

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

Department of Planning and Regional Development, University of Thessaly
Laboratory of Urban Morphology and Design

in collaboration with
School of Architecture, Technical University of Crete and Regional Authority of Crete.

Under the aegis of
THE GREEK MINISTRY OF ENVIRONMENT AND ENERGY

Editor:
Professor Aspa Gospodini
University of Thessaly

Chania, Crete Island, Greece • June 24-29, 2019

Title: Proceedings of the International Conference on Changing Cities IV:
Spatial, Design, Landscape & Socio-Economic dimensions

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

Copyright 2019: **Laboratory of Urban Morphology & Design,
Department of Planning and Regional Development, University of Thessaly**

PUBLICATION

**University of Thessaly, Department of Planning and Regional Development,
Laboratory of Urban Morphology & Design,
Volos, Greece**

Tel. UMLAB: +3024210.74457-74422 ● e-mail: umlab@uth.gr

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece ● June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

A. THE ORGANISING INSTITUTIONS

The conference is organised by the **Lab of Urban Morphology and Design**, Directed by Dr. Aspa Gospodini, Professor of Urban Planning & Design, Department of Planning & Regional Development, **University of Thessaly, Volos, Greece**.

In collaboration with:

- **School of Architecture**, Technical University of Crete, Chania, Greece.
- **Regional Authority of Crete**.

B. THE ORGANISING COMMITTEE

1. **Dr. Aspa Gospodini**, Professor of Urban Planning & Design, Director of the Lab of Urban Morphology & Design, Department of Planning & Regional Development, University of Thessaly, Greece, Chair of the Organising Committee and the Scientific Committee,
2. **Dr. Despina Dimelli**, Assistant Professor in Urban Planning, School of Architecture, Technical University of Crete,
3. **Dr. Amalia Kotsaki**, Assistant Professor in History and Theory of Architecture: Modern and Contemporary architecture, School of Architecture, Technical University of Crete
4. **Mr. Stavros Arnaoutakis**, Governor, Regional Authority of Crete,
5. **Mr. Apostolos Voulgarakis**, Deputy Governor (Chania), Regional Authority Unit of Chania.

C. THE CONFERENCE SECRETARIAT

1. **Dr Stella Manika**, Planner, University of Thessaly, Chief of the conference secretariat
2. **Anna Roskagia Vouza**, Planner, MSc in Urban Regeneration and Development, Department of Planning & Regional Development, University of Thessaly, Officer of the conference secretariat
3. **Marina Oikonomou**, Dipl. in Economics, MSc in Finance, University of Tilburg, The Netherlands, Public relations officer
4. **Thanasis Oikonomou**, Planner, MSc in Urban Regeneration and Development, Department of Planning & Regional Development, University of Thessaly, Officer of the conference secretariat
5. **Marily Mitritsa**, Planner, MSc in Urban Regeneration and Development, Department of Planning & Regional Development, University of Thessaly, Officer of the conference secretariat
6. **Irene Maria Kachrila**, Dipl. Urban, Spatial and Regional Planner, Department of Planning & Regional Development, University of Thessaly, Officer of the conference secretariat

D. THE CONFERENCE IT SUPPORT

1. **Georgios Giannikis**, Computer Scientist
2. **Dimitris Oikonomou**, Assistant in computer services at the conference venues

E. THE CONFERENCE FINANCIAL MANAGEMENT

1. **Nicos Economou**, In Economics, MSc, University of Kent, UK, Financial Project Manager and Accounting Manager of the conference

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

MEMBERS OF THE SCIENTIFIC COMMITTEE

Gospodini A., Chair of the Organising and the Scientific Committees, University of Thessaly, Greece
Adamakis K., University of Thessaly, Greece
Alexandropoulou E., Planning Engineer, President of the Association of Greek Planners (SEMPXPA),Greece
Arvanitidis P., University of Thessaly, Greece
Asprogerakas E., University of Thessaly, Greece
Avgerinou-Kolonia S., National Technical University of Athens, Greece
Babalidis D.D., University of Florence, Italy
Beriatos E., University of Thessaly, Greece
Bogiazides N., University of Thessaly, Greece
Carmona M., Bartlett School UCL, UK
Christodoulou H., Aristotle University of Thessaloniki, Greece
Christopoulou O., University of Thessaly, Greece
Cidre E., Bartlett School UCL, UK
Cuthbert A., UNSW Asia Sydney Area, Australia
Damianakos D., University of Parma, Italy
Dandekar C. Hemalata, California State University, USA.
De Magalhaes C., Bartlett School UCL London, UK
Deffner A., University of Thessaly, Greece
Dimelli D., Technical University of Crete, Greece
Dimitrakopoulos, A., University of Ioannina, Greece
Dimitriou H., Bartlett School UCL, UK
Dimoudi A., Democritus University of Thrace, Greece
Duken M., University of Thessaly, Greece
Economou D., University of Thessaly, Greece
Enlil Z., Yildiz Technical University Istanbul, Turkey
Zoras S., University of Derby, UK
Galani V., University of Thessaly, Greece
Geppert A., Universite Paris –Sorbonne, France
Geropanta V., Sapienza University of Rome, Italy

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*
ISSN: 2654-0479
ISBN: 978-960-99226-9-2

Grigoriadis S., Ministry of Tourism, Greece
Gourgiotis A., University of Thessaly, Greece
Goussios D., University of Thessaly, Greece
Haniotou E., National Technical University of Athens, Greece
Haintarlis M., University of Thessaly, Greece
Haralambidou P., Bartlett School of Architecture & Planning London, UK
He Huang, Tsinghua University, China
Ioannou B., Frederick University, Cyprus
Ippolito A., Director of the Master in Landscape Design - Uniscape - Cursa - ASB, Italy
Kallioras D., University of Thessaly, Greece
Kalogirou N., Aristotle University of Thessaloniki, Greece
Karadimitriou N., Bartlett School of Architecture & Planning London, UK
Krstic-Furundzic Aleksandra, University of Belgrade, Serbia
Kokkossis H., University of Thessaly, Greece
Konstantinidou E., National Technical University of Athens, Greece
Kotsaki A., Technical University of Crete
Kousidonis C., University of Thessaly, Greece
Kunzmann K. R., Professor emeritus, Technical University of Dortmund
Kuvač I., University of Banja Luka, Bosnia and Herzegovina
Kyvelou S. S., Panteion University, Greece
Lalenis K., University of Thessaly, Greece
Leconte P., Foundation for the Urban Environment, Brussels, Brussels
Lo Piccolo F., University of Palermo, Italy
Loukaitou-Sideris A., Associate Dean of Luskin School of Public Affairs, UCLA, USA
Maistrou E., National Technical University of Athens, Greece
Markatou M., Municipality of Larissa, and University of Thessaly, Greece
Metaxas Th., University of Thessaly, Greece
Milojevic B., University of Banja Luka, Bosnia and Herzegovina
Mironowicz I., Gdańsk University of Technology and RWTH Aachen University
Mitoula R., Harokopio University, Greece
Moraitis K., National Technical University of Athens, Greece

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*
ISSN: 2654-0479
ISBN: 978-960-99226-9-2

Mrdenovic T., University of Beograd, Serbia
Nikolaou D., National Technical University of Athens, Greece
Nilsson K., Lulea University of Technology, Sweden
Oc T., Honorary Professor Bartlett School UCL - Editor of the Journal of Urban Design, UK
Pagonis Th., National Technical University of Athens, Greece
Paka A., Aristotle University of Thessaloniki, Greece
Pallagst K., Kaiserslautern University of Technology, Germany
Panetsos G., University of Patras, Greece
Papageorgiou M., Aristotle University of Thessaloniki, Greece
Papagiannakis A., Aristotle University of Thessaloniki, Greece
Parthenios P, Technical University of Crete, Greece
Patrikios G., Democritus University of Thrace, Greece
Pendlebury J., Newcastle University, UK
Petrakos G., University of Thessaly, Greece
Petropoulou C., University of Aegean, Greece
Polychronopoulos D., Dimokrition University of Thrace, Greece
Polyzos S., Univesity of Thessaly, Greece
Ponzini D., Politecnico di Milano Milan, Italy
Pozani D., Epoka University, Albania
Pozoukidou G., Aristotle University of Thessaloniki, Greece
Providakis K., School of Architecture Dean, Technical University of Crete, Greece
Punter J., Cardiff School of Planning and Geography, UK
Roberts M., University of Westminster London, UK
Rodi A., University of Patras, Greece
Rovolis A., Panteion University, Greece
Sakantamis K., Aristotle University of Thessaloniki, Greece
Salet W., University of Amsterdam, Netherlands
Sarantakou E., Ministry of Tourism, Greece
Salvati L., Third University of Rome, Italy
Samaras N., University of Thessaly, Greece
Sapounakis A., University of Thessaly, Greece

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*
ISSN: 2654-0479
ISBN: 978-960-99226-9-2

Sepe M., Università degli Studi Federico II Napoli, Italy
Serra P., Universitat Autònoma de Barcelona, Spain
Serraos K., National Technical University of Athens, Greece
Siddi C., University of Cagliari, Italy
Silva A. E., University of Cambridge, UK
Skayannis P., University of Thessaly, Greece
Stathakis D., University of Thessaly, Greece
Stylidis I., University of Thessaly, Greece
Sutcliffe B. E., Middle East Technical University, Turkey
Tasopoulou, N., President of the Association of Planners (SEMPXPA), Branch of north Greece
Tellios A., University of Thessaloniki, Greece
Terkenli Th., University of Aegean, Greece
Thoidou E., Aristotle University of Thessaloniki, Greece
Townsend T., Head of School & Director University of Newcastle, UK
Tratsela M., Aristotle University of Thessaloniki, Greece
Triantafyllopoulos N., University of Thessaly, Greece
Trova V., University of Thessaly, Greece
Tsagkrasoulis A., University of Thessaly, Greece
Tsartas P., Harokopion University, Greece
Tsellios V., University of Thessaly, Greece
Tsilimigkas G., University of Aegean, Greece
Vitopoulou A., Aristotle University of Thessaloniki, Greece
Vougiatis S., Aristotle University of Thessaloniki, Greece
Vyzoviti S., University of Thessaly, Greece
Yiannakou, A., Aristotle University of Thessaloniki, Greece
Zavraka D., Eastern Macedonia and Thrace Institute of Technology, Greece
Zouboulakis M., University of Thessaly, Greece.

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

PREFACE

Dear colleagues,

The 4th International Conference on “***CHANGING CITIES: Spatial, Design, Landscape & Socio-economic Dimensions***”, Chania, Crete Island, Greece, 24-29 June 2019, is now a reality and a big academic event. The conference has been organised by The Laboratory of Urban Morphology & Design, Department of Planning & Regional Development, University of Thessaly, Volos, Greece, in collaboration with School of Architecture, Technical University of Crete and Regional Authority of Crete, and under the aegis of The Greek Ministry of Environment and Energy.

The series of ***CHANGING CITIES international conferences [CCC]*** has started in 2013 by The Laboratory of Urban Morphology & Design, Department of Planning & Regional Development, University of Thessaly, Volos, Greece, and has so far delivered three conferences:

- ***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.

All three conferences have been welcome by the academic community of planners and architects worldwide attracting over 300 presenters from more than 50 countries.

The CC conferences are always taking place in Greek venues with characteristic urban or/and natural landscape like the Greek islands in the Aegean Sea. The 4th conference has been decided to take place in Chania, Crete Island, since Chania is the most attractive town in Crete Island exhibiting a well-preserved Medieval and Renaissance historical core with a unique Venetian harbour, built between 1320 and 1356.

The series of CC conferences covers a vast spectrum of fields related to the present and future challenges of cities. In the last decades, we have all witnessed a series of dramatic, universal changes and developments affecting cities – their morphology, environment, economies, and societies. Global new conditions such as economic globalisation, European integration and the creation of urban networks and hierarchies; post-industrial economies of culture and new technologies; consciousness of environmental degradation and the necessity of green design, sustainable development, and resilient cities; the development of informational societies, the increasing mobility of individuals, 'space-time' compression, and the emerging smart cities; growing terrorism attacks and new security infrastructures of public spaces; increasing migrations and cultural diversity of individuals, and coexistence in multi – ethnic and multi-cultural urban societies. In this new milieu, cities change themselves to ad hoc adapt into new conditions while simultaneously scholars and practitioners in urban planning and design, and urban policy-makers attempt to change cities so as to better fit into new conditions.

The series of CC conferences aspires to bring together urban planners and designers, spatial planners, architects, landscape designers, urban geographers, urban economists, urban sociologists, and urban policy makers, and investigate all together new challenges concerning cities and their future. The main aim is providing an international forum of transaction of ideas on changing cities.

Proceedings

*of the International Conference on Changing Cities IV:
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

The 4th CC conference focuses on two topics:

1. **“SMART CITIES; Smart Environment, Smart Mobility, Smart Economy”**
2. **Planning and Designing new cities in China.**

First, strategic development of smartness in cities is a fast growing field of great academic and policy-making interest, based on the development of new technologies in the services of inhabitants, visitors, tourists, entrepreneurs, et al. Therefore, it is a big challenge for all urban planners, designers, urban economists, and urban policy makers.

