. Negretto, M. Faccin, F. Musco</i>	621
Towards a circular urban and spatial planning in Greece, under the light of the European Green Deal	622
<i>V. Nikou, S. S. Kyvelou</i>	622
Maritime and Underwater Cultural heritage in insular areas; Best practices and perspectives in Greece	623
<i>E.A. Barianaki</i>	623
French bids for the title of European Capital of Culture 2028	624
<i>F. Thuriot</i>	624
How is noise affecting the marine environment? Do we need to define “marine quiet areas” in Maritime Spatial Plans?	625
<i>S. Kyvelou, A. Tsaligopoulos</i>	625
Understanding land-sea interaction traditions and transitions through the theory of evolutionary governance: lessons from the city of Piraeus	634
<i>N. Marava, S. Kyvelou</i>	634
Developing an Observation Network for Maritime Cultural Heritage (MCH/UCH) in Greece: the HER-SEA project	635
<i>S.S. Kyvelou, G. Gospodini, D. Kitsiou, D. Ierapetritis, E. Barianaki, A. Smanis, N. Chiotinis, Th. Nitis, A.R. Vouza, M. Banela, A. Patera, M. Chiotinis</i>	635
CITIES AND GEOGRAPHICAL TERRITORIES OF CONFLICT: THE PAST PRESENT AND FUTURE OF POLITICAL INSTABILITY	637
<i>Organized and chaired by Prof. Em. Konstantinos Moraitis</i>	637
Destruction of cities, genocides and ‘the orders from the dead’: a requiem for the destruction of Hellenic part of Smyrna in 1922	639
<i>A. Chelidoni, Dr. K. Moraitis</i>	639
Weird-Fiction and the Architecture of Xenophobia	640
<i>A. Gipe-Lazarou</i>	640

Phobic narrational motifs of a constantly impending disaster and fear of the masses; tragic and grotesque as an analytical prism for comics of the fantasy genre	641
<i>A. Polychronopoulos</i>	641
HomeLand: A monument for those who need to remember	642
<i>T. Zafeiropoulos</i>	642
Violence and the City: Urban Conflicts in Exarcheia	643
<i>L. Koutsoumpou</i>	643
Environmental refugees: a global and local conflict field and a cultural challenge	644
<i>K. Mela-Fragkiskou</i>	644
Housing for the poor in Addis Ababa: Territories of instability and commoning practices	650
<i>M. Charitonidou</i>	650
Transient spaces	663
<i>L. Tsafoulia, S. Wines, S. Ong</i>	663
In times of Pandemic	664
<i>K. Moretti</i>	664
War refugees and unavoidable economic immigration: camps and cities of refugees in the historic past and the geopolitical present	665
<i>A. Moraiti</i>	665
SMART AND GREEN CITIES: PARTICIPATORY PROCESSES AND INCLUSION IN URBAN PLANNING	667
<i>Organized and chaired by Ass. Prof. Valina Geropanta</i>	667
Urban planning and policy making under the light of emerging global trends in digitalization and sustainability	668
<i>M. Angelidou and C. Politis</i>	668
Smart greening: ecosystem services and planting strategies for vertical gardening	669
<i>T. Ampatzoglou</i>	669
A holistic Digital Twin to support an island's resilience in the fight against climate change	670
<i>P. Parthenios</i>	670
Integrating BIM into architectural education: the case of the urban scale	671
<i>G. Tsaras, F. Sagonas, A. Karagianni</i>	671
CHILDREN'S WELLBEING AND URBAN SUSTAINABILITY: DESIGN, PLANNING AND POLICIES FOR CHILDREN-FRIENDLY CITIES	673
<i>Organized and chaired by Prof. Fyllio Katsavounidou</i>	673
Children's wellbeing and urban sustainability: Towards a child-centered agenda for the post-pandemic city	675
<i>G. Katsavounidou</i>	675

Children's social networks, practices and experiences as agents in shaping urban policies and planning.	676
<i>Z. Karampini</i>	676
Participation on wheels: A ludic tool for citizens' engagement in urban participatory processes	685
<i>G. Manousogiannaki, E. Vallindra</i>	685
Involving children in urban planning: collaborative approaches and methods of participation	695
<i>J. Ferreira, S. Sousa, S. Santos Cruz</i>	695
What if we "read" the city through children's maps?	696
<i>E. Vallindra</i>	696
Designing public space with children: Toolkits for participation	704
<i>A. C. Graça</i>	704
Empowering children through co-creation: writing a book with and for children about their first steps towards urban independence	705
<i>B. Patuszynska</i>	705
Playing as a tool towards a sustainable urban reality	714
<i>S. Sarri</i>	714
The school threshold as a place for interaction. Research projects with the participation of elementary-school children	715
<i>N. Bazaïou</i>	715
THE X-MINUTE CITY: MODELS OF URBAN PROXIMITY	717
<i>Organized and chaired by Assoc. Prof. Alcestis Rodi</i>	717
Planning a City for the People: Ekistics in the DHA City Karachi	719
<i>S. Pollalis, E. Chatzistavrou, A. Kouveli, D. Lappas, Y. Orfanos, D. Papadopoulos, O. Tzioti</i>	719
Aristotle's Mosaic: The pandemic's hybrid landscape and the intangible presence of the past	721
<i>N. Kalogirou</i>	721
Is the 15-Minute-City (FMC) model applicable in the Greek context? Evidence from regulations, practice and reality	723
<i>G. Pozoukidou and M. Angelidou</i>	723
Application of the 15-min city model in the Mediterranean context: a methodological approach for the city of Thessaloniki	724
<i>G. Pozoukidou, D. Plastara</i>	724
Homo medicus & the post vaccine city	725
<i>L. Papalampropoulos</i>	725
C40 Reinventing Cities: A global students' competition on 'Reinventing Kypseli'	726
<i>D. Katsota</i>	726

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
Corfu Island, Greece • June 20-25, 2022
ISSN: 2654-0460
ISBN: 978-618-84403-6-4

