



ICUP2018



ICUP2018
2nd International
Conference on
Urban Planning

PROCEEDINGS
Serbia, Nis, November 14-17, 2018

ISBN 978-86-88601-36-8



ICUP2018
2nd International
Conference on
Urban Planning

PROCEEDINGS

Serbia, Nis, November 14-17, 2018

ISBN 978-86-88601-36-8

2nd International Conference on Urban Planning - **ICUP2018**

Publisher

Faculty of Civil Engineering and Architecture, University of Nis

For Publisher

Dean

Petar Mitkovic, PhD

Editor

Petar Mitkovic, PhD

Co-Editors

Milena Dinic Brankovic, PhD

Milan Tanic, PhD

Aleksandra Miric, PhD

Vuk Milosevic, PhD

Text formatting, prepress and cover

Milan Brzakovic

Sanja Jankovic

Vojislav Nikolic

ISBN 978-86-88601-36-8

Circulation

150 copies

Printing

Grafika Galeb Nis

2nd International Conference on Urban Planning - **ICUP2018**

Organized by

Faculty of Civil Engineering and Architecture, University of Nis
Urban Planning Cluster, Nis



Sub-organizers

Serbian Chamber of Engineers and Institute for nature conservation of Serbia





1st International Conference on Urban Planning ICUP2016 was successfully held in Niš, Serbia on 18th and 19th November 2016. Main topics of the Conference were: *Urban theory and practice; Development and planning problems; Links between planning, building and land; Urban regeneration; Land readjustment; Interaction between the natural environment and urban areas.* Conference gathered together a large number of professors, researchers and many professionals working in practice. As a result of the Conference, Conference Book of Proceedings was published with 41 scientific papers. During the Conference, round tables were organized where all participants could discuss the current issues in the field of urban planning and design. Urban planning process was contemplated on by professionals and researchers from both theory and practice. Different points of view and topics related to urban design, planning and its implementation, urban landscape, public–private partnership and smart cities were developed and discussed.

During two days, 10 Keynote speakers from different parts of the world gave lectures which were open for all participants. Keynote speakers and their affiliations at the time of the ICUP2016 Conference included: **Dr Ali A. Alraouf**, head of Capacity Building, training, research and development unit at Ministry of Municipality and Environment (MME) Qatar; **Prof. Dr Zorica Nedović-Budić**, Professor at Chair of spatial planning in the School of Architecture, Planning and Environmental Policy at University College Dublin, Ireland; **Dr Alessandro Busa**, Center for Metropolitan Studies at the Technical University of Berlin, Germany; **Dr Hossam Samir Ibrahim**, working with municipal government of Qatar and consultation firms in Regional and Urban planning projects in Egypt, UK, Qatar, and Kingdom of Saudi Arabia; Prof. **Dr Francesco Rotondo**, Associate professor of Urban planning and design at the Polytechnic University of Bari, Italy; **Dr Cristian Suau**, funding director of STUDIO POP, Scotland; **Dr Demetrio Muñoz Gielen**, IHS Institute for Housing and Urban Development Study of the Erasmus University in Rotterdam, Netherlands; **Dr Kosta Mathéy**, lecturer at different Universities in Germany, Cuba, Algeria and Egypt; Prof. **Dr Derya Oktay**, Dean of the Faculty of Architecture at Ondokuz Mayıs University, Samsun, Turkey; and **Dr Teo Keang Sood**, Professor of Law in the Faculty of Law at the National University of Singapore.

Thanks to different experiences and to different scientific and research fields of keynote speakers and participants, Conference themes were analyzed from different points of view, which resulted in interdisciplinary and comprehensive approach of complex urban planning issues. Beside professors and researchers at the Conference, numerous professionals were present. Therefore, one of the conclusions was that cooperation between science/research and professional practice is necessary in order to adopt and implement innovative solutions and to create and plan human friendly spaces according to anthropometric scale. Niš as the “host city” of the conference was an excellent research polygon for discussion, because it represents an example of the city with complex urban structure. It includes rich heritage areas but also new developing areas, thus providing a very attractive and vibrant ambient. Thus, the next conclusion was that inherited sites and built heritage can be used as a tool for city branding and can also help to improve development by learning on past mistakes and achievements. The following conclusion found that cities must be observed as the home to all residents, which must actively participate in its development and planning process, in order to present their real needs and to stop illegal constructions. Finally, it was concluded that public-private partnerships must be encouraged and promoted because it is not possible to develop and implement projects without mutual cooperation. By developing public-private partnership it is possible to achieve community wellbeing through encouraging investors to develop public spaces and community facilities.