Second, China is a huge country with fast growing economy in the industrial sector. This gradually fuels national migration flows of millions of people from agrarian Chinese regions to urban districts, creating a large demand of housing. New large cities are planned, designed and developed in China in the last decade. Since Europe has been shrinking in demographic terms during the last three decades, there is no need for new cities. In this framework, all new schools of thought in urban planning and design are applying new ideas in China – attracting the interest of academia. The Organising Committee is proud to have arranged for the 4th CC conference, important special sessions devoted to Chinese cities:

- (a) **“Planning & Designing new cities in China”**, pre-organised by Dr. Huang He, Associate Professor, School of Architecture, Tsinghua University, Beijing, China,
- (b) **“Chinese Cities: Urban development, socio-economic transformations, policy challenges and comparisons with the European experience”**, pre-organised by Prof. G. Petrakos, University of Thessaly, and Prof. Geoffrey Qiping Shen, The Hong Kong Polytechnic University.

The conference thematic fields include the following:

- *Urban Design in Planning,*
- *Sustainable Urban Planning & Development,*
- *Urban Landscapes, Landscape Planning & Design,*
- *Urban Cultures & Public Open Spaces,*
- *Historical Centres & Built Heritage Management,*
- *Environmental Urban Planning,*
- *Cities & Health*
- *Resilient cities,*
- *Transportation Planning and Policy in cities,*
- *Urban Planning Laws, Real Estate & Property Rights,*
- *Urban Economies & spatial impacts,*
- *City Branding and Urban Tourism*
- *Shrinking cities,*

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

- *Divided cities,*
- Migration, multinational and multicultural societies & Urban Planning.

The 4th CC conference has initially attracted 485 abstracts, and 186 research papers (optional submission to the conference E-Book of Proceedings). In the final conference program, there are 328 oral presentations and 22 poster presentations from all over the world; from Greece and the Balkans, Northwest Europe, USA, Latin America (Brazil, Chile, Colombia, Mexico), Middle East and North Africa, Asia, Far East (China and Japan), and Oceania (Australia, New Zealand, New Guinea). The 4th CC conference is really international since 42% of the presenters are Greek academics and 58% of the contributors are from global academia.

I would like to thank

- the Organising Committee;
- the keynote speakers;
- the scientific Committee of the conference for reviewing work, and especially the colleagues who pre-organised special sessions for the conference;
- the academic supporters of the conference: University of Thessaly; Technical University of Crete, School of Architecture; and The Greek Ministry of Environment and Energy.
- the financial sponsors of the conference: Regional Authority of Crete, Green Fund of The Greek Ministry of Environment and Energy;
- and especially, all of you having contributed to this big academic event.

Aspa Gospodini, PhD

Professor of Urban Planning & Design,
Dept. of Planning & Regional Development, University of Thessaly,
Chair of the Organising Committee & the Scientific Committee
of the series of CC conferences.

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

TABLE of CONTENTS

KEYNOTES SPEECHES	2
NEW CITY PLANNING AND DESIGN IN CHINESE CAPITAL REGION SINCE 1990S.....	3
PROF. HE HUANG.....	3
A STUDY OF PLOT RATIOS AND BUILDING HEIGHT RESTRICTIONS IN HIGH-DENSITY CITIES USING SPATIAL ANALYSIS TECHNOLOGIES.....	4
PROF. GEOFFREY QIPING SHEN	4
URBAN REGENERATION SUPPORTING URBAN RESILIENCE AND DEVELOPING CREATIVE AND SMART CITIES.....	5
PROF. ASPA GOSPODINI	5
CHINESE CITIES: URBAN DEVELOPMENT, SOCIO-ECONOMIC TRANSFORMATIONS, POLICY CHALLENGES AND COMPARISONS WITH THE EUROPEAN EXPERIENCE.....	6
PROF. GEORGE PETRAKOS	6
CHINA & EUROPE: A DIFFICULT RELATIONSHIP AND WHAT THIS HAS TO DO WITH SPATIAL DEVELOPMENT IN EUROPE	7
PROF. KLAUS R. KUNZMANN	7
CREATING THE PUBLIC REALM IN THE CONTEMPORARY CITY: LONDON AND HONG KONG AND THE PUBLIC USE OF PRIVATE SPACE.....	8
PROF. CLAUDIO DE MAGALHÃES	8
SMART TEACHING FOR SMART CITIES. HOW SHALL WE TEACH FOR CHANGING EUROPEAN URBAN FUTURE?.....	9
PROF. IZABELA MIRONOWICZ	9
HISTORIC ENVIRONMENTS AND WELLBEING: WHAT ARE THE CONNECTIONS?	10
PROF. TIM G. TOWNSHEND	10
"PLANNING REFORM AND DEVELOPMENT RIGHTS IN GREECE: INSTITUTIONAL PERSISTENCE AND ELITE RULE IN THE FACE OF THE CRISIS".....	11
PROF. NIKOLAOS KARADIMITRIOU	11
REUSING HISTORIC INDUSTRIAL BUILDINGS	12
PROF. JOHN PENDLEBURY	12
LANDSCAPE THOUGHTS FOR CLIMATE CHANGE	13
PROF DR. ACHILLE M. IPPOLITO	13
ARCHITECTURE – TECHNOLOGY – ENVIRONMENT	15
PROF. DR. ALEKSANDRA KRSTIC-FURUNDZIC	15
‘SMART’ EPISTEMIC PARADIGMS: CONTEMPORARY LANDSCAPE REFERENCES AND THEIR EPISTEMOLOGICAL AND POLITICAL VALIDITY	16
PROF. CONSTANTINOS MORAITIS	16

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

HERITAGE OPEN SPACE IN TRANSFORMATION BEYOND TANGIBLE BARRIERS.....	17
PROF. DIMITRA BABALIS.....	17
HEALTHY, LIVEABLE AND HAPPY URBAN DESIGN.....	19
PROF. MARICHELA SEPE.....	19
"URBAN RESILIENCE. SPATIAL POLICIES AND RELATIVE DILEMMAS".....	20
PROF. KONSTANTINOS SERRAOS.....	20
SMART CITIES AND INDUSTRY HERITAGE: A CASE OF ELEOUSIS.....	21
PROF. GIORGOS PANETSOS.....	21
A DARWINIAN STANDPOINT ON HOW "SMART AND SMARTLESS" REALLY INFLUENCES THE EVOLUTION AND SURVIVAL OF CHANGING CITIES.....	22
PROF. DIMITRIS POLYCHRONOPOULOS.....	22
"CONSIDERING ECO-URBANISM IN TIMES OF COMPLEXITY AND UNCERTAINTY: AN EVOLUTIONARY RESILIENCE PERSPECTIVE".....	23
PROF. STELLA KYVELOU.....	23
CITY BRANDING AND CULTURAL ROUTES. CASE STUDIES FROM GREECE AND ABROAD.....	24
PROF. ROIDO MITOULA.....	24
"SMART" CULTURAL HERITAGE.....	25
PROF. ELENA KONSTANTINIDOU.....	25
"DECARBONIZING FUTURE CITIES AND CONSEQUENCES".....	26
PROF. STAMATIS ZORAS.....	26
PRE-ORGANIZED SPECIAL SESSIONS.....	27
PLANNING & DESIGNING NEW CITIES IN CHINA.....	29
ORGANIZED AND CHAIRED BY PROF. HUANG HE.....	29
RESEARCH ON THE SPATIAL AGGREGATION AND EVOLVEMENT OF BEIJING ADVERTISING INDUSTRY FROM 2006 TO 2016.....	30
Y. LIU ¹ , H. HUANG ^{1*}	30
CONSERVATION AND ENJOYMENT OF CHINESE HISTORIC CITIES: NEW APPROACHES OF CONSERVATION PLANNING IN TWO CASES.....	37
S. M. SUN.....	37
RESEARCH ON PROPERTY ISSUES IN AGING PUBLIC HOUSING RENEWAL IN CHINA.....	47
L. ZHANG ¹ AND H. HUANG ^{1*}	47
URBAN REGENERATION SUPPORTING URBAN RESILIENCE AND DEVELOPING CREATIVE AND SMART CITIES.....	54
ORGANIZED AND CHAIRED BY PROF. ASPA GOSPODINI AND PROF. DESPINA DIMELLI.....	54
URBAN REGENERATION SUPPORTING URBAN RESILIENCE AND DEVELOPING CREATIVE AND SMART CITIES.....	41
ASPA GOSPODINI.....	41

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

SMART MOBILITY FOR CHANIA’S HISTORIC CENTER	42
DESPINA DIMELLI.....	42
.....	48
STUPID CITIES: HOW SMART CITIES CAN LEAD TO COLLAPSE.....	51
DR. E. J. GARCIA	51
SMARTER TOGETHER: TOWARDS A COLLECTIVE SMARTNESS ON THE NEIGHBOURHOOD SCALE VIA TECHNOLOGY AND BEYOND.....	62
E. ZIPPELIUS	62
AN EVALUATION OF RESILIENT CITY: CITIZEN SCIENCE PROJECTS APPROACH.....	74
P. AYKUTLAR ^{1*} , K. VELIBEYOGLU ²	74
ECO CITIES VERSUS SMART CITIES: SOCIO LABOR ECONOMIC DIMENSIONS IN TERMS OF SMART ECONOMY.....	87
M. STABOULIS ^{1*} , I. LAZARIDOU ²	87
SMART REGENERATION AND REUSE OF STATE HOTELS “XENIA”, GREECE: APPLYING SPATIAL, MORPHOLOGICAL AND ECONOMIC CRITERIA.	96
I.M. KACHRILA ^{1*} AND A. GOSPODINI ²	96
CHINESE CITIES: URBAN DEVELOPMENT, SOCIO-ECONOMIC TRANSFORMATIONS, POLICY CHALLENGES AND COMPARISONS WITH THE EUROPEAN EXPERIENCE	113
ORGANIZED AND CHAIRED BY PROF. GEORGE PETRAKOS AND PROF. JUNHUA CHEN	113
CHINESE CITIES: URBAN DEVELOPMENT, SOCIO-ECONOMIC TRANSFORMATIONS, POLICY CHALLENGES AND COMPARISONS WITH THE EUROPEAN EXPERIENCE	59
PROF. GEORGE PETRAKOS	59
THE REAL-TIME SPATIAL DATA ENABLED URBAN HOTSPOT MAPPING: USING THE CASE OF YIWU CITY	60
W. ZOU	60
TOPIC-MODELING ENABLED SEMANTIC ANALYSIS ON INFRASTRUCTURE DEVELOPMENT PROJECTS UNDER <i>THEBELT AND ROAD INITIATIVE</i>	69
YL. LI ^{1*} , HL. CHAN ² AND DK. XIONG ³	69
POLICY REVIEW OF KHORGOS DEVELOPMENT PROJECT IN CHINA AND KAZAKHSTAN.....	84
YL. LI ^{1*} AND SQ. HAO ²	84
ASEAN’S INVOLVEMENT IN BELT AND ROAD INITIATIVE’S TRANSNATIONAL RAILWAY DEVELOPMENT PROJECTS: A CASE STUDY ON LAOS AND THAILAND.....	97
T. H. TANG*, T. T. NG**, T. K. YUNG***	97
SUSTAINABLE URBAN MOBILITY.....	110
ORGANIZED AND CHAIRED BY PROF. SPYROS VOUGIAS AND DR MARIA MARKATOU	110
PASSENGER PERCEPTION OF QUALITY AND SATISFACTION OF PUBLIC TRANSPORT IN POLAND. EMPIRICAL STUDY.	112
KAMIL ROMAN.....	112

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

ECONOMIC FEASIBILITY ANALYSIS FOR AN ELECTRIC CAR SHARING SYSTEM IN NORTHERN KAOHSIUNG UNIVERSITY AREA.....	124
L.Y. WANG ^{1*} AND S. LEE ¹	124
ZARIA: HISTORY, DEVELOPMENT AND CONTEMPORARY CHALLENGES.....	128
YAKUBU ALIYU BUNUNU ¹ AND YAKUBU AHMED UBANGARI ²	128
ORGANIZED AND CHAIRED BY PROF. MARICHELA SEPE.....	142
PARTICIPATION, SOCIAL NETWORKS AND URBAN REGENERATION. NEW OPPORTUNITIES AND CHALLENGES FOR LIVEABLE URBAN DESIGN PROJECTS.....	144
M. SEPE.....	144
SLOW REGENERATION: LIVEABLE PLACES FOR ALL.....	156
M. SEPE.....	156
STREETScape FOR HEALTHY LIFE.....	167
SAPIENZA UNIVERSITY AND THE URBAN REGENERATION OF THE CITY OF ROME.....	167
A. CAPUANO.....	167
THE URBAN LANDSCAPE OF THE LURA RIVER INTO THE SARONNO TOWN*.....	178
MICHELE UGOLINI ¹ , STEFANIA VARVARO ¹	178
URBAN REGENERATION PROCESSES IN THE RECENT TERRITORIAL POLICIES OF THE EMILIA ROMAGNA REGION* ..	190
MICHELE UGOLINI ¹ , STEFANIA VARVARO ¹	190
THE DECLINE AND REGENERATION OF THE PUBLIC MARKETS IN BEIJING: A PRACTICE OF COMMUNITY DEVELOPMENT AND SPACE PRODUCTION.....	198
ZHANG KE'ER ^{1*} , DENG HANDUO ^{1*}	198
DESIGNING ROADS FOR HEALTH FROM THE LESSON OF BERNARD RUDOLFSKY. THE HISTORICAL MEDITERRANEAN CENTERS AS PARADIGMS OF A CITY THAT PRODUCES HEALTHY LIFESTYLES AND A PEDESTRIAN-FRIENDLY.....	210
A. LANZETTA ^{1*} , A. VALERIANI ¹	210
FROM A "SEA PORT AREA" TO A "PUBLIC SPACE" FOR THE CITY _ PLANNING APPROACHES FOR URBAN SUSTAINABLE REGENERATION IN IGOUMENITSA, GREECE.....	221
A. PITOULI ^{1*} , Y. THEODORA ²	221
DISCOVERING THE "BASSO" IN THE TOURIST EXPERIENCE:.....	232
AN EXAMPLE OF INFORMALITY IN NAPLES.....	232
ANTONELLA BERRITTO, ROCCO MAZZA, AND GABRIELLA PUNZIANO.....	232
CLIMATE ADAPTATION AND LIVABILITY FOR THE ENVIRONMENTAL ENHANCEMENT OF URBAN SPACES. A PROPOSAL IN A CASE STUDY.....	254
V. DESSI*, G. SCUDO.....	254
RELENTLESS RESILIENCE.....	261
L. CASTELLO.....	261
RE-SHAPING MILANO PERIPHERIES THROUGH PUBLIC SPACE DESIGN. A CONTRIBUTE FROM THE POLITECNICO.....	275