Nature Based Solutions in Changing Cities: Aligning Proximity, Scale and Co-benefits	727
<i>A.B. Hedjazi</i>	727
15-minutes cities; the regeneration of Greek cities	728
<i>I. M. Kachrila and A. Gospodini</i>	728
EXPERIENCING SUSTAINABILITY FOR CORE URBAN AREAS IN POST-PANDEMIC CITIES	730
<i>Organized and chaired by Prof. Dimitra Diana Babalis</i>	730
Changing Worker-scapes in core urban areas. A Masterplan for the former cement factory 'Marchino' in Tuscany	732
<i>D. Babalis</i>	732
Industrial Heritage Architecture and Sustainable Regeneration on Texas Urban Waterfronts	739
<i>G. Campagnol</i>	739
Rethinking networks of small - scale public places for a Resilient Urban Design after Covid pandemic	740
<i>D. Polychronopoulos, M. Grigoriadou</i>	740
Re-starting from cultural heritage to design the resilience of historical urban centres	741
<i>J. N. Tzortzi, M. S. Lux</i>	741
Contesting or coinciding needs: The relationship between ensuring thriving urban cores and safeguarding historic qualities	752
<i>G. Swensen, O. H. Hagen</i>	752
Experiencing sustainability of historic cities through management plans	753
<i>E. Maistrou</i>	753
CITIES' CULTURAL HERITAGE MANAGEMENT	755
<i>Organized and chaired by Prof. Nikolaos Samaras</i>	755
Historical Physiognomy of the City of Volos, Recognized by New Residents, First Years University Students	757
<i>N. Samaras, M. Triantafyllidi & D. Kalergis</i>	757
Cognitive mapping of Volos: a figural and qualitative survey of regional planning students	758
<i>N. Samaras, M. Triantafyllidi & D. Kalergis</i>	758
Architectural history of the listed building of the Aristotle University of Thessaloniki Bequest of "Thomas Papamichaelides". Contribution to the protection of architectural heritage, urban regeneration and aesthetic upgrade of T. Papageorgiou Street in Thessaloniki	759
<i>A. Antoniou</i>	759
Reuse of the listed building 'Papazoglilos Textile School for Girls' in Ioannina, Greece, as a School of Architecture and Design	768
<i>E. Ntaflos, N. Samaras</i>	768
Management and enhancement of cultural heritage monuments after restoration works: The example of the Archaeological site of Ancient Pelinna and the Hellenistic Tomb of Petroporos in the Prefecture of Trikala	781

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
 Corfu Island, Greece • June 20-25, 2022
 ISSN: 2654-0460
 ISBN: 978-618-84403-6-4

<i>I. Koltsida, E. Rouka, D. Vlachava</i>	781
The existing management of cultural reserve in Trikala and Karditsa, examples and proposals for the historical centers of the cities.	790
<i>D. Vlachava, S. V. Varela</i>	790
Architectural history of the “E. Raftopoulos” School Building in Messovounia, Cephalonia. Contribution to the protection of modern Greek architectural heritage and preservation of historical memory	800
<i>A. Antoniou</i>	800
A proposal for renovation and restoration of the old railway station "Myloi Athens"	810
<i>E. Kollia, N. Samaras</i>	810
THE ‘SoPHIA’ PLATFORM FOR HOLISTIC HERITAGE IMPACT ASSESSMENT	812
<i>Organized and chaired by Ass. Prof. Nicholas Anastasopoulos and Prof. Riva Lava</i>	812
Towards a Methodology for Assessing CH Interventions: Holism in the Case of the SoPHIA Research Program	814
<i>N. Anastasopoulos, S. Lavva, L. Koutsoumpas</i>	814
Temple Bar Cultural Quarter: Every ship needs a rudder. The impact & importance of governance on sustainable urban area regeneration	815
<i>P. McQuaid, C. Horn</i>	815
Holistic impact assessment as a tool for giving evidence to a cultural-driven change: the SoPHIA model	823
<i>M. Baioni, A. Cicerchia, P. Demartini, L. Marchegiani, M. Marchiori, F. Marucci</i>	823
Belonging In Cultural Policy Tools - Examples of Heritage Impact Assessment and Management Plans	824
<i>A. Zuvela</i>	824
ROUNDTABLE DISCUSSIONS	826
HOW TO PREPARE OUR CITIES FOR THE UNEXPECTED, OR WHAT HAVE WE HAVE LEARNT ABOUT URBAN RESILIENCE FROM COVID’19?”	827
<i>Organised and coordinated by Prof. Aspa Gospodini</i>	827
How to prepare our cities for the unexpected, or what have we have learnt about urban resilience from covid’19?”	828
<i>Prof. Aspa Gospodini</i>	828
THE IMPORTANCE OF HABITABLE HISTORICAL CENTERS IN THE MANAGEMENT OF CULTURAL HERITAGE	830
<i>Organised by Civil Society Network of Mediterranean Historical Cities and coordinated by Lina Roussou</i>	830
The importance of habitable historical centers in the management of cultural heritage	831
<i>A. Katsaros, A. Katsarou, A. Makris, L. Roussou, et al.</i>	831
THEMATIC SESSIONS	833
RESILIENT CITIES AND HISTORICAL CENTRES MANAGEMENT	834
Evaluating urban resilience: The case of Athens	835

Proceedings

*of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
Corfu Island, Greece • June 20-25, 2022
ISSN: 2654-0460
ISBN: 978-618-84403-6-4*

<i>D. Dimelli</i>	835
Ionian Belfries - Perspective of development and sustainability of Historic Centers. The case of the historic center of Corfu	845
<i>A. Kalaitzoglou</i>	845
Redefining the tourist destination by upgrading the role of guided tours in historic city centres: a novel conceptual approach and a proposal for Corfu old town	856
<i>A. K. Grammenos, Dr G. Papaioannou</i>	856
Conservation and demolition of Brutalist built environment in England	867
<i>E. Donini</i>	867
Presenation of CORRELATE: An interaCtive framewORk foR sustainable worLd heritAge siTe managEment	868
<i>S-M. Poulimenou, I. Deliyannis, A. Giannakouloupoulos</i>	868
Portraying Corfu in 1486: The view from the deck of Contarini's ship	869
<i>M. Palioura</i>	869
Ongoing adaptive reuse. Clues of heritage resilience in the Covid-19 pandemic	870
<i>F. Fava</i>	870
Composing the profile of urban resilience in mid-sized Greek cities. The case of Larisa	871
<i>O. Christopoulou, A. Gospodini, K. Lalenis</i>	871
BUILT HERITAGE MANAGEMENT	873
The value of pre-industrial masonry architecture for urban housing rehabilitation. Case studies in Southern Europe	874
<i>A. Psoma, J. Mourão, A. Alegre</i>	874
A strategy for the rehabilitation of Lisbon pre-industrial housing (16th - early 19th c.)	884
<i>J. Mourão, J.V. Caldas, A.A. Alegre</i>	884
Accessibility and architectural heritage: building vernacular settlements' and cities' resilience and sustainability	885
<i>M. Griva, C. Caradimas and Ch. Kanari</i>	885
Different meanings of memory, a value for a complex landscape design	886
<i>C. Peraboni, C. Angelillo</i>	886
Coastal tourism destinations as spaces of local identity and culture. Depictions from Mediterranean projects	896
<i>T. Papatheochari, S. Niavis, A. Koutsopoulou, H. Coccossis</i>	896
Socialist mass housing stock as urban built heritage in Sofia, Bulgaria: perspectives and challenges	905
<i>I. Iordanidou, Z. Karamanou and A. Vitopoulou</i>	905
The Economics of Architecture: Mapping the Economic and Cultural values	914
<i>E. - P. Vernadou, S. Lavva</i>	914