SCIENTIFIC PROGRAM COMMITTEE

Petar Mitkovic, Phd, Chairman, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Milan Tanic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Urban Planning Cluster, Serbia
Milena Dinic Brankovic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Vuk Milosevic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Urban Planning Cluster, Serbia
Aleksandra Miric, Phd, Urban Planning Cluster, Serbia
Goran Jovanovic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Aleksandar Kekovic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Ljiljana Vasilevska, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Danica Stankovic, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Ivana Bogdanovic-Protic, Phd, Faculty of Civil Engineering and Architecture,
Zoran Radosavljevic, Phd, Ministry of Construction, Transport and Infrastructure
Dejan Milenkovic, Phd, Faculty of Political Sciences, University of Belgrade, Serbia
Jelena Zivkovic, Phd, Faculty of Architecture, University of Belgrade, Serbia
Aleksandra Djukic, Phd, Faculty of Architecture, University of Belgrade, Serbia
Milica Bajic Brkovic, Phd, Faculty of Architecture, University of Belgrade, Serbia
Aida Nayer, Phd, Effat University, Department of Architecture, Saudi Arabia
Mila Pucar, Phd, Institute of Architecture and Urban & Spatial Planning of Serbia
Dragana Ostojic, Phd, Institute for nature conservation, Serbia
Demetrio Muñoz Gielen, Phd, IHS Institute for Housing and Urban Development Study of the Erasmus University in Rotterdam, Netherlands
Ali A. Alraouf, Phd, Head of CB, Development, CB and Research Unit-QNMP, Research and Training, Ministry of urban planning, Doha, Qatar
Derya Oktay, Phd, Dean, Faculty of Architecture, Ondokuz Mayıs University, Samsun, Turkey
Marcus Collier, Phd, School of Natural Sciences, Trinity College, Dublin
Margaretha Breil, Phd, CMCC on strategies for climate change, Venezia

ORGANIZING COMMITTEE

Slavisa Kondic, Chairman, Urban Planning Cluster, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Tanja Obradovic, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Miljana Ignjatovic, Urban Planning Cluster, Serbia
Vojislav Nikolic, Urban Planning Cluster, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Aleksandra Miric, PhD, Urban Planning Cluster
Milica Igic, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Milan Brzakovic, Urban Planning Cluster
Biserka Jovanovic, Urban Planning Cluster
Jasmina Tamburic, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Sanja Jankovic, Faculty of Civil Engineering and Architecture, University of Nis, Serbia
Marija Marinkovic, Urban Planning Cluster
Natasa Panic, Institute for nature conservation, Serbia
Danko Jovic, Institute for nature conservation, Serbia
Dragana Nedeljkovic, Institute for nature conservation, Serbia
Jovana Selmic, Institute for nature conservation, Serbia
Milijana Petkovic Kostic, Serbian Chamber of Engineers

FOREWORD

It is with great pleasure that I present to you the following Proceedings of the Second International Conference on Urban Planning ICUP2018, held in Nis on November 14-17, 2018. This is the second conference organized by the Faculty of Civil Engineering and Architecture, University of Nis and Urban Planning Cluster, with the aim of bringing together scholars, researchers and students from all areas of Urban Planning. The ICUP conference explores a broad spectrum of Urban and Spatial Planning issues from both theory and practice. The main topic of this year's Conference is Nature - Urban Planning - Architecture.

These topics are discussed in more than 40 conference papers from various study areas and diverse places in the world, and therefore provide a valuable insight into contemporary urban policies and approaches. They also make good grounds for discussion at the conference and a good basis for further research. The authors are professors, researchers, PhD students and planning professionals. We are especially proud of our keynote speakers and the members of our Scientific Program Committee, who are eminent experts in their fields from all over the world.

We considered that it is very important and responsible that a group of connoisseurs gathered in order to contribute to integrate sustainable principles into urban design and fostering the principles of nature protection. The set of messages presented in this publication represents a contribution to the extremely important debate about the introduction of nature in the urban environment. Some of researches, whose results are presented in this proceeding, bring to our attention that the quality of urban life in ever-growing cities depends on the ecological principles applied in urban areas, from the symbiotic connections between green and gray surfaces and the sustainable use and renewal of natural resources. The crucial mechanisms of supporting sustainable and healthy lifestyle, principles of protection of inherited natural resources, are exposed. Historical and contemporary examples of good practice have been considered, which have improved the quality of life, both in the family micro-space of residential houses and in urban cores of the metropolis. We hope that this knowledge base will become an inspiration to professionals and public to improve the standard of living on the local as well as at the international level; to compete in treating quarters belonging to citizens, cities that develop in accordance with nature and state policies that contribute to the protection of the planet.

Urban structure is a complex and multidimensional system that is prone to change. Therefore, it requires to be closely monitored by continuous research, which brings up some entirely new issues or sheds new light on the old ones. Given the importance of the planning topics elaborated at the conference and numerous questions that are raised here, we firmly believe that it is our task to continue exploring this matter. Hence, we are proud that the ICUP conference establishes itself as a traditional manifestation of the University of Nis. I take this opportunity to thank all of the authors and co-authors of papers, reviewers, keynote speakers, members of the Scientific Program Committee, as well as teachers and associates engaged in the technical preparation of these Proceedings.

And finally, I am pleased to invite all authors from the academic and research community to participate and give their scientific and professional contributions to the future Conferences, for the benefit of all of us.



