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**1<sup>st</sup> International Conference on Urban Planning ICUP2016** was successfully held in Niš, Serbia on 18<sup>th</sup> and 19<sup>th</sup> 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.

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## 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.***



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## SUSTAINABLE PLANNING IN PROTECTED NATURAL AREAS - CASE STUDY OF VLASINA LAKE

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### **ABSTRACT**

*The concept of sustainability comprises different aspects of human activities, including the environment, economy and social sphere, thus creating the frame for urban and spatial planning in theory and practice (Mitrovic, 2017). Haughton (1996) draws attention to its most important features that are the foundation for the long term development, such as natural conservation, efficient economy, civil society and social progress. As the main pillar of the sustainability, the ecological aspect remains one of the dominant concerns of the territory development and planning over decades. The equal attention is being drawn to the urban areas as well as the protected natural areas. Many conflict zones and interests overlapping in such areas are also an exhaustless source of inspiration and ideas.*

*This was the starting point for the creation of a case study of Vlasina Lake in Serbia as a task for the students of Master course at the Faculty of Architecture, University of Belgrade. Vlasina Lake district has significant natural values, quality landscape and water resources as well as settlements and tourism capacities, which together create many developmental problems. As a territory with numerous conflicted situations, it has been treated through several spatial and local urban plans. The paper presents the educational process during three subjects focused on the sustainable planning and design in natural environment.*

*The pedagogical methodology was implemented in the three main teaching units: planning studio, which involves learning-by-doing process and is project-based; workshop, which includes site investigation, and seminar, which provides theoretical foundation related to the sustainable development and planning. The educational corpus is designed so that all parts should be complementary in terms of the methodology and form of teaching and learning. In this paper, the outcomes of studio, seminar and workshop are presented as an example of well-designed assignment for the master course level in domain of urban planning that gives realistic planning solutions and encourage teamwork, as well as the cooperation with the local community.*

**Keywords:** sustainable urban planning; protected natural areas; educational process; pedagogical methodology

## 1. INTRODUCTION

The concept of sustainability comprises different aspects of human activities, including the environment, economy and social sphere, thus creating the frame for urban and spatial planning in theory and practice (Mitrovic, 2017). Haughton (1996) draws attention to its most important features that are the foundation for the long-term development, such as natural conservation, efficient economy, civil society and social progress. As the main pillar of the sustainability, the ecological aspect remains one of the dominant concerns of the territory development and planning over decades. The equal attention is being drawn to the urban areas as well as the protected natural areas. Many conflict zones and interests overlapping in such natural areas are also an exhaustless source of inspiration and ideas. This was the starting point for the creation of a case study of Vlasina Lake in Serbia as a task for the students of Master course at the Faculty of Architecture, University of Belgrade. The teaching and learning unit of three subjects is one of the main educational pillars of the module for education of future young architects-urban planners at the institution.

The paper presents the educational process during three subjects focused on the sustainable planning and design in natural environment. The pedagogical methodology was implemented in the three main teaching units: planning studio, which involves learning-by-doing process and is project-based; workshop, which includes site investigation, and seminar, which provides theoretical foundation related to the sustainable development and planning. The educational corpus is designed so that all parts should be complementary in terms of the methodology and form of teaching and learning and all remain interconnected from the beginning till the final outcome and results. The feedback between the knowledge units and the flow of ideas is also very much encouraged. The main goals of the educational corpus are related to the understanding of complex relations between natural and built environment, the implementation of the principles of the integrative and sustainable urban planning and developing a creative approach to the existing and realistic planning assignment.