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

L. POGLIANI	275
HOW CAN WE PLAN BETTER CITIES FOR ALL?	287
C. PERABONI ^{1*} , S. CAMPIOLI ²	287
E. SPANOIANNI ^{1*} , Y. THEODORA ²	294
REGENERATING THE SYSTEM OF PUBLIC SPACES IN THE UNESCO SITE “HISTORIC CENTRE OF FLORENCE”. LAYERINGS, CONNECTIONS AND PARTICIPATED EXPERIENCES IN THE OLTRARNO.....	306
ANDREA BACCI ^{1,2} , CAROLINA CAPITANIO ^{1,3} , DANIELA CINTI ^{1,4} , STAFANIA VITALI ^{1,5}	306
THE CHANGING FACE AND REVITALIZATION OF MOVIE THEATERS IN BEIJING.....	320
WANG CHENYUE*, XU RONGBO	320
A STUDY ON THE CHARACTERISTICS AND SPATIAL DIFFERENTIATION OF SLOGANS IN CHINESE URBAN PUBLIC SPACE	332
WEI TIANXING ^{1*} , HOU YU ^{1*}	332
MILIEU D L'INTERIOR: INNOVATION DISTRICTS ARE NOT A NEW	343
G. ARANDA-MENA ^{1,2}	343
THE ROLE OF PUBLIC SPACE IN THE URBAN REGENERATION OF THE CITY OF ROME'S GRANDE RACCORDO ANULARE. THE NEW GREEN BELT AS AN EXAMPLE OF SUSTAINABLE URBAN REGENERATION	355
M. PIETROLUCCI ^{1,2}	355
BEST PRACTICES FOR URBAN SPACES: A CASE STUDY IN JOINVILLE/BRAZIL.....	359
R. F. GOETTEMS, ¹ P. SCHEFFER, ² C. S. SILVEIRA ³ , L. F. HAGEMANN ⁴	359
EGYPTIAN COASTAL SETTLEMENTS IN TRANSITION: STITCHING LEAPFROGGING DEVELOPMENTS INTO THE PUBLIC REALM.....	369
R. GHARIB ^{1*}	369
SUSTAINABLE URBAN CULTURE IN GREEN OPEN SPACES OF ISFAHAN	377
MEHDI HAGHIGHATBIN*	377
SPACE, PRESSURES AND THE MANAGEMENT OF COASTAL CITIES LANDSCAPE.....	385
ORGANIZED AND CHAIRED BY PROF. GEORGIOS TSILIMIGKAS	385
CRUISE TOURISM AND COASTAL CITIES LANDSCAPE. EVIDENCE FROM CRETE ISLAND, GREECE	387
N. REMPI ^{1,2*} , G. TSILIMIGKAS ¹ , G. PAVLOGEORGATOS ³	387
PUBLIC SPACE AND CLIMATE CHANGE. INNOVATIVE PLANNING APPROACHES FOR THE URBAN REGENERATION OF COASTAL CITIES	397
C. MARIANO ¹ , M. MARINO ^{2*}	397
THREE SCENARIOS FOR THE SUMMERSCHOOL 2018 ‘WATERSCAPES IN TRANSFORMATION’	405
S. PILLEN ^{1*}	405
UNREGULATED URBAN GROWTH, AND BUILT-UP AREAS DISPERSION AS A LANDSCAPE TRANSFORMATION FACTOR: EVIDENCE FROM ERMOUPOLI, SYROS GREECE	415
E- T. DERDEMEZI ^{1*} , G. TSILIMIGKAS ¹ AND G. PAVLOGEORGATOS ²	415

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

COASTAL CITIES LANDSCAPE: QUANTITATIVE REPRESENTATION OF THE STRUCTURE AND SPATIAL DISTRIBUTION OF LAND USES IN LARGER URBAN ZONES OF COASTAL MEDIUM SIZE CITIES OF GREECE.....	425
E. T. DERDEMEZI ^{1*} AND R. K. ANTONITSEVA ²	425
SUSTAINABLE DEVELOPMENT OF RURAL TOURISM IN CRETE, GREECE	435
RESTORATION AND UTILIZATION OF A RUINED TRADITIONAL VILLAGE IN CRETE -	435
TOHSEI ISHIMOTO ¹	435
AGRICULTURAL AND INDUSTRIAL HERITAGE AND LANDSCAPE PLANNING	446
ORGANIZED AND CHAIRED BY DR. MARIA MARKATOU	446
SATELLITE AND 5G TECHNOLOGIES IN THE EXPERIMENTATION OF SUSTAINABLE URBAN AGRICULTURAL PRACTICES IN MATERA, CAPITAL OF EUROPEAN CULTURE OF 2019	448
P. D'ANTONIO AND F. TOSCANO	448
SOFTWARE AND TECHNOLOGIES IN THE SUSTAINABLE MANAGEMENT OF ENVIRONMENTAL RESOURCES: STATE IN THE MEDITERRANEAN OF EUROPE.	455
P. D'ANTONIO ¹ , A. VARASANO ¹ , S. PERNA ^{1*} , C. D'ANTONIO ¹	455
CULTURAL LANDSCAPE, LITTORAL LANDSCAPE AND MASS TOURISM: A POSSIBLE SYNERGY.	462
THE MACERO AS STRUCTURING ELEMENT OF THE ANCIENT AGRICULTURAL LANDSCAPE OF RIMINI.	462
MARIA PAZ ARTIAGOITIA ^{1,2} , KARLA PAOLA LOPEZ ^{5,2} , VALENTINA PILIEGO ^{3,2} , STELLA SCHMIDTLER. ^{4,2}	462
URBAN HERITAGE IN TIMES OF UNCERTAINTY.....	472
ORGANIZED AND CHAIRED BY PROF. DIMITRA BABALIS AND PROF. TIM G. TOWNSHEND	472
HERITAGE AS A BUFFER IN TIMES OF UNCERTAINTY.....	474
TIM TOWNSHEND	474
ARQUATA DEL TRONTO: THE POST-SEISMIC RECONSTRUCTION BETWEEN TERRITORIAL IDENTITY AND PLACE'S SAFETY.....	475
V. D'ABRAMO	475
THE OPPORTUNITIES OF CRISIS. BOTTOM-UP INITIATIVES FOR THE REUSE OF INDUSTRIAL HERITAGE: THE EXAMPLE OF THE TABACALERA IN MADRID	486
T. CHATZI AND RODOPOULOU ^{1*}	486
THE CASE STUDY OF PARIS IN AN INCREASINGLY UNCERTAIN EUROPE	498
A. S. DE ROSA ^{1*} , E. BOCCI ¹	498
ORGANIZED AND CHAIRED BY PROF. IZABELA MIRONOWICZ,	512
YESTERDAY'S UTOPIA AND TODAY'S PROTOTYPE: LARGE HOUSING ESTATES OF THE 1960S IN NORTHERN BAVARIA	507
DR. CARMEN M. ENSS* AND DR. STEPHANIE HEROLD	507
CHANGING ESTATES. MODERNIST HOUSING AS A RESOURCE FOR SUSTAINABLE DEVELOPMENT	517
M. HARNACK	517
CULTURAL HERITAGE ADAPTIVE REUSE FOR SUSTAINABLE DEVELOPMENT PATHWAYS IN CREATIVE AND KNOWLEDGE CITIES	524

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

P. ELISEI ¹ , M. DRAGHIA ² , G. DANE ³ , N. ONESCIUC ⁴	524
SMART MANAGEMENT OF THE CITIES CULTURAL HERITAGE	540
ORGANIZED AND CHAIRED BY PROF. NIKOLAOS SAMARAS	540
RESTORATION OF METOCHI AT NIES, MAGNESIA, GREECE AND A PROPOSAL FOR RE-USE CHARACTERIZED BY “DISCRETENESS” AND “REVERSIBILITY”	547
I. DRIZOU ¹ , D. LAVDA ^{1*} , N. SAMARAS ²	547
RESTORATION OF BUILDINGS, RECOVERING MEMORIES	558
M. ASTERI ^{1,2} , A. GKARALIAKOS ^{1,2*}	558
“IRRUPTION OF THE UNEXPECTED AND THE PURSUIT OF HOPE:	570
EARTHQUAKES IN KEFALONIA, SANTORINI, SICILY”	570
D. GKINA ¹	570
REHABILITATION AND RE-USE OF KACHRAMANOGLOU INDUSTRIAL BUILDING IN KERATSINI, ATHENS, GREECE	580
K. LEODI ¹ , E.-Z. SKARI ^{1,2*}	580
RESTORATION AND RE-USE OF A ‘KASTROPLIKTON’ RESIDENCE AT ANO POLI (UPPER TOWN) THESSALONIKI, GREECE	594
C.-Z. KEFALA ¹ , N. SAMARAS ^{2*}	594
PHOTOGRAMMETRY AND GIS TO THE SMART MANAGEMENT OF THE TRADITIONAL SETTLEMENT OF VAROUSI IN TRIKALA, GREECE	606
A. MOYSIADIS [*] AND M. CHASIOTI	606
A FEW BASIC PRINCIPLES OF AN INNOVATIVE METHODOLOGY IN THE FIELD OF RESTORATION OF MONUMENTS. THE 30-YEAR EXPERIENCE OF WORKS AT ST STEPHEN MONASTERY, METEORA, GREECE.	619
E.K. TZIMA	619
SMART AND INCLUSIVE HUMAN SETTLEMENTS, RECONCILING PAST WITH FUTURE	627
ORGANIZED AND CHAIRED BY PROF. BYRON IOANNOU	627
PLACE INCLUSIVENESS AND ASSESSMENT OF SUBURBAN ENVIRONMENTS	629
BYRON IOANNOU	629
THE DELTA PO REGION, A PRODUCTIVE AND ADAPTIVE MORPHOLOGY	630
S. TORNIERI ¹	630
AN INNOVATIVE SPATIAL DECISION SUPPORT SYSTEM FOR LAND-USE PLANNING	636
M. LAZOGLOU ^{1*} , D.C. ANGELIDES ²	636
CHANGING CITIES - CLIMATE CHANGE / THE ROLE OF URBAN GREEN	647
ORGANIZED AND CHAIRED BY PROF. ACHILLE IPPOLITO	647
LANDSCAPE THOUGHTS FOR CLIMATE CHANGE	642
PROF. ACHILLE M. IPPOLITO	642
“LANDSCAPE PROJECT IN PORT TRANSFORMATION: THE CASE OF BARCELONA”	656
S. D'AMORA ^{1*} , I. TOMBOLINI ²	656