Petar Mitkovic, PhD, Full professor
Faculty of Civil Engineering and Architecture, University of Nis
Chairman of the Scientific Program Committee

Disclaimer

The contents of the papers presented in this publication are subject to review, but the authors are responsible for the originality and quality of their papers.

CONTENTS

FROM DOHA TO NIS: NATURE-BASED URBAN DEVELOPMENT TOWARDS JUST, RESILIENT AND INCLUSIVE WATERFRONTS

Ali A. Alraouf	11
BRINGING NATURE INTO THE CITY	
Margaretha Breil	25
URBAN-BY-NATURE: TOWARDS A HOLISTIC CONCEPT OF HEALTH AND THE DIMINUTION OF ENVIRONMENTAL EXTERNALITIES	
Jorg Sieweke	33
URBAN DESIGN AND URBAN PLANNING AS COMMUNICATIVE PROCESSES FOR SUSTAINABLE PLACES	
Tatjana Mrdjenovic	39
THE POLICY FRAMEWORK AND THE ACTIVE MOBILITY IN BULGARIA	
Boriana Nozharova, Peter Nikolov	53
THE IMPACT OF THE PREFABRICATED INDUSTRIALIZED SYSTEM OF CONSTRUCTION ON THE SPATIAL ORGANIZATION OF COLLECTIVE HOUSING BUILT BETWEEN 1970 – 1980. IN NIS	
Vladana Petrovic, Goran Jovanovic, Branislava Stoiljkovic, Milica Zivkovic	63
GREEN INFRASTRUCTURE IN BELGRADE AS (RE) GENERATIVE SPACE OF BIOPHILIA: THE CASE STUDY OF BLOCKS 45, 70 AND SAVAMALA	
Ivan Simic, Vladimir Mihajlov, Marija Cvetkovic	71
TESTING GREENING POTENTIAL WITH GREEN ROOFTOPS OF INDUSTRIAL BUILDINGS	
Ljiljana Jevremovic, Branko Turnsek, Marina Jordanovic, Milanka Vasic, Ana Stanojevic, Isidora Djordjevic	81
THE IMPACT OF FLOATING HOUSING TO ENVIRONMENT	
Sanja Jankovic, Goran Jovanovic, Vladan Nikolic	89
POTENTIAL OF THE SOUTH SERBIA IN RENEWABLE ENERGY SOURCES AND THEIR EXPLOITATION	
Marina Jordanovic, Ljiljana Jevremovic, Milanka Vasic, Branko Turnsek, Ana Stanojevic, Isidora Djordjevic	97
INTERCONNECTION BETWEEN URBAN-BASED FACTORS AND FLEXIBLE HOUSING POTENTIALS	
Milica Zivkovic, Slavisa Kondic, Milan Tanic, Vladana Petrovic	105
BRINGING NATURE INTO URBAN AREAS THROUGH IMPLEMENTATION OF MODERN STORMWATER MANAGEMENT APPROACHES: EXAMPLES FROM VIENNA'S NEIGHBOURHOODS	
Ljiljana Vasilevska, Magdalena Vasilevska	113
CITIES ADAPTATION TO THE CLIMATE CHANGE BY USING GREEN BUILDING PRINCIPLES	
Mila Pucar, Marina Nenkovic-Riznic, Borjan Brankov, Snezana Petrovic, Milena Stojkovic	121
HOME BETWEEN THE HOUSE AND THE CITY - ARCHITECTURAL CONCEPT THAT USES URBAN PATTERN FOR HOUSING DESIGN	
Hristina Krstic, Mila Cvetkovic, Goran Jovanovic, Vladana Petrovic, Sanja Spasic Djordjevic	131
URBAN-ARCHITECTURAL ANALYSIS OF STUDENT DORMITORIES IN NIS	
Hristina Krstic, Dusan Randjelovic, Miomir Vasov	141
NEW URBAN FORMS AS A RESPONSE TO CLIMATE CHANGE – THE CASE OF WATER SQUARE BENTHEMPLEIN IN ROTTERDAM	
Magdalena Vasilevska	149
BIOPHILIA IN URBAN PLANNING AND ARCHITECTURAL DESIGN- MODERN EXPERIENCES AND PATTERN OF APPLICATION IN SERBIA	
Danica Stankovic, Milan Tanic, Aleksandra Cvetanovic, Aleksandra Kostic, Vojislav Nikolic, Bojan Stankovic	155
DETERMINATION OF CLIMATE CHARACTERISTICS AS A DOMINANT PARAMETER IN BUILDING DESIGN - CASE STUDY THE CITY OF NIS	
Dusan Randjelovic, Miomir Vasov, Hristina Krstic, Aleksandra Curcic, Jelena Stevanovic	163
QUALITY CRITERIA OF URBAN OPEN SPACES IN HIGH - RISE RESIDENTIAL COMPLEXES IN THE PROCESS OF URBAN REGENERATION	
Ivana Bogdanovic Protic, Petar Mitkovic, Milena Dinic Brankovic, Milica Ljubenovic	171
ARCHITECTURAL AND DESIGN REORGANIZATION OF THE RESIDENTIAL YARD IN THE MASS BUILDING UP OF VOLGOGRAD IN THE 80-S OF THE 20TH CENTURY	
Valentina Serebryanaya	179
A STRATEGIC POINT - GEOGRAPHICAL ASPECTS IN THE DEVELOPMENT OF THE CITY OF ZALÁU	
Alexandra Cuibus	187