Cultural and architectural heritage of tobacco era in Kavala, Greece. Can decay be reversed?	915
<i>D. Kalergis, K. Lalenis, I. Sinamidis</i>	915
CULTURAL HERITAGE MANAGEMENT	917
Archaeological museum of Thebes: Innovation via past	918
<i>Dr. V.D. Spanos</i>	918
Archaeological tourism on Kos Island: Asclepius' sanctuary	925
<i>Dr. V.D. Spanos</i>	925
Memories of the concentration camp of Ai-Stratis. Interpretation of a difficult heritage about the internal exile of political opponents in Greece	931
<i>M. Marini</i>	931
The cultural-historical heritage as a potential for the development of tourism in the municipality of Arandjelovac	942
<i>J. Basaric, A. Golac</i>	942
Revitalizing intangible cultural heritage through the design of virtual environments	953
<i>A. Tellios, D. Zavraka, P. Koulali</i>	953
"SPHINX": changing the world	954
<i>D. Paraskeva</i>	954
Cultural heritage management, Archaeology and Architecture: The experience of a time-space apocalypse	964
<i>D. Nikolaou, A. Paparoupa</i>	964
URBAN DESIGN IN PLANNING	966
Urban Gender and Scalar Hermaphrodites: Forging a Fjordscape	967
<i>A. Dimitrakopoulos</i>	967
Making cities liveable: Barcelona caring city	979
<i>Z. Muxí Martínez & J. M. Montaner</i>	979
Challenges of the Covid-19 pandemic and design responses in public space: Towards strategies for resilient post-Covid cities	980
<i>G. Gualtieri, B. Boon, F. Suurenbroek, M. de Waal, B. Andoloro, S. Schramkó</i>	980
The pandemic and the urban design: Reflections about Post COVID-19 urban planning of inner areas in Central Italy	990
<i>A. S. Cortes, M. Sargolini</i>	990
SUSTAINABLE URBAN PLANNING & DEVELOPMENT	1001
Evaluating the accessibility of green spaces in Romanian small urban environments	1001
<i>N. L. Stoia, M. R. Niță, C. Ioja</i>	1002

Getting to the bottom of bottom-up planning strategies: The reformation of the Hellenic Defense Factory SA in Hymettus	1003
<i>Dr. K. Christoforaki</i>	1003
The difficult journey between governance and governance in the urban ecosystem. The Movement for the Caracol da Penha Garden as a case study	1013
<i>J. Gonçalves</i>	1013
Urban sustainability and resilience: a social research in Thessaloniki	1014
<i>P. Kosmopoulos, A. Kantzioura, I. Kosmopoulos, K. Kleskas, A. M. Kosmopoulos</i>	1014
Bhopal, is it a water shaped historic city?	1015
<i>K. Puntambekar and V. Kawathekar</i>	1015
The ex ante evaluation methodology: the Corradini case study in the industrial area of east Naples	1016
<i>M. Giammetti, S. Piccirillo, S. Tordo</i>	1016
The implementation of sustainable urban development strategies in the 2014-2020 programming period in Greece. Problems and prospects for the 2021-2027 programming period	1025
<i>Y. Saratsis</i>	1025
Sustainable urban tourism indicators. The Town of the Corfu Island in Greece	1026
<i>E. Velissariou, C. Amoiradis & T. Poullos</i>	1026
Resilient Cities and Sustainable development - The 100RC Network	1037
<i>M. Kalla, Th. Metaxas</i>	1037
The social impact of the Ellinikon renovation project: the Athenians citizen's perception	1038
<i>P. Karametou, R. Mitoula, A. Papavasiliou</i>	1038
Design thinking, nudges and green economy: towards an integrated strategy for sustainable urban development	1039
<i>S. Ferreira Crispim, L. Cetara and P. La Malva</i>	1039
Redeveloping military brownfields: a complex process	1040
<i>K. Koleli</i>	1040
Applying social sustainability to urban planning practice using the Place Standard Tool: Measurement, findings, and guidance	1050
<i>K. Mouratidis, H. Hofstad, S. Sagen and C. Dahl</i>	1050
The changing meaning of urban open spaces through the pandemic process: workshop experiences	1051
<i>E. Süyük Makaklı, P. Engincan, N. Zeren Gülersoy, A. Özsoy, G. Kepsutlu, D. Zeycan, E. Yücesan, B. Ozar, Ö. Çelik Yılmaz</i>	1051
Multidimensional space-time patterns of crime and insecurity in Porto, Portugal: contributions to preventive planning	1052
<i>M. Saraiva, T. Sá Marques, D. Ribeiro & A. Amante</i>	1052

Proceedings

of the International Conference on **Changing Cities V:**
Spatial, Design, Landscape, Heritage & Socio-economic Dimensions
Corfu Island, Greece • June 20-25, 2022
ISSN: 2654-0460
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The “meanwhile” city: Temporary land uses and flexible planning strategies for urban crisis recovery	1053
<i>M. Laopoulou, G. Pozoukidou</i>	1053
Urban Strategies for a Resilient City in Africa - Beira	1067
<i>M. M. Santos, A. V. Ferreira, J. C. G. Lanzinha</i>	1067
Achieving urban sustainability and resilience to times of crisis	1078
<i>M. Chondrou Karavasili & M. Kathreptis</i>	1078
The criteria for developing site-based tourism products based on the exploitation of existing Industrial Heritage. A Comparative analysis of certain Greek examples	1079
<i>P. Tsolakaki & S. Avgerinou-Kolonia</i>	1079
How did Covid-19 influence Urban Planning?	1080
<i>V. Gdysi & C. Savvena</i>	1080
Residential preferences, housing affordability and building construction challenges during COVID-19 pandemics: Case study of Belgrade, Serbia	1087
<i>T. Njegić, K. Majhenšek, J. Petrić</i>	1087
A new era for the location of productive activities in Greece	1100
<i>I. Lainas</i>	1100
Knowledge, Attitude and Behavior of Greek students towards SDGs. Initial findings	1101
<i>E. Athanasopoulou, M. Markou, A. Gospodini and C. Daousi</i>	1101
The city of Pylos and its dynamics in terms of sustainable tourism development	1102
<i>A. Fotopoulos, M. Markou, E. Chaniotou, C. Daoussi</i>	1102
Quality of life of residents of the suburban area of Warsaw	1103
<i>M. Denis, J. Jaroszewicz, A. Fijałkowska</i>	1103
Sustainable regeneration of a listed building: The case of the low energy ‘Constantin Xenakis’ Art Gallery	1104
<i>A. Dimoudi, P. Vavalos, S. Zoras</i>	1104
URBAN REDEVELOPMENT, REGENERATION AND RESILIENCE	1106
Urban Resilience Strategies and the deficiency of metropolitan governance in Greece: the case studies of Athens and Thessaloniki	1107
<i>S. Parthenopoulou, G. Pozoukidou</i>	1107
Towards flexible spatial planning in Greece? analysis through the regeneration plan for the coastal zone of Thessaloniki’s metropolitan area	1117
<i>M. Papageorgiou and G. Pozoukidou</i>	1117
Urban regeneration policy in Greece: The unbearable lightness of being	1118
<i>N. Triantafyllopoulos</i>	1118