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

CLIMATE ADAPTATION AND CITIES SUSTAINABLE DEVELOPMENT: THE ROLE OF URBAN GREEN IN THE POLITICAL STRATEGIES AND PROGRAMS.....	671
S. DAMIANO	671
GREY GREEN BLUE. COMPOSE WITH NATURE THE LANDSCAPE-CITY	677
LUCA ZECCHIN	677
THE USE OF GREEN IN CHANGING CITIES.	691
AN INTEGRATED APPROACH TO PLANNING THE URBAN LANDSCAPE WITH GREEN TECHNOLOGIES	691
L. HERZOG ¹ , M. MARINO ^{2*}	691
FERTILE GROUNDS: EMERGENT ECOLOGIES AND COMMONS.....	700
S. BARTUMEUS FERRE ¹ AND P. KARAMANEA ^{2*}	700
INTERDISCIPLINARY METHODOLOGY FOR RETHINKING THE URBAN LAYOUT VIA MULTI CRITERIA ANALYSIS AND INDICATOR APPLICATION	714
A. CACCAMO ¹ , L. HERZOG ¹ , F. R. LUCIANI ¹ , S. NIGRO ¹ , L. TOMMASOLI ^{1*} , A. BATTISTI ²	714
A STRATEGIC PLAN FOR THE MANAGEMENT OF THE ECONOMIC-CULTURAL CENTER OF ALONISSOS ISLAND AND THE NORTHERN SPORADES MARINE NATIONAL PARK.....	726
IOANNIS KONAXIS	726
RE-DESIGNING PUBLIC SPACES IN TIMES OF CLIMATE CHANGE	733
M. CLEMENTE ¹	733
FOR A RESILIENT COAST: BUILDING WITH LANDSCAPE DYNAMICS - PROJECT FOR A RESILIENT BEACH IN THE LLOBREGAT DELTA PLAIN IN BARCELONA.....	743
ROSSELLA DATTOLI.....	743
SMART CITY AND ALLUVIAL PARK: THE ROLE OF THE “URBAN GREEN” IN THE WATER MANAGEMENT THROUGH HISTORICAL AND NATURAL VALUES	757
D. CIALDEA ¹ , C. POMPEI ²	757
URBAN GREEN FOR ALLERGENIC POLLEN FREE SPACES.....	770
C. D’AVINO ^{1*}	770
URBAN REGENERATION OF THE SMALLER TOWNS AND CLIMATE CHANGE	780
JLENIA RUGGIERO	780
A PERVASIVE, SLIGHT GREEN NETWORK FOR IMPROVING CITIZENS’ WELLBEING: SOME EXPERIENCES AND PROPOSAL	789
L. MARTINCIGH ^{1*} , M. DI GUIDA ¹	789
URBAN ECOLOGICAL DESIGN IN THE ERA OF CLIMATE CHANGE: A PROCESS OF LANDSCAPE RECLAMATION	803
E. S. KALAPODA ^{1*}	803
"SMART" HUMANITARIAN TENDENCIES.....	815
ORGANIZED AND CHAIRED BY PROF. KONSTANTINOS MORAITIS AND PROF. ELENA KONSTANTINIDOU	815
URBAN INTELLIGENCE AND THE POLITICAL SUSTAINABILITY OF CITIES.....	816

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

K. MORAITIS	816
AN EVALUATION OF RESILIENT CITY: CITIZEN SCIENCE PROJECTS APPROACH.....	817
P. AYKUTLAR ^{1*} , K. VELIBEYOGLU ²	817
‘SMART CITIES’ AND SOCIAL INTERACTION: INVESTIGATING FLOWS OF MULTICULTURALISM AND MULTI-ETHNICITY	830
ATHINA MORAITI.....	830
CHANGING CITIES: HISTORIC URBAN LANDSCAPES AND THE SOCIO ECONOMIC DIMENSION.....	832
ORGANIZED AND CHAIRED BY EM PROF. ELENI MAISTROU.....	832
THE SOCIO-ECONOMIC DIMENSION OF TEN EUROPEAN CAPITALS	833
THROUGH THE LENS OF DESTINATION@-BRANDING.....	833
A.S. DE ROSA ¹ , E. BOCCI ¹ , M.LATINI ¹	833
THE CHANGING VALUE OF THE HISTORIC CITY CENTRES:THE PLANNING TOOLS ADDRESSING SOME SHRINKING NORTH ITALIAN CASES.....	848
PAOLA PELLEGRINI	848
EMPORIO OF SANTORINI: 4 + 1 ACTION HUBS FOR THE PROTECTION AND PROMOTION OF A HISTORICAL SETTLEMENT.....	865
V. CHATZIS ¹ , P. MARKOU ² , A. PRASINO ³ , T. STEFANAKI ^{4*} , E. SYMIAKAKIS ⁵	865
PLANNING CITIES THROUGH PRIVATE DEVELOPMENT: URBAN PLANNING IN THE AGE OF FINANCE.....	875
ORGANIZED AND CHAIRED BYPROF. CLAUDIO DE MAGALHÃES	875
PLANNING RISK, HOUSING SUPPLY AND DEMOCRACY	877
PROF CLAUDIO DE MAGALHAES ^{1*} , PROF NICK GALLENT ¹ , DR SONIA FREIRE TRIGO ¹ , PROF CHRISTINE WHITEHEAD ² , DR KATH SCANLON ²	877
ARCHITECTURAL DESIGN AND TECHNOLOGY IN THE CONTEXT OF ENERGY AND ENVIRONMENTAL ISSUES	878
ORGANIZED AND CHAIRED BYPROF. DR. ALEKSANDRA KRSTIC-FURUNDZIC	878
DESIGN ASSESSMENT OF DIFFERENT MODELS OF GEOMETRICALLY COMPLEX	969
GLASS ENVELOPES	969
T. KOSIC ^{1,2*} , I. SVETEL ¹ , M. STAVRIC ³	969
SUSTAINABLE CONSTRUCTION TECHNOLOGY: FROM INNOVATIVE ARCHITECTURAL ADVANCES TO HANDCRAFTING TRADITIONAL TECHNIQUES.	981
ALEXANDROS KITRINIARIS	981
PLANNING FOR RESILIENCE IN URBAN AND REGIONAL LEVEL.....	969
ORGANIZED AND CHAIRED BYPROF. KONSTANTINOS SERRAOS AND PROF. EVANGELOS ASPROGERAKAS	969
TOWARDS BIKE SHARING SCHEMES FOR ENHANCING SUSTAINABLE MOBILITY IN GREECE. A DEVELOPMENT PLAN FOR RETHYMNO, GREECE	969
V. ELEFThERIOU ^{1*} , E. BAKOGIANNIS ¹ , C. KYRIAKIDIS ¹ AND M. SITI ¹	969
CALCULATION, EVALUATION AND INDICATORS OF SUSTAINABLE	982
URBAN MOBILITY: THE CASE OF PAIANIA.....	982

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
 Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

S.GRIGORIADIS*, K. SERRAOS	982
OWNERSHIP AND LAND USE IN ACCORDANCE WITH SUSTAINABILITY	993
M. STAMOU*	993
RE-STREAMING THE CITY: RESILIENCE PLANNING FOR URBAN FLOOD MANAGEMENT IN VOLOS, GREECE.....	1001
I. CARYDI*	1001
CREATING A WORLD CLASS BUILT ENVIRONMENT THROUGH NETWORKED VISIONING TO ADVANCE URBAN AND REGIONAL RESILIENCE	1014
P. CRAWFORD ^{1*} , J. LILLIE ² , AND S. WITTER, ³	1014
THE ROLE OF SPATIAL PLANNING POLICIES IN FOSTERING REGIONAL ECONOMIC RESILIENCE IN GREECE	1027
E. ASPROGERAKAS ^{1†*} , A. TASOPOULOU ^{2‡}	1027
RESEARCH AND INNOVATION STRATEGIES FOR SMART SPECIALISATION (RIS3) AND REGIONAL SPATIAL PLANS: KEY FACTORS FOR THE DEVELOPMENT OF RESILIENT REGIONS.....	1040
F. STEFANI ¹ , A. GOURGIOTIS ²	1040
Aquaculture	1046
ASSESSMENT OF OUTDOOR COMFORT PERCEPTION IN A PEDESTRIAN AREA OF A MEDIUM SIZE CITY	1056
G. KALOGEROPOULOS, A. DIMOUDI, S. ZORAS, P. TOUMPOULIDIS	1056
GREEN STRATEGIES FOR TERRITORIAL REGENERATION	1064
ORGANIZED AND CHAIRED BY DR. TATJANA MRDJENOVIC	1064
PRINCIPLES OF RESILIENT TERRITORIAL STRATEGIES	1065
CASE STUDY OF INTEGRATED STRATEGY FOR TOURIST VALORISATION OF SKADAR LAKE	1065
DR T. MRDENOVIC ¹	1065
SPACES OF ARRIVAL. SWAMP AS A TERRAIN OF CONTESTATION IN CARTAGENA, COLOMBIA.	1066
A. BAENA*	1066
SENSING CITIES, CHANGING FORMS. ON RESILIENCE AND RE-INVENTION OF SMART CITY SPACE	1076
ORGANIZED AND CHAIRED BY PROF. ALCESTIS RODI.....	1076
PULVERIZATION AND CLUSTERING IN DUBAI.....	1078
HOW THE CITY IS SHAPED BY THE SMART ECONOMY	1078
A. CORNARO ^{1*}	1078
ORGANIZED AND CHAIRED BY PROF. ARISTOTELIS DIMITRAKOPOULOS	1089
REDISCOVERING ROTTER-LAND.....	1091
C. GALANOS ^{1,2}	1091
THE ABANDONMENT OF ‘NUOVA DIMENSIONE’ AND ‘URBAN RENEWAL’ IN A TRANSATLANTIC PERSPECTIVE: THE 1968 EFFECTS ON THE PERCEPTION OF URBAN CONDITIONS.....	1101
M. CHARITONIDOU ^{1,2*}	1101
FROM CHTHONIC TO UNIVERSAL: HOW SANTORINI EVOLVES INTO A SMART HUB.....	1119
ORGANIZED AND CHAIRED BY PROF. RIVA LAVA	1119
FROM ORDER TO DISORDER: THE CASE OF THE SANTORINI HABITAT	1121

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

DR. R.LAVA ¹ AND S.INETZI ^{2*}	1121
A RECURRENCE OF DESTRUCTION AND RENEWAL IN STROGILI* _ PROGNOSIS MODULORS	1128
ANNA-IOANNA FILIPPI	1128
TOURISM CARRYING CAPACITY AS A TOOL FOR SPATIAL PLANNING: AN INDEX-BASED APPROACH FOR THE GREEK ISLANDS.....	1139
M. LAZOGLOU ^{1*} , P. VOULELIS ² , E. ASPROGERAKAS ¹ ,A. KOUDOUNI ² , K. SERRAOS ²	1139
THE SINGULAR MAN	1149
M. A. DEFFNER*	1149
THE MATRIX OF SANTORINI: INVERTED TOPOGRAPHIES	1161
D. ALIGIANNI*, I. MITSIS, M. MICHOU.....	1161
SMART SANTORINI AND ITS ULTIMATE QUESTION	1168
MARIETTA KAL TSA	1168
THE CHINESE CITY: EMERGING HERITAGE ISSUES WHEN ANCIENT MEETS HIGH TECH.....	1180
ORGANIZED AND CHAIRED BY PROF. RIVA LAVA AND PROF. KONSTANTINOS KOSTOPOULOS	1180
EMERGING ISSUES OF HERITAGE IN THE CONTEXT OF CHINA’S DYNAMIC DEVELOPMENT; METROPOLITAN – VERNACULAR AND THE QUEST TO REINVENT THE IDENTITY OF CHINA’S BUILT ENVIRONMENT: THE CASE OF THE HENGJIN VILLAGE	1182
K. KOSTOPOULOS ^{1*} , R. LAVA ¹ , W. DENG ²	1182
PLANNING AT THE NEIGHBOURHOOD SCALE: KEY ELEMENTS AND MECHANICS IN SHAPING ECONEIGHBORHOODS	1193
WALLS WITHIN WALLS: EXAMINING SUBJECTIVE INTERPRETATION OF THE FUNCTION’S WALLS PERFORM IN GATED COMMUNITIES: THE CASE OF GHANA.....	1195
EHWI, RICHMOND JUVENILE	1195
FOR A LIVABLE CITYABLE TO EDUCATE AND CARE FOR CITIZENS	1218
FABRIZIO TOPPETTI	1218
WALLS WITHIN WALLS: EXAMINING SUBJECTIVE INTERPRETATION OF THE FUNCTION’S WALLS PERFORM IN GATED COMMUNITIES: THE CASE OF GHANA.....	1227
EHWI, RICHMOND JUVENILE	1227
SMART MONUMENTALITY, SMART CULTURAL LANDSCAPE AND DIGITAL VITALISM	1258
ORGANIZED AND CHAIRED BY PROF. KONSTANTINOS MORAITIS.....	1258
A RATHER SPECIFIC CASE OF MONUMENTALITY: HELLENIC LANDSCAPE AND ‘SMART’ SENSUALITY.....	1260
K. MORAITIS	1260
SMART MONUMENTALITY VIA AUDIO DOCUMENTATION IN THE CIVIL WAR:.....	1261
THE CASE OF THE ATHENIAN URBAN LANDSCAPE.....	1261
S. PORTESI.....	1261
VIRTUAL INSULARITY AND VIRTUAL NAVIGATION NETWORKS AS COMPARED TO PHYSICAL SEA ITINERARIES	1266
ORGANIZED AND CHAIRED BY PROF. KONSTANTINOS MORAITIS AND MARILENA MELA	1266
SMART AUGMENTED CITIES: GLOBAL URBAN SPACE AND SEA NETWORKS	1268