VULNERABILITY OF THE TRADITIONAL HOUSE AND ITS IMMEDIATE YARD AREA IN CITY CENTERS OF THE CITIES OF SOUTH SERBIA	
Ana Momcilovic – Petronijevic, Olivera Nikolic, Aleksandra Miric	197
THE DREAM ABOUT GREEN CITIES - THE URBAN HERITAGE OF FUNCTIONALISM, BIALYSTOK - MOSAIC OF SPATIAL URBAN FORMS	
Michał P. Chodorowski	205
CONTRIBUTION OF PUBLIC-PRIVATE PARTNERSHIP TO THE DEVELOPMENT OF THE ENERGY EFFICIENCY MARKET	
Andrijana Jovanovic	215
WALKABILITY IN HISTORIC URBAN FABRICS AND ITS ROLE IN URBAN PLANNING AND DESIGN	
Mahtab Baghaiepoor, Mostafa Behzadfar	221
APPLICABILITY OF THEORETICAL APPROACHES OF URBAN SHRINKAGE TO SMALL TOWNS	
Milica Ljubenovic, Ivana Bogdanovic-Protic, Mihailo Mitkovic, Milica Igic, Jelena Djekic	227
RAISING CITIZEN AWARENESS THROUGH PROMOTING BENEFITS OF SMALL URBAN STREAMS REVITALIZATION	
Dr Aleksandra Djukic, Visnja Sretovic Brkovic	235
THE DOT-TO-DOT© COMMUNITY STATION: REPLICATION FOR SOCIAL INNOVATION & URBAN REACTIVATION IN EUROPEAN CITIES	
Dr. Cristian Suau, Laura Petruskeviciute, Aleksandra Til	245
GREEN ROOFS AS A MODEL OF RE-USING FLAT ROOFS	
Danijela Milanovic, Danijela Djuric-Mijovic, Jelena Savic	263
ROLE OF LOCAL AUTHORITIES AND CITIZENS IN URBAN PLANNING OF MICRO PUBLIC SPACES	
Dejan Milenkovic	271
CONCEPTUALISING MULTIFUNCTIONALITY OF PUBLIC OPEN SPACES FOR SUSTAINABLE URBAN DEVELOPMENT	
Jelena Zivkovic, Milica Milojevic, Ana Nikezic, Ksenija Lalovic	281
GREENING AS AN APPROACH FOR URBAN RENEWAL OF SHRINKING CITIES	
Aleksandra Djukic, Tijana M. Vujcic, Branislav Antonic	291
MODERN HOSPITALS IN THEIR NATURAL ENVIRONMENT	
Olivera Nikolic, Aleksandar Kekovic, Vladan Nikolic, Ana Momcilovic Petronijevic	299
SUSTAINABLE PLANNING IN PROTECTED NATURAL AREAS - CASE STUDY OF VLASINA LAKE	
Biserka Mitrovic, Jelena Maric, Tamara Vukovic	307
TEACHING SUSTAINABILITY: CONCEPT OF SMEDEREVO AS A HEALTHY CITY	
Biserka Mitrovic, Tamara Vukovic	315
INDUSTRIAL HERITAGE THROUGH CITY OF NIS' SPATIAL PLAN -VALUATION AND RECOGNITION WITH RECOMMENDATIONS ON INTEGRATION OF RENEWABLE ENERGY SOURCES	
Aleksandar Jovanovic, Milena Jovanovic	323
SPATIAL PLANNING AS A LAND-USE AND BUILDING REGULATION TOOL FOR PROTECTED NATURAL AREAS IN SERBIA	
Marijana Pantic, Sasa Milijic, Jelena Zivanovic Miljkovic	331
STORMWATER MANAGEMENT: JEDDAH WADI'S POTENTIALS	
Aida Nayer, Oula Chikha	339
BIOSWALES AS ELEMENTS OF GREEN INFRASTRUCTURE – FOREIGN PRACTICE AND POSSIBILITIES OF USE IN THE DISTRICT OF THE CITY OF NIS, SERBIA	
Milena Dinic-Brankovic, Petar Mitkovic, Ivana Bogdanovic-Protic, Milica Igic, Jelena Djekic	347
REVITALIZATION OF DEVASTATED RURAL AREAS IN THE REGION OF SOUTHERN AND EASTERN SERBIA: A REVIEW OF EXISTING DEVELOPMENT PATTERNS, POTENTIALS AND PLANNING POLICIES	
Milica Igic, Petar Mitkovic, Milena Dinic Brankovic, Jelena Djekic, Milica Ljubenovic, Mihailo Mitkovic	357
THE TREATMENT OF GREENERY IN URBAN PLANNING DOCUMENTS: RESIDENTIAL AREAS IN NIS, SERBIA	
Slavisa Kondic, Tanja Obradovic, Milica Zivkovic, Milan Tanic, Vojislav Nikolic	365
VARIABLE SCALES OF ARCHITECTURE – FROM OBJECT TO THE TERRITORY: NOTES FOR THE MANIFEST	
Natasa Jankovic, Ksenija Pantovic	373
THE DESIGN OF SCHOOL GROUNDS GREENERY: INTERNAL AND EXTERNAL INFLUENCING FACTORS	
Milan Tanic, Danica Stankovic, Milica Zivkovic, Vojislav Nikolic, Slavisa Kondic	379



