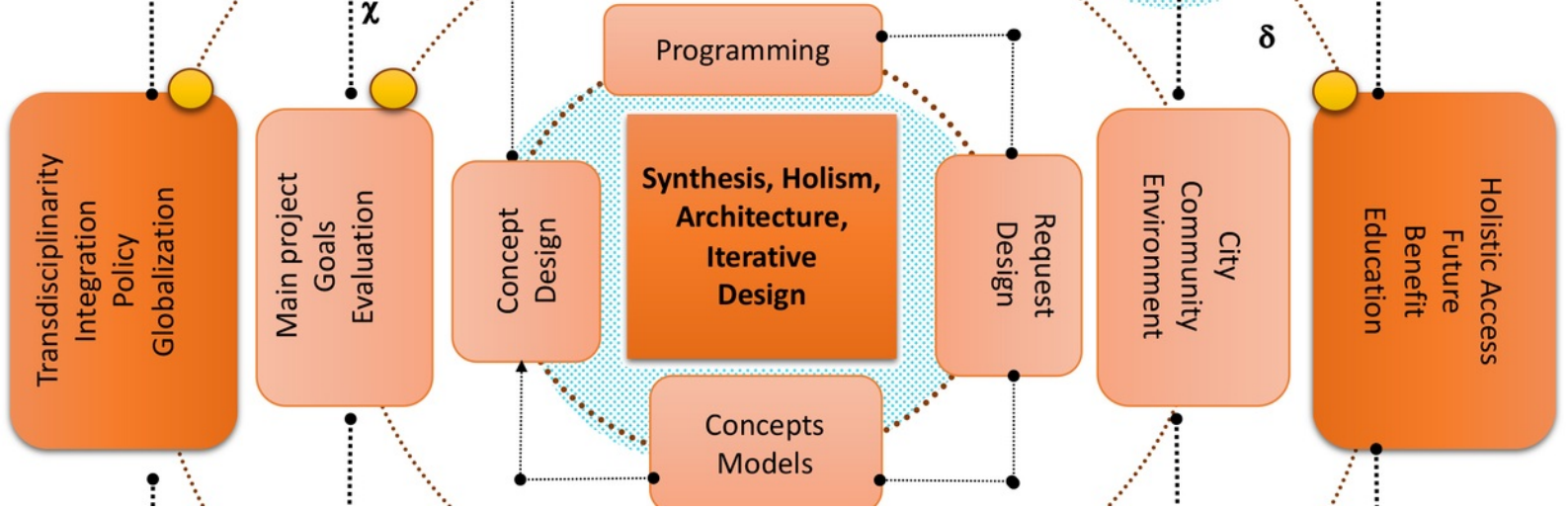


Architecture: COLLECTION OF RESEARCH PAPERS PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS "JOSHA"

Authors: Bujar Q. Bajçinovci

Submitted: 10. September 2018
Published: 14. September 2018
Volume: 5
Issue: 7

Affiliation: University of Prishtina, Faculty of Civil Engineering and Architecture, Kosovo

Languages: English
Keywords: Architecture, Kosovo, Design, Books, JOSHA journal, Demetrios Project.
DOI: 10.17160/josha.5.7.465

Abstract:

The collection contains the research papers published from 14 September 2016, till 9 July 2018 at the Journal of Science, Humanities and Arts – JOSHA. The collection contents papers of the Architectural Design scientific field, followed by discussion and citations by various authors as the scientific comparative references. There are seven research papers, organized by the publication date, each paper extensive explain and discuss issues related to the specific topic of the Architectural Design, Sustainability, Air Quality, Environment, and Public Health Challenges.

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

Abstract. This collection contains the research papers published from 14 September 2016, till 9 July 2018 at the Journal of Science, Humanities And Arts – JOSHA. The collection contents papers of the Architectural Design scientific field, followed by discussion and citations by various authors as the scientific comparative references. There are seven research papers, organized by the publication date, each paper extensive explain and discuss issues related to the specific topic of the Architectural Design, Sustainability, Air Quality, Environment, and Public Health challenges.

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS
JOSHA
Language: English

Prof.Ass.Dr. BUJAR BAJÇINOVCI Dipl.Eng.Arch.
Faculty of Civil Engineering and Architecture
University of Prishtina, Kosovo.

2018

Professor, Architectural Design
Faculty of Civil Engineering and Architecture
University of Prishtina, Kosovo.
August, 2018

Cover page. Bujar Bajçinovci
Photo: Bujar Bajçinovci
Source: Bujar Bajçinovci. FNA, University of Prishtina.

COLLECTION OF RESEARCH PAPERS

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

JOSHA

BUJAR BAJÇINOVCI et al.

Prishtinë 2018

PREFACE

The collection contents the papers of the Architectural Design, Sustainability, Air Quality, Environment, and Public Health challenges, followed by discussion and citations by various authors as the scientific comparative references. There are seven research papers, organized by the publication date, each paper extensive explain and discuss issues related to the specific topics.

Authors: Prof.Ass.Dr. Bujar Bajçinovci et al. 2018.
Professor, Architectural Design
Faculty of Civil Engineering and Architecture
University of Prishtina, Kosovo.
August, 2018

CONTENTS:

RESEARCH PAPER I. DOI: 10.17160/josha.5.5.441

RESEARCH PAPER II. DOI: 10.17160/josha.5.5.437

RESEARCH PAPER III. DOI: 10.17160/josha.4.1.264

RESEARCH PAPER IV. DOI: 10.17160/josha.4.1.261

RESEARCH PAPER V. DOI: 10.17160/josha.3.7.254

RESEARCH PAPER VI. DOI: 10.17160/josha.3.5.233

RESEARCH PAPER VII. DOI: 10.17160/josha.3.5.228

LIST OF FIGURES

RESEARCH PAPER I

RESEARCH PAPER II

RESEARCH PAPER III

RESEARCH PAPER IV

RESEARCH PAPER V

RESEARCH PAPER VI

RESEARCH PAPER VII

LIST OF TABLES

RESEARCH PAPER I

RESEARCH PAPER III

RESEARCH PAPER V

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER I

CREATIVITY OF INTERACTIVE ACADEMIC EDUCATION FOR SUSTAINABLE URBAN DEVELOPMENT

Language: English

DOI: 10.17160/josha.5.5.441

BUJAR BAJÇINOVCI

2018

Creativity of Interactive Academic Education for Sustainable Urban Development

Bujar Bajçinovci [1*]

[1]*University of Prishtina, "UP", Faculty of Civil Engineering and Architecture, Kosovo.*
[*]*Email: bujar.bajcinovci@uni-pr.edu*

ABSTRACT

Cities are multiplex ecosystems driven by our daily life style, which directly reflect in our health, resources, economics, social and community services. It can be spatially considered that cities are unique and regionally specific. Education for sustainable development is a process with a primary role to protect and use of environment, to manage spatial planning and urban development as a whole holistic system. In relation to education for sustainable development, creativity of urban planning and design can significantly improve quality of life of their urbanites. Hence, students and teachers are an epic symbiosis in a process of teaching and learning. Actually, this interaction can be more bonded and interdependent with high-tech didactic tools. The digital era has implemented in the education system new creative methods of learning, a new way of life and style in schooling. The relationship between a student of architecture and teachers broadened more with introduction of computer aided design and simulation tools in presenting those ideas into the reality. The new millennium began a crucial activity for the city of Prishtina in terms of urban, demographic and socio-spatial phenomenon's. The research methods consist of empirical observation carried out during 25 years of experience in academia, and direct observation of teaching methods. The purpose of this paper is to examine the teaching process, with the focus on creativity of interactive education for sustainable development. Findings indicate that through an informal meeting places for interactive education, the teaching process in architectural studies can bring more: sustainable development and awareness of space, a didactic process which bonds multidimensional threads between students and teachers; thus, strengthening a powerful sense of partnership, avoiding boredom and passive learning, while facing the real day to day challenges, accompanied with the development of technology, life style, and global world trends. Research concludes that uniform old teaching platform, cannot respond to all specific issues faced by students in this globalisation era. Therefore, new teaching strategies must involve interactive education for sustainable development, and education research as a new partnership, a new working holistic system between students and teachers, thus, working together simultaneously towards continuous improvement of academia processes, answering to the needs of new globalisation era.

Keywords: Education, Teaching, Sustainable Urban Development, Creativity, Prishtina.

INTRODUCTION

Students and teachers are an epic symbiosis in process of interactive teaching and learning. What is the essence of this interaction? Surely, it is not a question with a simple answer (Bajçinovci, Jerliu 2017). Actually, this interaction is more bonded and interdependent with technology and accessories, which in a whole didactic process expands learning horizons. In the field of architecture, introduction of computer aided design has opened new

opportunities for the creativity, and opportunities. Architects, as the preeminent computer aided design users, developed into the creation of the new innovative software, which carry out to their need for creative expression in sustainable urban development. Cities are multiplex ecosystems driven by our daily life style, which directly reflect in our health, resources, economic, social and community services. They are open consolidated systems and extensive organisms with specific and multiplex metabolism that consume enormous amount of energy, generate excessive amount of waste, originate a sum of impromptu environmental phenomenon, and activities (Bajçinovci, Jerliu 2016).

Cities can be spatially treated as unique zones, and regionally different. Urban sustainable development is a process with a primary role to preserve the environment, to administer spatial planning and urban framework as a whole holistic system. In relation to teaching education for sustainability (Iliško, Badjanova, 2017) creativity of urban planning and design can significantly improve quality of life of their urbanites. In this context, the question is, what should be exactly the role of the interactive education for sustainability. Thus, the whole didactic process remains open for creative expression in to the architectural schools. Architecture and urban design are the most intriguing branch of sciences for exploring interactive conceptual teaching varieties, which visually can be presented and implemented in education for promoting the sustainability.

Furthermore, for the future perceiving of academia's role, it is crucial to be presented and implemented an unorthodox curriculum or a non-common way of transmitting knowledge. Hence, we argue that new contemporary academia challenges should encourage a brand new complementary studies, using and developing new action research theories (Salite, 1993 - 2015; Pipere and Salite, 2006; Salite, Micule et al. 2007; Grisane, 2007; Belousa, Olehnovica et al., 2007; Salite, Gedzune and Gedzune, 2009; Salite, Ignatjeva, and Salitis, 2009; Salite, Gedzune, and Gedzune, 2010; Gedzune, G. et al., 2011; Kapenieks and Salite, 2012; Badjanova, Ilisko, and Drelinga, 2013; Kravale, Ilisko, and Olehnovica, 2013; Pipere, Veisson, and Salite, 2015; Gedzune, G., 2015; Gedzune, I., 2015; Briede, 2015; Zarina, Drelinga, Iliško, and Krastina, 2016), strengthened with actions towards the exploitation of all resources, especially in nurturing cognitive development, in order to provide a better learning processes. Creativity of interactive education for sustainable urban development presents the necessity of evolving the metropolitan cities, presenting a much-needed holistic development for students, with a primary aim to preserve the environment, quality of life, and the whole system of social wellbeing (Bajçinovci, Jerliu 2016).

The other fundamental part on the interactive teaching creativity for students of architecture is the comprehension of the 'trend' and the background of its absorption in the teaching process. The intangible beliefs and impulse patterns of society over centuries have always had the strong causatum on values of what is a trend and what is 'in'. A great influence of unorthodox education in the architecture field has over millennia emerged a consequence of development of unconventional ideas, which became a measure for society evolution, and academic liberties with new trends and new ways of methods for teaching. We argue that progress of technology in history has always had contrasting and strange encounters, hence, a breakthrough in progress has been made when great ideas was generated by lateral thinking (De Bono, 2015). According to the Hewett, in Curricula for Human-Computer Interaction, which stated: "Because human-computer interaction studies a human and a machine in communication, it draws from supporting knowledge on both the machine and the human side. On the machine side, techniques in computer graphics, operating systems, programming languages, and development environments are relevant. On the human side, communication theory, graphic and industrial design disciplines, linguistics, social sciences, cognitive psychology." (Hewett et al. 1992-1996).

MATERIALS AND METHODS

The research presented in this paper reflects interactive methods in education for sustainable development, especially in architecture, creativity and innovation in academic teaching. Emphasizing interactive partnership learning methods in-between teachers and students. The research methods consist of empirical observation carried out during 25 years of experience in academia, direct observation of teaching methods, and promoting contemporary interactive teaching methods. To perceive a clearer research data, exploring was made within the department of architecture, in the University of Prishtina, Faculty of Civil Engineering and Architecture, in the context of the possibilities for the improvement of the curricula's, within adapted and accredited academic frameworks. Creativity of interactive education for sustainability in architectural studies was explored through review of timeline of academic workshops, curricula's, and within studio researches of the students in Master programme of the department of architecture in the University of Prishtina. Supplementary research data was provided from: studies of the urban structure of the University Campus, pioneering steps of interactive teaching for sustainable architecture which I taught in Master courses, the contemporary building systems as a part of curricula which I have developed, actions for preserving the local environment features, and attributes of spatial planning for the city of the Prishtina.

With this paper the objective was to present a retrospective of evolution of teaching methods in academia. Furthermore, describing the teaching methods with the emphasis on creativity in education, which directly was reflected on actions for sustainable urban development. Moreover, there is a significant point to argue that the complexity and interactive teaching varieties of present situation cannot be fully described, without a comprehensive, multidimensional, and transdisciplinary academic discourses (Salite, 2009; Bajçinovci, Jerliu 2017).

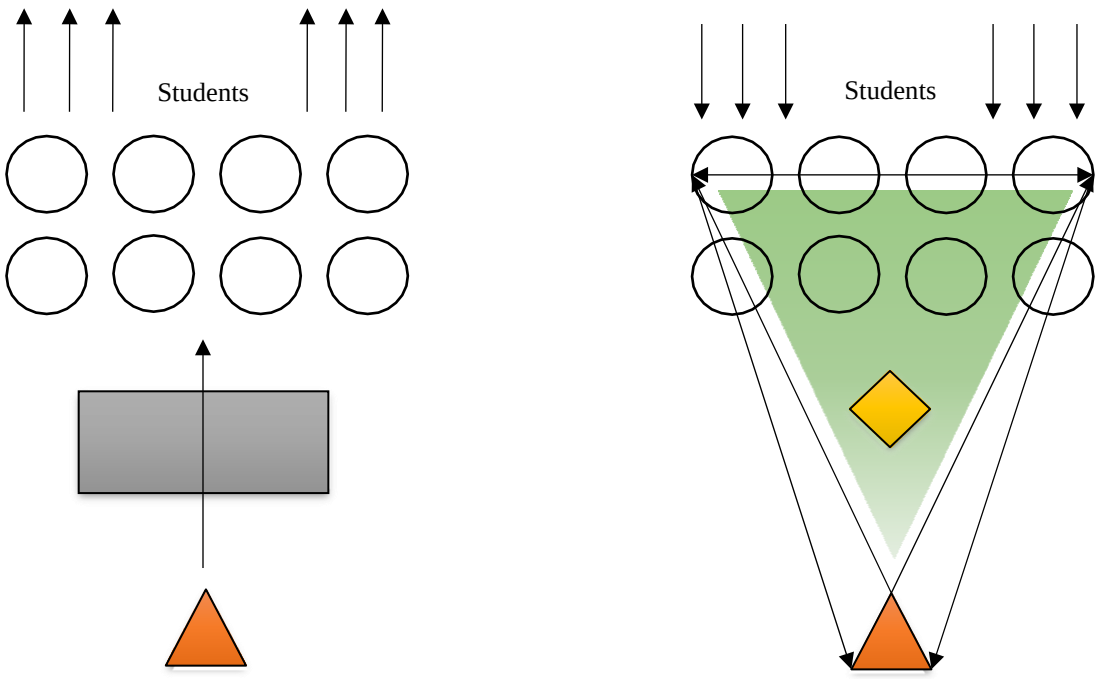


Figure 1. (a) Traditional teaching methods, (b) Interactive teaching methods with a model as an artefact in sustainable development (Bajçinovci, Jerliu 2017).

In Figure 1-a, we can clearly observe that there is one-way communication between lecturer and students, which is not the case in Figure 1-b, where communication between students and lecturers are interactive, thus, forming active partnership in-between. In terms of integration, an integrated process of organizing partnership into a functional system is a system that requires new solutions for problems, nurturing for adapting and evolving strategies. Integrated framework process implies partnership between students and teachers, with clearly identified priorities, which were in the process explored in enough qualitative iterations, seeking for the best solutions for the academic and professional dilemmas and problems. Many authors, claim that the iteration is the key to understand the complexity of the cognitive process, (Wolfram, 2002) indicates that the iterative process, the application of simple rules, is at the heart of the mysterious ability of nature, in the

production of multiplex phenomena and processes. Iterations of the "structure, function, and process in a given context would examine assumptions and properties of each element in its own right, then in relationship with other members of the set. Subsequent iterations would establish validity of the assumptions, then compatibilities and/or conflicts are identified and dissolved" (Gharajedaghi, 2006).

Dissolving conflicts may require re-conceptualization of the variables involved, finally, successive iterations will produce an integrated holistic solution. Successive iteration would output a greater awareness and more analogous to the nature of the whole. Further, these iterations, then, are like a reverse loupe through which we see the system we are trying to understand as a working part of successively bigger picture as presented in Figure 2 (Gharajedaghi, 2006; Bajçinovci, Jerliu 2016).

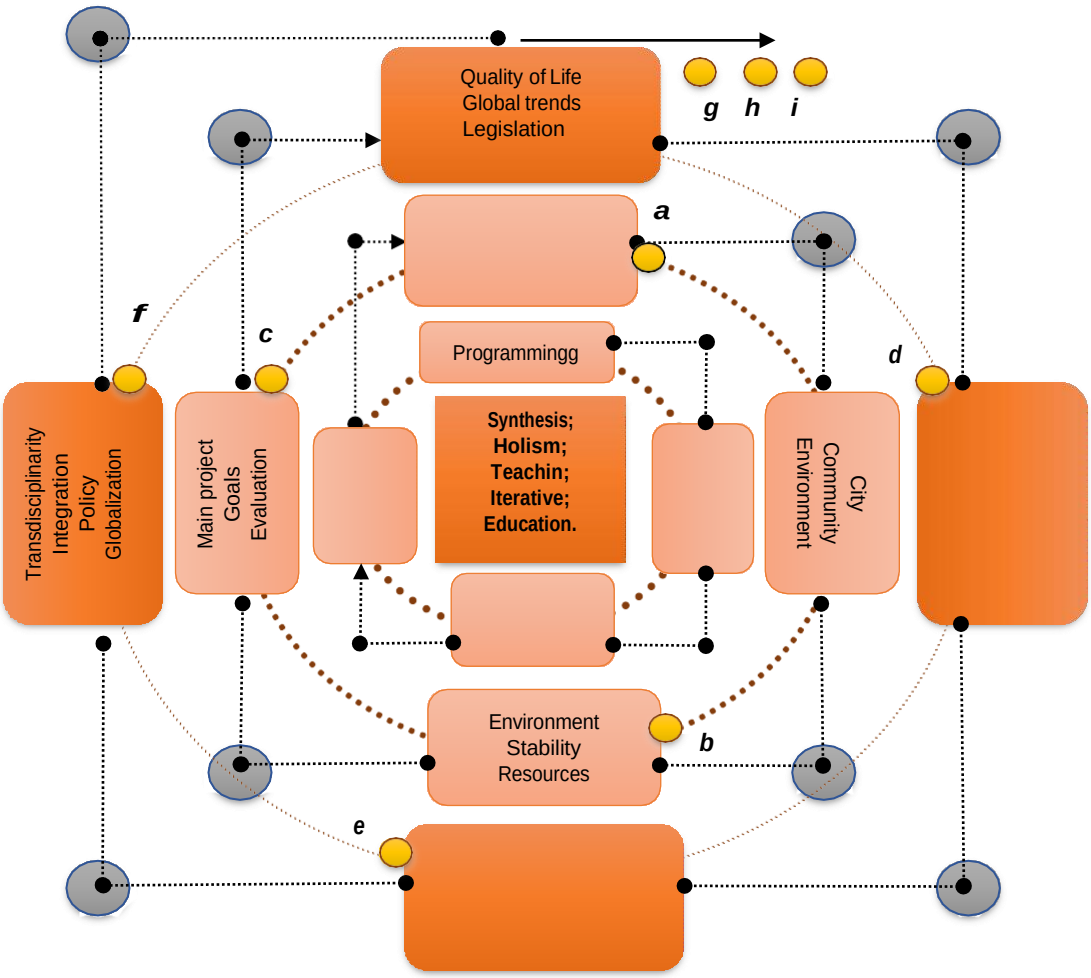


Figure 2. Complexity of iterative model: Actions to exploit transdiciplinarity on teaching for sustainable development processes. (Gharajedaghi, 2006; Bajçinovci, Jerliu 2016).

According to the result presented in Table 1, there is a lack of variety of courses in organization of the study programme, therefore we need a substantial rethinking of what we have to offer as an academia and teaching staff.

Table 1.
Students satisfaction with current study programme. (Eurostudent.eu/113, 2016).

	(Very) Well	Fairly satisfied	(Some) Dissatisfied	Total
	percent	percent	percent	percent
1. Quality of teaching	48.9	33.5	17.6	100
2. Organization of studies	41.6	31.4	27	100
3. Variety of courses	26	23	51	100
4. Study facilities	38.6	23	38.4	100

In addition of design processes and creative impacts which design is fundamentally refined to do, (Simon, 1996) also has argued this phenomenon: “Design is indeed a ubiquitous activity. In the physical world every artefact, a miniature silicon sensor for invasive blood pressure monitoring, an automobile, or a building, is the result of some kind of design activity. Any problem-solving situation in which there exists an element of the unknown, such as lack of information or incomplete knowledge of the relationships among issues, involves an intellectual effort that can be categorized as design” (Simon, 1996; Bajçinovci, Jerliu 2016).