Distributed urban manufacturing in Thessaloniki, Greece: prospects for enhancing urban regeneration and circularity	1128
<i>M. Angelidou, E. Roma-Athanasiadou, N. Premyanov, C. Politis, K. Steemers, R. Elwakil, I. Schroder, A. Psaltoglou, N. Tsoniotis, V. Chrysovergis, N. Chatziioannou, M. Koupkas, and A. C. Tsolakis</i>	1128
Cultural, environmental and social assessment of buildings rehabilitation for urban regeneration strategies	1129
<i>J. Mourão, A. Psoma</i>	1129
Regeneration of Katrana area in Farsala	1138
<i>V. Iakovaki, A. Moras, C. Georgouli</i>	1138
Developing peri-urban Cultural Epicentres: The regeneration of Tatoi estate in Attica.	1139
<i>I.M. Kachrila and A. Gospodini</i>	1139
Spaces of absence in the city: an examination of urban voids	1140
<i>A.R. Vouza and A. Gospodini</i>	1140
URBAN LANDSCAPES, LANDSCAPE PLANNING & DESIGN	1142
The Historic Urban Landscape context in urban planning: The case study of Elefsina, European Cultural Capital 2023	1143
<i>S. Prigkou</i>	1143
Greeks tend to shift towards the public space during difficult periods. Can public space be a catalyst for (Greek) urban resilience?	1151
<i>A. Anagnostou</i>	1151
Eco-Time Machine: using new representational technologies to take a 4D tour in landscape history	1161
<i>N. Nikisianis, I. Mourtos, M. Chatzakis, D. Tzovaras, A. Zachariadis and G. Poulis</i>	1161
The “Resilience” of History	1162
<i>B. Babalou-Noukaki</i>	1162
Breaking boundaries: from the school as ‘micro-city’ to the city as a sustainable ‘macro-school’	1163
<i>E. Raikidou, A. Alegre</i>	1163
Digital Ecologies and Robotic Landscapes	1164
<i>P. Koulali, A. Tellios</i>	1164
Characterizing Landscape Patterns and Spatio-temporal transformation in Urban-Rural Interfaces. The case of the Metropolitan District of Quito	1165
<i>P. Ortiz-Báez, P. Cabrera-Barona, J. Bogaert</i>	1165
Urban landscape quality evaluation criteria	1166
<i>A. Campos, J.A. Ferreira, I.L. Ramos</i>	1166
ENVIROMENTAL URBAN PLANNING	1176

Harmonia Project: Shaping vertical and horizontal engagements to get real impact through locally rooted projects	1177
<i>Y. Barsukova, L. Duivon, P. Elisei</i>	1177
Planning and designing small urban green areas using PPGIS	1178
<i>A. M. Popa, D. A. Onose, R. A. Slave, S. R. Gradinaru, A. A. Gavrilidis</i>	1178
Urban Green Spaces and Accessibility: the case of Thessaloniki, Greece	1179
<i>M. Evdou, D. Latinopoulos</i>	1179
Analysis of stakeholders' participatory perceptions of Thessaloniki's coastal revitalization plan	1187
<i>S. Cutts, G. Pozoukidou, R. Fricano and R. Peters</i>	1187
Bioclimatic Urban Planning in Dense Building Conditions. Application in an area of Athens	1188
<i>G. Salamouras</i>	1188
URBAN CULTURES & PUBLIC OPEN SPACES	1190
Street Walkability: Students' Daily Walk to School - Um Al Sharayet Neighborhood-Palestine	1191
<i>S. Awad</i>	1191
Cross-boundary merger of public and private dichotomy	1192
<i>E. Zippelius</i>	1192
Underground Space and Street Art towards resilient and sustainable infrastructure	1193
<i>A. Paraskevopoulou, A. Cornaro and C. Paraskevopoulou</i>	1193
The role of digital media in funerary rituals in contemporary urban spaces and its connection to the post-mortem photography of the 19th century	1203
<i>M. Stamatopoulou</i>	1203
Children as marginalized residents of the city	1204
<i>V. Manaridou, S. Kopelia</i>	1204
Streets and pavements as the territory of everyday public life: Reflections from three European Cities	1205
<i>Dr D. Poullos, Dr. M. Munar Bauzá, Dr. A. González Raventós</i>	1205
Reclaiming public space: observing open spaces through COVID times in the city of Volos	1206
<i>C. Maroudis, I. Zacharaki, D. Zavraka</i>	1206
Urban markets and food at public open spaces	1216
<i>A. Chatzigiannidou</i>	1216
Human activities in the city center during the Pandemic. The case of Aioulou Street.	1226
<i>K. Karvountzi, A. M. Trikalioti</i>	1226
TRANSPORTATION PLANNING AND POLICY IN CITIES	1237
Autonomous vehicles as a means of green transition in the EU policy framework and research activity.	1238

Proceedings

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<i>G. Kalogerakos, N. Gavanas</i>	1238
Recommendations for promoting active mobility of young families in rural municipalities	1239
<i>O. Roider, V. Batiajew, E. Füssel, K. Ausserer</i>	1239
Measuring the transit-oriented development readiness of metro station areas in Thessaloniki, Greece	1247
<i>A. Papagiannakis, V. Delivaltidi and C. Kozartsis</i>	1247
Measuring Spatial Disparities of Neighborhood Accessibility to Public Health Services for Older Adults in Rural Communities of Thailand	1258
<i>P. Iamtrakul, S. Chaypong and J. Klaylee</i>	1258
Looking into the urban road of the future. Identification of transforming concepts.	1268
<i>S. Tsigidinos, P. G. Tzouras, K. Kepapsoglou, A. Nikitas and E. Bakogiannis</i>	1268
Understanding commuting patterns of suburban university population and potential sustainable transportation systems: the case of Najran University, Saudi Arabia	1269
<i>S. AlQuhtani</i>	1269
PLACE MARKETING & CITY BRANDING	1271
Place Marketing & City Branding, city of Vranje, South Serbia	1272
<i>M. Jovanovic</i>	1272
Neon signs and the visual identity of the city	1283
<i>A. Petrocheilou, I. Symeonidou</i>	1283
Contemporary applications of sharing economy in the tourism sector: Digital platforms as catalysts for the exploitation of creative and cultural resources.	1293
<i>S. Folinas and T. Metaxas</i>	1293
Urban identity & city branding	1294
<i>M. Marlanti</i>	1294
Investigation on opportunities of developing accessible tourism in Greece: the case study of Ionian Islands	1295
<i>T. Metaxas, S. Michala</i>	1295
CLIMATE CHANGE, CIRCULAR ECONOMY AND SUSTAINABLE DEVELOPMENT	1297
Copernicus for Urban Resilience in Europe: the CURE project	1298
<i>N. Chrysoulakis, Z. Mitraka, M. Marconcini, T. Soukup, M. Dohr, D. Ludlow, B. Holt Andersen, D. Lauwaet, C. Feigenwinter, A. Gandini, J. Kropp, Z. Khan, G. Somarakis</i>	1298
Emerging issues for the implementation of circular nature-based solutions for water management in Ljubljana, Slovenia	1299
<i>A. Tsatsou, P. Pergar, S. Malamis, N. Atanasova</i>	1299
Brownfields and disused factories: analysis and digital cataloguing platforms	1300
<i>L. Di Capua, A. Piscitelli, A. Girardo, M. Giammetti</i>	1300