## 2. BACKGROUND RESEARCH

### 2.1. The concept of ecological sustainability

Although exploited, discussed, supported but also denied over several decades, the concept of sustainability remains the driving force for the theory and practice of contemporary urban planning and urban design worldwide. From highly defined goals to the results and outcomes in the planning practice, sustainability remains the starting and ending point for a countless number of research and practical results. The everlasting attention of the concept is drawn to the natural resources and places with high quality of natural features, within the umbrella of ecological sustainability. The Sustainable Development Goals, the new international agenda to achieve a better and more sustainable future for all, again draw attention to the environment and natural resources, through Goals no. 3, 7, 15 and more. These goals are promoting healthy living and a healthy environment, as well as clean energy, but most significantly, they urge for protection, restoration and promotion of sustainable use of terrestrial ecosystems, sustainably forests management, and halting and reversing land degradation and biodiversity. Equally important for the regions with special natural values are the Goals no. 8, 9 and 12, referring to the economic growth, industry, infrastructure and innovation development, and responsible production and consumption. Many authors, such as Haughton (1996) emphasize the importance of natural conservation, renewable energy, as well as the social progress for the long term development, while others also focus on self-sustainable communities and the economic vitality (Choguill, 1996; Hardoy, 1992). In order to achieve sustainable urbanisation, the basic aspect of sustainability should be well connected to the development of urban-rural territory (UN Habitat, 2004). Additionally, the overall living conditions and the employment in urban- rural areas can be improved by imposing strong connections between them (Tacoli, 1998, 2003; Rosenthal, 2000). Taking into account the needs of the local population and economy, focusing on the rational sustainable land use and local characteristics, create a foundation for the sustainable local planning (Mitrovic, 2017). In terms of theoretical background, the paper is focused on exploring different types of activities and functions for the future of the development of Vlasina lake area, through the master educational corpus, such as new types of tourism – food tourism, agro tourism, tourism for different socio-economic types of visitors, new forms of recreation and leisure, from hiking, paragliding to recreational fishing, and many more, in accordance with the potentials of the case study territory. These activities aim to promote local culture, tradition and products and to add value and attract the users. During the educational process, the highlight of the course was to develop a teaching and learning model that would develop and promote a locally sensitive approach to urban planning and emphasize the local potentials, aiming to its sustainable, long term exploitation.

## 2.2. Educational process

The concept of educational practice involving the learning-by-doing methods and its significance has been widely recognized and analysed over a long period, through numerous studies (Demirbas and Demirkan, 2003; Kvan and Jia, 2005; Casakin and van Timmeren 2014). Aside from different opinions and criticism, its beneficial outcomes have been recognised and used in education and schools including architecture and planning. Educational model used in studio and the designing process is undoubtedly closely linked to the development of students' expertise (Casakin, 2011). Learning by doing presents a theory of the processes that enables a student to learn while engaged in solving a problem, therefore studios, as the most appropriate form for applying learning-by-doing approach, highly influence students' levels of expertise through practical learning (Schön, 1983; Gibbs, 1988). Demirbas and Demirkan (2003) also emphasise the importance of the studio for the architectural higher education, considering it the core of its curriculum.

The education in the architectural studio should have three basic components: (i) knowledge (the theoretical part of any education programme that is taught using education technologies); (ii) skills (taught by practice and demonstration); and (iii) design/creating (Chakradeo, 2010). Furthermore, there are 5 principles for successfully educating students to be creative: (i) targeted practice in the solving of problems; (ii) highly organized and systematic training based on realistic examples; (iii) creativity training for extended periods of structured practice; (iv) training on broad knowledge and skills; and (v) targeted practice aimed at acquiring specific knowledge and skills (Cropley and Cropley, 2010). Some authors go even further, claiming that any architectural education program should link theories to applied design work in a studio setting (Nabih, 2010).

## 3. RESEARCH METHODOLOGY

In the field of education in urban and architectural design, one of the main observations is that the focus of design teaching is on the final product/project, rather than on a process itself. In that sense, this research paper shows an overview of the methodological and educational process that has been developed and used for multi-layer course on the master level of studies at the Faculty of Architecture in Belgrade - the Department of Urbanism. This course entitled: "Creating and designing in the natural environment" was developed by one of the authors of this paper - professor Biserka Mitrović. It has been divided into three different, but interconnected subjects: planning studio, workshop, and seminar, which provide theoretical foundation related to the sustainable development and planning. The educational corpus is designed so that all parts should be complementary in terms of the methodology and form of teaching and learning. This is seen best from the algorithm presented in the figure below \*(Figure 1). This schematic structure shows how these three subjects are connected and how they overlap creating a systematic methodology from the introduction to the conclusions.