VARIABLE SCALES OF ARCHITECTURE – FROM OBJECT TO THE TERRITORY: NOTES FOR THE MANIFEST

Nataša Janković

*Faculty of Architecture, University of Belgrade, Serbia
PhD., Research Fellow, natasha.jankovic@gmail.com*

Ksenija Pantović

*Faculty of Architecture, University of Belgrade, Serbia
PhD., Research Fellow, ksenija.pantovic@gmail.com*

ABSTRACT

For the future development of the cities in the light of climate change it is necessary to have clear guidelines (some kind of manifest) that would include principles of resilience on different scales. These principles must vary in size, from micro to macro scale. In order to achieve the resilience of the city in its various scales (micro and macro), it is necessary to provide the possible approaches for the operation within the variable scales of architecture – from micro to macro scale, from object to the territory. This is precisely in accordance with the aim of this research paper – to give Notes for the future manifest for the formation of these principles. The manifesto is viewed differently from the strategy – it should serve like a guideline, but not the instruction. Therefore, the principles that maintain openness, flexibility, and capacity for adapting to different conditions (which is one of the basic characteristics of resilience) are examined. For purpose of this research, the territory of Belgrade was selected as an experimental field of activity, or even more precise, zones of dominant naturalness, such are Zvezdara Forest, Košutnjak and/or Park Ušće.

Keywords: micro and macro scale of architecture; city and nature; resilience; sustainability.

1. INTRODUCTION

The dynamic context in which contemporary architecture develops is manifested through the divergence of all aspects of a contemporary society, such are impermanent social and economic conditions, globalization, rapid technological development, diversity of cultural discourse and, one of the most important, negative effects of climate changes. As a result of growing environmental problems, the fact is that both architectural and urban design practices actualize topics of resilience and sustainability. The concept of resilience has been used as a conceptual framework in multiple disciplines to evaluate the ability or capacity of a person, object, entity, or system to persist in the face of disruptions or difficulty. In the context of architecture, it refers to a diverse range of different mechanisms to manage risks and vulnerabilities, to disaster and disruption of normal life (Fannon, Laboy, 2016). Continuous need for adaptation, is one of the effects of the aforementioned processes indicated by this research. As a result, contemporary cities should aim to gradually increase capacities for changes in order to give answers to the future demands (Maas, 2007).

In these circumstances when the design is produced in the disappearing natural landscape within urban environment, seeking for a new architectural paradigm represents a particular challenge (Nikezić, Janković, 2014). Besides that, potential energy collapse and current awareness of renewable energy sources initialize the new architecture transformation and create the conditions for setting up a new global ideological platform of sustainability, which includes a wide range of ideas, program goals and attitudes that affect the current trends within the scientific and practical architectural work (Parežanin, Pantović, 2012). Architectural interventions on micro scale, such temporary structures can be, allow isolation and research specific questions, setting hypotheses and testing them, as well as defining results which can be transposed into projects of permanent architecture (Parežanin, Pantović, Kavran, 2013). In that context, over the past few decades, various concepts

of sustainable development are being imposed as a global approach to the development and adjustment to alterations.

In order to propose some of the concepts of sustainable development goals of this research relate to the formation of certain recommendations/principles – notes for the future manifest with the aim of increasing the resilience of cities. These recommendations will be examined through the application of different dynamic and adaptable principles in selected projects, both at the micro and macro level.

In this context, the method of the case study is used as the specific research methodology. The selected locations (Zvezdara Forest, Košutnjak and/or Park Ušće) are specific locations in Belgrade with dominant natural environment, and therefore, they represent very interesting polygons for experiments. Since these locations are not linked, it is also interesting to analyse them on macro level, because, of their potential of linking into unique macro system.