Proceedings

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Metabolic Interdependencies: Thinking of the city as a biodiverse metropolis	1310
<i>A. Kitrinariis</i>	1310
Nature-based solutions for circular water economy: An analysis of EU policy and international frameworks	1320
<i>A. Tsatsou, C. Noutsopoulos, N. Frantzeskaki, S. Malamis</i>	1320
Coastal landscape as a concept – Changing conditions as a game changer	1328
<i>S. Pillen, E. Van Daele, M. Gheysen</i>	1328
The principles of the industrial heritage of Thessaloniki, as parameters for the design of the model of production units, for the future cities	1329
<i>D. Karakontinos</i>	1329
URBAN ECONOMIES; SPATIAL IMPACTS, PLANNING LAWS AND REAL ESTATE	1331
Innovative working environments in existing industrial buildings.	1332
<i>C. Georgouli, A. Moras</i>	1332
Property taxation in reshaping urban landscape: The case of Athens	1333
<i>E. Rallias</i>	1333
The development of the sharing economy in the Old Town of Corfu	1343
<i>A. Spiggos</i>	1343
Urban Transformations: the shifting modalities	1344
<i>D. Yaser, Y. Elrifai</i>	1344
Economic and spatial policies of FDI location in Europe and Greece	1345
<i>V. Charalampidou</i>	1345
Decisive factors in changing the urban scenery - Oslo as an example	1346
<i>O. Iglebæk</i>	1346
Post-socialist financialization through urban mega-projects: Flexibilization of norms and commons, or just an exceptional a fortiori game?	1347
<i>S. Zeković</i>	1347
The property assembly issue in urban regeneration projects in Greece	1348
<i>N. Triantafyllopoulos</i>	1348
GREEN ARCHITECTURE; URBAN DESIGN & NEW TECHNOLOGIES	1358
Optimization of living conditions in the public space of the Greek city through architectural design	1359
<i>M. Papavasiliou, K. Karvountzi</i>	1359
Tech-based gamification strategies for Public Space regeneration	1369
<i>A. Markopoulou, C. Farinea, A. Conserva, M. Ingrassia</i>	1369

Contemporary challenges for residential Architecture: towards a more resilient and adaptable dwelling, building and city	1379
<i>H. Farias</i>	1379
Instant Cities: Redefining urban spaces through arts and technology	1386
<i>Dr A. Tellios, Dr D. Zavraka, P. Koulali, K. Valsamidou, G. Grigoriadis</i>	1386
Inclusive design using cultural, ecological and business innovations in the context of building strong local communities.	1387
<i>S. Widzisz-Pronobis</i>	1387
Integrating High Tech Layer on Low tech Designs for smart city applications	1388
<i>M. Papavasiliou</i>	1388
MULTICULTURAL CITIES, SHRINKING CITIES, DEVIDED CITIES	1399
Social Design: Connecting People and Spaces in a Human - centered Approach	1400
<i>Z. Georgiadou</i>	1400
Ethnicities and sense of place – the walled city of Nicosia	1413
<i>E. Zippelius</i>	1413
Challenges of public value capture in shrinking cities: Is there any value to capture and who will pay?	1421
<i>S. Sousa and P. Pinho</i>	1421
“Undivided” city in a divided post-conflict society of Kosovo: factors contributing to peaceful coexistence of Albanians and Serbs in Kamenica	1422
<i>A. Đorđević, R. Zupančič</i>	1422
Urbicide: The Case of Anata Town/ Palestine	1423
<i>Y. ELrifai, D. Yaser</i>	1423
Mutliculturalism as a factor of economic growth and city branding: The case of Komotini	1424
<i>T. Metaxas, A. Tsolaki</i>	1424
Athens: from imagined historical centre to a refugee city (1830s-1920s)	1425
<i>G. Kritikos</i>	1425
SMART CITIES	1427
Smart Tourism In Smart Cities: Trends and evidence	1428
<i>M. Avramidou, S. Manika</i>	1428
Co-working spaces: Potentials and challenges in Greece	1429
<i>S. Manika*, A. Gospodini</i>	1429
Funding opportunities for Smart Cities in Greece	1430
<i>A. Oikonomou</i>	1430

Planning and Decision Support Systems – concepts, challenges opportunities and proposals	1441
<i>J. Lourenço Marques, P. Batista, M. Borges, J. Wolf</i>	1441
Urban - Intelligent Interconnected Digital Landscape: Resilience in urban neighborhood square	1442
<i>M. Biri</i>	1442
Alexandroupolis: The Evolution of a border town into a smart city and its effects on the quality of life of its inhabitants and the change of its identity.	1443
<i>A. Iliakopoulou, G. Koutroulas</i>	1443
Smart city - an interdisciplinary approach	1444
<i>E. Jarecka-Bidzińska</i>	1444
Local dimension of spatial mixed-use indicators for city quality of life assessment	1445
<i>J. Jaroszewicz, M. Denis, A. Fijałkowska, J. Pluto-Kossakowska, S. Krzysztofowicz, O. Graszka</i>	1445
Academic Supporters and Sponsors	1447
Under the Aegis of	1447

EXPERIENCING SUSTAINABILITY FOR CORE URBAN AREAS IN POST-PANDEMIC CITIES



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Prof. Dimitra Diana Babalis, Department of Civil and Environmental Engineering, (DiCEA), University of Florence, Italy

Re-starting from cultural heritage to design the resilience of historical urban centres

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Abstract

Cities resulted more vulnerable to major global challenges, such as climate change and the pandemic. Historical districts are even more fragile due to the compactness of the urban structure and the high concentration of cultural heritage. Considering the urgency of these issues, urban resilience strategies has been a key topic in research for several decades. However, these strategies are often based on standardised actions, easily applicable to peripheral or recent areas, but not suitable for historical centres. Overcoming these limitations requires a change of perspective and the re-placing of cultural specificities at the very centre. A culture-base methodological approach is presented in this contribution. To further explore the topic, the case study of Milan (Italy) was investigated. In this study, we analyse the specific urban and architectural features of the historical centre and we focus on the role of residential courtyards.

Keywords: urban cultural heritage, urban resilience, culture-based approach, historical centres, urban courtyards

1. INTRODUCTION

Cities resulted more vulnerable to major global challenges, such as Climate Change and the pandemic. Indeed, more than half of the global population is currently concentrated in urban areas and this number is expected to reach the 60% by 2030 and to increase further in the coming decades (United Nations, 2018). The high level of anthropisation caused a total break with the rest of the biosphere, as the rapid expansion of cities has been at the expense of the capacity of natural ecosystems to regenerate and effectively provide their benefits (Andersson *et al.*, 2014; UN-Habitat, 2018). Moreover, the high concentration of air pollutants poses severe health issues and is also proven to be correlated with the severity of the COVID-19 pandemic (Brunekreef *et al.*, 2021). That's why cities are at the very centre of research and political efforts to define sustainable development paths and strategies to be prepared to unknown threats. Considering the urgency of these issues, urban resilience strategies has been a key topic in research for several decades.