All of the three subjects are focused on the sustainable planning and design in natural environment. The planning studio was practice-based and directly oriented towards real locations and therefore the problems that students encounter and try to resolve are realistic, and chosen in the cooperation with local municipality, authorities and planning officials. The learning process is developed through the cooperation of students, their mentors and representatives from the Local community from the very beginning – the choice and preparation of the case study area, during the research and project definition phase, to the finalisation of the concept and project/plan proposals. The process of studio project is predefined and divided into following steps:

- Research based on primary and secondary sources
- Cooperation with the local community, authority and institutions
- Defining a set of values, goals and different scenarios
- Identifying the potentials and problems
- Developing the conceptual framework based on theory and research
- Regulatory plans with detailed land use and traffic solution
- Detailed plan of activities and physical structures
- Public exhibition

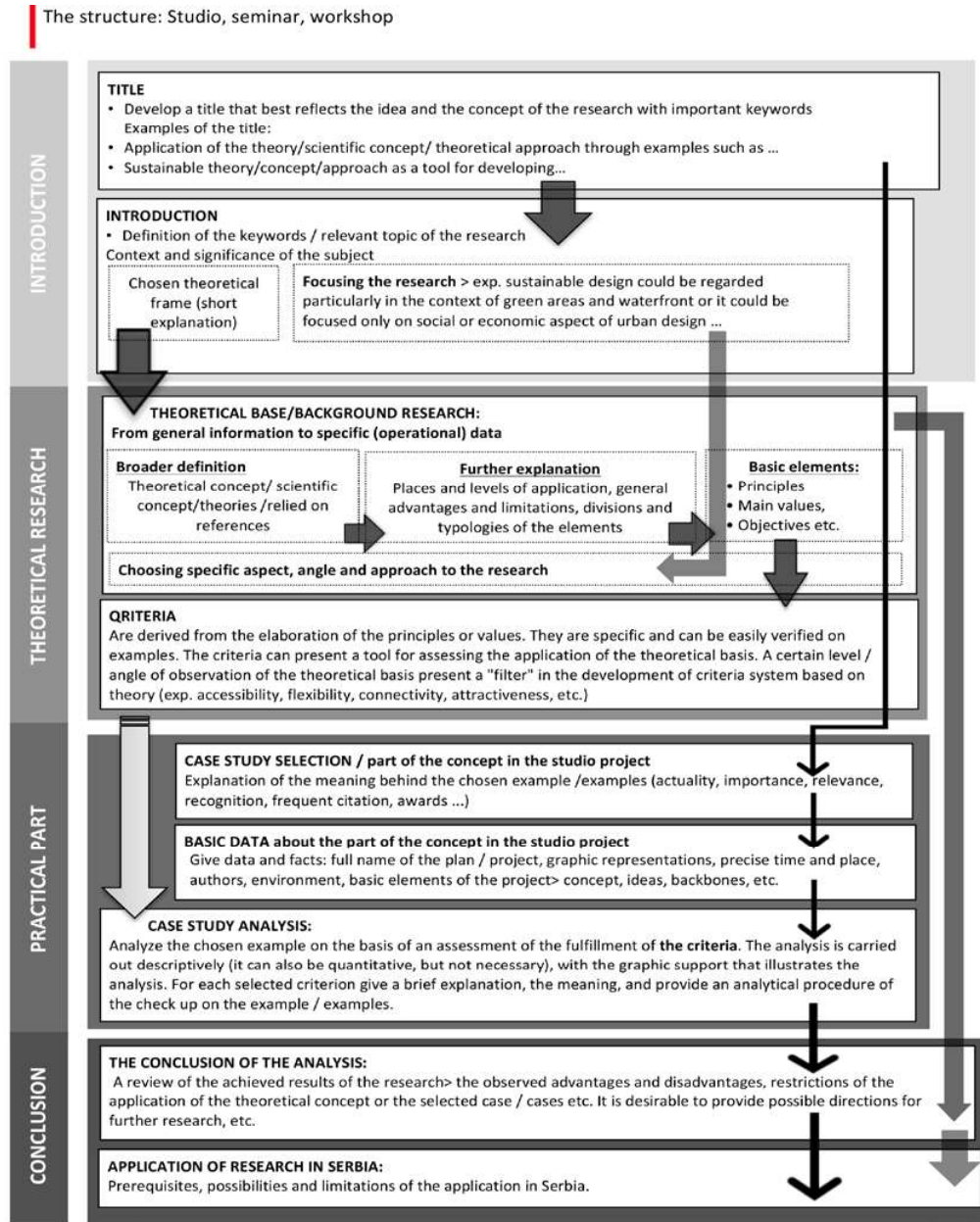


Figure 1: The algorithm representing the structure of the studio, seminar and workshop

Following the specific planning and urban design methodology, theoretical part is based on the extensive research, analysis of urban plans in different scales, comprehensive literature review, as well as cooperation with local authorities and institutions followed by the field research (workshop). Theoretical teaching of the course provides the knowledge base in the urban domain necessary for understanding and creating urban planning solutions taking into account the complexity of the special natural environment. In this sense, the theoretical part encompasses the importance of morphological, climate, ecological, architectural, economic and other characteristics of the area on the one hand, and on the other hand, considers the possibilities of creating contemporary solutions in the context of sustainable urban planning and design. Further research steps included defining the specific set of values and goals regarding the ecological, social and economic sustainability and local development. One of the important methodological steps is creating a specific set of criteria based on previously defined principles and examples of good practice. Next step is creating a specific, unique and elaborated concept that leads to the detailed regulatory plan proposal, with multifunctional land use and traffic solutions. The last phase defined the master plan and modelling of the physical structure, as well as the detailed plan of future activities. These steps are done in the period of maximum 5 months – one