DISCUSSION

The eye works more or less like a camera. The cornea acts like a glass lens and is the equivalent of the camera's outer lens. The pupil corresponds to the diaphragm and the lens of the eye corresponds to the inside lenses of the camera. The retina is comparable to the film located inside the camera. People spend most of the day at home with a lighting ranging from 50 to 500 lux. Light determines the pace of the biological clock and may have an effect on the circadian system. As stated in many cases and from may authors light is life, good lighting is important to see the world around us, what we want to see needs to be illuminated. Good lighting also affects the way we feel, it also helps in the style and quality of life. Since the first appearance of possibilities that students of architecture can visualize their own ideas, and computations with machines, a new way of thinking has begun, obviously, very hard acceptance in the beginning. This process of creative expression with digital tools, was considered as a heresy among orthodoxy hand drawing architects. But, new digital era offered enormous varieties and creative potentiality, which made possible the design of a rather same architectural model with infinite variations, empowered from

computational algorithms. Furthermore, such digital models and design patterns generated by software algorithms had evolved into much more contemporary futuristic concepts. The reasoning and acceptance of new teaching methods of what design can do is in constant evolution; we think here about a contemporary industrial revolution, or just about a different way of model perception. According to the Terzidis: “Such a possibility opens enormous potential than has not been previously possible. Rather than utilizing mere human-based intelligence in resolving design problems, a complementary synergetic relationship between humans and computers becomes possible” (Terzidis, 2006). Hence, in such framework of students and teachers, both participants can contribute to unique solving dilemmas and research problems, strengthened with efforts to seek more, explore, invent, or apply new principles and methods in science. Creative interacting process becomes the essential link between the two parties, in teaching and learning (Terzidis, 2006; Bajçinovci, Jerliu 2017). Interactive teaching methods in architecture, from this context, we can exploit endless possibilities to improve the education process. Hence, we identify four key attributes for sustainable urban development, in simulating relevant scenarios:

- Variety of ideas, generation of many iterations, seeking for problem solving;
- Creative improvement, liberty of generation of conceptual research models;
- Research visual modelling in early stages of lateral thinking;
- Generation a various possibility in SWOT analysis.

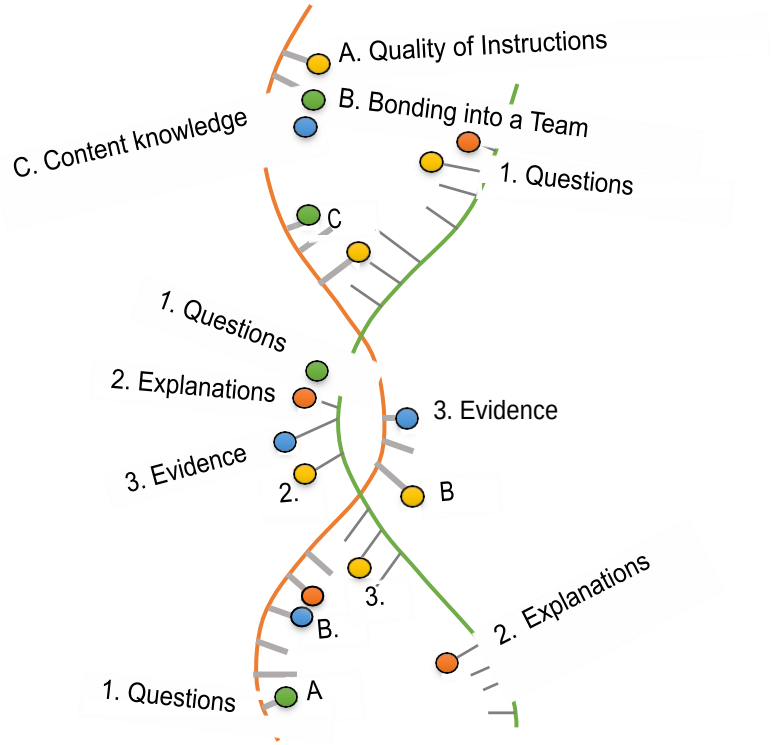


Figure 3. Structure of complex bonding threads, in evolutive partnership, teachers and students.

Current issues of improving the teaching quality and the introduction of completely new education concepts, demands a new fundamentally approach of integrated and holistic engaging for students and teachers (Iliško, 2005), into a creative group to respond to a new contemporary challenge.

The process of integrating aims to include all possible attributes of the research problem, so that any decision in the design process has to identify as many diversities of action. The holistic process is associated with activities of all parties involved in the project, with objective to transform the nature of teaching, respectively, to adopt a new approach in solving urban sustainable development dilemmas on presented situation with specific requirements. “Education, of course, is always based on what was. Education shows you what has been and leaves you to make the deduction as to what may be. Education as we pursue it cannot prophesy, and does not” (Wright, 1955).

The architectural design has always been a pioneer of social change on basis of what is called the modern and urban style. In terms of quality of life, the integrated process of cooperation between students and teachers (Iliško, 2007), will try to find the best solutions available for specific and unique problem, given the fact that never before as today, we have multifunctional and hybrid structures as a result of the globalization, and trend, strengthened with technology advancement. Therefore, those phenomena can realistically do impact on the global market, seriously affect the global economics. So, a whole global networked system is holistically interacting with a wide subsystem that forms international labour market.

Nowadays, in front of the students stand a new complex structure of social challenges where student must be proactive key participant of future pedagogy, hence, those challenges does require redefining framework between students and teachers in a wide background of academia. Surely, this was validated and pursued by many countries in Europe, presenting their arguments and demands imposed by the European Educational Standards in accordance with Bologna and Lisbon conventions. This visionary and contemporary academic framework must also be encouraged and implemented in Kosovo universities.

According to the data presented in Table 2, there is a good belief of chances on labour market after graduation from current study program on the field of natural and engineering sciences.

Table 2.
Bachelor student's assessment of chances on labour market after graduation. Actual programmes by field of study. (Eurostudent.eu/119, 2016; Bajçinovci, Jerliu 2017).

	∑	Education	Humanities	Social	Natural	Engineering
	%	%	%	%	%	%
1. (Very) Good	18.6	14.1	15.6	18	25.9	23.5
2. Fair	25.6	28.2	25.5	23.7	22.4	31.9
3. (Very) Poor	44.6	46.4	46.5	50	41.4	34.7
4. Unable to rate	11.2	11.3	12.4	8.2	10.3	10
Total	100	100	100	100	100	100

Urban Boom

Spatial and urban development of the city Pristina, in the past has not been the objective of research in scientific programmes. Chronologically, it's important to evident the actions of spatial and urban planning, city of Prishtina:

- Pristina's development plan, (1937). Included the area of 192.72 ha and was programmed for population of 16,000 inhabitants;
- The second development plan, (1948). No trace of the existence of this documentation;
- General urban design, (1953). The timeline of spatial plan was up to 1980, planned for 50,000 inhabitants in the area of 950 ha;
- Directive plan for traffic and city dedicated zones, (1967). With action plan for 100,000 inhabitants;
- In 1969, the directive plan for city dedicated zones, was replaced by General Urban Plan;
- The overall urban plan and spatial development plan in 1988, approved for the timeline to year 2000, considering for 225,000 inhabitants, (Municipal of Prishtina, 2004).

The last two decades, have brought a variety of phenomena for the city of Prishtina, primarily demographic, social, environmental and political. The socio-demographic and spatial boom in 2000, the process of uncontrolled growth of the city, are symptom and result of major cities after major events, like war for example. "According to the estimate of the OSCE (Extrapolated level growth of former population in Kosovo 2%/yr.), city of Prishtina in 2000 had 545,477 inhabitants" (Municipal of Prishtina, 2004).

Thus, there are persistent institutional activities and municipal actions on the strategic development plans for the city. The new millennium began with crucial activities for Pristina, in terms of demographic and urban development. The city is experiencing a multiplex change in all possible social fields. Being the capital city of Kosovo, in a very short time the population of Prishtina has nearly doubled, adding every day approximately another 30% of the population coming in the city for work, possible settlement, and migration.

CONCLUSION

The actual state of academia, and education requires specific contemporary activities, especially when the situation is directly linked to the quality of teaching and future challenges of the labour market. Formally fulfilling legal academic standards, within adapted and accredited academic frameworks, cannot be expected to solve comprehensive and future challenges, associated with the development of technology, labour market, life style, and global world trend. Findings in this paper indicate that through interactive teaching methods as contemporary learning strategies can strengthen the partnership in between academia and sustainable urban development. An informal meeting places for education, can concurrently present a teaching strategy by which we can bring more: conceptual awareness for urban space, interactive contemporary learning, which bonds complex connected threads between students and teachers in education. Thus, one and the same, and moderately new education strategy, cannot respond to all specific problems faced by day to day student's issues, academia, and future labour market. Therefore, new teaching strategies must involve a new partnership, a brand new and more refining holistic system, as a response to less functional academic system in this globalisation era. Partnership, a new symbiosis between students and teachers must prevail, working together simultaneously on continuous improvement of teaching and learning processes. Inadequate and not comprehensively solving the problems of a given task, not only drops the current dilemma, but also has a negative impact on future generations as well. Not adequately solving the specific problems of the actual time, results in mega problems as heritage for future generations. The current resolution of the actual situation with the classic teaching methods, formally fulfilling academic, and legal standards, requires a serious approach of academia for the comprehensive future education challenges. Specific city problems will require specific, unique, and original solutions. The current degraded state of the environment and urban fabric requires immediate scientific sustainable actions strengthened with the reformed teaching methods of academia, emerging specific

responsibilities and activities, especially when the urban situation is directly linked to the quality of life and public health.

REFERENCES:

Badjanova, J., Ilisko, Dz., and Drelinga, E. (2014). Holistic approach in reorienting teacher education towards the aim of sustainable education: the case study from the regional university in Latvia, Proceedings of the 5th World Conference on Educational Sciences, 116, 2931-293, DOI: 10.1016/j.sbspro.2014.01.682.

Bajçinovci, B., Jerliu, F. (2016a). Challenges of Architectural Design in relation to Environment and Air Pollution. A Case study: Prishtina's first public parking garage. *Journal of Science, Humanities and Arts*. Freiburg. Germany, DOI: 10.17160/josha.3.7.254.

Bajçinovci, B., Jerliu, F. (2016b). Achieving Energy Efficiency in Accordance with Bioclimatic Architecture Principles. *Environmental and Climate Technologies*. Riga Technical University. DOI: 10.1515/rtuect-2016-0013.

Bajçinovci, B., Jerliu, F. (2017). The Concept of "Modelarium" and its Impact on Creativity and Artistic Education. Review of Artistic Education no.14 2017. De Gruyter. DOI: 10.1515/rae-2017-0030.

Bajçinovci, B., Jerliu, F. (2016c). Complexity of Iterative Model - Architectural Integrated Design as an Evolutive Transdisciplinary Strategy. Case Study: A City Without a River. JOSHA, Freiburg. Germany. DOI: 10.17160/josha.4.1.264.

Bajçinovci, B. (2017). Environment Quality: Impact from Traffic, Power Plant and Land Morphology, a Case Study of Prishtina. *Environmental and Climate Technologies*. Riga Technical University. DOI: 10.1515/rtuect-2017-0006.

Belousa, I, Olehnovica, E., Ilisko, Dz., & Mizule, I. (2007). Gender equality in science curriculum: Recommendations of reorienting science education towards sustainable development. In A. Pipere (Ed.), Education and sustainable development: First steps toward changes, 2, 263-292.

Cimdina, G., Timma L., Veidenbergs I., Blumberga D. (2015). Methodologies Used Scaling-up From a Single Energy Production Unit to State Energy Sector. *Environmental and Climate Technologies*. Riga Technical University. DOI: 10.1515/rtuect-2015-0002.

De Bono, E. (2015). Lateral thinking, Creativity step by step. Harper Colophon; Reissue edition. ISBN-10: 0060903252, ISBN-13: 978-0060903251

EuroStudent. http://database.eurostudent.eu/113; http://database.eurostudent.eu/export/113 http://database.eurostudent.eu/export/119 , (accessed 31 december 2017).

Gharajedaghi, J. (2006). Systems Thinking. Managing Chaos and Complexity. Elsevier.

Gedzune, G., Gedzune, I., Salite, I., & Iliško, Dz. (2011). Exploring pre-service teachersí frames of reference and their orientation towards inclusion or exclusion: Educational action research journey. In Proceedings of the 9th JTEFS/BBCC conference Sustainable Development. Culture. Education: BBCC Mission - Reorientation of Teacher Education and Research in Education for Sustainable Development, 18-21 May, 2011 (pp. 80-102). Siauliai, Lithuania: Vs Sauli universiteto leidykla, ISBN 978-609-430-077-6.

Hewett, T. et al. (1992-1996). ACM SIGCHI Curricula for Human-Computer Interaction. http://www2.parc.com/istl/groups/uir/publications/items/UIR-1992-11-ACM.pdf (accessed 30 december 2017).

Iliško, D. (2005). Pedagogical challenges for implementing holistic curriculum in Latvia. Journal of Teacher Education and Training, 5, 28-39.

Iliško, D. (2007). Teachers as agents of societal change. Journal of Teacher Education for Sustainability, 7, 14-26. doi: 10.2478/v10099-009-0002-9

Iliško, D. & Badjanova, Y. (2014). A case study of ESD implementation: Signs of sustainable leadership. Discourse and Communication for Sustainable Education, 5, 38-48.

Kapenieks, J. & Salite, I. (2012). Action research for creating knowledge in an e-learning environment. Journal of Teacher Education for Sustainability, 14(2), 11-130.

Municipal Assembly of Prishtina. (2004). Urban Development of Prishtina 2004-2020. Online: http://www.bp-home.com/about/plani_urbanistik/plani_strategjik.pdf , Kosovo, (accessed 15 january 2017).

Pipere, A. and Salite, I. (2006) Educational action research in teacher education: Fostering research skills. Full papers of Asia-Pacific educational research association international conference 2006 ìEducational research, policy and practice in an era of globalization: The Asia-Pacific perspectives and beyond.

Pipere, A., Veisson, M., and Salite, I. (2015). Developing research in teacher education for sustainability: UN DESD via the Journal of Teacher Education for Sustainability. Journal of Teacher Education for Sustainability, 17(2), 5-43, DOI: 10.1515/jtes-2015-0009.

Salite, I. (2000). Integrated teaching in ecosystem and spiritual context. Natural Sciences and
Teacher Training, Collected articles of the International conference. Part II April, 27-28, 2000, DPU: Saule.

Salite, I., Micule, I., M., Ilisko, D., and Stakle, A. (2007) Toward the sustainability in teacher education: Promise of action research. In Pipere, A. (Ed.), Education and sustainable development: First steps toward changes, Volume 2, Daugavpils University, 263-292.

Salite, I. (2008). Educational action research for sustainability: Constructing a vision for the future in teacher education. Journal of Teacher Education for Sustainability, 10, 5-17.

Salite, I. (2009). Teacherís perspectives on learning programs design for sustainability: The Latvia experience. Proceedings of the International conference ìCitizenship, Multiculturalism, Cosmopolitanismî, November 3-4, 2008, Nikosia, University of Cyprus, Vol. 1, 145ñ158, ISBN 978-9963-9442-1-7.

Salite, I., Ignatjeva, S., & Salitis, A. (2009). Broadening teachers views on sustainability through action research. Proceedings of the International conference of Citizenship, Multiculturalism, Cosmopolitanism, November 3-4, 2008, Nikosia, University of Cyprus, 1, 158ñ173, ISBN 978-9963-9442-1-7.

Salite, I., Gedzune, G., & Gedzune, I. (2009). Educational action research for sustainability: seeking wisdom of insight in teacher education. Journal of Teacher Education for Sustainability, 11(2), 14-30, doi:10.2478/v10099-009-0037.

Salite, I., Gedzune, I., & Gedzune, G. (2010). From personally relevant experience to action research for sustainable education. In M. Witthaus, K. McCandless, & R. Lambert (Eds.), Tomorrow today. (pp. 95-98). Leicester: Tudor Rose, ISBN 0-9536140-8-5.

Salite, I. (2015). Searching for sustainability in teacher education and educational research: experiences from the Baltic and Black Sea Circle Consortium for educational research. Discourse and Communication for Sustainable Education, 6(1), 21-29, doi: 10.1515/dcse-2015-0002.

Salite, I., Ilisko, Dz., & Micule, I. (2015). ISE action research: Reorienting teachers dispositions towards ESD, Latvia. Leading practice publication: Professional development of university educators on Education for Sustainable Development in European countries, 105-107, ISBN: 978-80-87076-22-4, UE4SD Czech Republic.

Salite, I., Drelinga, E., Ilisko, Dz,. Olehnovica, E., Zarina, S., (2016). Sustainability from the Transdisciplinary Perspective: An Action Research Strategy for Continuing Education Program Development. Journal of Teacher Education for Sustainability, 18(2), 135-152, DOI: 10.1515/jtes-2016-0020.

Terzidis, K. (2006). Algorithmic Architecture. Architectural Press. Taylor & Francis. New York.

Wright, Lloyd, F. (1955). https://christen.community.uaf.edu/2013/05/26/frank-lloyd-write-on-education/ , (accessed 30 december 2017).

Wolfram, S. 2002. A New Kind of Science, http://www.wolframscience.com/nksonline/toc.html, (accessed 30 december 2017).

Zarina, S., Drelinga, E. Ilisko, Dz., & Krastina, E. (2016). Teachers vocation and students' attitudes towards a choice of teacher's vocation. Proceedings of the International Scientific Conference: Society. Integration. Society. The Scientific Journal of Rezekne Academy of Technologies. Rezekne: Rezekne Academy of Technologies, DOI: http://dx.doi.org/10.17770/sie2016vol1.1498.

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER II

VISUAL ORGANIZATION OF INDUSTRIAL FUNCTIONAL COMPOSITIONS

Language: English

DOI: 10.17160/josha.5.5.437

BUJAR BAJÇINOVCI
VLORA ALIU

2018

Visual Organization of Industrial Functional Compositions

Bujar Bajçinovci[1], Vlora Aliu[1*]

[1]University of Prishtina, "UP", Faculty of Civil Engineering and Architecture, Kosovo.
[*]Email: vloraa.aliu@gmail.com , bujar.bajcinovci@uni-pr.edu

ABSTRACT

The industry and transport system in the 20th Century have undergone cardinal transformations as a result of the development of science, technology, the growth of the economic base of society and the growth of the human living standards. Historically, Kosovo's industry has gone through various stages of its development and fully dependent on the economic system. In general, Kosovo's industrial development was based on the exploitation of raw materials and their processing to a certain degree, but not to a satisfactory degree of processing and finalization. Industrial complexes in recent decades 'moved' their traditional location of the suburban settlement and started a new phenomenon of industry selection locations even close to the city. Moreover, we have recently faced a lack of green spaces, and as a result we have come to the situation of redefining many urban architectural concepts, demanding free surfaces for non-degrading environmental industries in the urban zones. The industry today as a secondary economic activity is represented by 30% of production. Hence, designing industrial buildings poses urban and compositional challenges, especially when the production process implies the use of various technological equipment that can pollute the environment. Diversity of industrial building design must always be in line with the requirements of technological processes, economic development, environmental protection and sustainable social development. The study presented in this paper investigated the visual organization of industrial functional compositions, focussing on urban design issues, principles according to the Gestalt laws of grouping, and sustainable urban design. The research method consists of empirical observation through the wide Prishtina industrial zone, with an accent to the urban shapes, perception, and compositional harmony as a contemporary reflection to the past decisions of Prishtina municipality. Furthermore, the conceptual findings from the results of this research, will show the need and necessity of adopting the contemporary design strategies.

Keywords: Architecture, Urban design, Perception, Shape, Industry

INTRODUCTION

The industry and transport system in the 20th Century have undergone cardinal transformations as a result of the development of science, technology, the growth of the economic base of society and the growth of the human living standards. Historically, Kosovo's industry has gone through various stages of its development and fully dependent on the economic system. In general, Kosovo's industrial development was based on the exploitation of raw materials and their processing to a certain degree, but not to a satisfactory degree of processing and finalization. There is real cause for concern about the well-being of nature, and environment. Negative phenomena are reflected on our health,

natural resources, economic, recreational and aesthetic occurrences. In general, it is hard to implement maxims of sustainability because of the difficulties that often accompany them: conflict of interests, market activities, private interests of users [1]. Industrial complexes in recent decades 'moved' their traditional location of the suburban settlement and started a new phenomenon of industry selection locations even close to the city. The industry today as a secondary economic activity is represented by 30% of production. Hence, designing industrial buildings poses urban and compositional challenges, especially when the production process implies the use of various technological equipment that can pollute the environment. Diversity of industrial building design must always be in line with the requirements of technological processes, economic development, environmental protection and visual harmony in structural compositions. In this context, humans have always been compelling to organize a group of space figures seemingly grouped without any order, in a layout with recognizable order in their perception, tending to link them with imaginary lines or making the effort to group in recognizable shapes, and thus making the whole visual organization easier to remember.

MATERIALS AND METHODS

It is evident that in visual perception we operate by crucial fundamental principles that make us to group visual system components in some meaningful recognizable forms. These logical criterions are of great importance in the architectural compositions, moreover, this visual grouping is indicative in the wide perceptual range, from the organization of simplest brick wall to the urban composition of metropolitan areas.

"It took me a long time to understand the relationship between ideas and between objective facts. But after I clearly understood this relationship, I didn't fool around with other wild ideas. That is one of the main reasons why I just make my scheme as simple as possible." *Ludwig Mies van der Rohe*

Basically, there are five common principles according to the Gestalt laws of grouping that we tend to make the visual organisation of compositional functional elements:

a) The principle of Similarity
b) The principle of Proximity
c) The principle of Continuity
d) The principle of Closure
e) The principle of Connectedness

According to the Vitruvius, Architecture depends on Order, Arrangement, Eurythmy, Symmetry, Propriety, and Economy [2].

1. “Order gives due measure to the members of a work considered separately, and symmetrical agreement to the proportions of the whole. It is an adjustment according to quantity. By this I mean the selection of modules from the members of the work itself and, starting from these individual parts of members, constructing the whole work to correspond” [2].

2. “Arrangement includes the putting of things in their proper places and the elegance of effect which is due to adjustments appropriate to the character of the work. Its forms of expression are these: groundplan, elevation, perspective “[2].