Within this framework, historical districts are even more fragile due to the compactness of the urban structure. These areas are the most exposed to the increasing pressure of urbanization and their structure was definitely not planned to face such an urban evolution. As a result, historical cores of large urban settlements result to be the areas more lacking of green areas and natural components, which are a key element for urban resilience. They are also generally excluded by urban green strategies, which are often based on standardised actions, easily applicable to peripheral or recent areas, but not suitable for historical centres. The result is a short-circuit in which historic city centres are the victims of uncontrolled and unstoppable urbanisation, which also limits their possibilities for sustainable transformation. Overcoming these limitations requires a change of perspective and the re-placing of cultural specificities at the very centre of resilience strategies.

In this study, the close connection between cultural heritage and urban resilience is discussed and an in-depth reflection on the case study of Milan (Italy) is presented as a practical example of

translating the cultural specificities of the context into guidelines for defining green resilience strategies for historical districts.

2. COMPLEXITY OF CULTURAL HERITAGE

The discussion about the meaning of *cultural heritage* dates back even to classical antiquity and the Renaissance. However, systematic and in-depth reflections on this concept have historically been linked to structural shocks in society. For instance, the French Revolution with its desire to destroy symbols and structures linked to an oppressive power led the historian and art collector Alexandre Lenoir to become actively involved in the rescue of the material signs of the past regardless of their political significance. Then, the most dramatic global shocks of the past century - the Second World War - pushed the debate further. The very serious devastation caused by the conflict in Europe and around the world obliged to tackle the complex problem of reconstruction, which also involved the identification of heritage. In this century, the unprecedented scenario that should force us again to think about the role of heritage is undoubtedly the climate crisis. The Covid-19 pandemic is also linked to the broader framework of deterioration of natural balances, and in addition constitutes a tangible event of enormous impact that has made the need for a paradigm shift more urgent and evident.

The complex link between urbanization and heritage conservation has been discussed at the international level since decades and resulted in some relevant documents. Recognizing the risks of growing urban expansion, the Amsterdam Declaration of 1975 underlined the key role of urban planning saying that “*architectural conservation must be considered, not as a marginal issue, but as a major objective of town and country planning*” because “*the future of the architectural heritage depends largely upon its integration into the context of people's lives and upon the weight given to it in regional and town planning and development schemes*” (ICOMOS, 1975) and similarly the ICOMOS Charter of Cultural Tourism of 1976 stressed the importance (but also the risks) of tourism, explaining that cultural tourism “*justifies the efforts which maintenance and protection demand of the human community because of the socio-cultural and economic benefits which they bestow on all the population concerned*” (ICOMOS, 1976). Lastly, a turning point in the proactive recognition of the role of heritage in contemporary society was represented by the The Hangzhou Declaration (UNESCO, 2013). This document clearly stated the importance of culture and cultural heritage for enhancing “*the resilience of communities to disasters and climate change*”, thus identifying heritage not only as a fragile element to be protected, but also as a key for effective multi-scalar synergies.

Today, the rapid and evident transformations of the recent decades have made it more urgent to recognise the value of both man-made heritage, such as the architectural and urban heritage that finds its highest expression in historic centres (Brimblecombe *et al.*, 2006; Centro Universitario Europeo per i Beni Culturali - Ravello, 2018; Sabbioni *et al.*, 2008), and natural heritage, since the processes of urbanisation and uncontrolled land consumption have made this component increasingly scarce and missing from the daily lives of the city dwellers (Maldonado-Erazo *et al.*, 2021).

3. CULTURAL HERITAGE FOR COMMUNITIES RESILIENCE

In addition to the definition and recognition of *what is heritage*, it is also necessary to discuss *why* the conservation of cultural heritage is a priority. To answer this question, we should refer to the concept of resilience of human society in its broadest sense. Indeed, cultural heritage can enhance the shock absorbing capacity and proactive reaction of human communities in the face of unexpected and catastrophic events in two ways (Council of Europe, 2005). On the one hand, it is generally recognized that the material heritage embodies a complex system of traditional knowledge, skills and ways of doing that are more resilient to extreme events. On the other, the

importance of cultural heritage for communities resilience and the mitigation of the impact of disaster is linked to values such as a sense of place and belonging supporting people's collective identity and self-esteem.

Both arguments are widely discussed in scientific literature and international documents. It is widely recognized the cultural heritage capacity of providing “psycho-social support in times of need [and] increasing a community's capacity to absorb disturbance” (Holtorf, 2018). Additionally, since 1999 UNESCO recognized that “*traditional and local knowledge systems, as dynamic expressions of perceiving and understanding the world, can make, and historically have made, a valuable contribution to science and technology, and that there is a need to preserve, protect, research and promote this cultural heritage and empirical knowledge*” (UNESCO, 1999). At the same time, the value and meaning of heritage need to be continuously updated because, as noticed by the ex President of ICOMOS-ICORP Rohit Jigyasu, “*we should not discount the fact that many cultural beliefs and practices result in a fatalistic approach of interpreting disasters as God's Will and undertaking no proactive measures to reduce disaster risks*” (Jigyasu, 2017).



Figure 21- Church stairs used as recreational space in the centre of Milan in March 2021 during COVID-19 restrictions.

These considerations show that the concept of cultural heritage is still evolving and needs to be discussed according to the ongoing societal changes. Open discussion, rather than the crystallisation of heritage, seems to be the way to truly integrate cultural heritage into the overall challenge of urban resilience, which is “the measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming toward sustainability” (UN-HABITAT, 2018).

4. CHALLENGES OF HISTORICAL CENTRES

Urban historical centres are in a sense large repositories of tangible heritage and at the same time they are the place of expression of the intangible components of heritage, such as traditions, urban culture, ways of life linked to the historical structures of the city and the memory embodied in the material remains of the past (Nadin *et al.*, 2015). The preservation of these contexts is a complex issue involving different levels of analysis and action.

Certainly, material conservation is a primary issue. The integrity of the architectural and monumental heritage is naturally subject to the passing of time, but in recent decades various deterioration phenomena have been accelerated and exacerbated by high levels of pollutants (Grossi and Brimblecombe, 2007). Climate change has also greatly increased the risks due to extreme weather phenomena and hydrogeological hazards and also includes a general rise in temperatures and the consequent rise of sea level (Cassar, 2005; Fatorić and Seekamp, 2017; Grossi and Brimblecombe, 2007). The risks are quite evident for tangible heritage, but they also applies to the intangible (Fatorić and Seekamp, 2017), which is transmitted thanks to the social cohesion of the communities to which it belongs. Indeed, the ongoing changes also threaten human communities and ways of living, thus mining the overall conservation and transmission of *cultural heritage* in its broader sense to future generations. On the other hand, the topic of valorisation has increasingly emerged, which implies an active inclusion of local communities, touristic promotion and people's perception of heritage. This is true for several reasons. Firstly for a cultural reason: the very idea of heritage is an attribution of value based on collective memory, so without cultural and educational activities to tell the history of tangible and intangible heritage and rise awareness about its meaning, heritage value would be lost. s



Figure 22 - Blackening and decay on historical buildings in the centre of Milan.