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

K. MORAITIS	1268
URBAN PLANNING AND DESIGN, NEW AND SMART CITIES - LESSONS LEARNED FROM CHINESE CITIES	1269
ORGANIZED AND CHAIRED BY DR STELLA MANIKA,	1269
NEW CITIES IN CHINA.....	1271
LESSONS LEARNED FROM KANGBASHI NEW AREA KAI LIUZHOU FOREST CITY	1271
K. MAKRI ^{1*} , N. MPATAKIS ¹ , S. MANIKA ²	1271
NEW CITIES IN CHINA – LESSONS LEARNED FROM NANHUI CITY	1280
V. KONSTANTINIDES ^{1*} , C. MALTEZOU ¹ , S. MANIKA ²	1280
SMART GROWTH SCENARIOS IN CHINA - THE CASE STUDY OF GUANGZHOU.	1287
K. KARALIDS ^{1*} , S. MANIKA ²	1287
2.2 CURRENT SITUATION AND	1291
ROUNDTABLE DISCUSSION	1297
ROUNDTABLE DISCUSSION:	1298
CRISIS, INNOVATION AND THE PLANNING SYSTEM: FROM HETERONOMY TO AUTONOMY	1298
ORGANIZED AND CHAIRED BY PROF. NIKOS KARADIMITRIOU	1298
THEMATIC SESSIONS.....	1300
URBAN DESIGN IN PLANNING	1301
STREET SCENES WITH BUILDINGS OF DIFFERENT HEIGHTS AND GROUND FLOOR INTERFACES: PREFERENCE AS A PLACE TO LIVE	1302
F. ANTOCHEVIZ ^{1*} , C. ARSEGO ¹ AND A. T. REIS ²	1302
PATTERN OF URBAN HOUSING CHANGES: CASE STUDY OF PUNE CITY	1314
AR. SHILPA NAGAPURKAR ¹ , DR. PARAG NARKHEDE ²	1314
THE COMPACTION AS A SUSTAINABLE MEASURE: STUDIES ON URBAN CONFIGURATION IN SPACE SYNTAX	1327
ANA HELENA DREISSIG ^{1,2,3}	1327
URBAN DESIGN: AN INVESTIGATION ON WALKABILITY AND CONNECTIVITY IN THE CONTEXT OF SOCIAL HOUSING	1336
D. MARON ^{1*} , J. C. B. VARGAS ¹ AND L. I. G. MIRON ¹	1336
STRATEGIC CITY MARKETING PLANS AND SMART ENVIRONMENTS: THE CASE OF TRIKALA	1348
M. PARMAZIS.....	1348
OLFACTORY PERCEPTION OF BLIND AND SIGHTED USERS IN THE AESTHETIC ANALYSIS OF PUBLIC OPEN SPACES.....	1356
C. P. BARROSO ^{1*} AND A. T. REIS ²	1356
SOME HOUSING ISSUES MALAYSIA 2020 AND BEYOND.....	1380
JOHN WAKEFIELD	1380
EUTECTONIC URBANISMS: POST-HIPPODAMIAN PLANNING – CONGRUENCITIES.....	1391

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

A. DIMITRAKOPOULOS	1391
OLFACTORY PERCEPTION OF BLIND AND SIGHTED USERS IN THE AESTHETIC ANALYSIS OF PUBLIC OPEN SPACES.	1404
C. P. BARROSO ^{1*} AND A. T. REIS ²	1404
SUSTAINABLE URBAN PLANNING & DEVELOPMENT	1416
DRIVERS AND MODELS TO SUPPORT POLICIES OF TERRITORIAL TRANSFORMATION.....	1418
J. LOURENÇO MARQUES ¹² , M. BORGES ¹² , P. BATISTA ¹² , C. GONÇALVES ¹² AND J. WOLF ¹²	1418
SUSTAINABILITY CONTRIBUTION OF THE HOLY CAVE OF APOKALYPSE IN PATMOS ISLAND, GREECE	1430
ST.KIOSSE ^{1*} , R.MITOU ² , H.THEODOROPOULOU, H.SARDIANOU ⁴	1430
PERFORMANCE ASSESSMENT OF A CAVITY WALL FOR GENERATING ELECTRICITY: A NOVEL 3D MODEL	1442
Z.SOLEIMANI ^{1*} , S.ZORAS ¹ , Y. CUI ¹	1442
LAND MANAGEMENT STRATEGIES FOR SUSTAINABLE (RE-)DEVELOPMENT OF PUBLIC LAND ASSETS IN PROTECTED AREAS.....	1452
D.LITSARDOU ^{1*} , R.KLABATSEA ¹	1452
SUSTAINABLE DISASTER RECOVERY PROCESS AFTER EARTHQUAKE: OPPORTUNITIES AND CONSTRAINTS. THE ROLE OF COMMUNITY INVOLVEMENT.....	1467
A. THEODOROPOULOU ^{1*} , I. NTALIAKOURAS ²	1467
3.3. CASE STUDY IN ITALY: L' AQUILA ABRUZZO, 2009	1471
KONITSA, 1996	1472
SUSTAINABLE SOCIAL PLANNING IN PRECARIOUS NEIGHBOURHOODS IN GERMANY: PROBLEMS AND POTENTIALS OF HAMBURG-LURUP	1478
LEHMANN, KATHARINA	1478
FIFTY YEARS OF SERVICE PLANNING IN ITALY (1968-2018). THE EVOLUTION OF "STANDARD" TOWARD THE EFFICIENCY OF GOVERNANCE	1488
A.M. COLAVITTI ¹ , S. SERRA ^{1*}	1488
SUSTAINABLE DEVELOPMENT OF SMALL MEDITERRANEAN ISLANDS: BIOREGIONAL STRATEGIES FOR THE VALORISATION OF MILITARY HERITAGE AND THE ISLANDS TERRITORY.....	1500
A. M. COLAVITTI ¹ , D. R. FIORINO ¹ , S. SERRA ¹ , A. USAI ¹	1500
DESIGN FOR SMART ENERGY SYSTEMS AS A TOOL FOR THE DEVELOPMENT OF COMMUNITIES, CITIES AND TERRITORIES.....	1512
IVO CARUSO ^{1*}	1512
UNDERGROUND SPACE AND URBAN SUSTAINABILITY: AN INTEGRATED APPROACH TO THE CITY OF THE FUTURE	1520
C. PARASKEVOPOULOU ^{1,5*} , A. CORNARO ^{2,5} , H. ADMIRAAL ^{3,5} , S. HADJISPYROU ⁴ AND A. PARASKEVOPOULOU ⁴	1520
THE CONSTRUCTION AND REPRESENTATION OF IDENTITARY RESOURCES IN THE PLANNING REGIONAL DEVELOPMENT: A SARDINIAN CASE-STUDY.....	1532
F. PES ^{1*}	1532

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

AGRICULTURE (%).....	1534
INDUSTRY (%).....	1534
CONSTRUCTION (%).....	1534
SERVICES (%).....	1534
AN INTERACTIVE APPROACH TO THE OPTIMIZATION OF PUBLIC SPACE LIGHTING WITH RESIDENTS' PARTICIPATION	1544
BORIS A. PORTNOV* AND TAMAR TROP.....	1544
THE ENHANCEMENT OF PUBLIC REAL-ESTATE ASSETS AS A RESOURCE IN URBAN REGENERATION PROCESSES	1555
A. M. COLAVITTI ¹ , A. FLORIS ^{1*}	1555
BRAND NAME OF THE MUNICIPALITY OF HERAKLION THROUGH THE USE OF CULTURAL HERITAGE	1564
ST.STRATANTONAKIS ^{1*} , R.MITOU ² , H.THEODOROPOULOU, P.KALDIS ⁴	1564
URBAN REGENERATION AS A MEANS OF ACHIEVING URBAN RESILIENCE: AN IMPLEMENTATION IN THE HISTORICAL CENTER OF AIGIO, GREECE.....	1576
G.ROUSSOU ^{1*} , G.POZOUKIDOU ²	1576
THE DEVELOPMENT OF SMART CITIES: ANALYSIS OF THE INTERACTIONS AMONG THE ECONOMIC, SUSTAINABILITY AND RESILIENCE COMPONENTS IN THE NEW TECHNOLOGICAL FRAMEWORK.....	1585
D. DI CIACCIO ^{1*} , C. GALIMBERTI ² , A. DI CIACCIO ³ , E.MARODER ⁴	1585
ARCHITECTS AND URBAN PLANNERS IN THE FACE OF ENERGY TRANSITION - SMART CITIES ENERGY ASPECTS IN SHAPING BUILDING STRUCTURES AND CITIES.....	1595
J. KUREK ^{1*} , J. MARTYNIUK-PECZEK ¹	1595
2. CONCLUSIONS.....	1604
MAPPING THE PERSONAL GEOGRAPHY OF THE CITY	1606
K. TZORTZI* AND E. THEODOROU ¹	1606
URBAN LANDSCAPES, LANDSCAPE PLANNING & DESIGN	1614
URBAN METABOLISM UNDER PRESSURE. 2 GREEK PORTS TRANSFORMING THROUGH 20TH CENTURY	1615
K. CHRISTOFORAKI	1615
PAST GLORIES AND FUTURE CHALLENGES: TOWNS, CITIES AND THE LANDSCAPE IN THE PONTINE PLAIN.....	1626
S. BOCA ¹ , A. KOROLJIA ^{2*} , C. PALLINI ³	1626
METHODS AND TOOLS FOR LANDSCAPE PLANNING AND MANAGEMENT OF COASTAL AREAS. THE CASE STUDY OF GREECE	1631
A. GOURGIOTIS ¹ , A. GKOLTSIOU ²	1631
URBAN CULTURES & PUBLIC OPEN SPACES	1642
QUINTO VICENTINO, ITALY. THE PUBLIC SPACE IN FRONT OF THE PALLADIAN VILLA THIENE AS A THEME OF URBAN REGENERATION AND TOURISM ENHANCEMENT	1643
E. PIETROGRANDE*, A. DALLA CANEVA	1643

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

A STUDY ON THE CHARACTERISTICS AND SPATIAL DIFFERENTIATION OF SLOGANS IN CHINESE URBAN PUBLIC SPACE	1659
WEI TIANXING ^{1*} , HOU YU ^{1*}	1659
HISTORICAL CENTRES & BUILT HERITAGE MANAGEMENT	1670
BRANDING & MYTH: WHEN PERSEPHONE WAS ABDUCTED IN MOUNTAIN OLYMPUS	1671
V. D. SPANOS ^{1*}	1671
SUSTAINABLE PRESERVATION OF BUILT HERITAGE	1676
HISTORICAL CENTER AS A PRODUCT OF CULTURAL TOURISM - THE CASE OF MEDIEVAL TOWN OF RHODES	1676
D. GIANNAKOPOULOS ¹	1676
ENVIRONMENTAL URBAN PLANNING	1690
THE IMPACT OF BLUE AND GREEN URBAN SPACES ON REAL ESTATE VALUES: A CASE STUDY IN VERIA, GREECE	1691
I. MICHAILIDOU* AND D. LATINOPOULOS	1691
DAYLIGHT COMPLIANCE OF SWEDISH RESIDENTIAL URBAN BLOCKS ACCORDING TO PAST AND CURRENT PERFORMANCE CRITERIA	1703
I. BOURNAS*	1703
RESILIENT CITIES	1716
PLANNING FOR REFUGEE WELFARE AND ACCOMMODATION INFRASTRUCTURE: METHODOLOGY & CONCERNS FOR A RESILIENT, SUSTAINABLE AND SOCIALLY INCLUSIVE URBAN SPACE	1717
K. KATI ^{1*} , P.A. HATZIPROKOPIOU ² , G. POZOUKIDOU ³	1717
THE IMPACT OF INDUSTRIAL REVOLUTIONS ON	1730
THE URBAN TRANSFORMATIONS OF CITIES	1730
CASE STUDY GREATER CAIRO	1730
DR. BAKR HASHEM BAUMEY ^{1*} AND DR. MAHMOUD ALY AHMED ²	1730
LANDSCAPE AND EXISTING BUILDING STOCK: AN IMPROVEMENT OF THE RESILIENCE PERFORMANCE REQUIREMENTS	1752
I. MONTELLA ^{1*} , S. PILLEN ²	1752
URBAN PLANNING LAWS, REAL ESTATE & PROPERTY RIGHTS	1766
HOMELESS IN PALERMO AND THE 'PARTICIPATIVE TURN' OF HOUSING PROGRAMMES: THE MISSING STEP OF THE LADDER OF CITIZEN PARTICIPATION	1767
FRANCESCO LO PICCOLO, ANNALISA GIAMPINO AND VINCENZO TODARO	1767
EXPERIENCING PARTICIPATORY PROCESSES THROUGH URBAN TRANSFORMATION PROJECTS: LOCAL IMPACTS AND CULTURAL INPUTS FROM İZMİR	1774
ASSIST. PROF. DR. TUGCE SANLI ¹ ; İSMAIL MUTAF ²	1774
THE RELEVANCE BETWEEN THE MODIFICATIONS ON THE CHANGE OF HOUSEHOLD NUMBERS AND CONDOMINIUM OWNER ASSEMBLY	1786
CHU-TSEN LIAO ^{1*} , CHEN-CHUN HSIAO ¹	1786
URBAN ECONOMIES & SPATIAL IMPACTS	1797

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
 Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