3. “Eurythmy is beauty and fitness in the adjustment of the members. This is found when the members of a work are of a height suited to their breadth, of a breadth suited to their length, and, in a word, when they all correspond symmetrically” [2].

4. “Symmetry is a proper agreement between the members of the work itself, and relation between the different parts and the whole general scheme, in accordance with a certain part selected as standard. Thus, in the human body there is a kind of symmetrical harmony between forearm, foot, palm, finger, and other small parts; and so, it is with perfect buildings” [2].

5. “Propriety is that perfection of style which comes when a work is authoritatively constructed on approved principles. It arises from prescription, from usage, or from nature” [2].

Nevertheless, the principle of similarity states that things which share visual characteristics such as [3]:

a) Shape;
b) Size;
c) Colour;
d) Texture;
e) Orientation.

Generally, will be seen as belonging together [3]. Hence, the elements of the same shape we tend to group in different compositions.

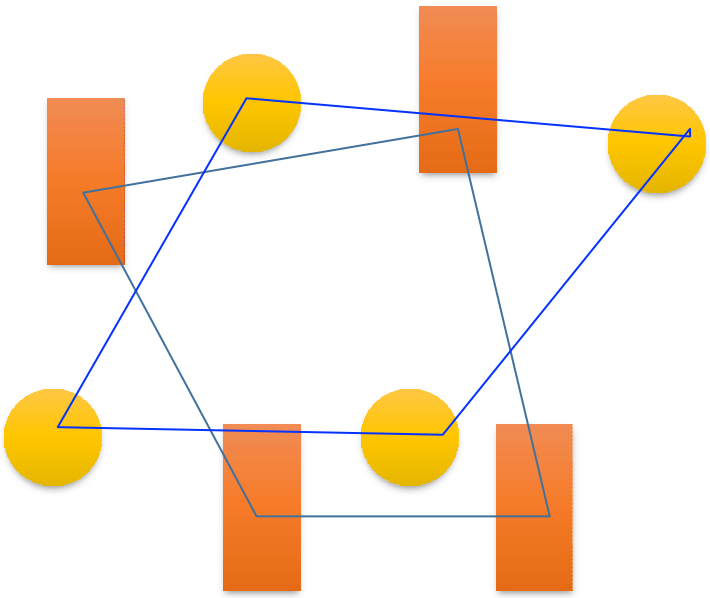


Figure 1. Rectangles form one group and circle another group in visual composition.

If elements are the same shape and different sizes, according to the Gestalt laws of grouping, they will be groping according to the size in separate groups unless the colour is present.

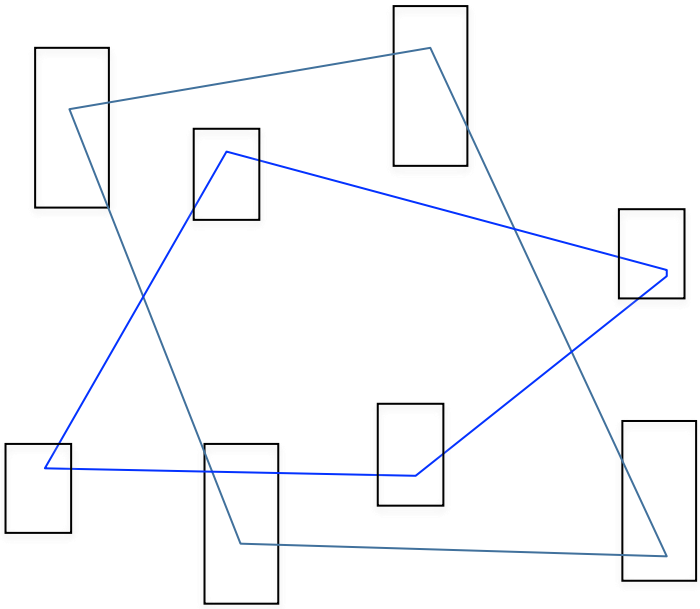


Figure 2. Big rectangles form one group and little ones another group, in visual composition.

Colour is a very powerful phenomenon that can further enhance the above-mentioned gestalt principles or can completely alter the effect. Colour enhances the much more the energy of the shape and creates greater contrast in between the architectural composition.

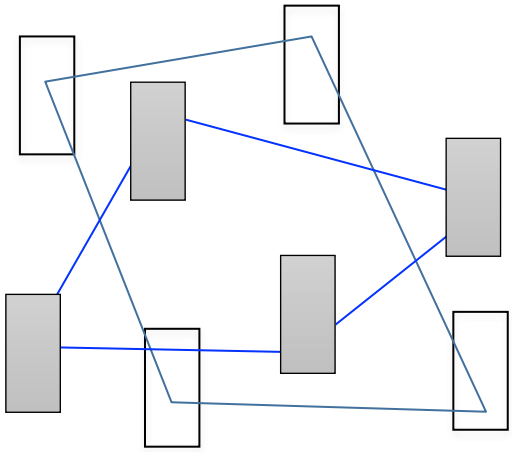


Figure 3. Coloured rectangles form one group and other rectangles another group, in visual composition.

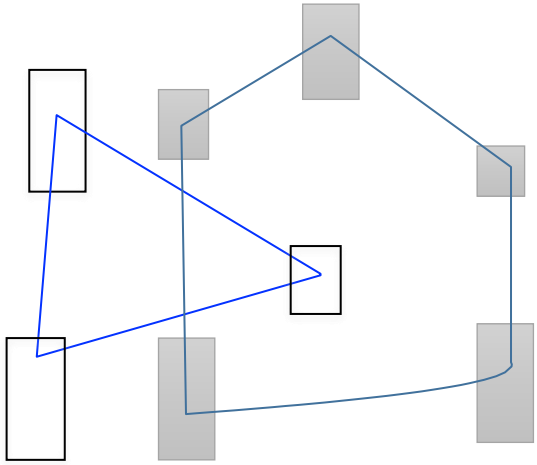


Figure 4. The colour has linked large and small rectangles into the same composition and thus cancelled the effect of similarity by the size.

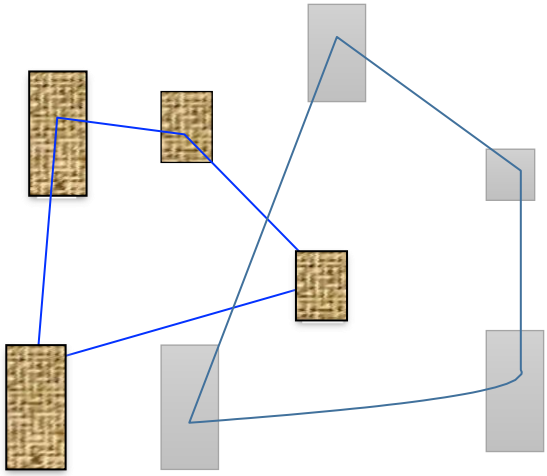


Figure 5. The texture has linked large and small rectangles into the same composition and also cancelled the effect of similarity by the size.

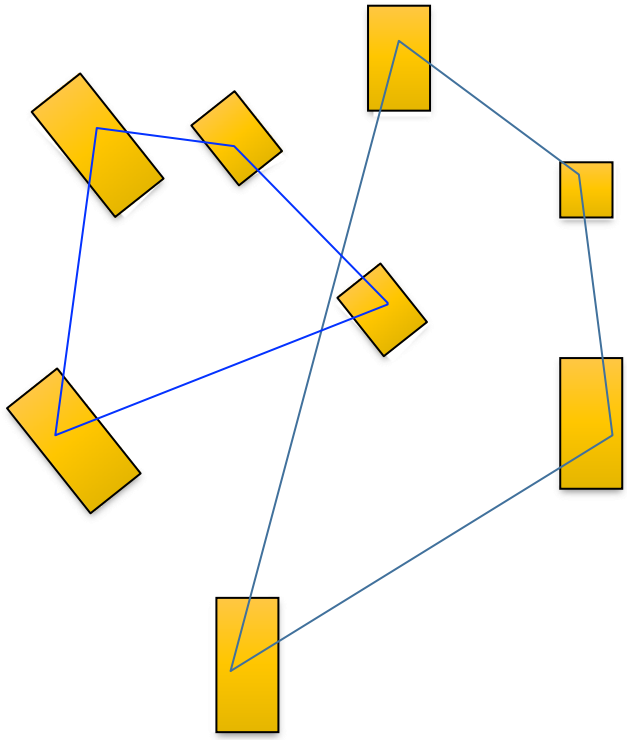


Figure 6. The orientation has linked large and small rectangles into the same composition and thus cancelled the effect of similarity by the size.

According to the principle of Proximity, the proximity of the elements is a determining factor in the visual organization. Elements that are close enough to each another will be grouped in same visual composition. Hence, powerful and more intense elements will be ready to form a spatial composition to a somewhat larger distance. Nevertheless, each volume has a separate spatial energy that is dependent on their mass.

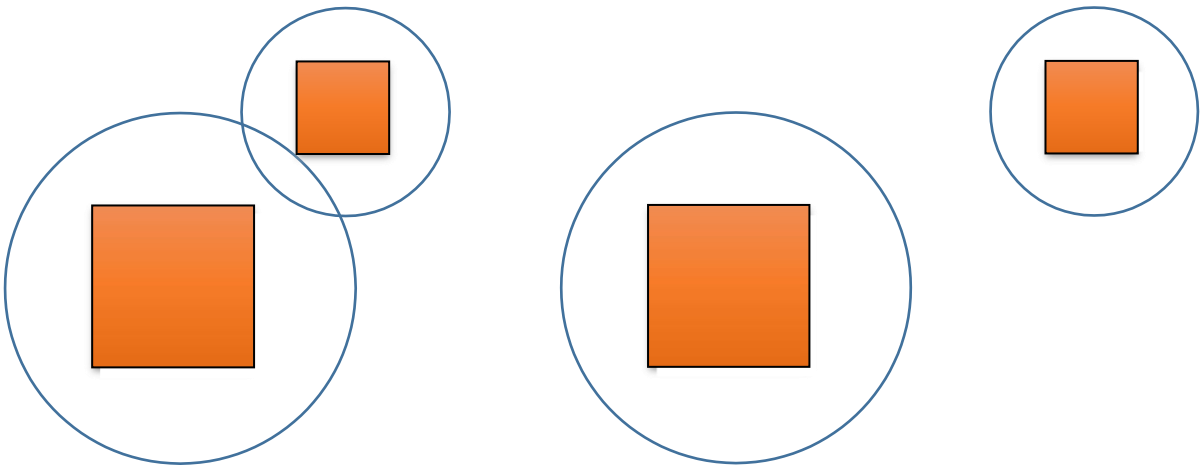


Figure 7. a). Forms are perceived as one composition. b). Forms are separated, and not perceived as one whole.

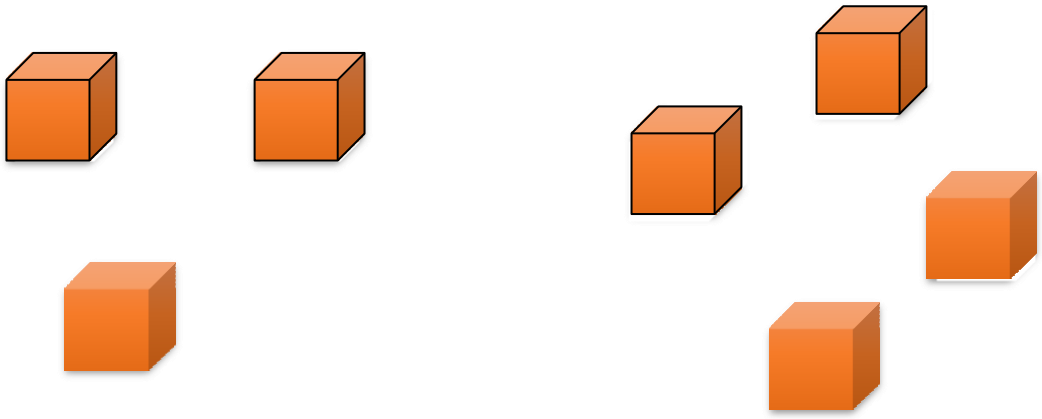
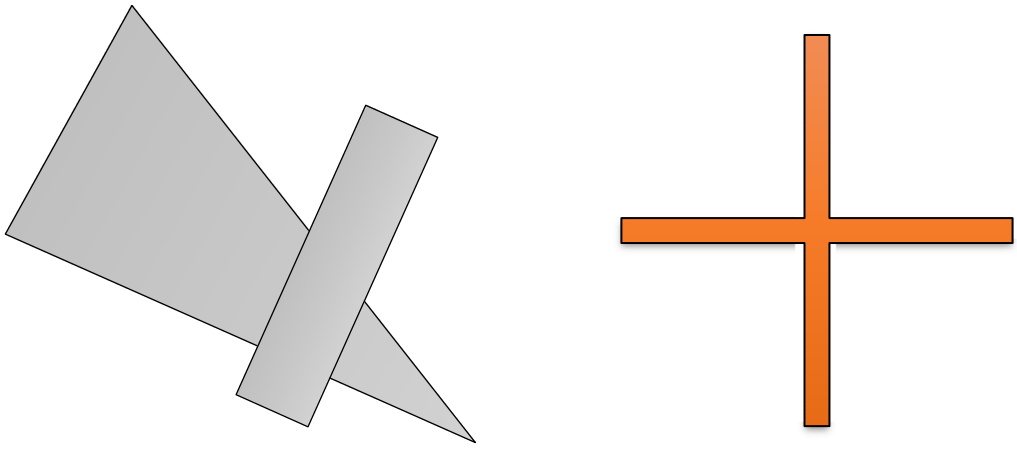


Figure 8. With just a small shifting away from the four elements, the two groups of cubes were formed.

The principle of continuity predicts the preference for continuous figures. We perceive the figure as two crossed lines instead of four lines meeting at the centre as presented in figure below [4].



DISCUSSION

The eye works more or less like a camera. The cornea acts like a glass lens and is the equivalent of the camera's outer lens. The pupil corresponds to the diaphragm and the lens of the eye corresponds to the inside lenses of the camera. The retina is comparable to the film located inside the camera. People spend most of the day at home with a lighting ranging from 50 to 500 lux. Light determines the pace of the biological clock and may have an effect on the circadian system. As stated in many cases and from may authors light is life, good lighting is important to see the world around us, what we want to see needs to be illuminated. Good lighting also affects the way we feel, it also helps in the style and quality of life.

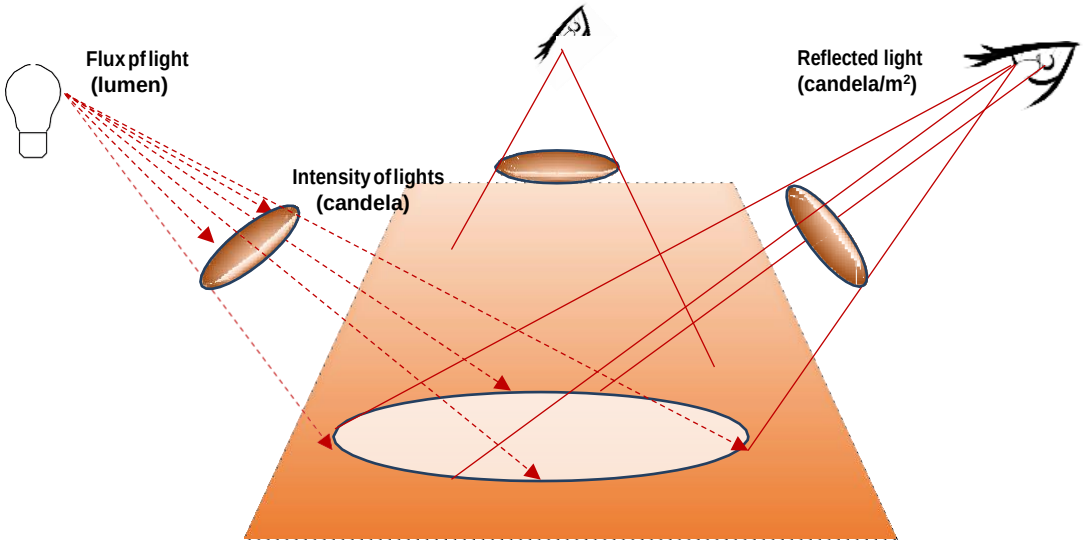


Figure 9. Fundamental meanings, flux and intensity of light, reflected light.

Industrial Functional Compositions

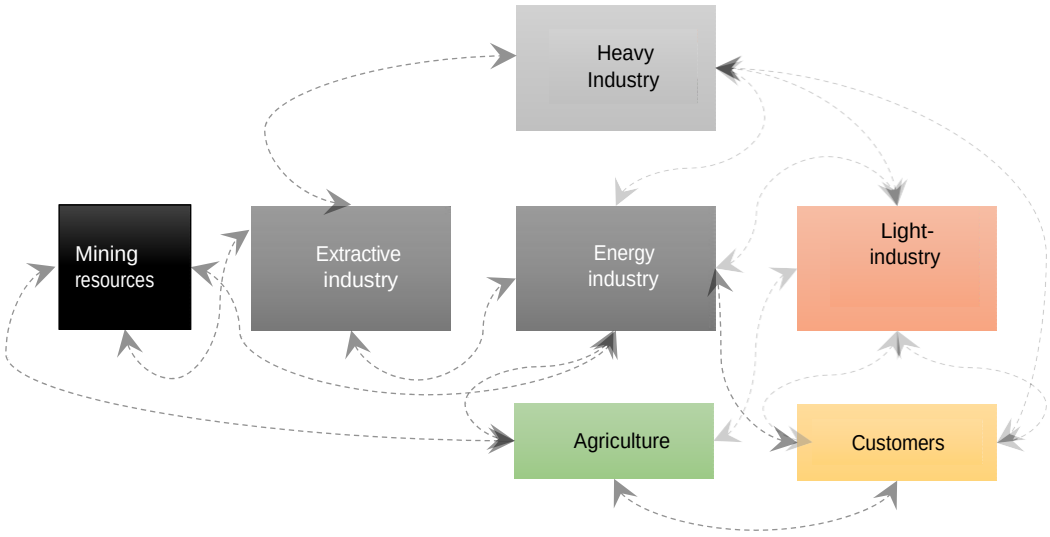


Figure 10. Division of industry's core activities [5].

Actually, this division with regard to activity is quite rough, sometimes not sufficiently clear, so the specific industrial activity is even broader. To illustrate, we can mention the metallurgical industry or the chemical industry which, from their technological process, produce finished processed products, which are intended directly for consumers, but as the industry is not classified in the light processing industry.

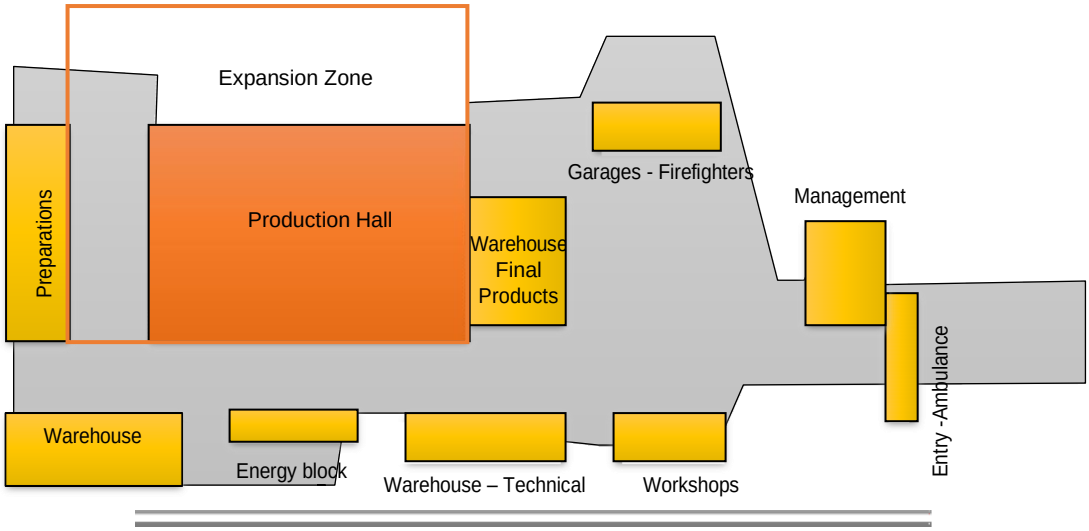


Figure 11. Spatial compositions of the organization of industrial complexes [5].

The functional composition of the organization of industrial complexes is accomplished by attaining successfully functional areas and buildings within the general complex, by fully functionally grouping similar technological processes or adjacent units with common technological features by which are specifically linked [5].

There are several functionally systems of industrial complexes, in terms of architectural modelling concepts and spatial design, these structural compositions can be:

1. Composition with pavilions;
2. Block composition;
3. Mixed Composition;
4. Atrial compositions;
5. Composition of open systems.

The selection of these structural compositions, which will be chosen, will have a direct influence on these functional features:

1. The line of the technological process;
2. Type of activity of the industrial complex;
3. Production capacity;
4. The similarity or diversity of individual areas;

5. Environmental pollution level;
6. Type of internal transport;
7. Static-dynamic impacts from the manufacturing vehicle tract;
8. Climate influence in the region;
9. Profitability and financial ability of investors [5].