Secondly, because material conservation cannot be separated from considerations of social and economic sustainability. Since the 1970s it has been recognized that the active use of heritage - especially architectural heritage - is crucial for its preservation, as it allows for the integration of economic activities that support local communities and sustain the costs of heritage maintenance. Heritage resilience is therefore built on two linked levels, the physical level of prevention of material damage and the intangible level of social cohesion and economic prosperity of the communities to which it belongs.

Based on the above considerations, it is now necessary to discuss the potential synergy between the objectives of heritage conservation and enhancement and urban greening strategies, which identify the reintegration of the natural component as the main key to increasing urban resilience. On a theoretical level, the convergence of the two strands is extremely strong. Green infrastructure and

nature-based solutions, if appropriately designed, can provide a wide range of benefits, referred to as ecosystem services, which include cultural services, and also contribute to mitigating the impact of climate change, environmental threats and air pollution effects, while contributing to the physical preservation of heritage (Babí Almenar *et al.*, 2021; European Commission, 2022). However, up to now large-scale renaturing processes are hardly implemented in historical districts where transformable public space is lacking, and similarly new spaces designed for social distancing barely match the compact urban fabric. The central areas of large urban settlements usually result to be the part of the city most lacking in greenery, with many issues related with this scarcity of Nature. For instance, in the early stages of the pandemic, the issue of food supply and self-production emerged as an urgency and, in the long term, people experienced the psychological stress due to the lack of contact with open space and greenery (Ugolini *et al.*, 2020). Climate change, on the other hand, has highlighted the problems of excessive land consumption, the lack of permeable urban surfaces and the absence of cool spots in cities. Thus, the need to reintegrate Nature into the urban environment seems widely recognized, but in practice it faces a number of constraints.

Re-naturing strategies are in conflict with the ongoing densification processes and with the idea of the compact city, which also fits with sustainable development objectives and in particular with the principle of '*living within limits*' (Whitten *et al.*, 2018). Although densification has many negative side effects (Burton, 1969), such as worsening traffic congestion and air pollution, it is clear that this process is fully underway in many urban centres, including the city of Milan (Mosciaro, 2021). The compact city model is in clear conflict with the idea of the green city. Above all, the compacting of the city threatens the existing open green spaces and hinders the creation of new ones that should be associated with an increase in population.

Therefore, the main challenge for historic centres today is to define innovative and site-specific strategies to re-integrate nature into the dense built environment in a realistic and sustainable way. This requires historical, urban and morphological knowledge to understand the nature of the context and to avoid unfeasible out-of-scale solutions, such as green corridors. The following section explores the culture-based approach proposed in this paper and applies it to the case study of Milan, Italy.

5. A CULTURE-BASED APPROACH: THE CASE OF MILANO

The complex relationship between heritage and resilience discussed so far leads to the need of exploring new perspectives and approaches. In particular, this contribution suggests to ground the development of greening and resilience strategies for historic centres on their cultural specificities and on the historical relationship between city and nature. To this end, working on the case study of Milan, an analysis of the evolution through time of land use was carried out, which led to focus on the private spaces of inner courtyards.

Milan is well known as an industrial and creative city. However, it also has a well-preserved and large historical urban core which strongly characterises the urban identity. As mentioned, the process of urbanisation and densification is fully underway and increasingly putting the centre under pressure. At the same time, the city has been experiencing the effects of climate change for years, especially in terms of storm water run-off, flash-flood events and high urban temperatures, which cause serious discomfort and health problems. Milan is located in the middle of the Po Valley, which is one of the most polluted areas in Europe, and was also one of the Italian cities most affected by the pandemic. The municipality is trying to actively address these problems, being the first Italian city to establish an office dedicated to urban resilience¹. Moreover, Milan is at the

¹ <https://www.comune.milano.it/comune/amministrazione-trasparente/organizzazione/articolazione-degli-uffici/organigramma/direzione-transizione-ambientale/dp-citta-resilienti>

forefront of experimentation with innovative strategic planning. However, its historical centre is still marginally involved in urban adaptation processes.

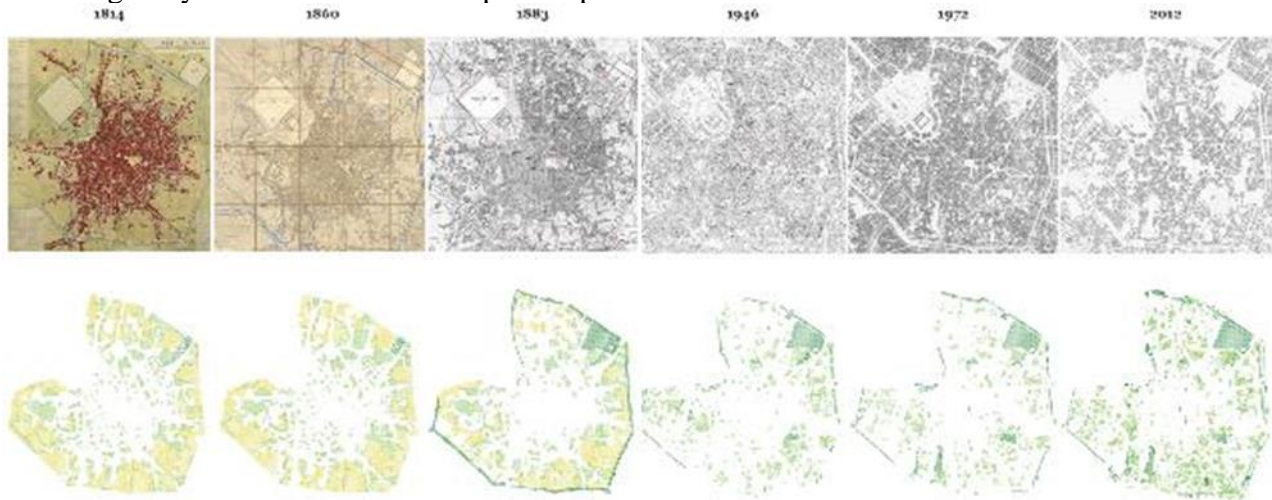


Figure 23 - Evolution of land use according to the categories of agricultural use, private green and public green.

In order to re-place cultural specificities at the very base of any future planning for the historical centre, the ‘*green history*’ of the historical city has been traced and an historical analysis of the relationship between Nature and the built environment has been done. The evolution of land uses in the area defined by the Spanish walls throughout the XIX and XX century (Figure 3) shows the progressive exclusion of natural elements from the centre, due to urban densification and expansion processes. Following the Industrial Revolution, the agricultural use moved away from the centre. At the same time, the urban culture of the XIX century determined the design of public green areas in key points of the urban setting. Private greenery resulted to be the element of continuity throughout these two crucial centuries of urban transformation. Actually, the greenery of the inner courtyards also suffered from the pressure of urbanisation and in many cases was heavily damaged by the processes of demolition and transformation. Yet, Figure 4 shows that in private spaces the natural component has been able to resist and is now a real legacy of the past and a key element in future green strategies.