2. VARIABLE SCALES OF ARCHITECTURE IN THE CONTEXT OF SUSTAINABILITY AND TRANSFORMATION PRINCIPLES

Evolvement of dynamic and transformable concepts in architectural discourse was initially introduced in manifesto, ideology, and works of avant-garde groups which designed in the early years of the 20th century. If we further analyse the conceptual framework defined by transformation, regarding relevance and the amount of use, we can highlight the following dynamic principles: mobility, ephemerality, modularity, prefabrication, perceptive transformation, universality, open plan, interaction, and improvisation (Pantović, 2016). The listed classification of transformation principles should serve as an indicator for further examination and analysis of the specific application of these principles in the context of micro and macro scale.

Design in the context of sustainability, including all levels of interventions (micro and macro), means respecting certain economic, social and environmental principles. In order to adapt, architecture needs certain design mechanisms which are defined through the idea of a change as a continuous process, or more specifically through idea of metamorphosis of the existing. That enables transformation principles to be considered as a complex mechanism, i.e. methodological apparatus which simultaneously advocates different dynamic principles that carry the potential of change.

The impact of any architectural gesture, reluctant to its size, in the context of resilience, sustainability and climate change, varies, and must be observed both on micro and macro level. Because of this, the range of architectural activities ranges from small-scale projects (art installations, assembly platforms, pavilions, temporary housing) to territorial involvement and large urban interventions. Architecture as a discipline longs for adaptation which is demonstrated through the development of different flexible strategies, and transformation principles, simultaneously on micro and macro scale.

3. EXPERIMENTAL FIELD

The aim of this research is the development of principles for the adaptation to various aspects of climate change. In this context, Belgrade stands out as a testing ground and polygon, for specific possibility of experimenting at micro and macro levels. Also, the focus will be on researching unbuilt, and nonurban zones in the city, or to be more precise, zones with dominant naturalness. The main locations, for interventions and research will be Košutnjak, Zvezdara and park Ušće, mainly because of above mentioned characteristics.

Through questioning ways in which architect can direct development of sustainable natural environment as an integral part of life and how both, nature and architecture can be used to their full potential without being detrimental or destructive to each other, research starts from the fact that natural landscape can become a resource of contemporary life in the city where leisure demands new sanctuaries over and over again. Nature with its complex phenomena can become an inspiring part of the architectural discourse. During each architectural intervention in the natural landscape, it is necessary to reconsider the position, scope, program, and its measure in the context of contemporary city life, which will inevitably be viewed from the ratio of materiality of both, architecture and landscape. In that sense, nature does not stop at the physical, but also affects the process of urban living, through intersecting and intertwining architecture and nature, making a new "cultural landscape" (Djokic, Nikezic, Jankovic, 2014).

It is important to emphasize that experimenting on micro and macro scale will create very specific relation between nature and urban environment. It will not be a form of new urbanism, but a network of open spaces at macro scale, which are activated and intensified by carefully designed micro interventions at particular

places. The network will be coherent and multifunctional, based on existing morphology, local context, and landscape qualities. One of main ideas behind these interventions, is also to play and experiment with transitions between urban context and natural landscape.

3.1. Micro scale example

CULTURE/NATURE PIT STOPS: case study Belgrade (Zvezdara, Košutnjak, Ušće)

The contemporary way of living means satisfying of the usually "contradictory" needs and styles of life – such as being in nature and "consuming" culture. Belgrade lacks both cultural spaces and attractive open public spaces (especially those with dominantly natural characteristics). The proposed design principles aim at "reconcile" these different "styles" of life by making their interaction through overlapping, what will be used as a methodological framework for the small scale spatial interventions. Architecture as a discipline incorporates technological, artistic, but also humanistic aspects of intervention enables changes in the structure and way of functioning of the urban environment. In this regard, design principles for the micro scale interventions propose small scale spatial interventions at specially selected locations in order to improve the overall cultural scene of the city. The main aim of these interventions:

1. UPRISING OF THE CULTURAL SCENE
2. ENVIRONMENTAL IMPROVEMENT OF THE SELECTED LOCATIONS
3. INCREASING ATTRACTIVENESS OF THE OPEN SPACES WITH NATURE IN THE CITY / affecting the quality of life / wellbeing and gives opportunity for the holistic approach of the urban change intervention

Culture/nature pit stops formed as small scale urban change interventions increase the attractiveness of these locations for both local users and the wider environment (through the city) through the retention of passers-by. In this way, both cultural (through the new spatial interventions for the event), but also the sports-recreational scene of the city (through the improvement of the network of paths and places of retention) could be improved. The proposed sites were selected with the idea of reducing the usual dichotomy between nature and culture, more precisely in order to create a cultural landscape through punctual urban change interventions within the city structure. Through these interventions, the goal is to form pulsating spots (pit stops for re-charging both culture and nature) whose further networking would improve the overall structure of the city.

- OBJECTIVES: Culture/nature pit stops are small scale interventions (transformable / temporary pavilions, scenery, events) that enable cultural, artistic or educational events in nature (in the city). Main key objectives are:

1. Improving the cultural map of the city by establishing new "pulsating stops" for the culture
2. Programmatic improvement of the space of dominant naturalness through the introduction of cultural content
3. Increasing the attractiveness of different trajectories in Belgrade through their program improvement

- IMPACT:

Level: Urban space. One of main impacts that we are trying to achieve is to reduce dichotomy between culture and staying in nature. The urban space reconnects with nature in a specific way, in order to improve quality of life. Also, one of specific impacts is increasing the attractiveness of certain places in the city, and their activation.