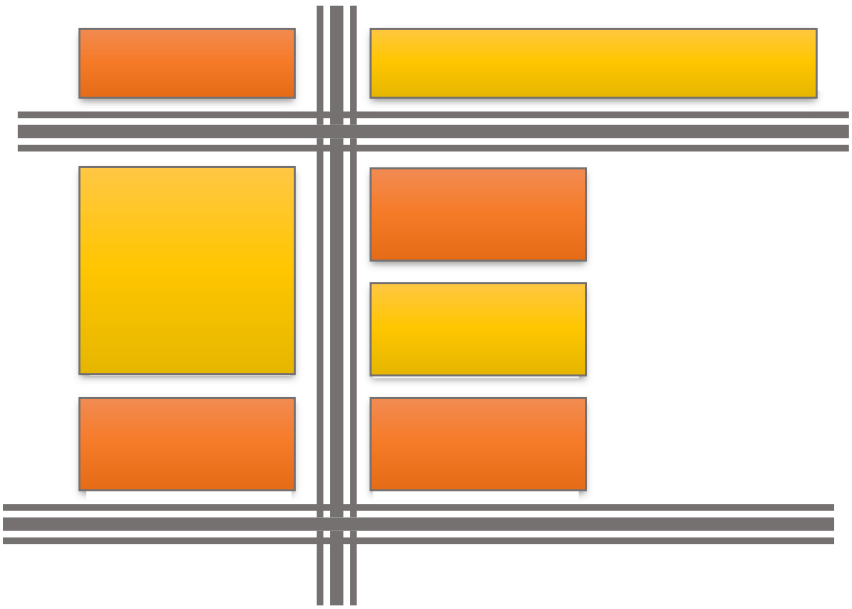


Figure 12. Spatial Composition with grouped forms, Pavilion [5].

Figure 13. Spatial Composition with grouped forms, Pavilions [5].

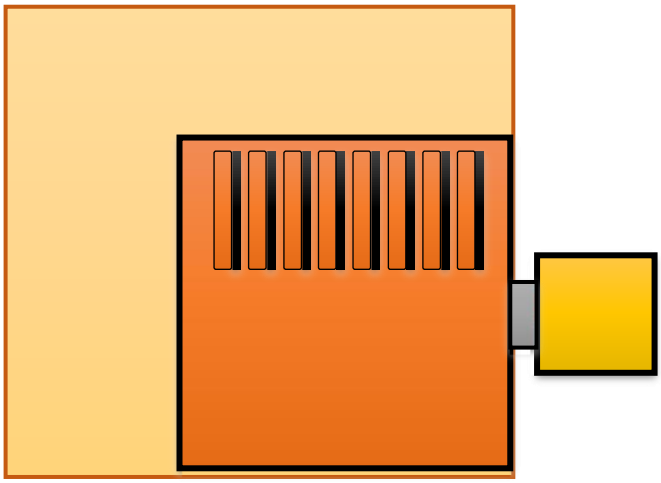


Figure 14. Spatial Composition with Block System [5].

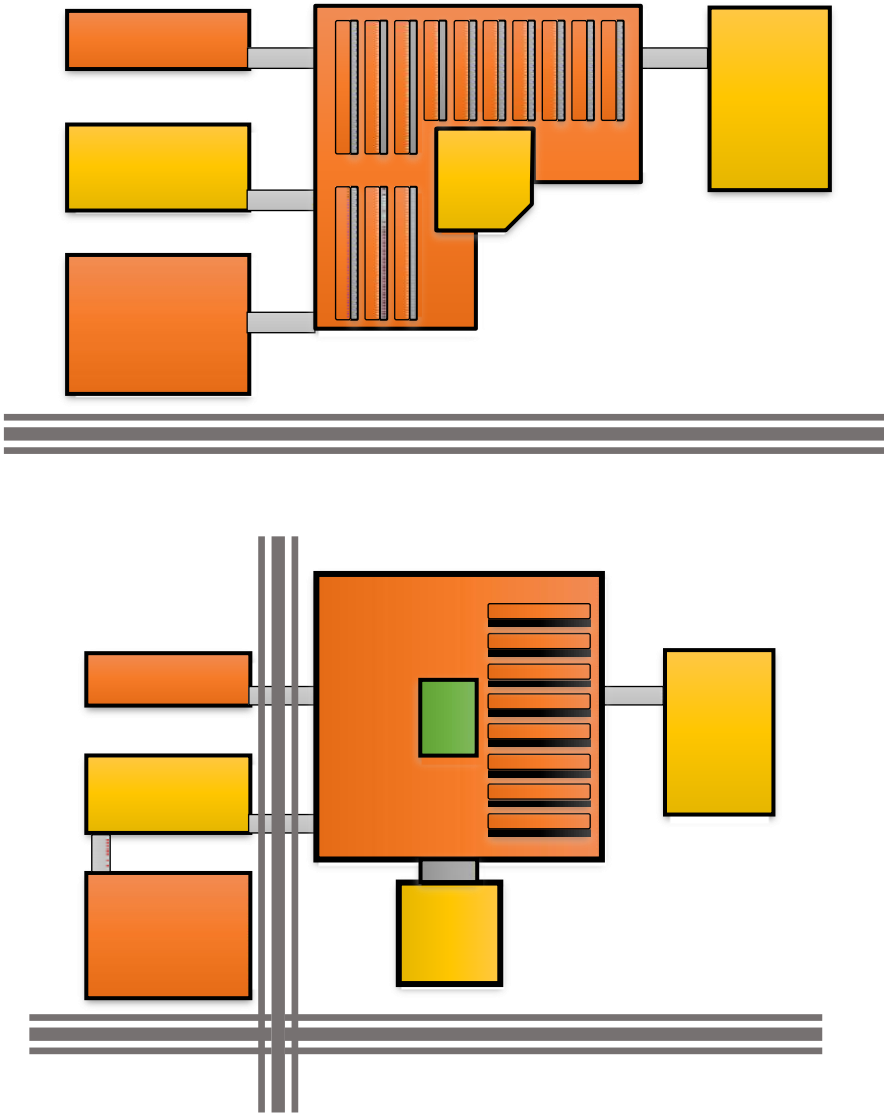


Figure 15. Spatial mixed Compositions, pavilion and block systems [5].

Visual Organization of Industrial Functional Compositions

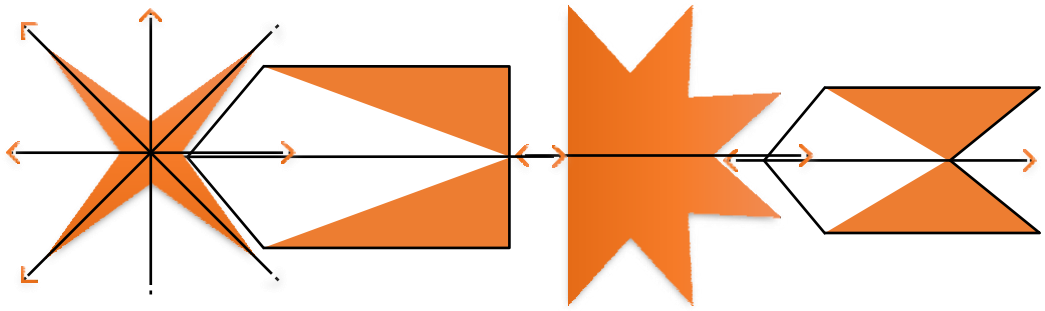


Figure 16. Visual organization of industrial functions [5].

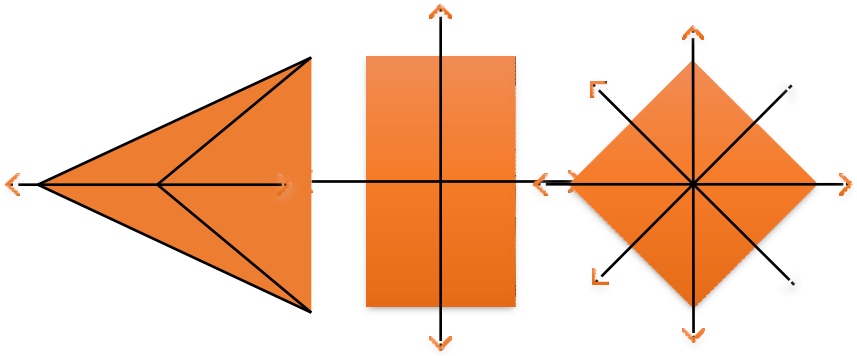


Figure 17. Visual organization of industrial functions [5].

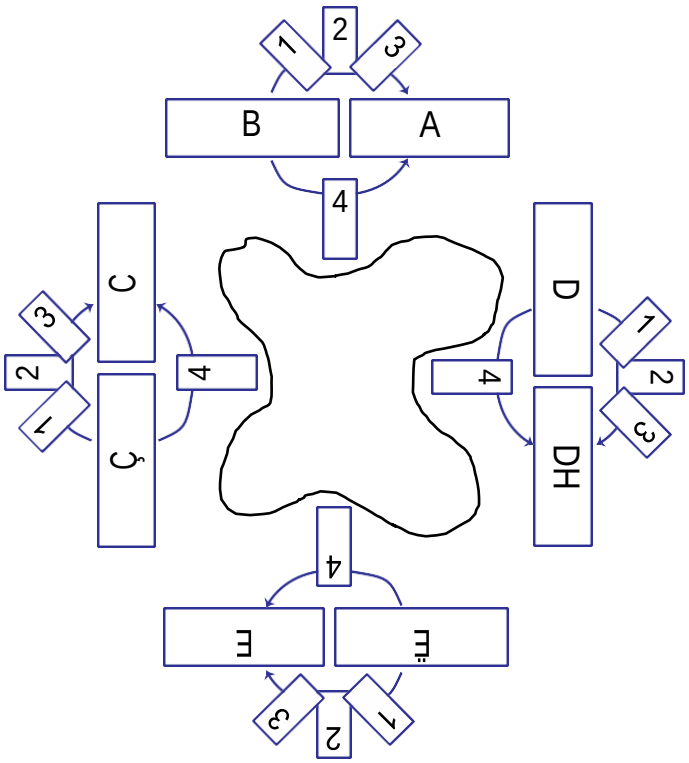


Figure 18. Visual organization of industrial zones in multicomplex compositions [5].

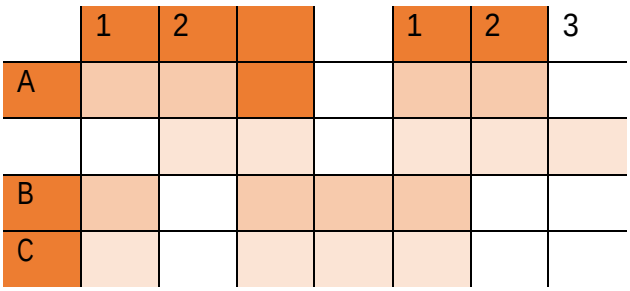


Figure 19. Visual organization of industrial functions and zones [5].

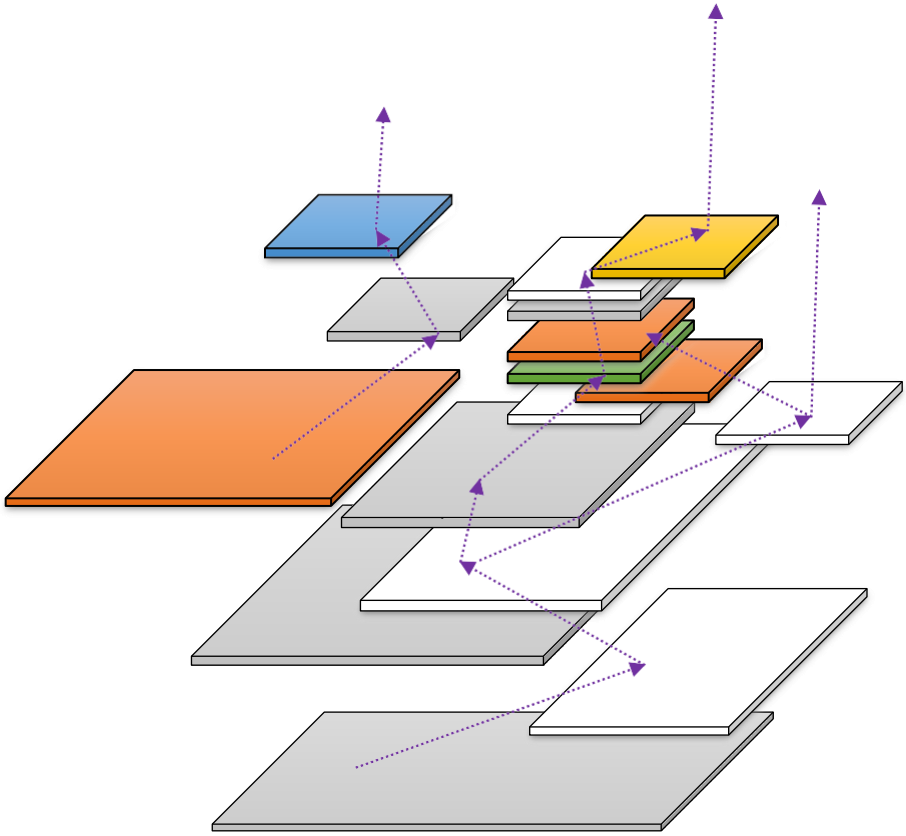


Figure 20. Visual organization of industrial functions, vertical organization [5].

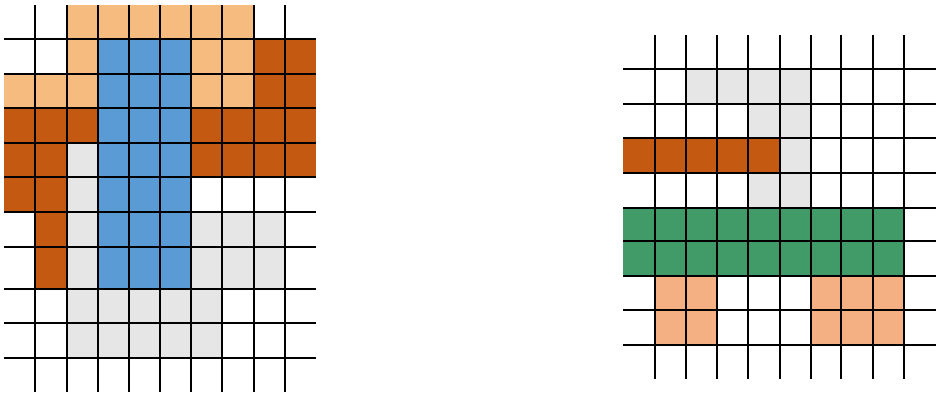


Figure 21. Visual organization of industrial functions in horizontality and zones [5].

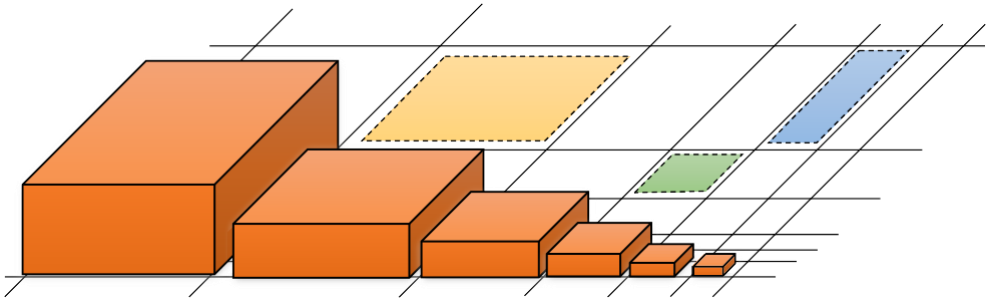


Figure 22. Visual organization of industrial functional volumes [5].

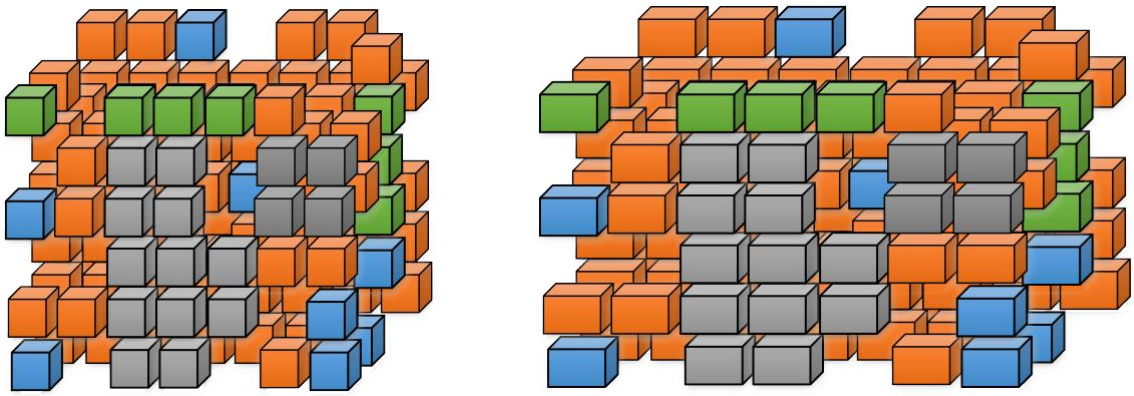


Figure 23. Visual organization of functional volumes [5].

CONCLUSIONS

Inadequate solving the specific problems of the time, results in mega problems for future generations. The current resolution of the situation, formally fulfilling legal standards cannot solve the present and future challenges. Challenges, associated with the globalisation, development of technology, life style, and global world trends. Specific industrial spatial problems will require specific and original solutions. It is evident that in visual perception we operate by crucial fundamental principles that make us to group visual system components in some meaningful recognizable forms. These logical criterions are of great importance in visual aesthetics and architectural compositions, moreover, this visual grouping is indicative in the wide perceptual range, from the organization of simplest brick wall to the urban composition of metropolitan areas. Thus, design subjectivity and response to context, are also of great importance in architectural design expressions when we are considering the best possible solutions. “The purpose of composition is to express particular concepts and experiences, and it is successful only when these are fully communicated to the observer” [6].

REFERENCES:

[1]. Bajçinovci, B., Jerliu, F. (2016). Complexity of Iterative Model - Architectural Integrated Design as an Evolutive Transdisciplinary Strategy. Case Study: A City Without a River. Journal of Science, Humanities and Arts. JOSHA. ISSN: 2364-0626. Vol. (4), Is. 1. 2017. DOI: 10.17160/josha.4.1.

[2]. Vitruvius, (1914). The Ten Books of Architecture. Translated by Morris Hicky Morgan. Harvard University Press. London, UK.

[3]. Gestalt Principles. (2018). https://etad.usask.ca/skaalid/theory/gestalt/similar.htm#1 (Accessed: 17 June, 2018).

[4]. Mullet, K. & Sano, D. (1995). Designing visual interfaces: Communication oriented techniques. Englewood Cliffs, NJ: Prentice Hall.

[5]. Bajçinovci, B. (2017). Sustainable Architectural Design - Principles - in the Albanian Language. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.4.3.306

[6]. Encyclopædia Britannica. (2018). Architecture. (Accessed: 10 June, 2018). https://www.britannica.com/topic/architecture/Space-and-mass

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER III

COMPLEXITY OF ITERATIVE MODEL - ARCHITECTURAL INTEGRATED DESIGN AS AN EVOLUTIVE TRANSDISCIPLINARY STRATEGY. CASE STUDY: A CITY WITHOUT A RIVER

Language: English

DOI: 10.17160/josha.4.1.264

BUJAR BAJÇINOVCI
FLORINA JERLIU

2017

Complexity of Iterative Model - Architectural Integrated Design as an Evolutive Transdisciplinary Strategy. Case Study: A City Without a River

***Bujar Bajçinovci*[1], *Florina Jerliu*[1*]**

[1]*University of Prishtina, "UP", Faculty of Civil Engineering and Architecture, Kosovo.*

[*]*Emails: bujar.bajcinovci@uni-pr.edu, florina.jerliu@uni-pr.edu*

ABSTRACT

Contemporary challenges should encourage new explorations, in order to administer new urban solutions, thus, assuring better and higher quality of life. The meaning of transdisciplinary design consists of different professions closely related to the architectural design, targeting for better and qualitative design solutions, which with new findings exceed the conventional and traditional disciplinary barriers. The study presented in this paper investigated the down town of Prishtina city, focussing on urban design issues, pollution, ecology, and sustainable urban design. The research method consists of empirical observation through wide centre zone, with an accent to the urban water management plan, as a contemporary reflection to the past decisions of Prishtina municipality. Furthermore, the conceptual findings from the results of this research, will show the need and necessity of adopting the contemporary design strategies, thus, reflecting and recommending the implementation of an integrated problem solving strategies. By consolidating the new design strategies as a new integrated system into the existing urban municipality guidelines, it is expected to have a significant positive impact in the communities by raising the quality of life in Prishtina.

Keywords: Architecture, Integrated design, Transdisciplinary, River, Sustainability

INTRODUCTION

There is real cause for concern about the well-being of nature, and environment. Negative phenomena are reflected on our health, natural resources, economic, recreational and aesthetic occurrences. In general, it is hard to implement maxims of sustainability because of the difficulties that often accompany them: conflict of interests, market activities, private interests of users. Hence, most environmental premises often end's in the sphere of interest of enthusiasts, aesthetic activities or the concern of naturalists. New challenges should thus stimulate new research and should be directed at the exploitation of all resources in order to achieve the better quality of life. The architecture in terms of its activities and programs,

aim to participate in transdisciplinary problem solutions, which can contribute more appropriate in aiming to achieve the better quality of life. The new millennium brings a new way and new style of life, as a result of many complex circumstances. So, we come to the situations, when we wonder about the necessity of redefining many of actual life habits [10].

Currently, we can state that there is a certain gap between academic knowledge and architectural practice, or, the principles of integrated design strategies have not been adequately implemented in design practice. Hence, there is no quality of integration in the conceptual design, there is only few reflections of the overall system, which makes it very tempting and by limited efforts to implement those principles on fundamental design projects. However, there is no consolidated information of who are the real obstacles, or difficulties to implement above cited design strategies. Which are, the simple obstacles of integration? [10].

"Our design process is such that only pieces are optimized and not the whole. Each of these professionals is designing fully within the silo of their discipline, and the interaction between each discipline is usually kept to a minimum ... The optimization of the building's individual systems is primarily done in isolation, based on rule-of-thumb conventions that target abstract, generalized standards. These systems are then assembled into a building" [1].

MATERIALS AND METHODS

Process Description

Ancient cultures, without the use of the word "ecology" were built with ecology in mind, otherwise the phenomena will bring social disintegration, disaster and ruin. It can be noted that the need can create harmony between the necessity's and the genius idea in certain environments and situations. One from its genesis respected and valued environment in which he dwells, with emphasis in finding harmony and symbiosis between his needs and nature [10].