In the past, these courtyards were places for socialising, integrating greeneries into the compact city and an extension of the public space of the street. Today they are underused and degraded spaces, dedicated to waste collection and car parking. The courtyards network represents a neglected potential for the re-naturalisation and resilience improvement of the centre. Their transformation and effective inclusion in the urban network of collective green spaces can have consistent benefits in terms of climate mitigation, psycho-physical benefits associated with the contact with nature and a more equitable distribution of green areas (see Figure 5).

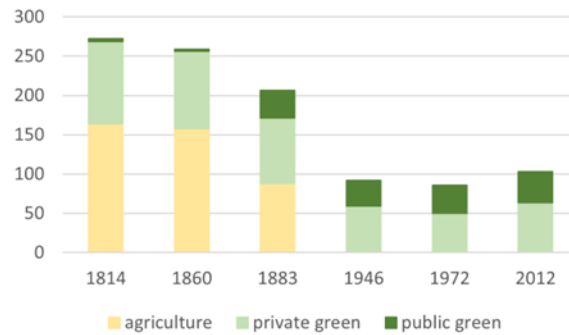


Figure 24- Historical characterization of natural components in the historical centre Milan

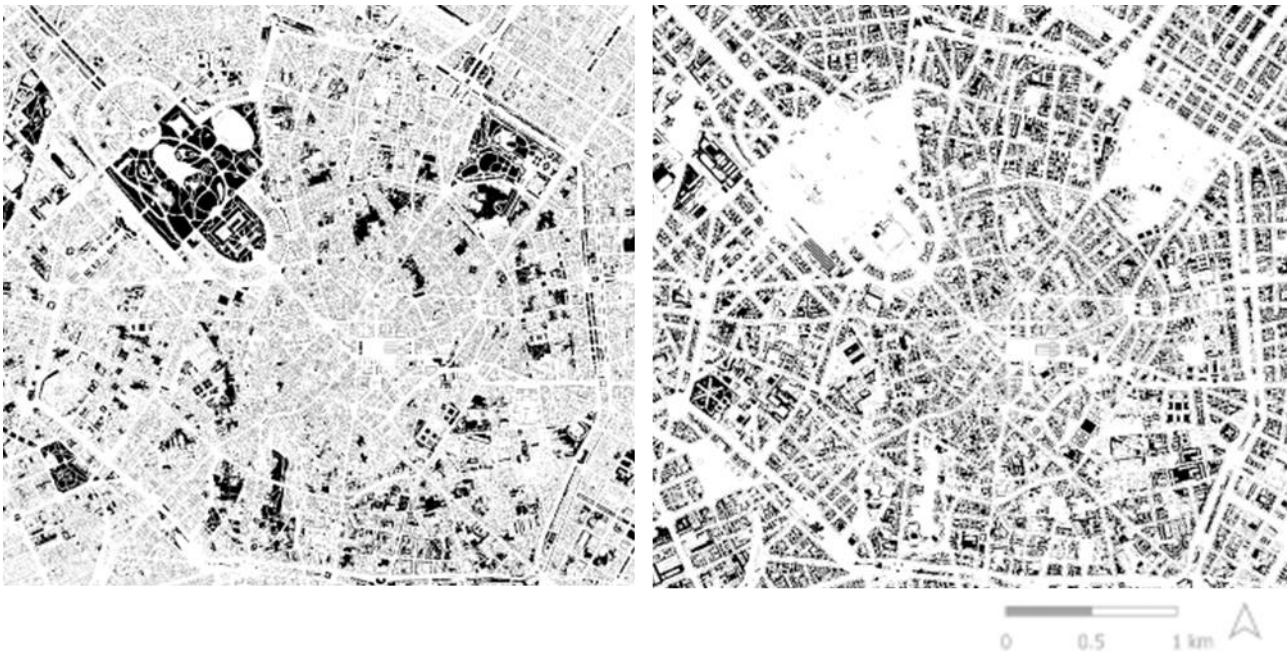


Figure 25 - Comparison between the existing green system and the courtyards system in Milan.

The widespread distribution of these spaces makes them privileged places for recreating micro-scale social interactions. Moreover, “*traffic-related pollutants are not easily transported to these inside areas*” and courtyards result “*relatively pollution-free regions*”, providing healthier spaces in the urban environment (Trindade da Silva *et al.*, 2021). Due to their closed shape and the shading of surrounding buildings, they also provide a cooler micro-climate in summer season and can represent shelters from heat waves, especially useful for the most vulnerable segments of the population.

In the process of rethinking the inner courtyards in the case of Milano it is therefore necessary to establish three main aspects:

i) **functionality**: inner courtyards have been identified as complementary places to public space for the sustainable transformation of cities and the implementation of a culture-based resilience strategy. The transformation should act on the material level (through depaving interventions of the soil to contribute to rainwater drainage and integration of vegetation) and on the intangible level of social interactions. The benefit would be immediate and direct for the inhabitants of the surrounding buildings with aesthetic upgrading and improvement of the local microclimate. The whole community would benefit indirectly through the positive impact on the urban ecosystem, the

reduction of the heat island effect, the reduction of the risk of flooding (Taura et al., 2021) , the absorption of pollutants and the conservation of biodiversity (Goddard et al., 2010).

ii) **usability**: the physical and visual accessibility of green areas has demonstrated benefits for the psychological well-being of individuals and communities. The renaturing process of inner courtyards would have a wider impact in providing a visual connection with nature, while physical accessibility needs to be regulated considering the private ownership of these spaces. Yet, very simple practices, already common in Milan, such as keeping the doors open during daylight hours, can have a significative impact on the accessibility of courtyards. Additionally, small interventions and basic furnitures can improve the collective character of these spaces, providing the inhabitants a place for socialising with their neighbours and for children to play.

iii) **regulation**: given the conflict between public accessibility and private property, accessibility by non-residents should certainly be regulated through private-public partnerships. Similar initiatives have been taken, for example, to open schoolyards outside school hours to provide citizens with a green space within walking distance. Extending this initiative to residential courtyards would greatly improve the accessibility and equal distribution of green spaces in the city.



Figure 26 - Visual interconnections between courtyards.

6. CONCLUSION

This article aims to emphasize the need to root urban resilience strategies for historical centres on their cultural features. As a consequence, the role of inner courtyards and the results discussed for Milan case study are very site-specific. Here, inner courtyards resulted to be a key element to keep together the green infrastructure strategy and the cultural enhancement of the centre. Indeed, “*despite being mainly smaller elements and apparently less active in terms of ecosystem services provisioning, [courtyards] are distributed throughout the urban matrix [and are able to] reduce the urban green infrastructure fragmentation and enhance the usability, the availability, and the accessibility of green spaces*” (Delgado-Capel and Cariñanos, 2020). The environmental services related with the green transformation of courtyards are expected to range from a cooling effect on local micro-climate and overall positive impact on urban flood control (Taura *et al.*, 2021) to psychological benefit of visual connection with nature (Brindley *et al.*, 2018).

The methodology and general considerations can be extended to most European cities, linking resilience strategies with the idea that “*heritage value and significance may be embodied in the uses, meanings, and associations of a place, in addition to the physical fabric*” (Cassar, 2009).

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