semester. Students were both concentrated on the final product as well as on the process of planning and urban design. This process also included a workshop of 2 days of field work, organised at the Vlasina lake area so that students could experience the area, with all its potentials and problems, ambient and specific characteristics, followed by the collaboration with the great number of stakeholders: city and regional government representatives, professionals from the planning institutions and regional Institute for the historic conservation and protection, and many others. The final assessment of student work will be the exhibition where the local professionals will be able to see the final product and use the ideas and the concepts/plans/projects for the overall development and the benefit of the area of Vlasina lake.

The following paragraph presents the results of a five-month period and aforementioned process of urban planning and design done by the group of 13 students.

#### 4. RESULTS

Work in this kind of a planning studio includes wide range of research, planning and urban / architectural design in the natural environment of the region of exceptional characteristics creating new activities and physical structures that are in conjunction with the natural environment and local needs, interests, potentials and limitations. The study relies on research work, creating both planning and urban design projects. Students develop the capabilities of an integrative approach in the treatment of complex natural areas, as well as the ability to apply the principles of sustainable urban planning and design in conjunction with local needs and interests.

##### 4.1. Case study of Vlasina Lake

As mentioned, the task in the studio is focused on the locations with natural ambient and specific local needs, interests, potentials and limitations. The natural environment is an area with outstanding natural features, such as national parks, nature parks, etc. In this specific course, the selected location is the area of Vlasina Lake.



**Figure 2:** Vlasina lake district with the three treated settlements – Vlasina Rid (on north-west side of the lake), Vlasina Stojkovičeva (on the east side of the lake) and Vlasina Okruglica (on the south side of the lake), showing the extent of the area treated through the student projects