Biology has studied how organisms and living communities are built. "But it is no less important to understand what such living systems know, in a broad sense; that is, what they remember (what agent-object sign relations are biologically preserved?), what they recognize (what distinction they are capable and not capable of?), what signs they explore (how they communicate, make meaning and use signs?) and so on. These questions are all about how different living systems perceive the world, what experience motivates what actions, based on those perceptions" [2] … "Man's specific environment is not situated in

the universal environment like content in its container. A living being is not reducible to a meeting point of influences. Whence the inadequacy of any biology which, through complete submission to the spirit of the physicochemical sciences, would eliminate from its domain every consideration of meaning. A meaning, from the biological and psychological point of view, is an assessment of values in keeping with a need" [2] [10].

Humans from beginning respected and valued environment in which they dwell, with emphasis in finding harmony and symbiosis between their needs and the nature, or the Umwelt. The expressions 'collective Umwelt', or 'swarm's Umwelt', should also be in accord, since organism can hardly be modelled as a centralized system [3] [4] [10].

However, the relationship between the Umwelt of organism and the Umwelts of its cells requires further explanation and more detailed analysis. The whole becomes seen through functional circles which, for example, include the body of the (swarm) organism moving together, in one piece [3] [4] [10]. The approach to analysis, and possible explanations of the problem, the following research questions will be used:

- What have we done with the river Prishtevka?
- What are we doing now with the river Prishtevka?
- Why, and what is the benefit?

The essence of transdisciplinary design is still not quite clear whether it is a handful of different professions closely related to the task of designing the best possible solutions, or perhaps activities beyond the usual and conventional boundaries of disciplines with the new knowledge that is not contained in any of the disciplines involved? Currently, we are witnessing a supplementary academic study, furthermore including the creation of new professions in this digital era. Architecture, a profession from its genesis implement interdisciplinary approach, and the necessary process of design by multidisciplinary nature, new era, new concepts, a symbiosis [4] [10].

Jürgen Mittelstraß uses the term in defining 'transdisciplinarity' as a form of research that transcends disciplinary boundaries to address and solve problems related to the life-world. Mittelstraß "argues that transdisciplinarity is primarily a form" of research for addressing and reflecting on issues in the life-world. Against the background of harm and serious risk posed by technologies and growth that does not fit within the disciplinary paradigms of academia, he calls for the transgression of disciplinary boundaries for identifying, structuring and analysing problems in research. [Mittelstraß, 1992], [6].

Contrary to the more pragmatic approach of transdisciplinarity as a form of research, others argue for a further intellectual endeavour on a fundamental theoretical level. They conceive of transdisciplinarity as a theoretical unity of all of our knowledge, which they think is needed to respond adequately to knowledge demands for problem-solving in the life-world. [Nicolescu, 1996, Max-Neef, 2005], [6].

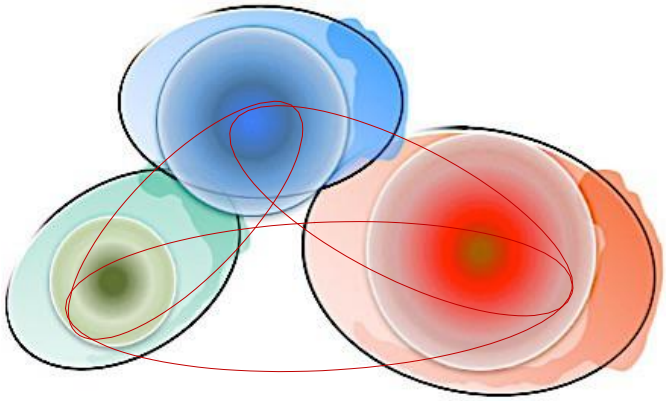


Figure 1. *Transformation of system models. [Source: Authors, 2016] [10].*

In a world characterized by rapid change, uncertainty and increasing interconnectedness, there is a growing need for science to contribute to the solution of persistent, complex problems [6]. It also includes a focus on real world problems, through collaborative work involving academic and non-academic stakeholders. Transdisciplinary research is therefore "driven by problem solving and integrates perspectives from public agencies, the private sector and civil society in the research process" [5] [6] [4] [10].

In order to define and understand what is meant by 'transdisciplinary research' it is useful first to consider other forms of knowledge product. According to Tress et al. 2006, various approaches in this field provide the following summary of definitions [7], [5]:

Disciplinary: "Process of projects that take place within the bounds of a single, currently recognized academic discipline" [7] [5] [10].

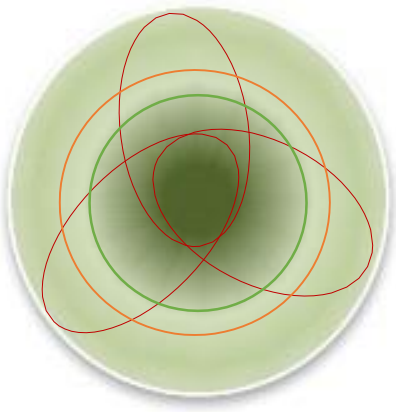


Figure 2. *Disciplinary process. [Source: Authors, 2016] [10].*

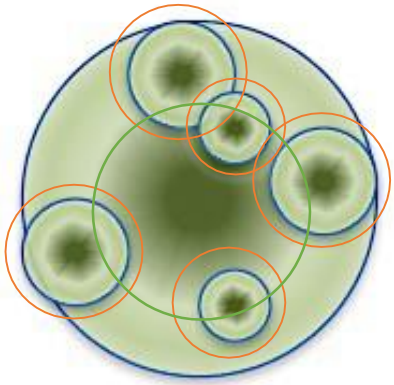


Figure 3. *Interdisciplinary process. [Source: Authors, 2016] [10].*

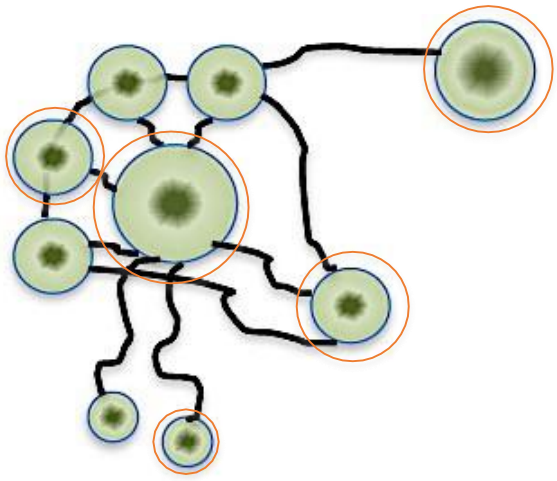


Figure 4. *Multidisciplinary process. [Source: Authors, 2016] [10].*

Interdisciplinary: "Process of several unrelated academic disciplines involved in a way that forces them to cross subject boundaries to create new knowledge and theory and solve a common research goal [7] [5] [10]".

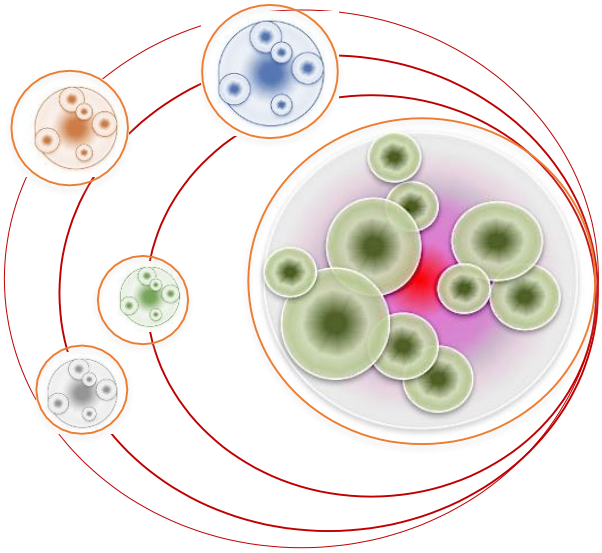


Figure 5. *Transdisciplinary process. [Source: Authors, 2016] [10].*

Transdisciplinary: "Process of projects that both integrate academic researchers from different unrelated disciplines and non-academic participants, to research a common goal and create new knowledge and theory. Transdisciplinarity combines interdisciplinarity with a participatory approach" [7] [5] [10].

A City without a river

Gërmia is the most beautiful part of the Pristina city, now a national park or the so called the lungs of Pristina. It is located in the region Golak plateau. It flowed from the aforementioned plateau, a rather small river Prishtevka from a place called Stalova. Pristina would be environmentally handicapped without this part of the hillside, because the entire air mass of fresh air actually comes from this direction of the mentioned mountain. By the end of the 80's it was decided then, by municipal authorities of Prishtina to be covered Prishtevka river, on behalf of epidemic conservation, general hygiene and human well-being [10].

According to the Master Plan Pristina (GUP-1987), the river environment was highly endangered by pollution. River Prishtevka was ranked out of class in the context of pollution from germs (coliform bacilli), with also river Sitnica into which flows Prishtevka with the function as a collector of polluted water, industrial water and waste out of all categories.

Table 1: *Pollutants by categories and municipalities - Region of Prishtina. [Source: Cadastre of Kosovo Water Polluters], [9] [10].*

Region	Municipality	Collective polluters	Specific pollutants
Prishtinë	Prishtinë	12	7
	Fushë Kosovë	12	2
	Drenas	14	1
	Podujevë	9	9
	Shtime	3	0
	Lypjan	10	4
	Kastriot	7	1
	Graçanica	8	1
	Total	**75**	**25**

As presented in **Table 1**, the municipality of Prishtina are the heaviest polluted zone, primary by the collective polluters, and by specific pollutants altogether. Rivers should carry health and life, not death and disease? In the context of a rapid solution and persistence of ongoing problems, it was decided that river to be covered, the symbol of life, health provider and serenity, and opted despite the modest size and the volume of the river Prishtevka [10].

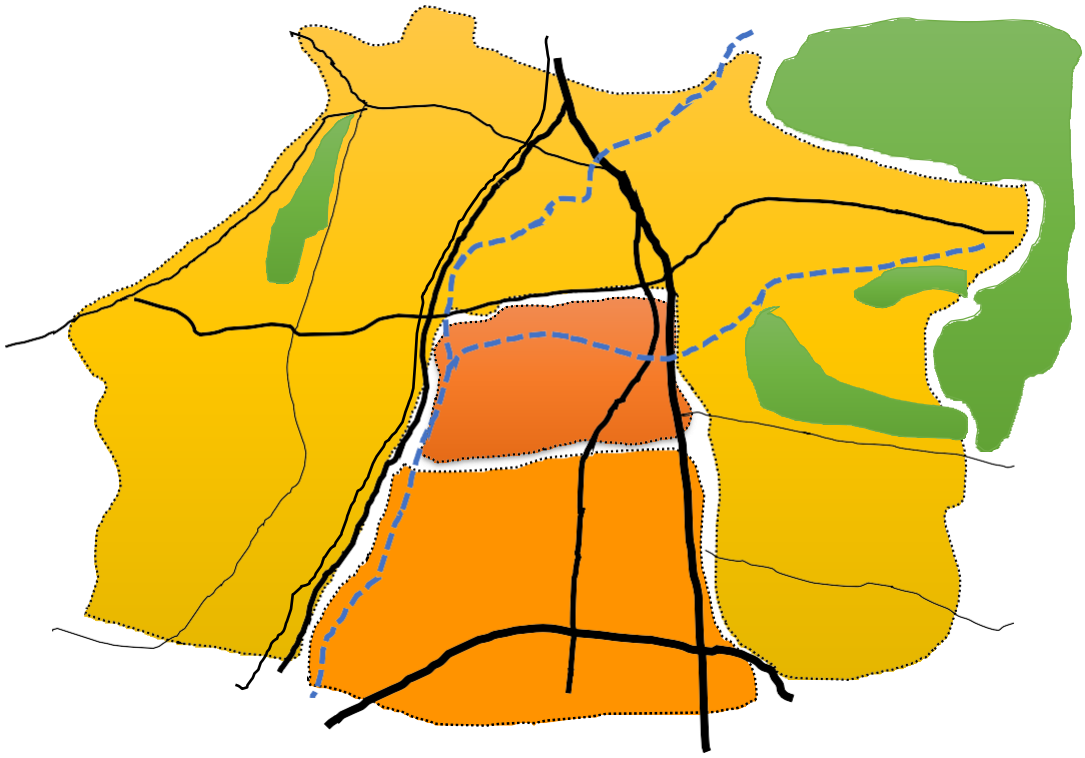


Figure 6. *Routes: Prishtevka and Vellusha river's as covered, at the 80's. [Source: Authors, 2016].*

From the standpoint of then, explanation of "burial" the river, maybe had a dose of the 'real solution'. It is obvious that the urban culture and the culture of living style has resulted in coverage of the river, and also it was the last line of eliminating potential disease, infection, and ultimately the possible epidemic condition. However, if we remember, in the former Yugoslavia we find many labour youth actions and surely there wasn't lack of workforce, and surely it could be found optimal environmental solution for Prishtevka River, with its length of near 2 km' in the city [10].

A déjà vu of Prishtevka river

Prishtina, although municipal authorities have already spent beyond a million of euros for reconstruction of infrastructure, some areas still remain without essential mainframe of infrastructure. Village Makovc, seven kilometres from the centre of Pristina, among the problems which inhabitants have is solution for sewage. In the absence of sewage, residents of the village had throwing pipes of faecal waters into the river of Prishtevka. According to Makovc residents in April, 2011: "Our sewage is in the river, however, when the level of water in river is reduced in summer period, a hard smell is formed and is sickening, a hazardous air for human health. On one side is sewer smell and on the other is waste thrown

into the river, who also stinks. From the all of this, it is a poisoned environment in which we cannot survive."

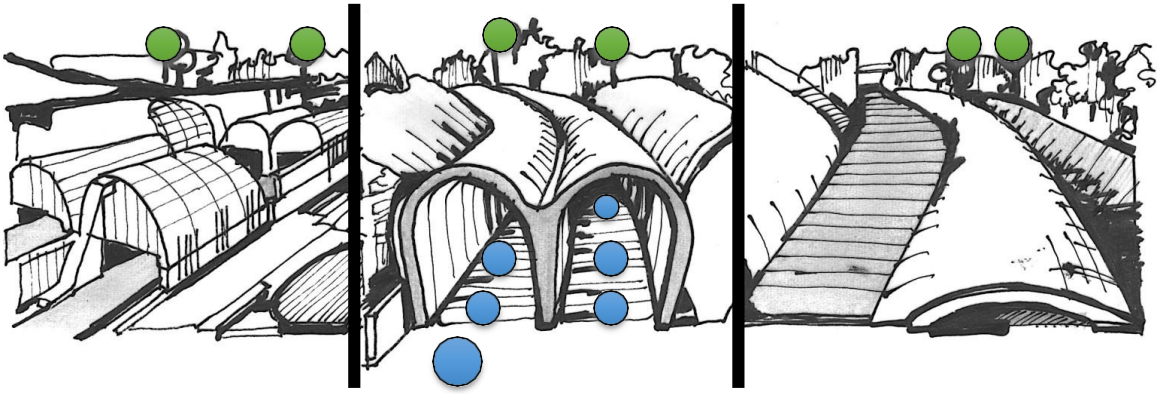


Figure 7. *Sequences of covering, inearth of river Prishtevka. [Source: Authors, 2016].*

In analogy, on same urban places where the water was in destitute, the necessity and philosophy was to bring water near settlements and cities, and certainly without inearth in concrete sarcophagus. indubitably the Prishtevka river, it is not even close in size and volume of the Thames or the Seine, however, implementing right environmental strategy to solve the real-life problems must encouraged, even if at first seem hopeless. It is in human nature to weighs towards better and more qualitative conditions of life, therefore it is a continuous process and aspiration towards to quality and prosperity, otherwise, the inability to cope with the problems lead to quick decisions and improvisation, to stagnation, and eventually depression prevail at the end [10].

DISCUSSION

Many authors, claim that the iteration is the key to understand the complexity of the process, Wolfram S. 2002, indicates that the iterative process, the application of simple rules, is at the heart of the mysterious ability of nature, in the production of complex phenomena and processes.

Iterations of "structure, function, and process in a given context would examine assumptions and properties of each element in its own right, then in relationship with other members of the set. Subsequent iterations would establish validity of the assumptions, then compatibilities and/or conflicts are identified and dissolved" [8].

Dissolving conflicts may require re-conceptualization of the variables involved, finally, successive iterations will produce an integrated design [8] [10].

The principle of iterative inquiry is reinforced by Singerian experimentalism: "There is no fundamental truth: realities first have to be assumed in order to be learned." [Singer, 1959], [8] [10].

Successive iterations would yield a greater understanding and more closely approximate to the nature of the whole. These iterations, then, are like a reverse zoom lens through which we see the system we are trying to understand as a working part of successively bigger and bigger pictures [8] [10].

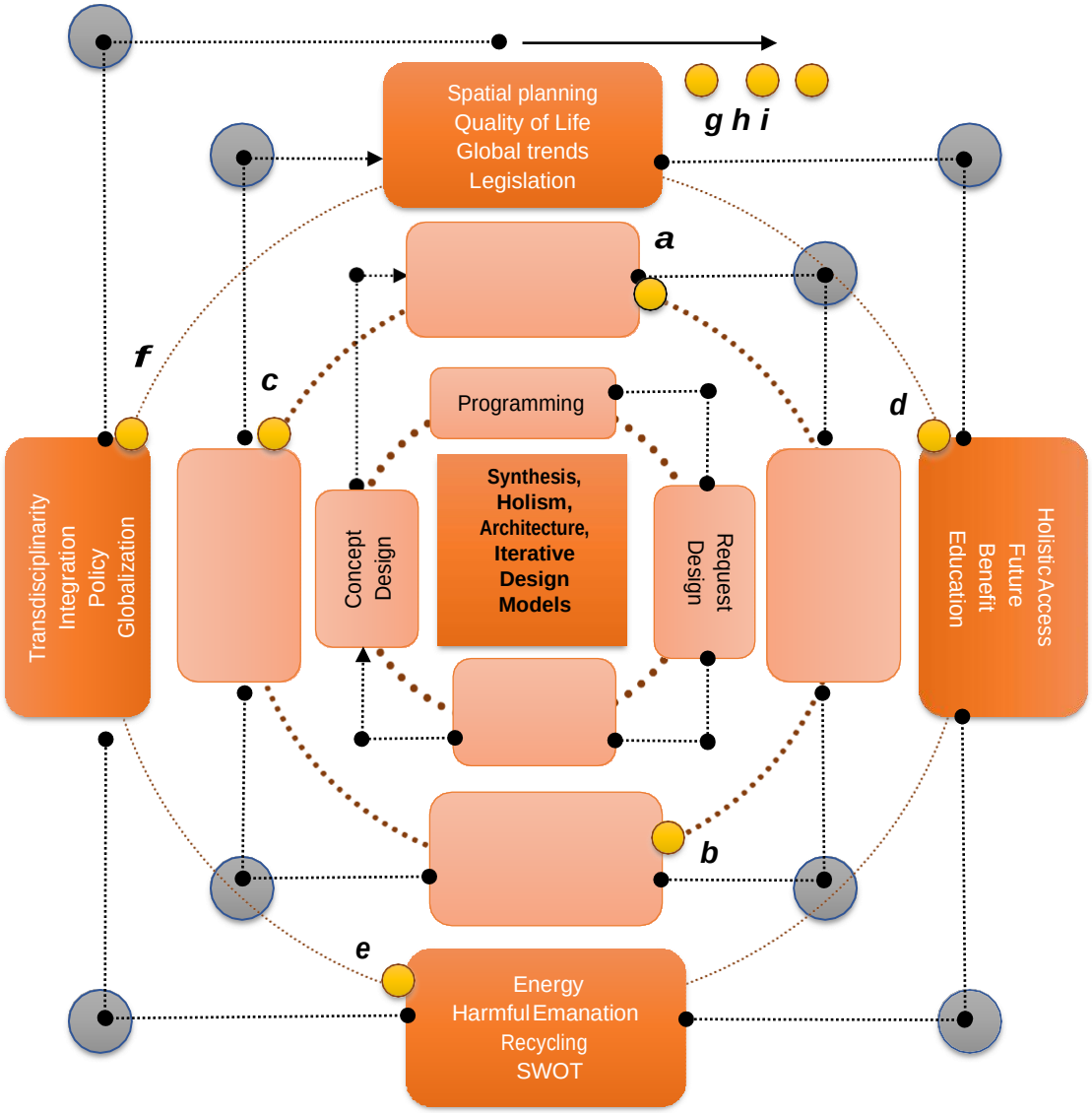


Figure 8. *Complexity of iterative model: Actions to exploit transdiciplinarity on architectural design processes. Variables from different unrelated disciplines, searching a prevalent goal and solution. [Source: Authors, 2016][8].*

A holistic approach to architecture, in accordance with these principles, iteration can be used as a working model in finding the best possible solution and a holistic implementation.

If we look at architectural design holistically, we need to understand the function, composition, form, system, altogether in requiring context [10].