Level: Natural environment. Putting the place of naturalness on the cultural scene of the city.

Level: Community and other actors involvement. The flexibility in approach brings the possibility of constant change according to specific need of different users. At the same time, the realization of project has a great impact improving the process of architectural education. The participation of different actors impacts the development of different program scenarios and creates a participatory framework for a city in which design and planning tools can be utilized to improve cultural scene, ecological vitality, and economical sustainability.

- SUSTAINABILITY:

If interventions stay at some of the location, it becomes place of identity and gathering for the local community. It is possible to relocate intervention, it is transformable and movable.

This kind of small scale urban change interventions with specific program may serve as social activators for future cross sector cooperation and collaboration with local communities and different associations. We will use the model of participatory and collaborative local urban development to stimulate the dialogue among competent local decision-makers and stakeholders on the state of Belgrade's public spaces, but also on the reform of current local urban development procedures. Also, the intervention beside environmental awareness will be based on ecological awareness by using local and recyclable materials which brings special quality to the interventions.

3.2. Macro scale example

CULTURE/NATURE TOUR: case study Belgrade (Zvezdara, Košutnjak, Ušće)

In order to link culture/nature pit stops, the aim is to create a permeable and coherent tissue which is based on two main interventions: the integration of a different cultural stops and generation of a park with different and multifunctional scenarios of use. The intervention is used to create a network which integrates culture and nature, and transforms park into specific open public space. The system of transversal corridors for pedestrians and cyclists operates on micro and macro levels. On territorial (macro) level, the aim is to create a connection and at the same time it attracts people to the several landscape territories. The main aim of macro scale interventions:

1. CREATING A COHERENT NETWORK OF CULTURAL CONTENTS
2. LARGE SCALE ACTIVATION OF THE SELECTED LOCATIONS
3. QUESTIONING TRANSITION FROM URBAN TO NATURE

- OBJECTIVES:

CULTURE/NATURE TOUR

Culture/nature tour are large scale interventions (transformable / cycling and hiking trails, skate parks) that enable cultural, artistic or educational events in nature (in the city). Main key objectives are:

1. Improving the cultural map of the city by establishing new cultural networks
2. Programmatic improvement of the space of dominant nature through global integration of cultural contents

- IMPACT:

These kind of interventions generates a network, which is activating a whole territory, with wide range of cultural activities.

- SUSTAINABILITY:

Only after a holistic and systematic approach that covers the whole territory we can talk about improving the overall quality and sustainable aspect of cities development in the light of climate change.

4. THE POTENTIALS OF ARCHITECTURAL INTERVENTIONS – EXPERIENCES AND NOTES FOR THE FUTURE

It is a contemporary belief that the scope of architecture is not a neutral and isolated area, but rather an integrated part of a wider social reality. The idea of "real" architecture is no longer based on buildings that are spectacular, non-contextual and non-sensitive to their surroundings, but is directed towards those buildings that protect the environment from and for the people. Peter Eisenman believes that the role of architecture is not to address social, economic and environmental problems, but to improve its own discourse and paradigms (Locke, 2004). He believes that causes of environmental problems, as well actions taken to mitigate and resolve them, should be sought primarily within the fields of economics, sociology and politics. The route Eisenman has for these claims is that architecture deals with regulating and designing spaces, not society, and that it is a footprint of a culture in physical space, the materialization of all general and specific social values, problems and conflicts. By wondering what sustainability means in the architectural arena, Soria-Lopez (2006) argues that really sustainable and simply good architecture must satisfy simultaneously all dimensions: logical (scientific, technical, functional), ethical (security, low impact, protection, good use) and aesthetic (beauty, meaning, emotion). In that way sustainability becomes a means to achieving better quality of life for the society as a whole, not a goal in itself, just for architecture or nature. So, the role of the architect is to incorporate this dialogue into the project by listening-understanding-responding to the "voices of the natural

and cultural context” and interlock it with the experience of the users of the real place (Djokic, Nikezic, Jankovic, 2014).

The focus of this kind of architectural intention is not to incorporate landscape as a part of architectural creation, but to observe and translate landscape as an appropriate tool for thinking about architecture. The main principle behind this kind of approach is that architecture can be guided by people’s experience of landscape (Djokic, Nikezic, Jankovic, 2013). Architects should incorporate the natural in a fundamental manner into their project in order to affect mind and body as a way to improve and intensify our relationship with nature, through architecture - an experience that might increase society’s awareness and responsibility of the urgency to preserve and respect nature. We think that it is possible to balance landscape and architecture through responsibility, as a way of thinking as a part of the architectural concept. Through incorporating the new architectural paradigms as an integral approach toward vital and smart architecture it is possible to form a socially responsible place (Djokic, Nikezic, Jankovic, 2013).