Vlasina Lake district has significant natural values, quality landscape and water resources as well as settlements and tourism capacities, which together create many developmental potentials as well as problems and it has been treated through several spatial and local urban plans. Due to its unique nature, the area of the lake holds a special protected status, and was treated through the Spatial plan of the special purpose area of Vlasina (Republic Agency for Spatial Planning, 2004), as well as with the Program of Environmental Protection of the Municipality of Surdulica for the years 2015 – 2025, issued by the municipality in 2015. The many restrictions enforced by the plan limit the possibilities when it comes to area usage and the existing and future built environment, establishing three key zones of protection within it. The area of the lake and its immediate

surrounding have the harshest regulations (like permitting permanent type buildings, usage of non-natural resources or even usage of motor vehicles within the lake and the land area that isn't already designated for them), while the rules get less prohibitive the further one moves away from the water surface and towards the existing areas of settlements. During the course of the studio, the students overwhelmingly chose to consider and honour these rules and regulations set by the official spatial plans for the Vlasina lake district, and incorporate them into their resulting planning solutions, trying to focus their works towards sustainable and environmentally friendly programmes, while also facing all of the limitations the existing built environment and morphology of the terrain imposed on them. The projects focussed on one of the three existing settlements or their parts, located in the close vicinity of the lake – Vlasina Rid, Vlasina Stojkovićevea and Vlasina Okruglica. Together all of the projects encompassed the surrounding of the entire lakeside, treating specific locations that were identified in collaboration with the local authorities as suitable points for possible development within these areas in more detailed fashion. The final results showed a wide array of different ideas and environmentally sustainable approaches, which not only envisioned the integration of new activities within the open and untouched natural areas, but worked towards redefining the existing built environment, and incorporating contemporary solutions suitable within the protected natural environment and geared towards both the local community and tourists.

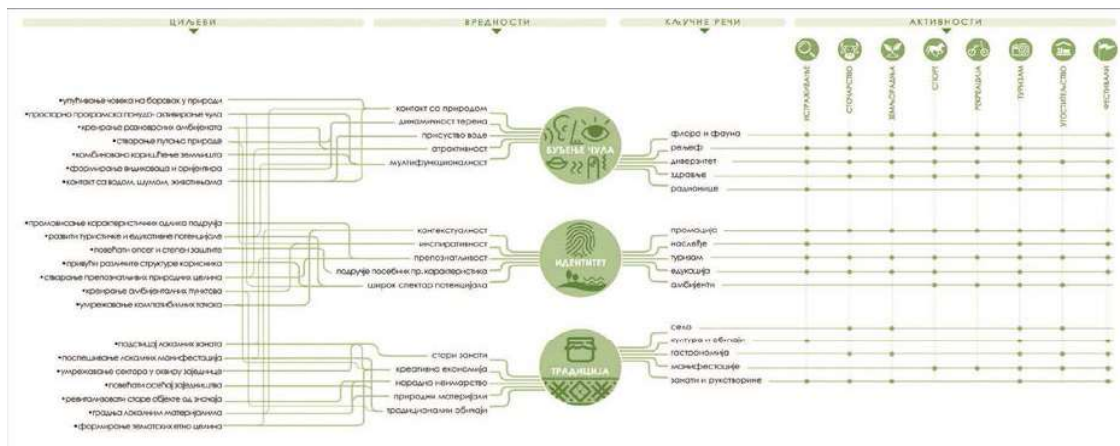


Figure 3: Example of a diagram showing the relation between the identified main goals, values and activities that are compatible with the conceived conceptual framework in one of the student projects; Authors: Slavić, S., Živković, K., Đorđević, A., Đurić, S. (2017)

Each concept had a different set of goals and primary incentives identified as the main initiators of local development – ranging from incorporation of a broad array of different types of accommodation and accompanying complementary spaces and activities for unconnected types of users, towards approaches that focused dominantly on the local community and the redefinition of traditional means of production, as well as more “radical” solutions that used available sustainable resources in order to integrate the environmentally friendly means of light industry that would work towards creating the first regional energy self-sustainable settlements.