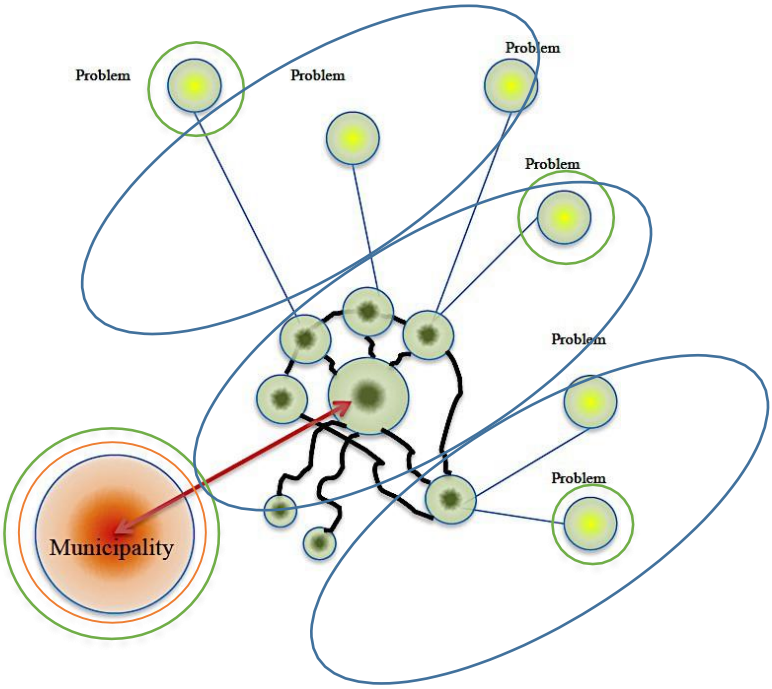


Figure 9. *The actual process of problem solving. [Source: Authors, 2016] [10].*

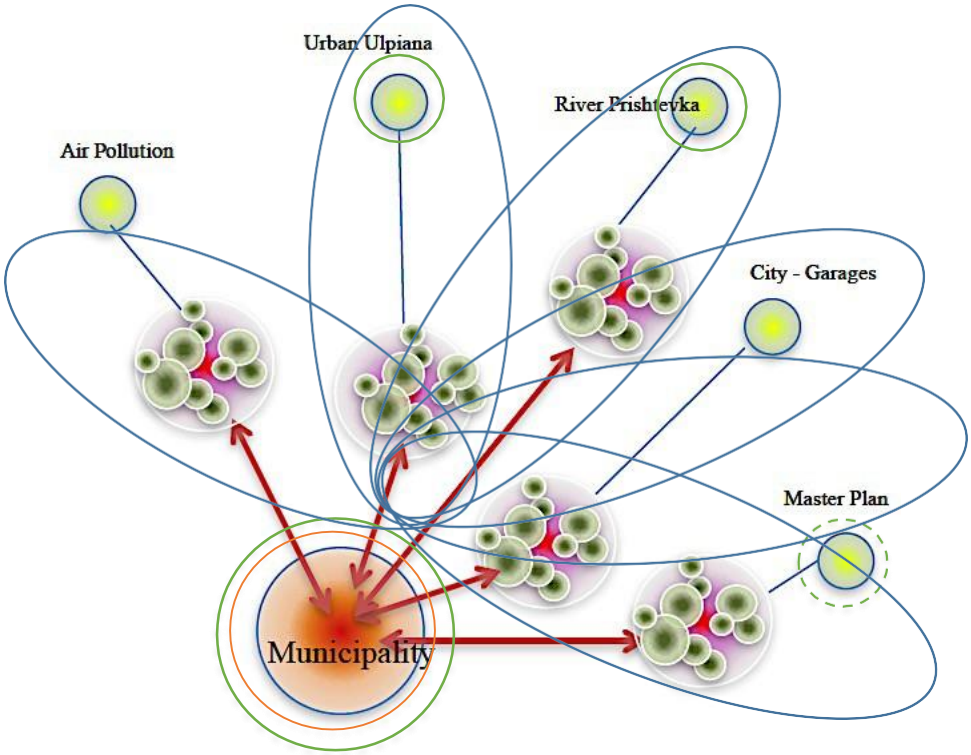


Figure 10. *The preferred process of problem solving. [Source: Authors, 2016] [10].*

The entire system and subsystem are included in solving unique problems, where participants cross the fictitious barriers, forming a specific and unique homogenized whole. Overcoming the usual and conventional boundaries of disciplines with the new findings that are not contained in any of the disciplines involved, finding unique architectural [10].

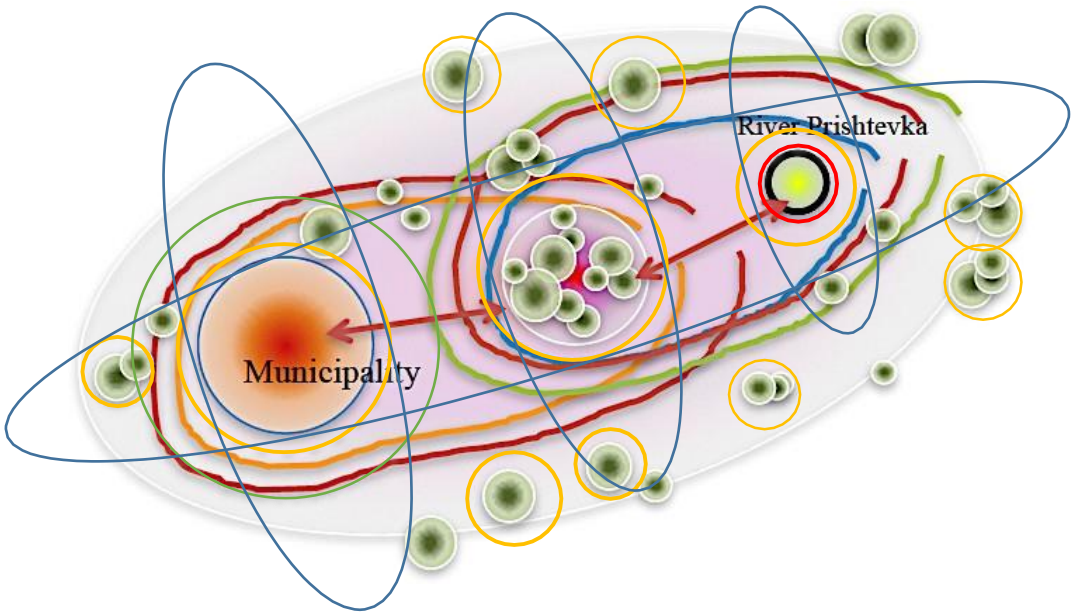


Figure 11. *The iterative evolutive processes, the preferred process of problem solving, systems and subsystems. Wholeness of function, composition, form, and system in requiring context. [Source: Authors, 2016] [10].*

CONCLUSIONS

Inadequate and not comprehensively solving the problem of a given task, not only drops the current problem, but also has a negative impact on future generations. Not adequately solving the specific problems of the time, results in mega problems for future generations. The current resolution of the situation with the standard members and same Commissions, formally fulfilling legal standards cannot solve the comprehensive and future challenges. Challenges, associated with the development of technology, life style, real issues and global world trends. Thus, one and the same permanent committee, the same strategy cannot respond to all specific problems faced by live city issues. Specific city problems will require specific and original solution. Hence, introduction a transdisciplinary strategy in resolving specific day to day problems allows the comprehensive features in regard to find optimal solution. The aim of this research was to accentuate the sensibility, and the necessity of taking the legal measures in introduction the establishment of specific

professional committees, to implement cited above design strategies, which will have the right of law of expertise recommendations to authorities in the municipalities.

REFERENCES

[1]. *7Group & Reed, B. (2009). The integrative design guide to green building. Wiley & Sons Ltd.*

[2]. *Hensel, M. (2013). Performance-Oriented Architecture. John Wiley & Sons Ltd.*

[3]. *Kull, K. (1998). On Semiosis, Umwelt, and Semiosphere. Semiotica, vol. 120 (3/4), 1998, pp. 299-310.*

[4]. *Bajçinovci, B. (2015). 3rd International Conference CICOP, BiH -The Importance of Place. Sarajevo. BiH.*

[5]. *Cronin, K. (2008). Transdiciplinary research and sustainability. MoRST.New Zealand. http://learningforsustainability.net/pubs/Transdisciplinary_Research_and_Sustainability.pdf. [Accesed: September, 2016].*

[6]. *Hadorn, H. G. et al. (2008). The Handbook of Transdisciplinary Research. Springer.*

[7]. *Tress, B; Gunther, R. & Fry, G. (2006). Defining concepts and the process of knowledge production in integrative research. Chapter 2 in Tress, B. et al, Landscape Research to Landscape Planning - aspects of integration, education and application. Wageningen. http://atlas.uniscape.eu/allegati/02_tress.pdf. [Accesed: September, 2016].*

[8]. *Gharajedaghi, J. (2006). Systems Thinking. Managing Chaos and Complexity. Elsevier.*

[9]. *Report, (2006). Cadastre of Kosovo Water Polluters. Kosovo.*

[10]. *Bajçinovci, B., Jerliu, F. (2016). Integrated Design as an Evolutive Transdisciplinary Strategy. European Journal of Technology and Design, Vol. 13, Is. 3, pp. 90-98, 2016. doi: 10.13187/ejtd.2016.13.90. Academic Publishing House Researcher. RF.*

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER IV

ARCHITECTURAL REFLECTION ON ITALO CALVINO'S INVISIBLE CITIES

Language: English

DOI: 10.17160/josha.4.1.261

BARD BAJÇINOVCI
KALTRINA THAÇI
BUJAR BAJÇINOVCI

2017

Architectural Reflection on Italo Calvino's Invisible Cities

Bard Bajçinovci [1], Kaltrina Thaçi [2], Bujar Bajçinovci [3*]

[1] "UBT" College, Faculty of Architecture, Prishtina, Kosovo. bb34218@ubt-uni.net
[2] Cultural Heritage without Borders, "CHWB", Kosovo. kaltrinathaci@gmail.com
[3] University of Prishtina, "UP", Faculty of Civil Engineering and Architecture, Kosovo.
bujar.bajcinovci@uni-pr.edu

ABSTRACT

Cities actually endure a considerable lack of space for much needed urban development. Moreover, nowadays contemporary architectural challenges are extensive and complex social issues. Furthermore, present challenges represent a fundamental city necessities, or a broad of society demands which we must take seriously into consideration, hence, we must make the necessary preparations for direct urban actions on fulfilling those issues from the best possible known urban strategies. Urban planning is a design process with a primary course to protect the environment, to manage urban infrastructure as a whole integrated system, and deliver the most appropriate style for living. In relation to sustainability and ecology, a qualitative urban design can significantly improve condition, and quality of life of urbanites. The study presented in this paper, has conceptually researched, a design model of high-rise structures with its proportions mainly, focussing imaginary on future urban planning structures. The study applied an empirical observation method through the arranged and combined structure models, strengthened with studied handmade drawings. The studied models were investigated mainly through literature review, and especially analysed "Invisible Cities" of Italo Calvino's prose poems, as a research inspiration. Hence, according to the conceptual conclusions of this study, we much prefer urban pattern where the urban expand of the cities, are more prose poem influenced as the visually presented by the design models of this study. Immediate and global issues which represent urban reflections, regarding to the: air pollution, built heritage, climate changes, lack of cities expanding space, and public health, requires holistic integrated environmental actions, moreover, actions that preserve ecological processes as an environmental healing strategies.

Keywords: Architecture, Invisible Cities, Urban planning, Modelling, Environment

INTRODUCTION

Cities actually endure a considerable lack of space for much needed urban development. Moreover, nowadays contemporary architectural challenges are extensive and complex social issues. Furthermore, present challenges represent a fundamental city necessities, or a broad of society demands which we must take seriously into consideration, hence, we must make the necessary preparations for direct urban actions on fulfilling those issues from the best possible known urban strategies. As Calvino stated: “When a man rides a long time through wild regions he feels the desire for a city.” [1], furthermore, cities are open integrated structures and wide entities with specific and convoluted metabolism that transform enormous amount of energy, generate huge amount of waste and originate a sum of distinct environmental circumstances, and urban oscillations [2].

However, new and future challenges will present a completely new life style issues, new trend concepts, and quite new original requirements of future generations. Thus, today we aim to the better and higher quality of life, better urban course of living, claiming future urban geometries and qualitative expansion for the cities. Nowadays, we develop a quite common spatial framework, primary aiming to achieve a better quality of day to day life, aiming qualitative conditions and wellbeing for urbanites. Therefore, future urban planning must scientifically determine: the areas, location of urban blocks, and architectural structures that can potentially, and probably fulfil future new style society needs. According to the Calvino, “The city ... consists of relationships between the measurements of its space and the events of its past” [1].

Hence, the Calvino argued on those prose poems: “there exists another Beersheba, where the city’s most elevated virtues and sentiments are poised, and that if the terrestrial Beersheba will take the celestial one as its model the two cities will become one [...] In Beersheba’s beliefs, there is an element of truth and one of error. It is true that the city is accompanied by two projections of itself, one celestial and one infernal; but the citizens are mistaken about their consistency” [1].

Urban planning is a design process with a primary course to protect the environment, to manage urban infrastructure as a whole integrated system, and deliver the most appropriate style for living. In relation to sustainability and ecology, a qualitative urban design can significantly improve condition, and quality of life of urbanites. The challenges will remain on implementation and in enforcement of these design legal instructions. Therefore, it is crucial to encourage every action, related to city functionality

which will minimize any faced functional, and ecological problem. With a new millennium began a new era, a globalisation era, which will present a totally contrasting and new living habits in the coming decades [2].

"Andria was built so artfully that its every street follows a planet's orbit, and the buildings and the places of community life repeat the order of the constellations and the position of the most luminous stars: [...] and thus the days on earth and the nights in the sky reflect each other" [1].

MATERIALS and METHODS

The study presented in this paper, has conceptually researched, a design model of high-rise city with its proportions mainly, imaginary focussing on future urban planning structures. The study applied an empirical observation method through the arranged and combined structure model, strengthened with studied handmade drawings. The studied models were investigated mainly through literature review, and especially analysed "Invisible Cities" of Italo Calvino's prose poems, as a research inspiration. Graphic studies contain handmade drawings of conceptual urban composition with the multi structural parts of the studied models, accenting to the structural interrelations of the form, position, proportions, and constructive abilities regarding to the city urban structures. Study concept was the interrelation of art, and architecture with modelling reflection and transformations, based on the further analysis of the 'fantastic cities' described on the Calvino's work, a variety of literature segments from which we concluded that described prose poems are different attributes of the same city. "With cities, it is as with dreams: everything imaginable can be dreamed, but even the most unexpected dream is a rebus that conceals a desire or, its reverse, a fear. Cities, like dreams, are made of desires and fears, even if the thread of their discourse is secret, their rules are absurd, their perspectives deceitful, and everything conceals something else" [1].

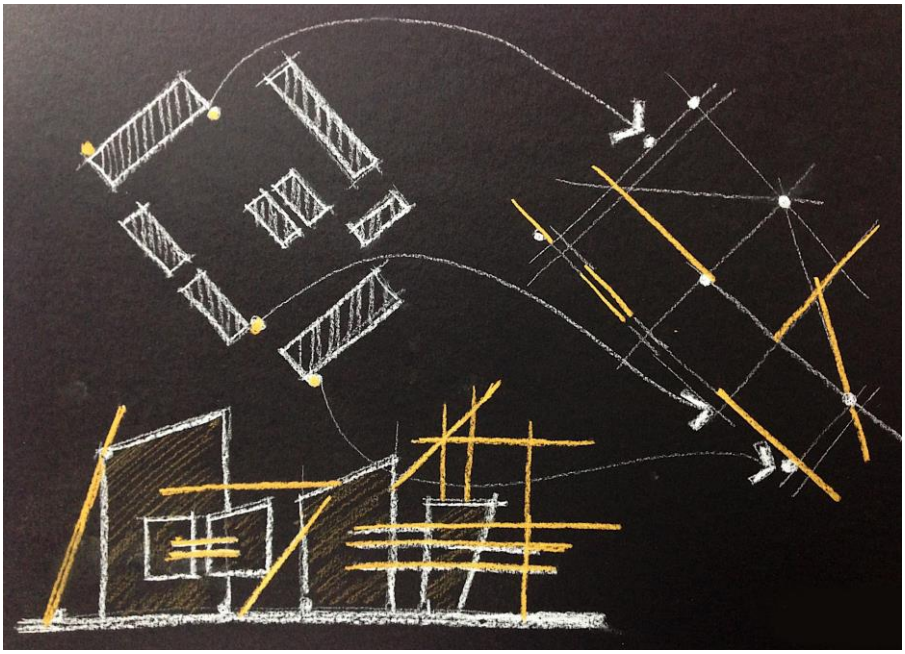


Figure 1. *Conceptual drawings, a holistic approach to the sum of all parts. Contemporary architecture reflection of Calvino's prose poems*.

Furthermore, Hawking in his work: *A brief history of time*, state: "In real time, the universe has a beginning and an end at singularities that form a boundary to space-time and at which the laws of science break down. But in imaginary time, there are no singularities or boundaries. So maybe what we call imaginary time is really more basic, and what we call real is just an idea that we invent to help us describe what we think the universe is like" [3].

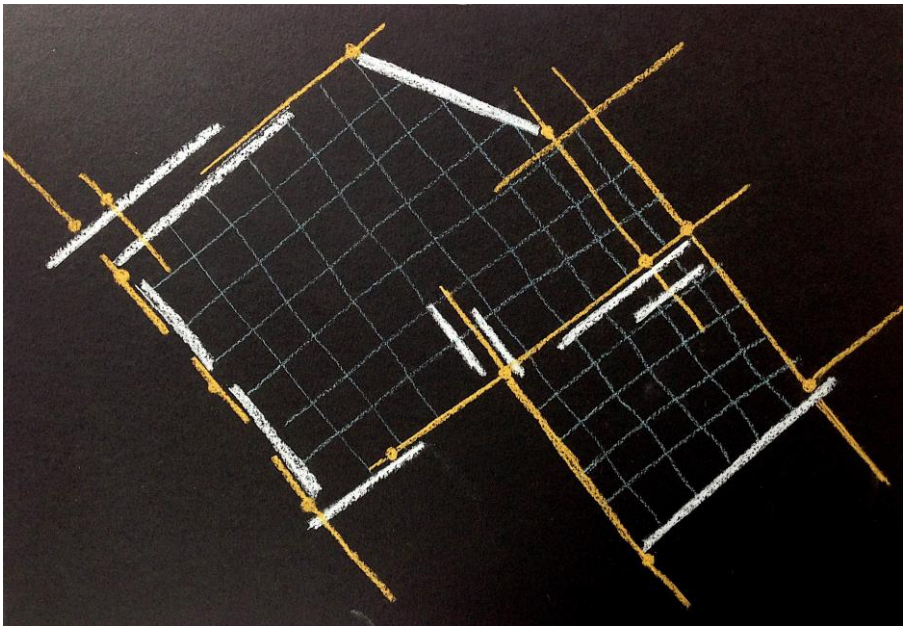


Figure 2. *Conceptual drawing, proportional grid of design. Structure and Construction.*

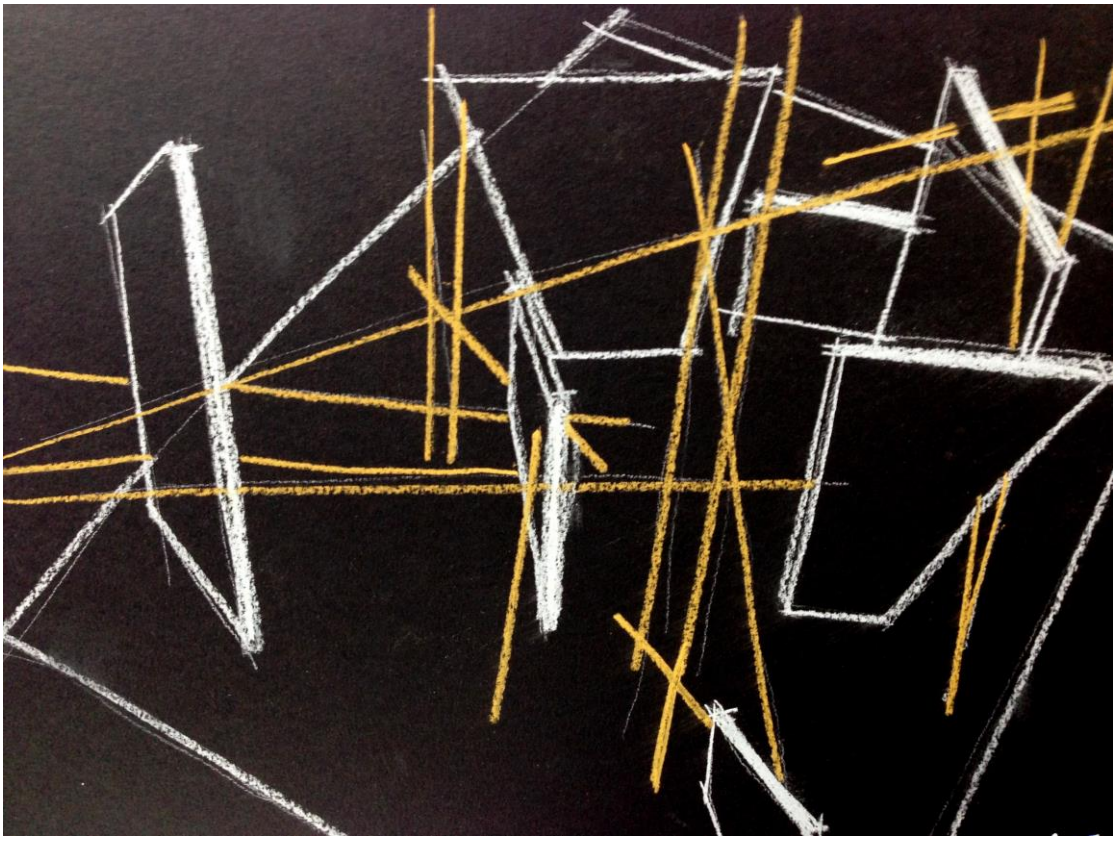


Figure 3. *Conceptual perspective - 3D modelling, interrelation of all structural parts.*