METROPOLITAN AREAS IN EUROPEAN COUNTRIES: MEASURING MORPHOLOGICAL POLYCENTRICITY	1798
P. NIKOLOPOULOS ^{1,2*} , A. GKOUZOS ^{1,2} , AND A. PAPADASKALOPOULOS ^{1,2}	1798
MEDITERRANEAN MIGRATIONS AND URBAN FORMS:CHALLENGES AND OPPORTUNITIES.....	1809
O. SALEM ^{1*}	1809
THINKING OUTSIDE THE BOX.....	1824
E. PATANE ¹ , S. MAESTRI ²	1824
CITY BRANDING AND URBAN TOURISM.....	1832
CHANGING CITIES THROUGH MUSEUM TOURISM: THE DIACHRONIC MUSEUM OF LARISSA.....	1833
V. D. SPANOS ^{1*}	1833
THE HISTORICAL AXIS OF THE SACRED WAYS AS AN "OPEN-AIR MUSEUM"	1841
INVESTIGATING PROSPECTS AND CHALLENGES	1841
G. ELEFThERAKI	1841
*CORRESPONDING AUTHOR: E-MAIL: ELEFGOGO@GMAIL.COM	1841
DELIMITATION OF A TOWN CENTRE - THE CASE OF ATHENS, GREECE.....	1852
I. MARAKAKIS ^{1*}	1852
FINDING OPPORTUNITIES FOR RECREATION IN GANGA RIVER BARRAGE, KANPUR, INDIA.....	1865
H.W.KHAN ¹ , A. SHAFIQUE ^{2*}	1865
FOR A RESILIENT COAST: BUILDING WITH LANDSCAPE DYNAMICS - PROJECT FOR A RESILIENT BEACH IN THE LLOBREGAT DELTA PLAIN IN BARCELONA.....	1873
ROSSELLA DATTOLI.....	1873
"MACHINES AND EQUIPMENT FOR URBAN LANDSCAPE MANAGEMENT: INNOVATIVE BATTERY-POWERED PRODUCTS"	1886
P. D'ANTONIO ^{1*} , C. D'ANTONIO ¹ , F. TOSCANO ¹	1886
ECONOMIC FEASIBILITY ANALYSIS FOR AN ELECTRIC CAR SHARING SYSTEM IN NORTHERN KAOHSIUNG UNIVERSITY AREA.....	1891
L.Y. WANG ^{1*} AND S. LEE ¹	1891
*CORRESPONDING AUTHOR: E-MAIL: LYWANG@NKUST.EDU.TW	1891
EGYPTIAN COASTAL SETTLEMENTS IN TRANSITION: STITCHING LEAPFROGGING DEVELOPMENTS INTO THE PUBLIC REALM.....	1895
R. GHARIB ^{1*}	1895
THE PROCESS OF MARGINALIZATION OF HISTORICAL FABRICS IN THE METABOLISM OF THE CONTEMPORARY CITY: THE CASE OF THE VASTO DISTRICT IN NAPLES.....	1904
F. TALEVI ¹	1904
"CORE OF CULTURE AND LIFE IN THE HISTORIC CENTER OF ARGOSTOLI" (LOCATION: ARGOSTOLI, KEFALONIA, GREECE).....	1915
D. GKINA ¹	1915

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

ACADEMIC SUPPORTERS & SPONSORS1925

Smart city and alluvial park: the role of the “urban green” in the water management through historical and natural values

D. Cialdea¹, C. Pompei²

¹L.a.co.s.t.a. Laboratory Director, University of Molise, 86100, Campobasso, Italy

²PhD Student Planning, Design, and Technology of Architecture, Sapienza University, 00196, Rome, Italy

* Corresponding author: e-mail: cialdea@unimol.it

Abstract

This paper analyses the possibility of managing the effects on water in urban centres. The water management is an important issue related to the smart cities, because of the climate changes. This problem is felt especially in urban settlements close to river areas, where there are also protected natural elements. Here the effects of climate change are stronger, particularly in the case of rains occurring with less frequency, but with much more intensity. The text identifies the potential of the alluvial park as an element to manage the flooding risk and to make the urban environment a smart city, presenting an application case in the town of Monterotondo Scalo, in the province of Rome in Italy.

Keywords: Water Management; Alluvial Park; Protected Areas; Historical Urban Centre; Urban Public Smart Space

1. Introduction

The alluvial park is a green area that combines the geo-morphological characteristics of the territory with those of the landscape perception by local people: it is a public space that restores the river landscape in its naturalness, in such a way as to reintegrate it with an urban design and planning approach to front of the climate change effects[1, 2, 3, 4].

The rapid climate change that is sweeping the globe is leading not only to a change in the environment, but also to a change in the way human approach. This approach is crucial especially in those disciplines, such as urban and territorial planning, which have as their object and subject the whole territory and the environment in which man operates. In the field of planning and land management, climate change has highlighted a serious problem concerning water management in the case of increased frequent floods. These phenomena are particularly problematic when they concern rivers near the built areas, especially in a country like Italy. In proposing a solution to this problem, various approaches are identified according to the different roles within those who manage the territory. The first approach is to do nothing and to be carried away by events, quite in line with the logic of the river itself, but it is very questionable. The second is to remedy after the flood event has taken place and this is very widespread and also put into practice in a timely manner by civil protection. The last approach is to propose strategic planning and design solutions to ensure that the river flood phenomenon, which is not avoidable, does not cause damage, but it should become a characteristic element for a culture of environmental phenomena, in those urban areas near rivers.

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

The last approach is the one that is supported in this paper. In fact, in current times as landscape and urban planners, the task is to research and investigate solutions that restore resilience in communities, that perhaps in the past was much more current and real than is now widely discussed. It could realistically be defined as a "preventive" approach and, to give evidence of this, solutions that put into practice the afore mentioned logic have been collected and selected: the alluvial parks. These are linked to the integration of planning, landscape and the natural-based solutions (NBS)- river rolling and expansion areas - related to hydraulic engineering and geological logic [5, 6].

Therefore, we examine two different types of solution, descending from different methodological approaches: the integration between landscape planning and the exclusive NBS interventions.

The first solution is represented by alluvial parks, of a purely foreign rather than Italian culture, which are very interesting, above all, because they consider the land project as the characteristic element able to combine the will of nature/public space of the local people with the need for rehabilitation and environmental safety of the river territory. There is not much literature about this topic, since the term alluvial park generally indicates a park area located along the river floodplains, which identifies the characteristic linked to the terrain geomorphology, rather than to a quality design of the park itself.

In this paper, we mean the term "alluvial park" as a park along the rivers that includes, as elements of the project, the recovery of river naturalness and biodiversity among the landscape and the ability to store and act for containing sudden floods phenomena. Since there is no officially recognized terminology, we have relied on a case studies analysis of projects carried out to define and support the validity and existence of this kind of "alluvial park".

1.1 The alluvial parks

A case that reflects the very nature of the term "alluvial" is that of the Lower Oder Valley National Park in Germany [7, 8, 9]. This park is alluvial because it is located along the alluvial or irrigated plain of the Oder River which includes both the German and the Polish riverside. The park includes 60 kilometres of floodplains, numerous protected natural areas, meadows and pastures. This case, being far from inhabited centres, is not negatively affected by floods, as it was conceived as an alluvial park and therefore the excess volumes of water flow down the same floodplains, transforming the environment into an excellent wetland area for biodiversity concentration.

We then asked ourselves how this "alluvial" feature could be applicable in an urban or agricultural context, that is in areas compromised by man. The answer was found in the analysis of other case studies in different river areas: in former industrial or waste areas, in peri-urban areas and in urban areas.

In the first group, the cases of the Emscher Park in Germany [10] and the Red Ribbon Park in China [11, 12] are interesting. The interventions on the river have been carried out to recover disused or highly critical environmental areas. The two parks aim to restore a public space to the river and to the community. In these cases, there is no connection with flood management, but with water management and accessibility by the local people for naturalistic and cultural activities.

The Emscher River is a stream that originates from the parts of Dortmund and flows into the mouth of the Rhine. It passes between the most important cities of the Ruhr, the most industrialized area of Germany. It has been nicknamed the "river sewer" due to its smell and pollution - deriving from the

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

Rhur historic industrial area. The park had the objective of restoring the naturalness of the compromised area by industrial activities. It consists of 200 hectares of multifunctional park where the old industrial plant houses a variety of different uses, as the buildings have been converted and restructured to accommodate cultural and commercial functions. The park is interesting for its use of water: the old gasholder of 20,000 cubic meters of water was transformed into the largest artificial diving centre in Europe and the river changed from a sewer to a nature trail. The river bed and its tributaries have been re-naturalized, floodplains have been reconstituted, allowing the natural development of the river and a wastewater management system has been set up.

The Red Ribbon Park instead is a park located along the Tanghe River, at the east urban fringe of Qinhuangdao City, Hebei Province, in China. Inside the park, a red ribbon was created, which consists of a long 500 meters seat, similar of the tail of a snake, made of red steel, which follows the river course. The site was initially a slum and dump. The project had the objective of giving back to citizens a site where they can practice activities related to the river: swimming, fishing, jogging. A variety of native vegetation has also been planted to mark the route and to rest. Therefore, the park has become the filter to enjoy the river and the naturalness of the territory, an oasis in which to restore from the stress of the city.

In the second group, the case studies are "alluvial parks" that aim to recover the relationship between the city and the river that touches them. This are the Bishan-Ang Mo Kio Park in Singapore [13] and the Yanweizhou Park in China [14, 15]. In these cases, the river is near or in the core of an urban area and it is close enough to arouse in citizens the desire to use them as refreshment areas. Furthermore, they were created with a view to flood management, caused by the strong monsoons that frequently hit these countries.

The Bishan-Ang Mo Kio Park has been realized to provide a buffer zone between Ang Mo Kio New Town and Bishan New Town. The aim was to give to citizens a leisure area to breath out of the city noise. So, the task was to transform the Kallang River from a linear utilitarian concrete drainage channel into a meandering, natural river through the park.

The integration of the river with the park involved different responsibilities (parks and water). National water agency, PUB, and NParks engaged Ramboll Studio Dreiseitl (design) and CH2M Hill (engineering) to look how the park, river and surrounding residential estates could be integrated as one. Different actions have been applied from the use of soil bioengineering techniques (vegetation, natural materials and civil engineering techniques) to prevent erosion and stabilize the river banks, to phyto-remediation with cleansing water biotopes to eliminate any harmful biological contaminants, to the construction of new playgrounds for children, new bridges, stepping stones, riverside gallery to encourage interaction with water, to other leisure areas for all ages.

The Yanweizhou Park in China was designed by the Chinese studio Turenscape for the redevelopment of the river landscape of Jinhua city. The park of 26 hectares is integrated into a wetland area and represents an ecological solution for flood management. It has native vegetation, curved paths and colourful serpentine bridges that are the public attraction around the opera house of the city and connect the park with the two banks of the river. Because of its exemplary nature, the park received the 2015 Landscape of the Year award within the World Architecture Festival for the section dedicated to landscape architecture.

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

The third group is the one of greatest interest for the purpose of sustainable water management in urban areas. They are the floodplain parks of the Enghaveparken in Copenhagen [16] and the Storkeengen in Denmark [17].

The Enghaveparken project is part of a program to protect public spaces during extraordinary climatic events. This happened because in 2011 there were a series of flood events that caused a lot of damage in Copenhagen and therefore the municipal administration decided to implement containment projects for rainwater. The park has been enriched with architectural systems that guarantee its resilience and greater functional integration in the urban context, to contain floods and rains. The park spaces, which host a wide range of areas dedicated to sports, plays and relaxing activities during the summer, are able to accommodate more than 24,000 cubic meters of rainwater. The whole water collection system is divided into a series of pipes and drains starting from the roofs of the buildings which block the water thanks to a dam and a series of depressions for storage purposes.

Moreover, even plants have been inserted that react well to the abundant amount of water foreseen. Another project is that of Storkeengen, a natural park, still unrealized. It provides for a union of architecture, urban planning and engineering, to contain rain and storms and to solve the collecting system of city waste water (grey, blue, green water) trying to bring the city of Randers closer to the Gudenå River. Storkeengen will be built between Randers and Vorup, an industrial suburb located in the south of Randers, on the other side of the river, at a higher altitude. The park will be able to contain the rain water and the city waste water.

The second solution for flood management is instead represented by the natural-based solutions (NBS) that are engineering works, very common in Italy. On this type of intervention, the literature is very much attacked and distinguishes the works according to the physical characteristics of the river [18].

1.2 Expansion Boxes

One of the hydraulic works used to contain rainwater and river floods are the expansion tanks. They are an indirect structural intervention that are represented by an area delimited by an embankment and can be of three types: in-line, derivation and mixed. In these cases, there is no integration with architecture or landscape design, but they often changed the territory becoming elements with significant naturalistic values.

This is the case of the fluvial park of the Secchia River in Italy. The expansion box is located between the Provinces of Modena and Reggio Emilia, in the territory of the Municipalities of Modena, Campogalliano and Rubiera, and it has the aim of regulating the river flooding, subsequently acquiring naturalistic value. It is a natural reserve of about 260 hectares (within 800 hectares of ecological re-balancing area), with permanent pools of water with islets and peninsulas and typical vegetation of humid plains.

Another example is the expansion tank on the Parma stream in Italy, built in Marano by Pizzarotti between July 2004 and November 2005 which restrains the "Pärma voladóra" race. The basin is capable of holding up 12 million cubic meters of water and it is possible to adjust the output flow thanks to mobile gates. It is a work planned by the Po River Basin Authority that secures the city of Parma with respect to the possibility of flooding and which represents an innovative realization. It has a height of about 24 meters and a development of 110 linear meters, with a total area of overflow

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

equal to about 260 meters. It emerges as a hydraulic work exclusively for safety purposes to contain the torrent floods and it still has a high effectiveness [19].

Finally, another example is represented by the expansion boxes of the Renai in the municipality of Signa, Italy. These were implemented with a Memorandum of Understanding for the interventions design to reduce the hydraulic risk. It followed the approval of the Arno River Basin Plan - Hydraulic Risk Excerpt, which took place with a decree of 05.11.99, stipulated between the Tuscany Region and the Arno River Basin Authority [20].