Figure 4: Example of the broader spatial genesis of the theoretical and conceptual framework; Authors: Slavić, S., Živković, K., Đorđević, A., Đurić, S. (2017)



For example, one of the more notable projects in the studio course (titled Caravanserai), dealt with creating a natural route connecting the settlement of Vlasina Rid with the lake side and other key points, spatially intertwining them. The formed zones were set on being visually, thematically and functionally different, while also being mutually interconnected with the usage of walking paths and routs for different types of sustainable transportation means and devices, and with connections in the form of different activities and functions strategically overlapping. The main aim of the project was to incent people to connect with the natural environment and spend more time in it, promoting a healthier and more active lifestyle while also trying to accentuate the unique natural landscape and its maybe overlooked values. Leaning on the available natural resources and their preservation, the resulting outcome depicted a good application of the of the principles and methods of sustainable planning and development that also managed to reimagine both the delicate and the untamed natural areas, properly bringing out the right man-made assets of this one-of-a-kind environment as well.

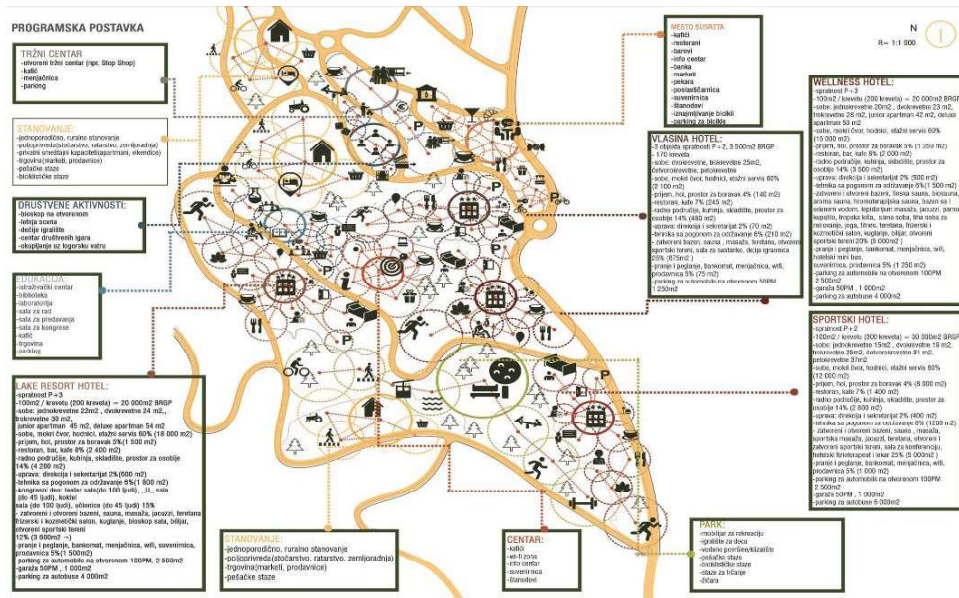


Figure 5: Example of the more detailed spatial depiction of the distribution of different uses and activities, and the identified functional connections; Authors: Karać, S., Matić, D., Antonijević, N. (2017)

#### 4. DISCUSSION AND CONCLUSION

Design as a tool require integrated approaches, combined methods, and synergism between different specializations, and one profession at the forefront of addressing those interdisciplinary problems is urban and regional planning (Krizek & Levinson 2005). Designing is a complex, personal, creative and open-ended skill. Although Dreyfus and Dreyfus (1986) label the design process as ‘unstructured’ and Lawson (2006) sees it as a ‘prescriptive job’, creating features of the future in this particular case the process of designing and creating is predefined, the students are encouraged to develop unique concepts and projects and are not limited with existing planning documents and proposals in order to develop a new way of analytic thinking. Their specific approach to the real territorial issues they are treating has resulted in creating a unique concepts and projects that could be beneficial to the local municipalities and future courses of development.

One of the main advantages is that the outcome of the student works is overviewed and guided by the mentors and done in close collaboration with the local municipality and the planning officials, who participated in the process from the very beginning. In this way we believe that by developing a model that works as a simulation of a professional practice in the area of urban and architectural design, we are providing students with necessary skills for becoming future professional experts in the field of urbanism. This direct interaction with relevant stakeholders and the concrete location, provided with the field research, is an important stepping stone in the educational process, and it effects on shaping the mind-sets of the next generations of young professionals, it shouldn't be overlooked or skipped, especially during the higher levels of education within the domain of urban and planning studies.

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