Figure 4. *Composition of urban city structure, proportions and construction.*

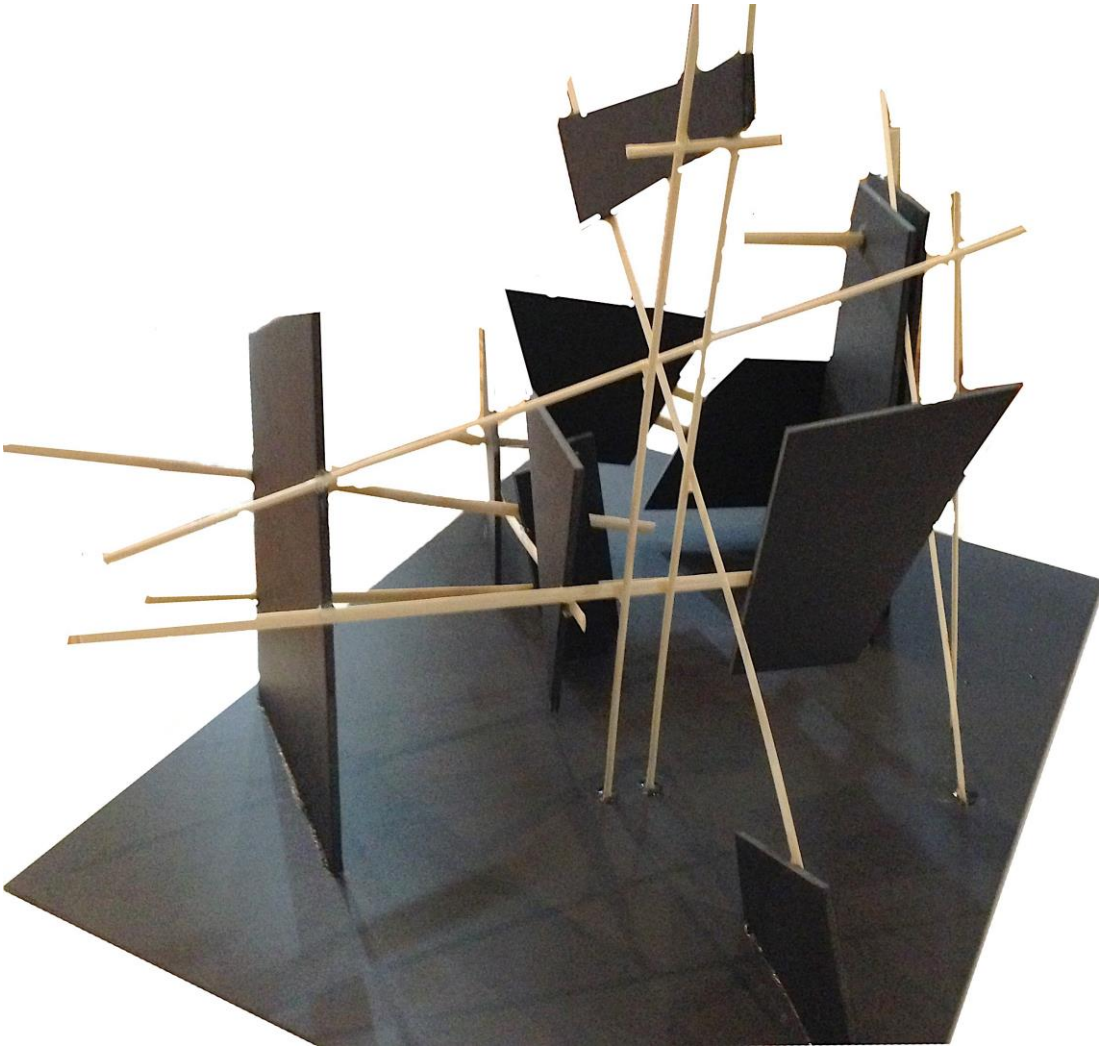


Figure 5. *3D model – Integrated urban city structure as whole system.*

DISCUSSION

Required expanding urban space is a global issue, furthermore, those urban advancement challenges can't be addressed only for the present time, moreover, futuristic environmental design concepts are crucially necessary, to preserve and accomplish a better living conditions, a better quality of life for future generations. In this paper, we argue that actual cities, or even better mega cities, must arise to be physically and mentally prepared for the challenges of the upcoming decades. As visually described in this paper, prose poems of Calvino's "Invisible Cities", can conceptually correspond to our research model as future contemporary artistic expression, interrelated with the high-rise structures, and urban development.

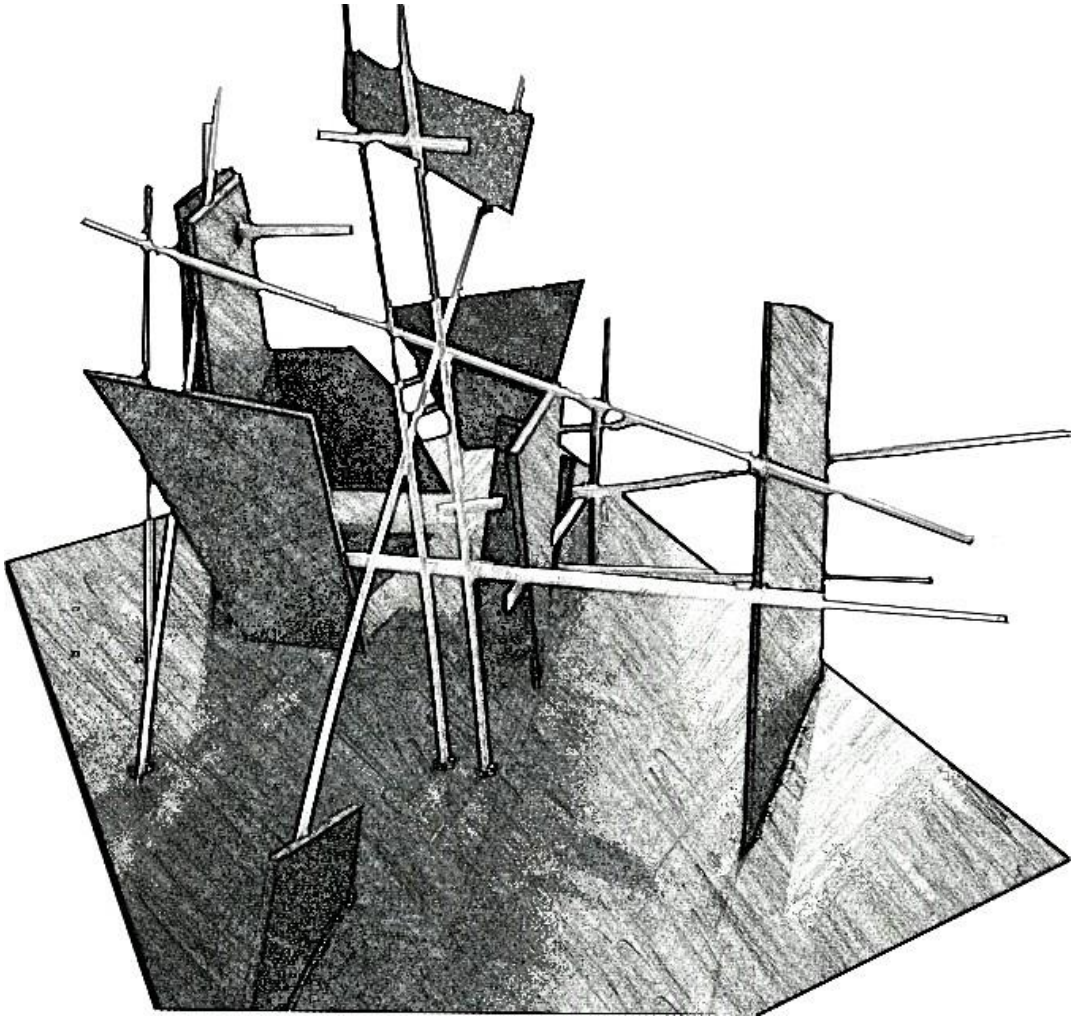


Figure 6. *Contemporary Artistic reflection on Calvino's Invisible Cities.*

In relation to the complexity of the prose poems of Calvino's "Invisible Cities", we argue that cities are huge, and complex ecosystems with a specific phenomenon directly reflected in our health, resources, economic, social and aesthetic fields. Furthermore, it can be conceptually considered that cities are locally and regionally specific [2], hence, we technically conclude that there a no cities which fulfil all the needs of its urbanites, moreover, there is no city which aren't talked as a model for the other city attributes, positively or negatively. Thus, there is always a need for expanding the capacities of the urban zones, or varieties, of expanding of whole spatial area as a future research model. Hence, when the impact of urban growth and demographic volumes shifts, those issues are very serious and demanding contemporary challenges for each fast-growing city. In this environmental situation, we must carefully further develop, and update the urban strategies regarding to the less known upcoming city challenges, which will directly influence the environment and public health of the next generations.

CONCLUSION

Humanity wellbeing is a greatest global concern, therefore, can't be addressed only locally, hence, local and international actions are irreplaceable and crucially necessary. The current urban state of the cities, requires specific municipal's responsibilities and activities, especially when the situation is directly linked to the quality of life, and present the potentially hazard for the public health. Hence, according to the conceptual conclusions of this study, we much prefer urban pattern where the urban expand of the cities, are more prose poem influenced as the visually presented by the design models of this research. Immediate and global issues which represent urban reflections, regarding to the: air pollution, built heritage, climate changes, lack of cities expanding space, and public health, requires holistic integrated environmental actions, furthermore, actions that preserve ecological processes as an environmental healing strategies.

REFERENCES

1. Calvino, I. *Invisible Cities*. Trans. William, W. Vintage Classics; New Ed. Edition, London. 1997.
2. Bajçinovci, B., Jerliu, F., *Challenges of Architectural Design in relation to Environment and Air Pollution. A Case study: Prishtina's first public parking garage*. Journal of Science, Humanities and Arts. Freiburg. Germany, 2016. doi: 10.17160/josha.3.7.254
3. Hawking, S. *A Brief History of Time*. Bantam Books, Paperback, 1996.

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER V

CHALLENGES OF ARCHITECTURAL DESIGN IN RELATION TO ENVIRONMENT AND AIR POLLUTION. A CASE STUDY: PRISHTINA'S FIRST PUBLIC PARKING GARAGE

Language: English

DOI: 10.17160/josha.3.7.254

BUJAR BAJÇINOVCI
FLORINA JERLIU

2016

Challenges of Architectural Design in relation to Environment and Air Pollution. A Case study: Prishtina's first public parking garage

Bujar Bajçinovci[1], Florina Jerliu[*1]

[1]University of Prishtina, Faculty of Civil Engineering and Architecture, Kosovo.
[*]Email: florina.jerliu@uni-pr.edu ; bujar.bajcinovci@uni-pr.edu

ABSTRACT

Cities are complex ecosystems with specific phenomenon directly reflected in our health, resources, economic, social and aesthetic fields. It can be conceptually considered that cities are locally and regionally specific. Urban planning is a process with a primary role to protect and use of environment, to manage spatial planning and urban infrastructure as a whole system. In relation to sustainability and implementation of multi-level law reinforcement, urban planning and design can significantly improve quality of life of their urbanites, particularly in relation to air pollution. Surely, long-term plans and strategies have been adopted in Kosovo, but the challenges will remain in implementation and in enforcement of these administrative instructions. Therefore, it is crucial to encourage every action, related to city functionality which will minimize air pollution. The new millennium began a crucial activity for the city of Prishtina in terms of demographic and socio-spatial phenomenon's. Prishtina is generally polluted due to its geomorphic position relative to the major polluters, power plants Kosovo A and B. In addition to that, the contamination is even bigger when the dominant winds prevail. The conceptual findings from this research proposes the necessity of careful driven urban solutions, regarding to the location and position of architectural structures which are not necessarily favourable to the urban, economic and health objectives.

Keywords: Prishtina, Architecture, Urban planning, Air pollution, Environment, PMxx.

INTRODUCTION

Cities are complex ecosystems with specific phenomenon's directly reflected in our health, natural resources, economic, social and aesthetic fields. They are open integrated systems and huge organisms with specific and complex metabolism that transform vast amount of energy, generate huge amount of waste and emanate a number of specific environmental phenomenon's and activities. However, it can be conceptually considered that cities are locally and regionally specific, and therefore the specific environmental emanations are certain attributes of each city. Each ecosystem requires a structured and functional activity of its constituent subsystems. Fast growing cities have their own specific emergency needs and also completely new concepts and original challenges. Thus when fast growing cities

face these challenges, they also face immediate problems, which have to be solved in order to function normally. New challenges should stimulate new research, directed towards the exploitation of all resources, in order to provide a better and higher quality of life. Urban geometry and expansion of city development presents a spatial framework, aiming to achieve a better quality of life for their urbanites, with primary features that affect air quality and health wellbeing. Therefore, urban planning determines the areas, location of urban blocks and architectural structures that can potentially emanate and be air pollutants. According to World Health Organisation, Europe, “The epidemiological and toxicological evidence on the effects of transport related air pollution on health has increased substantially in recent decades. Although this includes epidemiological and toxicological evidence, it is only a fraction of the total evidence on the effects on health of urban air pollution. A review of this evidence indicates that transport related air pollution contributes to an increased risk of death, particularly from cardiopulmonary causes. It increases the risk of respiratory symptoms. “[1].

"Outdoor concentrations of traffic-related air pollutants (nitrogen dioxide $PM_{2.5}$, particles with a 50% cut-off aerodynamic diameter of 2.5 mm and soot) were assigned to birthplace home addresses with a land-use regression model. They were linked by logistic regression to questionnaire data on doctor-diagnosed asthma, bronchitis, influenza and eczema and to self-reported wheeze, dry night-time cough, ear/nose/throat infections and skin rash…Traffic-related pollution was associated with respiratory infections and some measures of asthma and allergy during the first 4 yrs. of life."[2].

Also, in Kosovo, there was study research in the field of air pollution and efficiency of energy, related in emissions of CO_2 and Gross Domestic Product, "Kosovo as one of the richest countries with lignite in Europe with 95–97% of the electric power production from lignite and with 90% of vehicles over 10 years old, represents one of the regions with the greatest CO_2 output per GDP per unit of economic activity, as well as one of the countries with the most polluted atmosphere in Europe. In this relation we must consider the fact that Kosovo is a developing country" [3]. The objective of this paper is to address three dimensions that relate to the Urban Planning in relation to Air Quality, and health impact according to the actual location and distance of open public parking garage to the Clinical Hospital Center campus:

- Improving the quality of the urban environment and land use.
- The impact of urban growth on demographic changes and traffic problems in the city of Prishtina.
- The need for parking spaces and public parking garages.

While air pollution is obviously a global environmental issue, there is a strong will of the community for sustainable awareness, aiming to live healthier. Municipality of Prishtina have a potential for urban environmental planning, and civil society actions further strengthen this objective permanently.

Hence: *Does traffic issue, the need for parking spaces and pattern of future public parking garages of the city of Prishtina, can be worked out with an urban model like, "Public parking garage at Clinical Hospital Centre?*

MATERIALS and METHODS

The study presented in this paper investigated the Ulpiana neighbourhood of Prishtina City, focussing on Urban Planning issues, traffic problems and air pollution. The research methods consist of empirical observation through field, with an accent to the structure of the public parking garage at Clinical Hospital Centre. In order to receive a clearer data and information's, research is made within spatial regulation of urban block, shapes of architectural models, focusing on the bioclimatic features regarding to the morphology of the city of Prishtina, urban planning, environmental pollution, and issues of public health. Case study were investigated through literature review, urban city documentations and drawings developed, "in situ".

Graphic documentation contains photos, handmade drawings of the urban composition and Upliana neighbourhood, accenting to architectural structure and position of the public parking garage at Clinical Hospital Centre, regarding to the city urban composition. The data collected include maps, 3D composition of urban structure, bioclimatic features and attributes of space, dimensions of location and traffic activities.

The additional data for this paper is based on the analysis of the Municipality of Prishtina archives, the Kosovo Institute of Public Health, and the Hydro Meteorological Institute of Kosovo. Measurements are based on the Hydro Meteorological Institute of Kosovo [6], Ministry of Environment and Spatial Planning, monthly report on air quality monitoring [7], Environmental Protection Agency (US), AirNow Department of State [8].

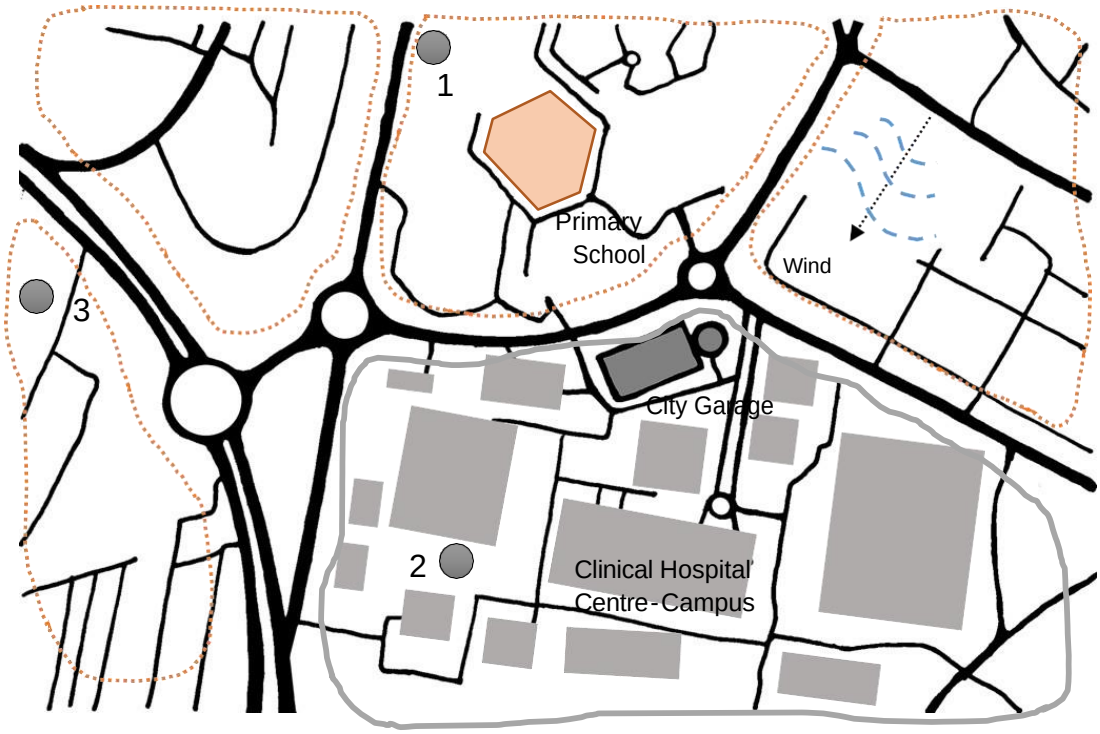


Figure 1. City of Prishtina. Clinical Hospital Centre-Campus. Location of public parking garage, and measurement points of PM_{xx}: 1, 2, 3. [Source: Authors, 2016]

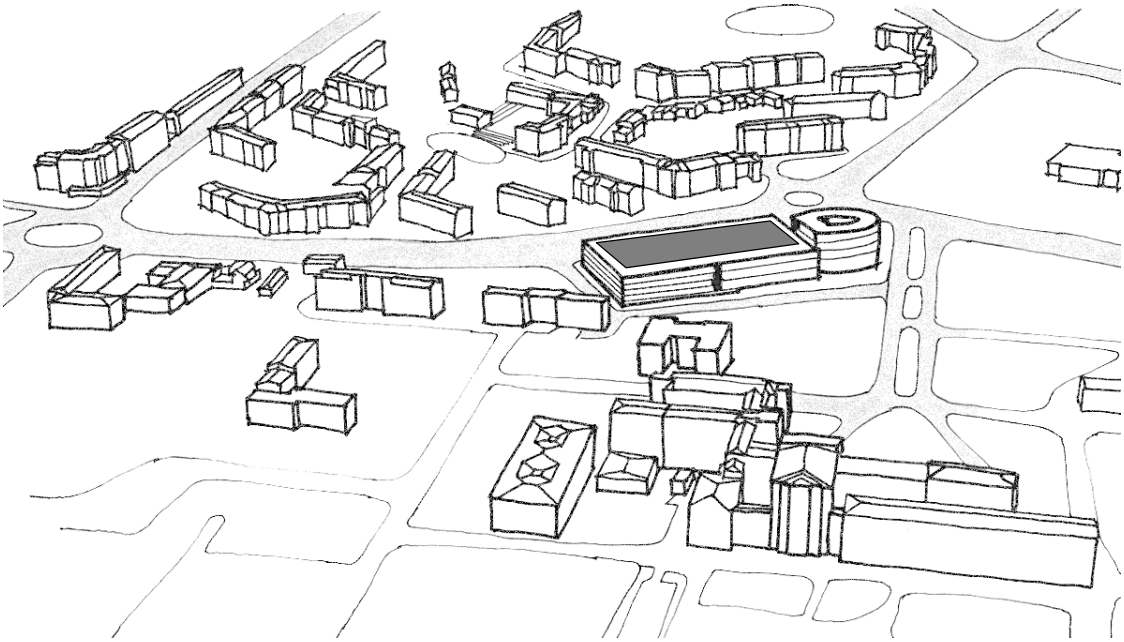


Figure 2. Composition of Urban Structure. Clinical Hospital Centre-Campus, Ulpiana neighbourhood and location of the public parking garage. [Source: Authors, 2016]

Table 1. Results of $PM_{2.5}$, ($\mu g/m^3$), measuring Point 2, for 2010. [6]

$PM_{2.5}$	Max.	Min.
November	148.87	26.02
December	110.2	13.73
January	144.74	11.38
February	110.3	10.23
March	46.61	18.93

Table 2. Results of PM_{10}, ($\mu g/m^3$), measuring Point 3, for 2010. [6]

PM_{10}	Max.	Min.
September	83.1	24.1
October	128.2	10.6
November	278.6	37.97
December	141.79	16.96
January	155.90	14.07
February	125.98	16.05
March	73.05	24.19

Table 3. Results of PM_{10}, ($\mu g/m^3$), average values per month, for 2015. [7]

Month	Jan.	Feb.	Mar.	Apr.	May	Jun	July	Aug.	Sept.	Octo.	Nov.	Dec.	Average 2015
Point 3	74.9	45.3	31.4	31.2	27.8	23.3	24.7	26.9	25.3	30.6	62.6	79.0	40.27
Rilindja	51.7	54.4	38.9	26.9	24.3	20.8	35.0	37.1	32.9	36.2	65.1	83.2	60.58

Table 4. Results of $PM_{2.5}$, ($\mu g/m^3$), average values per month, for 2015. [7]

Month	Jan.	Feb.	Mar.	Apr.	May	Jun	July	Aug.	Sept.	Octo.	Nov.	Dec.	Average 2015
Point 3	70.15	34	21.81	15.42	11.49	10.79	11.4	12.0	25.3	30.6	47.2	72.0	30.18
Rilindja	44.62	34.3	25.66	16.86	9.63	10.23	13.14	22.55	14.58	21.86	54.14	68.42	27.99

According to the data results from Table 1, we can state that maximal values in measuring point 2, was in November 2010, 148.87 $\mu g/m^3$, for $PM_{2.5}$, and from Table 2, we can also observe that the maximal values in measuring point 3 was also in November 2010, 278.6 $\mu g/m^3$, for PM_{10}.