The flood-controlled subsidiary is approximately 1,770,000 m² and the total storage volume was estimated at around 15,000,000 m³. The "Renai" area is the portion of territory bounded by the Bisenzio River, the Arno River and the bank of the Viaccia. The area corresponds to the inner part of an ancient meander of the Arno River characterized by stable flat lands with silt-sandy coverings. The area was the site of an intense mining activity until its interruption in 1970s, which led to the redevelopment of the Renai area for the recovery of landscape and environmental values and for the insertion and harmonization with the economic and social fabric of the territory. The Signa Municipal Administration has thus initiated the redevelopment process of the Renai area "Project for the recovery of the quarry areas of the Renai Island for the construction of a Natural Park". The result of this environmental recovery plan, where the intervention rules were defined in this sensitive area, allowed the creation of an area not only valid for the hydraulic protection of the place, but above all a naturalistic area for public use and recreational activities [21].

1.3 Rolling Tanks

This type of hydraulic works provides for the reduction of the flow through the temporary storage of part of the flood volume which is then released over time.

In the case of the Lura Torrent in Italy, the rolling tanks are included in the Program Agreement of 04/11/2010 between the Lombardy Region and the Ministry of the Environment and the Protection of the Territory and the Sea as urgent interventions for the mitigation of hydrogeological risk. In this case, two controlled rolling areas of river floods (340,000 m³) and those arriving from the Pedemontana motorway drainage system (180,000 m³) have been planned. They have been designed to meet both the purpose of hydraulic protection and the landscape, environmental and fruition of the prestigious Parco del Lura valley and to improve water quality with phyto-purification areas.

The objectives are the unitary management of river, urban surface and road drainage waters, savings in land consumption, in the works construction and management and in the environmental integration [22]. The rolling of the floods of Lura torrent in the municipalities of Bregnano and Lomazzo have been inaugurated on April 6, 2019.

A similar intervention is represented by the A3 rolling basin of the Arno upstream of Gallarate, in the municipal territories of Gallarate and Cassano Magnago, in Italy. For all concrete artefacts, appropriate mitigation and environmental compensation interventions have been planned to include the work in the current landscape context. It is completed with service tracks and internal roads for the area accessibility, a new bridge for crossing the Arno stream by the existing road network and adjustments to a sewer line interfering with the tank.

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

2. MATERIALS AND METHODS

The text proposal is not a project ready to be applied, but it is an investigation and a design experimentation that tries to give an answer to the requests of how to create a smart city. The fundamental aspect is that of climate change management: we do not want to provide a perfect solution, but a way of codifying the key elements and acting in those situations that present emergencies in the urban context and that require design interventions.

2.1 The methodology

To understand and validate the correspondence of an alluvial park project in relation to the river location for which the proposal is made, we tried to highlight the key elements of such a topic. Starting from the analysis and the study of the examples given as a support to the literature on flood containment interventions, it was possible to extrapolate descriptive macro-categories defining the area on which a project proposal is advanced.

These macro-categories have been identified starting from the elements that link to a greater or lesser extent, all the water management interventions. These identified key elements have allowed us to draw up a descriptive data sheet, whose data can be interpolated to describe the ability to solve the problem in relation to the intervention adopted.

The first identifiable macro-category is that of the Territorial Context as a function of localization, which is divided into various sub-categories which in turn are divided into various sub-groups. The first sub-category is the Localization with Geographical-Political reference, which includes the local area (municipal), the vast area (provincial, regional, inter-provincial, interregional) and the national and transnational framework. The second is the Localization with reference to the prevalence of Land Use of the surrounding territory, which provides for three types of uses, those to prevalence of agricultural areas (Agro and Agro-Forestry areas), those to prevalence of urban areas (Continuous and Discontinuous areas) and finally those to prevalence of artificial areas (Artificial, non-agricultural vegetated areas). The third is the Localization related to the river Features, for which the water bodies' width (in metres), the water hazard and risk (high-medium-low) and the flood frequency (month-years) are defined. The second macro-category describes the design context within which the project proposal is placed or could be placed. The first sub-category to refer concerns Procedures and Funding, broken down into: local, regional, national, European levels and private finance initiatives. The second sub-category instead takes into consideration the Stakeholders and project Implementations that can be public, private and public / private partnerships. The third macro-category is instead represented by the presence of Planning Tools and the provisions they establish for the area covered by the analysis data sheet. All these descriptive elements are then turned into acronyms.

Subsequently, the interpolation of these three categories delineates resources and criticalities linked to the river course, also including the social aspect related to the usability of the project. Then, from the interpolation of the features of the project area with the features of the type of intervention, the various possible effects are enumerated. Two kind of these ones have been highlighted:

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

environmental ecological effects and the social effects of impact on the quality of urban spaces. Due to the ecological effects of the alluvial park, there are various possibilities: water collecting system, irrigation system, rainwater collecting system and water treatment system. For social and urban quality effects we find the realization of green public spaces, vegetable gardens, sports activities areas, pedestrian paths, leisure activities areas and educational sites.

From the combination of these effects for each individual area in relation to its territorial localization (urban, agricultural, industrial, protected areas), the solution capacity under the environmental, planning and landscape approach, that is capacity to solve the proposed intervention, can be seen in terms of a degree of evaluation ranging from level 0 = very low, to level 5 = very high. This combination and interpolation have been defined by us the "Data Sheet E + S = U", that is:

E (*Ecological effects*)+ **S** (*Social and urban quality*) = **U** (*Usability of landscape project*)

2.2 The case-study

In the case of Monterotondo Scalo, located along the Tiber River, in a stretch of about 9 kilometres, the alluvial park is perfectly in line with the characteristics of the place. Between the riverbed and the city centre there is a thin strip devoted to agricultural uses, broken by the presence of a protected natural area, consisting of ex-clay quarries transformed into ponds. The alluvial park has been thought as an opportunity to reconfigure the green space so that it can be accessed and accessible by the local people. In this way, it could also become a natural expansion of the riverbed for its re-naturalized configuration [23, 24, 25].

Monterotondo Scalo is a part of the municipality of Monterotondo City which is in the metropolitan area and in the province of Rome, along the Tiber River, in the Lazio region, Italy. The whole municipality has about 41,000 inhabitants and is divided territorially into various parts: Monterotondo (historical and main nucleus), Monterotondo Scalo (the "peripheral" nucleus), the CAIMO industrial area, Borgonuovo and Piedicosta (newly born centres) and Tormancina (an agricultural estate). In the specific case study, Monterotondo Scalo appears as the "periphery" of Monterotondo and it is characterized by problems in all the urban planning systems.

There is an overlap of vehicular flows given the presence of a single main road (the Salaria road), onto which all local roads flow, in the absence of secondary connecting roads. There is a substantial absence of parking spaces and public green spaces compared to the inhabitants who live there. Finally, there is a total lack of relationship with the Tiber River, although the centre is no more than 500 meters from it, and it is constantly flooded in the event of sudden rainfall rush.

The latter caused flooding of the underpasses in correspondence with public services such as the railway station, as in 2014, causing also the death of a lady who was stuck in the underpass. The problem is obviously under the attention of the authority responsible for the stretch in question of the Tiber River.

The area, as defined by the report of the Basin Plan 1st Functional Excerpt - PS1 "Areas prone to flooding in the stretch of the Tiber between Orte and Castel Giubileo", can be flooded by the Tiber River and with it the Salaria road for a stretch of about 11 km, that is until where, in Passo Corese, it leaves the Tiber valley and heads towards Rieti. On the other hand, the Rome-Florence railway always remains at a safe altitude up to the confluence with the Farfa River" [26]. In this regard, among the interventions to safeguard the inhabited centres in flood risk areas with secular return times, from the Basin Plan 1st Functional Excerpt - PS1, the construction of the left bank of the Tiber River to protect

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

the town of Monterotondo is proposed. It is also defined as one of “possible interventions after the realization of the different arrangement of the catchment area that otherwise guarantees the abilities subtracted from the intervention” [26].

In addition to the requirements of the basin authority, various simulation engineering studies have also been carried out for Monterotondo Scalo which show that the area is in any case subject to flooding phenomena, even very serious ones [27] (Fig.1).



Figure 1. Simulation of the flood scenario (a) for a flow rate of 1200 mc / s, (b) for a flow rate of 2100 mc / s, (c) for a flow rate of 2400 mc / s, (d) for a flow equal to 2930 mc / s. (Source: Mellace & Piergrosi 2016)

Our proposal is not in opposition with the River Basin Authority directions or the hydraulic solutions, but a different point of view, an overview finalized to integrate different approaches to the territory, in order to find also new funding channel, when the national ones cannot solve the hydraulic interventions proposed. The aim is to valorise the integration of the NBS with planning and landscape design, so that the safety problem of the fluvial inhabited centres become also a quality problem of green urban spaces. The cases studies we have analysed in the introduction are the representation that this is possible.

3. RESULTS AND DISCUSSION

Based on the data sheet developed and explained in the methodology, it is possible to identify and summarize all the features of the case study by applying the scheme "E + S = U". This data sheet allows the different landscape, settlement and infrastructural / functional systems to be broken down and reassembled with the demands of hydrogeological safety and the possibilities of planning and landscape design [28, 29, 30].

From the point of view of the territorial context, the area designed for the construction of the alluvial park is located within a municipality (Monterotondo), but its proximity to the Tiber River makes it part of a wider context on an interregional scale (Lazio and Umbria regions). The land use of the surrounding territories is of various nature. Within the proposed perimeter there is a land use mainly destined to agriculture or discontinuous artificial areas. Along the south perimeter there is a prevalence of discontinuous urban areas, which cannot be identified in a homogeneous or unitary system. In fact, the slope that leads to the alluvial park is frayed and does not present any element that unites the buildings, there is the lack of a border or a comparison limit. As regards the relationship between the area and the river, various elements can be highlighted. First of all, the river in question

is large both in terms of linearity and in terms of range. Furthermore, it is a river with high risk of flood quantity and frequency, therefore the urban centre is classified as high-risk flood area. In this regard, water is to be considered a key element for the success of the land project.

The planning tools available for the description of the identified area are represented by the Landscape Plan, the Provincial Plan, the Local Plan and the Tiber River Basin Plan.

For the Landscape Plan the area has only the constraint of a river basin and is classified as a natural agricultural landscape and natural landscape.

For the Provincial Plan in the provincial ecological network, the areas between the settlement of Monterotondo Scalo and the Tiber River are defined as areas of primary connection (mainly large portions of the natural, semi-natural, semi-natural / agricultural system) and in regional protected natural areas proposals. Furthermore, part of the area falls within the one identified for the formation of the Agricultural Park of the Tiber Valley. Moreover, the possibility of Integrated Intervention Programs for the recovery of the former kilns (Briziarelli Marsciano) is also indicated. Indeed, the Regulatory Appendix II.1 requires to redevelop the “core” area (belonging to the Tiber Valley Floods Unit), in particular, the riparian zone favouring the recovery of herbaceous phytocoenoses, shrubs and trees, the creation of a park and the redevelopment of the Tiber River, avoiding incompatible uses in the riparian belt still present.

For the Local Plan, the unpublished or free areas along the Tiber River fall under the respect band heading of 150 meters from the river banks and for those between the Tiber River and the Salaria road, they are defined as park on the Tiber River, which in reality is not established by any resolution or even actually present to date, if not as a forecast. Moreover, there is also the restriction of purifier near the Natural Monument "Laghetto" (ponds in Semblera).

The design context thus identified can be placed within the framework of European procedures and funds, for what concerns the sustainable development of the territory, or in the context of financing in private public partnership. If it is possible, we could also think about the involvement in the project of bodies that deal with the safeguarding and enhancement of the river context at National territorial level.

In general, from the superposition of these data sheet, it is possible to identify two macro-categories of resources and critical issues, based on the environmental and social aspects. The resources for the environmental aspect are represented by the presence of agricultural areas with irrigation channels, vegetable gardens and the Natural Monument “Laghetto” in Semblera, which constitute a reservoir of biodiversity. From the social point of view, we have instead the presence of urban equipped parks and facilities for recreational and sports activities. The critical points, on the other hand, from an environmental point of view, are the areas of waste or artefacts that disfigure the natural agricultural landscape (junkyards and deposits of building materials), the presence of an abandoned brick kiln, the industrial area and the new fast scrolling road artery. From the social point of view there is instead an inaccessibility to the river by the citizens who fail to see the river positive importance, but only the negative one linked to the flooding. This is also a contradiction if we consider that the area lived due to the presence of the Tiber River (brick kilns), which in the past was the sea of those who could not afford anything else, it was the place of sociality and sharing.