5. CONCLUSION

The idea of these interventions on the different scales try to overcome the separation between people and nature by creating a new type of sublime experience, where values of new humanism are translated to the everyday life. These principles deal with distance between post-modern ideas of sustainability presented by political or educational institutions and the everyday sublime by revealing dynamic natural cycles and intersecting social routines. The main aim is to create hyper nature as a combination of the art and science and juxtapose man and nature in order to form experience, connection or emotion between people and the surroundings which leads to empathy and care for the environment (Jankovic, 2012 in Nikezic, Jankovic, 2013).

And for the final conclusion – for the resilient development of cities, it is necessary to take into account dynamic architectural principles, which can apply both to the micro and macro level in order to adapt to a constant change. In order to form notes for the manifest, we examined the extreme situations from micro, to macro, and from them we tried to emphasise some universal principles considering sustainability:

Considering the micro scale interventions their biggest potential considering sustainability would be in their active role in raising awareness of the environmental and ecological issues through their active use by the society based on its program development, while the macro scale interventions through their careful choice of the spatial and program aspects leads towards systematic approach for the future development of the resilient cities.

ACKNOWLEDGEMENTS

This paper was realized as a part of the projects “Studying climate change and its influence on the environment: impacts, adaptation and mitigation” (TR 43007) and “Research and systematization of housing development in Serbia in the context of globalization and European integrations for the purpose of improving housing quality and standards” (TR 36034) financed by the Ministry of Education and Science of the Republic of Serbia within the framework of integrated and interdisciplinary research for the period 2011-2018.

REFERENCES

1. Djokic, V., Nikezic, A., Jankovic, N., 2013. Learning from the Landscape: Toward Socially Responsible Architectural Education. Proceedings of 2013 International Conference on the Modern Development of Humanities and Social Science (MDHSS2013), Hong Kong: Hong Kong Applied Science and Technology Research Institute, pp. 166–170.
2. Djokic, V., Nikezic, A., Jankovic, N., 2014. Socially Responsible Architect – Toward Creating Place. Proceedings of International Conference on Social Science and Management (ICSSM2014), (Ed. Narayanasamy, S.), USA, Lancaster: DEStech Publications, Inc, pp. 169–176.
3. Fannon, D. and Laboy, M., 2016. Resilience Theory and Praxis: a Critical Framework for Architecture. *The ARCC Journal: ENQUIRY*, 13(1), pp. 39-53.
4. Lopez, F.J. S., 2006. Architecture and Nature at the end of the 20th Century: Towards a Dialogical Approach for Sustainable Design in Architecture, in *Eco-Architecture – Harmonization Between Architecture and Nature* (Eds. G. Broadbent, C.A. Brebbia). WIT Press, Southampton, pp. 23-33.
5. Locke, R., 2004. Peter Eisenman: Liberal Views Have Never Built Anything of any Value.,

- <http://archinect.com/features/article/4618/peter-eisenman-liberal-views-have-never-built-anything-of-any-value>. [Accessed: 21st October 2018]
6. Maas, W., 2007. Five Minutes City. Architecture and (Im)mobility Forum & Workshop Rotterdam. Ram Distribution, Rotterdam, Netherland
 7. Nikezic, A., Janković, N., 2013. (Re)creating Urban Landscape: New Belgrade Riverfront. Proceedings of 2nd International Scientific Conference Regional Development, Spatial Planning and Strategic Governance Conference Proceedings. (Eds. Vujošević M., S. Milijić). Belgrade: Institute of Architecture and Urban & Spatial Planning of Serbia, pp. 1070–1081.
 8. Nikezic, A., Jankovic, N., 2014. Seeking A New Architectural Paradigm. International Journal of Design & Nature and Ecodynamics, 9/1, 47–56 (ISSN 1755-7445)
 9. Pantović, K., Parežanin, V., 2012. Nova ideološka paradigma-energetski odgovorna arhitektura. Proceeding of Planning, design, construction and building renewal, iNDis 2012, (Eds. Radonjanin, V., Folić, R. And Lađinović, Đ.). Novi Sad: Faculty of Technical Sciences, Department of Civil Engineering and Geodesy pp. 398-404.
 10. Pantović, K.; Kavran. J., 2016. Uloga principa transformacije u arhitektonskom projektovanju. in Prostorni, ekološki, energetski i društveni aspekti razvoja naselja i klimatske promene; (Eds. Pucar, M.; Nenković-Riznić, M.) Institut za arhitekturu i urbanizam Srbije (IAUS): Belgrade, Serbia, pp. 33-46.
 11. Pantović, K., 2016. Uloga principa transformacije u razvoju projektantskih modela u arhitektonskom projektovanju. Ph.D. Thesis, University of Belgrade, Belgrade, Serbia

2nd International Conference on Urban Planning - ICUP2018

Supported by

Arde Line, Smaj produkt, Fibran, Sika, Brann Bakery Nis, Teking architecture