Proceedings

*of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019*

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

Finally, the data sheet also allowed for a hypothetical response to the creation of the alluvial park for this area. Crossing the localization data with the typical project interventions of an alluvial park, it turned out that for this case study the balance would be very positive. In that area mainly occupied by buildings, the environmental effects would allow the construction of a system of collection and reuse of black water and rainwater in connection with a more general neighbourhood collection and phyto-depuration system. The social effects would be not only the creation of green areas, but above all the possibility of doing recreational activities related to environmental issues and sustainability for citizens who currently do not have them. For predominantly agricultural areas, the environmental benefit consists on the construction of a water collection and irrigation system of great utility, if considered the increasingly frequent drought. On a social level, citizens would be allowed to cross pedestrian paths to rediscover their territory and food production techniques. In the industrial part, on the other hand, it would be possible to implement an ecological system for the collection and treatment of water deriving from the activities practiced here. On a social level these areas would also be configured as green spaces for the practice of leisure activities in connection with the nearby river, at the service of the anonymous sheds of workplaces. For the central part of the alluvial park instead, which falls within a protected area, it would be possible to create panoramic routes on the ponds and educational sites for the knowledge and teaching of the river landscape features (Fig.2).

CONCLUSIONS

The described case-study is related to the creation of a shared scenario for the development of the river territory, describing the conditions for further strategic planning. This experience offered a training path that moves from the real knowledge of the environmental, cultural, architectural context in which it operates to the urban and landscape-environmental planning.

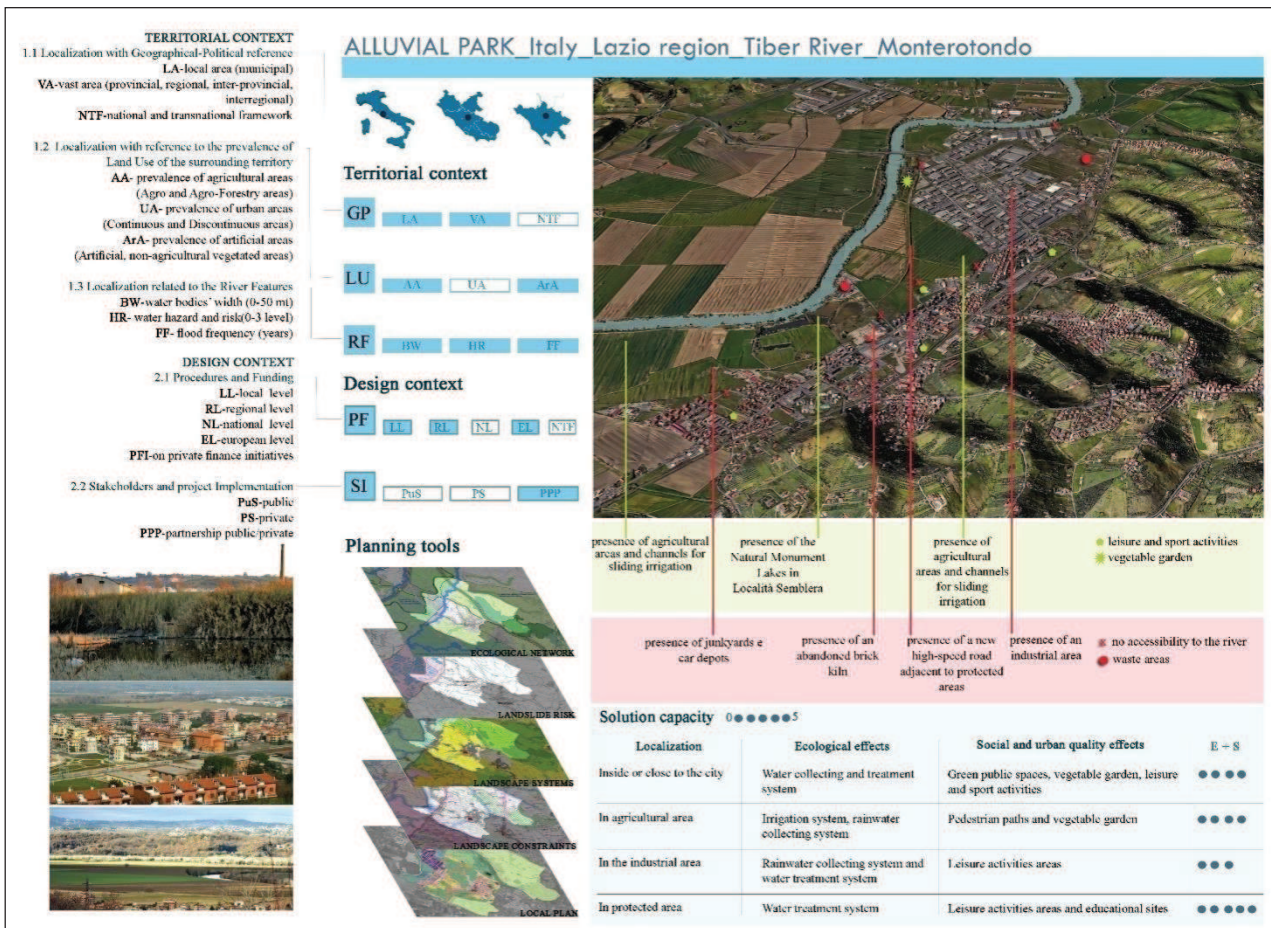


Figure 2. Application of the Data Sheet E+S=U to the case study of Monterotondo Scalo (Author’s elaboration 2019).

The proposal of the paper is not an already realized project, but it is an investigation and a design experimentation that tries to give an answer to the requests of how to make a smart city. The fundamental aspect is that of the management of climate change inside the city: we do not want to provide a perfect solution, but a way of acting in situations that present emergencies in the urban environment and require project-type measures. It is a way to construct possible scenarios starting just from the description of the project area to direct the project design.

The analysis phase is a fundamental moment of the planning process, lays the basis for correct and coherent actions on the territory and guarantees the creation of the critical and informative apparatus, especially in view of the identification of a unitary and shared development strategy for the river. Elaboration of project ideas and implementation of concrete examples of territorial action methods, will be intended as suggestion for new purposes on the territory, based on environmental and sustainable development. The project thus conceived would therefore allow the realization of an integrated system of actions aimed at a safeguarding and environmental safety for the construction of

the resilience of the place and the people, for the purpose of a shared accessibility and usability of the landscape project.

References

1. Coppola E., 2016, *Infrastrutture sostenibili urbane*, INU Edizioni, Roma.
2. Ingaramo R., Voghera A. (eds), 2016, *Topics and Methods for Urban and Landscape Design. From the river to the project*, Springer International Publishing AG.
3. Motta G., Ravagnati G. (eds), 2008, *Alvei meandri isole e altre forme urbane. Tecniche di rappresentazione e progetto nei territori fluviali*, Franco Angeli, Milano.
4. Cialdea D., 2018. Smart Land: Regeneration and Sustainability in Lost Scenarios and New Performances. In: Rocco P. et al. *Smart Planning: Sustainability and Mobility in the Age of Change*. vol. chapter 2, p. 1-25, Springer Editor, ISBN: 978-3-319-77681-1 https://doi.org/10.1007/978-3-319-77682-8_2.
5. UNEP-DHI/IUCN/TNC (United Nations Environment Programme–DHI Partnership /International Union for Conservation of Nature/The Nature Conservancy), 2014. *Green Infrastructure Guide for Water Management: Ecosystem-Based Management Approaches for Water-Related Infrastructure Projects*. UNEP. web.unep.org/ecosystems/resources/publications/green-infrastructure-guide-water-management
6. WWAP (United Nations World Water Assessment Programme)/UN-Water, 2018. *The United Nations World Water Development Report 2018: Nature-Based Solutions for Water*. Paris, UNESCO.
7. LIFE95 NAT/D/001196, *Establishment and development of the National Park 'Unteres Odertal'* (2. phase).
8. Rothenb cher J and Schaefer M., 2006. Submersion tolerance in floodplain arthropod communities on *Basic and Applied Ecology* 7, 398-408.
9. Rothenb cher J and Schaefer M., 2005. Conservation of leafhoppers in floodplain grasslands – trade-off between diversity and naturalness in a northern German national park on *Journal of Insect Conservation* 9, 335-349.
10. Giani E., 2013, CONCEPT RUHR Operazione Landschaftspark. Emscher Park. Parco del paesaggio on *Iuav*: 134, 1-8.
11. Padua M. G., 2008, A Fine Red Line. Design tests the boundary between art and ecology on *Landscape Architecture*, January 2008, 90-99.
12. Epl nyi A., T th E., 2016, The role of red in contemporary landscape design on *Scientific Journal of Latvia University of Agriculture Landscape Architecture and Art*, Volume 7, Number 7, 50-60.
13. Chloe Schaefer C., 2014, Bishan-Ang Mo Kio Park from concrete canal to natural wonderland on *Ecological Urbanism*, December 2014, 1-13.
14. De Francesco G., 2017, *Infrastrutture dell'acqua. Strategie adattive all'emergenza idrica dei mutamenti climatici. Progettare infrastrutture idriche di nuova generazione*, PhD Thesis 'Sapienza' Universit  degli Studi di Roma.
15. Kongjian Yu, 2017, Sponge Cities. Rediscovering the wisdom of the peasant on *Landscapes Paysages* Spring, Printemps 2017, vol.19_no.1, 28-34.
16. Leprotti C., 2019, *The Fish Market as a social catalyst*, Master Thesis, Universit  degli Studi di Genova, Scuola Politecnica-Dipartimento di Architettura e Design.
17. KLIMA100, 2018, *100 climate solutions from Danish municipalities*, Editor Pernille J gerfelt, Sustainia.
18. Poggi D. (Politecnico di Torino), Interventi atti alla riduzione del rischio idrogeologico: un overview, on *idrologia.polito.it* (accessed April 10, 2019).
19. Agenzia Interregionale per il fiume Po, 2006 on *AIPO INFORMA* N  1 - Anno I - gennaio-marzo 2006, 10-12.

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
 Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2

20. <http://www.comune.signa.fi.it/area-di-upload/espropri-del-patrimonio-pubblico/esproprio-cassa-di-espansione-dei-renai>.
21. https://www.parcorenai.it/parco_naturale_toscana_firenze_isola_dei_renai_storia.html
<http://www.laminazioneelura.it/Storia.htm>.
22. <https://www.studiomajone.it/portfolio-items/bacino-di-laminazione-a3-del-torrente-arno-a-monte-di-gallarate-va>.
23. Cialdea D., Pompei C., 2018. Landscape urbanism's interpretative models. A new vision for the Tiber River. In: Antonio Leone Carmela Gargiulo. (a cura di): Antonio Leone Carmela Gargiulo, *Environmental and territorial modelling for planning and design*. Napoli, fedOAPress, 57-68.
24. Cialdea D., 2017. Il contratto di fiume: un'opportunità per i nuovi piani paesaggistici. In: *Atti della XIX Conferenza Nazionale SIU. "Cambiamenti. Responsabilità e strumenti per l'urbanistica al servizio del paese"*. Roma Milano:Planum Publisher, Roma Milano. 64-73.
25. Cialdea D, Pompei C., 2018. Paesaggio e spazio pubblico. Una proposta per il nuovo Contratto di Fiume Medio-Basso Tevere / Landscape and public space. The new proposal for the Middle-Low Tiber River Contract. In: Ricci L. Battisti A. Cristallo V. Ravagnan C. (ed), *Costruire lo spazio pubblico tra storia, cultura e natura / Building the public space between history, culture and nature*. ROMA:INU Edizioni. 185-189.
26. Autorità di Bacino del Tevere (River Basin Authority), 1998. *Il Piano di Bacino 1° Stralcio Funzionale - P.S.1 Aree soggette a rischio di esondazione nel tratto del Tevere compreso tra Orte e Castel Giubileo elaborato, ai sensi dell'art.17, commi 6-bis e 6-ter e dell'art. 18 della legge 18 maggio 1989 n.183, dal Comitato Tecnico dell'Autorità di Bacino del Fiume Tevere avvalendosi degli Uffici Tecnici della Segreteria Tecnico – Operativa adottato dal Comitato Istituzionale dell'Autorità di Bacino del Fiume Tevere il 3 luglio 1997 con delibera n. 65, integrato secondo le modifiche proposte dal Consiglio Superiore dei Lavori Pubblici ed accolte dal Comitato Istituzionale dell'Autorità di Bacino del Fiume Tevere il 6 maggio 1998 con delibera n. 76, approvato dal Consiglio dei Ministri nella seduta del 3 settembre 1998*.
27. Mellace G., Piergrossi V., 2016. Previsione e valutazione delle esondazioni: applicazione della modellistica matematica mono e bidimensionale nella media valle del Tevere, in *ioroma, Ordine degli Ingegneri della Provincia di Roma*, Quaderno N 1/2016, 20-38.
28. Monaci M., Cardini A., 2006, *Caso studio 1: STRARIFLU: una STRAtegia di Riqualificazione FLUviale a scala regionale*, Litrocenter, dell'IRER –Istituto Regionale di Ricerca della Lombardia.
29. Abate A. (ed), 2012, *Atlante del paesaggio urbano*, Le Regioni di TRIA, Napoli, Edizioni Scientifiche Italiane.
30. Cialdea D., Quercio N. (2017). Natural spaces river land in the urban context area. In: *Changing Cities III: spatial, design, landscape & socio-economic dimensions*. Thessaloniki:Grafima Publications, Syros-Delos-Mykonos Islands, Greece, June 26-30, 2017. 62-78.

Proceedings

of the International Conference on **Changing Cities IV:**
Spatial, Design, Landscape & Socio-economic Dimensions
Chania, Crete Island, Greece • June 24-29, 2019

ISSN: 2654-0479

ISBN: 978-960-99226-9-2