Therefore, air quality in those areas, and measuring points was not satisfactory. Air pollution issues in those areas are high concentrations of particulate matter, and values recorded at this period was exceeding the limits and standards according to the EU. In addition, comparing with the new data from Table 3, and Table 4 we can clearly state that the average values are moderate in 2015.

Table 5. Results of $PM_{2.5}$, AQI maximal values per month, Prishtina. Adapted [8]

Year	Month	Day	Hour	AQI
2016	March	28	0	145
2016	April	3	21	82
2016	May	1	7	78
2016	June	20	22	70
2016	July	25	7	70
2016	August	1	2	59

Table 6. Results of $PM_{2.5}$, AQI maximal values - last week of March, Prishtina. [8]

Year	Month	Day	Hour	AQI
2016	Mars	31	22	60
2016	Mars	30	0	75
2016	Mars	29	0	81
2016	Mars	28	0	145
2016	Mars	27	23	144
2016	Mars	26	3	120
2016	Mars	25	23	114
2016	Mars	24	23	76

The AQI is an index for reporting daily air quality. Environmental Protection Agency, (EPA), US, calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution, carbon monoxide, sulphur dioxide, and nitrogen dioxide. [8]

Table 7. Values of AQI, the levels of health concern. Adapted [8]

Air Quality Index Levels of Health Concern	Numerical Value AQI	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution pose little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.

Automobiles, vans, trucks, tractors and buses in Kosovo have raised their quote, approximately 342,000 vehicles, registered in 2015 or 18:46% more than in 2014, [9]. "These vehicles burn gasoline or diesel fuel in their engines each travelling an average of 16,000 km/year, at an average fuel economy of 12 l/100 km. This transportation represents a consumption of about 0.5 million tonnes oil/year…Annual Kosovo carbon dioxide amounts, produced from motor vehicle use is estimated at around 0.8 million tonnes or about 15 % of total carbon dioxide (5.3 Mt) production in 2003 (both from transport and electricity generation). Motor vehicle greenhouse gas and air pollution emissions is projected to grow up in Kosovo as a result of the increasing number of vehicles"[10]. Therefore, traffic is among the main polluters of air in Prishtina, whereas capital of Kosovo represents foremost this phenomenon and most valued for investigation of urban planning in relation of air pollution. Hence it is expected that adopted measures according to Strategy and Action Plan on Air Quality from Ministry of Environment and Spatial Planning, Department of Environment, in nomenclature T1.3, to carry out some positive impact, "Restricted access to polluted urban areas for vehicles with high pollution … Determination of space in the city center areas with high pollution from traffic, where access is prohibited"[11].

Thus, according to above Strategy and Action Plan, assessment of the costs should be considered that the implementation of measures has its own dynamics, therefore, the implementation of some measures may be extended for a period of 10 years.

"Air pollution is one of the most serious environmental risks. The most recent Global Burden of Disease (GBD) study estimates that air pollution, indoor and outdoor combined, was the cause of 5.5 million premature deaths globally in 2013"[12]. According to the findings of the OECD 2016 for the consequences of outdoor air pollution, air pollution already affects human health, and these impacts are projected to become much more severe in the coming decades. Hence, this is a crucial time and duty to make concrete actions on sensibility and global awareness of air pollution increases in the coming decades. "In absence of additional and more stringent policies, increasing economic activity and energy demand will lead to a significant increase in global emissions of air pollutants, according to projections using the OECD's ENV-Linkages model"[12], findings with crucial key issues:

- "The projected increase in concentrations of $PM_{2.5}$ and ozone will in turn lead to substantial effects on the economy ... global air pollution-related healthcare costs are projected to increase from USD 21 billion (using constant 2010 USD and PPP exchange rates) in 2015 to USD 176 billion 2005 in 2060. By 2060, the annual number of lost working days, which affect labour productivity, are projected to reach 3.7 billion (currently around 1.2 billion) at the global level."[12].
- "The most dangerous consequences from outdoor air pollution are related to the number of premature deaths. This report projects an increase in the number of premature deaths due to outdoor air pollution from approximately 3 million people in 2010, in line with the latest Global Burden of Disease estimates, to 6-9 million annually in 2060. A large number of deaths occur in densely populated regions with high concentrations of $PM_{2.5}$"[12].

Therefore, according to this findings, air pollution will cause six to nine million premature deaths per year by 2060, compared with three million in 2010. With this prediction at maximal value of nine million, this means, that one person will perish every three to four seconds annually, related to the diagnostic of premature deaths.

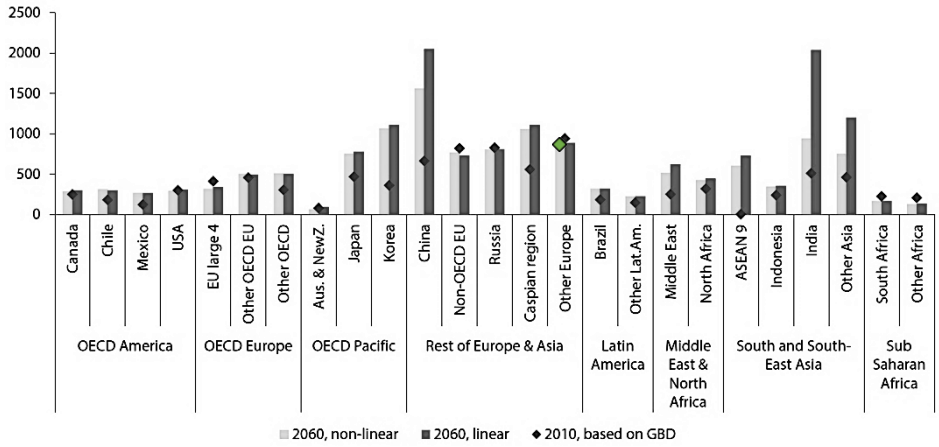


Figure 3. Premature deaths from exposure to particulate matter and ozone. Projected number of deaths caused by outdoor air pollution per year per million people. [12].

Table 8. Measured values for PM_{xx} in downtown, Rilindja, Prishtina. Adapted [13].

Month PM_{10}	The maximum daily average ($\mu g/m^3$)	Date of maximum value	Month $PM_{2.5}$	The maximum amount for an hour ($\mu g/m^3$)	Date of maximum value
January	403.51	13.01.2015	January	317.77	14.01.2015
February	109	20.02.2015	February	189.2	19.02.2015
March	77.86	21.03.2015	March	54.71	15.03.2015
April	66.58	09.04.2015	April	110	10.04.2015
May	61.45	30.05.2015	May	50.64	15.05.2015
June	61	30.06.2015	June	53.0	10.06.2015
July	44.8	05.07.2015	July	20.3	28.07.2015
August	48.9	12.08.2015	August	22.7	03.08.2015
September	51.6	18.12.2015	September	51.6	18.9.2015
October	82.1	26.10.2015	October	82.	26.10.2015
November	142.0	05.12.2015	November	102.3	08.11.2015
December	158.8	15.12.2015	December	159.0	15.12.2015

According to directive for air quality (2008/50/EC) during a year are allowed 35 days to exceed the standard values for PM_{10}. Based on this study [13], there was 74 days which exceeded the values of PM_{10}, indicated the amount of pollution from particulate matter, with greatest excesses months: January, February, November and December. Assessment of $PM_{2.5}$ concentrations in compliance with air quality standards are based on the annual

value. In analysing for dust pollution, standard values have had been exceeded, where allowed rate is 25 µg/m^3 during the year, with greatest excesses months: January, February, November and December, [13].

The fast growing Prishtina – Case Study

Spatial development of Pristina, in the past has not been the objective of research in professional and scientific programme. Chronologically, it's important to evident the actions of spatial arrangements of urban planning, city of Prishtina;

- Pristina development plan, (1937). Included the area of 192.72 ha and was programed for population of 16,000 inhabitants.
- The second development plan, (1948). No trace of the existence of this documentation, nor to its basic parameters.
- General urban plan, (1953). The timeline of spatial plan was up to 1980, and the town was planned for 50,000 inhabitants in the area of 950 ha.
- Directive plan for traffic and dedication of city zones, (1967). With action plan for 100,000 inhabitants and 1950 ha of area examined
- In 1969, the Directive plan for traffic and dedication of city zones it was replaced by General urban plan of Prishtina.
- The overall urban plan and spatial development plan in 1988 was approved for the timeline to year 2000, considering for 225,000 inhabitants, area of 4335 ha [14].

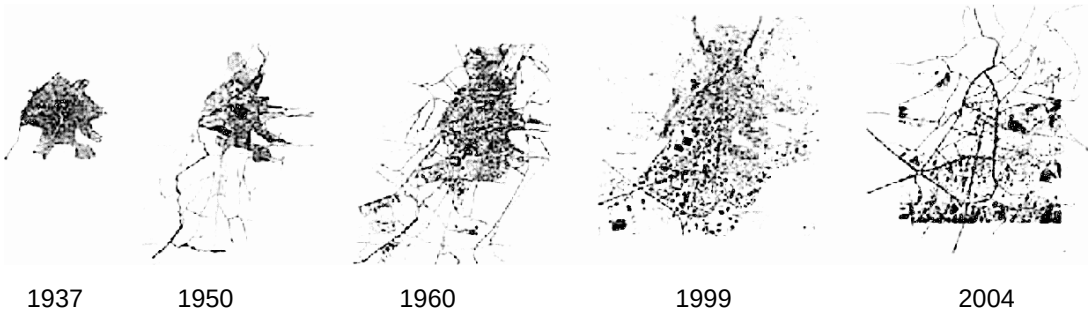


Figure 4. Historical development of the city of Prishtina [15].

During 2005, the Municipality of Pristina have concluded that it is necessary to build a public parking garage in the city, containing approximately 1,000 parking spaces. This decision was an old idea, with its genesis from 80's-90's, on attempt to solve the problem of the traffic, for the city had. However, the last two decades, starting from the first idea to build a public parking garage to the current situation, and the implementation of the

project, have brought a variety of phenomenon's, primarily demographic, social, environmental and political. The socio-demographic and spatial boom in 2000, the process of uncontrolled growth of the city, is a result and characteristics of major cities after major events, like war for example. "According to the estimate of the OSCE (Extrapolated level growth of former population in Kosovo 2%/yr.), city of Prishtina in 2000 had 545,477 inhabitants"[14]. Thus, there are persistent institutional activities and municipal actions on the strategic development plans for the city. The new millennium began with crucial activities for Pristina, in terms of demographic and spatial development. The city is experiencing a multidimensional change in all possible fields. Being the capital city of Kosovo, in a very short time the population of Prishtina has nearly doubled, adding every day approximately another 30% of the population coming here for work, or possible settlement and migration. Prishtina has never in its history had a tramcar or other similar affordable public transport.

The city before 2000, had reached the maximal growth of population in 1991, approximately 200,000 inhabitants, according to registration. The traffic worked quite well with the existing infrastructure, and was not such a big problem for the community until the number of motor vehicles were increased at the beginning of the new millennium. Actually number of vehicles registered in Prishtina are approximately 50.965, [16].

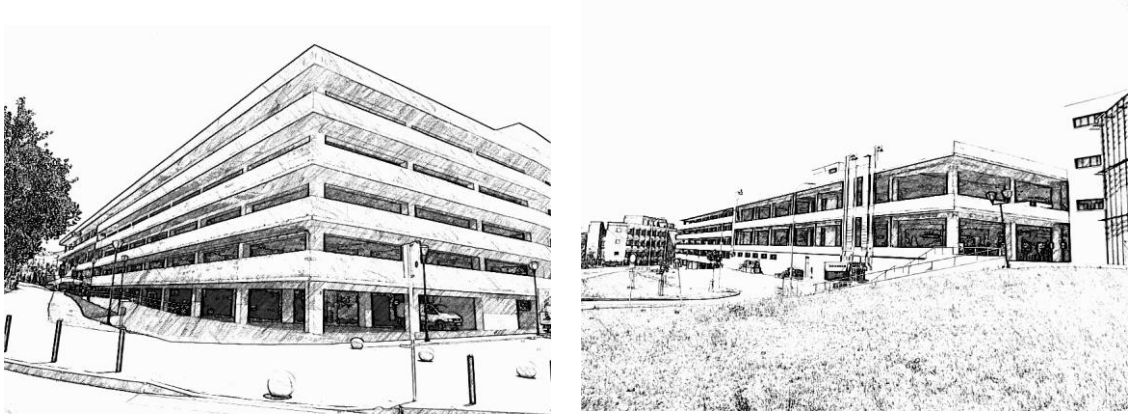


Figure 5. First City Public Parking Garage, Prishtina. [Source: Authors, 2016]

The planning department of the municipality of Prishtina came up with different ideas and concepts in terms of resolving or addressing traffic problem, by converting existing roads into one-way drive. However, with insufficient funding the idea became part of the system

"vicious circle". The city of Prishtina always lacked parking places, as such parking garages were more than needed. Moreover, there were too many conceptual challenges, and in 2005 the Department of Urban Planning and Construction of the Municipality of Prishtina, decided to bid an open public parking garage, located near the campus of the Clinical Hospital Centre of Prishtina.

RESULTS and DISCUSSION

In trend of community services, it is normally expected to have optimal reserved parking spaces for patients and visitors at the hospital centre. However, this space is dimensionally restricted and generally parking time is limited and very expensive. Regarding to the urban composition structures near the CHCP, a difficult urban environment and land use situation has been created. In comparison to other cities of Kosovo, Prishtina does not have a city hospital. Because of the specific social, cultural and health situations, the Clinical Hospital Centre of Prishtina is the only institution offering secondary and tertiary medical care.

Table 9. City of Prishtina, services of CHCP during 2014. Adapted [17].

CHCP	Service Days	Patients in Clinic	Diagnostic Visits	Special Services
Gynecology Clinic	83,099	34,146	5,483	2,139
Infectious Clinic	34,162	3,074	1,964	1,214
Pulmonology Clinic	21,590	1,446	634	-
Cardiology Clinic	17,260	3,260	19,886	61,461
Pediatric Clinic	59,660	6,666	-	8,235
Neonatology Clinic	47,154	1,148	3,821	-
Children Surgery Clinic	4,754	1,614	-	2,424

In Table 9 are presented data for primarily health vulnerable populations: Infants, children, pregnant women, patients with lung problems, patients with cardiac problems and hazard from possible infectious disease. Hence, in this context "Motor vehicles emit at least 40 different air pollutants, usually concentrated within 100 – 500 metres of freeways and busy roadways, and research points to a need for increased awareness of the public health concerns associated with roadway proximity in creating land-use policy, building design and environmental/air quality management programs"[18]. Carbon monoxide is an atmospheric pollutant, environmentally this pollutant is produced on the incomplete

combustion of carbon containing fuel, such as gasoline. Largest source of carbon monoxide are vehicle emissions. Carbon monoxide have specific features to be associated with blood hemoglobin and thus to form Carboxyhemoglobin, and this is a stable complex of carbon monoxide and hemoglobin which prevents the transport of oxygen in the body? "Hemoglobin binds with carbon monoxide 200–250 times more readily than with oxygen"[19].

"From the data provided by the Ministry of Internal Affairs, in 2014, in Kosovo were a total of 286.505 vehicles registered. Of them, only 111.855 are produced from 2000 and onwards, the others, or 61% of vehicles are produced between 1942-1999. In general, it appears that the average age of the registered vehicles in 2014 was 18.1 years"[20]. According to the conferred data it can be concluded that Prishtina is polluted regarding the suspended fine particles PM_{10} - $PM_{2.5}$. In general, Prishtina is heavily polluted due to its geomorphic position relative to the major polluters, power plants Kosovo A and B. At the same time, pollution was supported by heavy traffic, and prevailing winds which increase and distribute more this pollution in certain directions. However, according to this study, chosen location for building first public parking garage even more contributes with air pollution to campus of Clinical Hospital Centre in Prishtina. Therefore, when CHCP lacks a real space for the evolutive expansion of medical services. When there was a need for expanding the capacities of the campus, such as the cardiovascular clinic, there was a lack of space. The impact of urban growth on demographic changes and traffic problems in the city of Prishtina are very serious. In this environmental situation, composition of urban structure on campus of Clinical Hospital Centre are wide open and all the actual buildings are naturally ventilated thru old windows. Thus, every single patient room must be naturally ventilated, especially those in mentioned above clinics in all seasons, heavily in summer because of heat. Regarding to the wind direction and near distance of parking garage it is expected that air pollution have to affect more campus and clinics buildings. According to the study "the number of high-traffic roads within a 250-m radius of a location, the presence of a major road within a distance of 50 m, the density of buildings within a 300-m radius and an indicator for the region of the country were used in the model … The finding of a positive association between air pollution and objectively measured sensitization to common allergens, supports the findings of subjectively reported symptoms"[2]. "In Oakland California, school children at schools in proximity to high volume roadways experienced more asthma and bronchitis symptoms. In Southern California, School

Children living within 75 m of a major road was associated with an increased risk of lifetime asthma, prevalent asthma, and wheeze. In 12 southern California communities, children who lived with 500 meters of a freeway had reduced growth in lung capacity relate to those living greater than 1500 from the freeway. In a study of German adults, residence within 200 meters of a major road predicted coronary artery calcification. Residence within 150 meters of a major road predicted manifest coronary heart disease"[21]. Clinical Hospital Centre of Pristina every annual year had nearly half a million of patient treatment days. However, the average of occupied beds annually is more than 1000. Based on this data it can be concluded without doubt that the air quality will be even more endangered for the patients, staff and visitors in the near future. The need for parking spaces and public parking garages in Prishtina are very immediate, moreover, the sustainable urban and architectural design is facing major challenges as a result of many contemporary factors: heavy traffic, air pollution, life style, economy and the trend of developed technology. On the other hand, Kosovo is also participating in global trends, a process by which regional economies, societies and cultures are integrated through a global network of political ideas, communication, transport and market sharing. According to the data from the Kosovo police, "Pristina with the current infrastructure cannot be withstood a flow of 120,000 vehicles within 24 hours, especially in the hours when the population goes and comes from work, school and other needs such as hospitals, various institutions"[22], emphasizing that 80% of them are old and thus burn fuels in an ineffective way. It is evident that these moving vehicles need a parking place! Actually, the planning department of the municipality of Prishtina are on actions to reform the public traffic, moreover those actions go further to find a solution of parking places according to the pattern of the City Zagreb. According to the Strategy and Action Plan on Air Quality, sponsored by Ministry of Environment and Spatial Planning, Department of Environment, in Measures for reduction of air pollution from transport, in section T3.1 "Improving the legal framework of planning, seeking an urban transport plan for the largest cities in Kosovo Administrative capacity building at municipal level to ensure that the demands for motor traffic is minimized during the planning of new buildings, commercial buildings, commercial facilities"[11], with a high priority and key responsible actors: Municipality of Prishtina, MESP and MI. There was a modest specific actions, especially after approving this action plan, real challenges were and actually are, implementing those measures. Hence, regarding to this case study, there was no reconsideration even to change the architectural function of public parking garage. Rapid continuing to build this structure are seen in 2014, after a considerate

timeline pause, persisting to accept that time and health awareness are changed locally, and globally. Air pollution is a global issue, therefore, can't be addressed only locally, moreover local actions are irreplaceable and crucially necessary, resulting to make a better living, a better quality of life and healthier communities. In this paper we argue that the chosen location for public parking garage may not be the most fruitful approach to urban design.

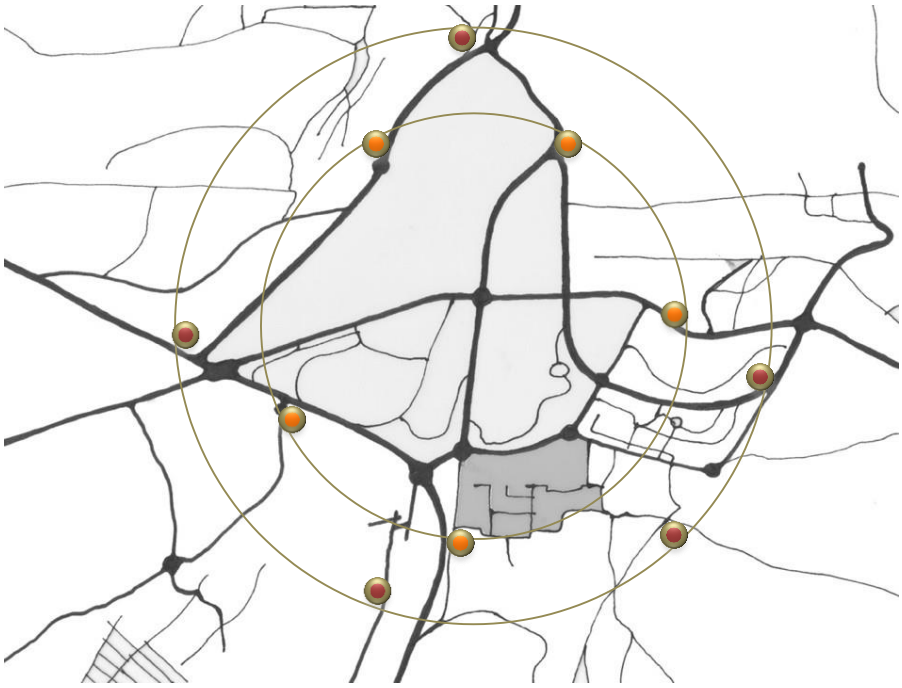


Figure 6. Preferred urban concept, parking garages located in primary and secondary urban ring. [Source: Authors, 2016]

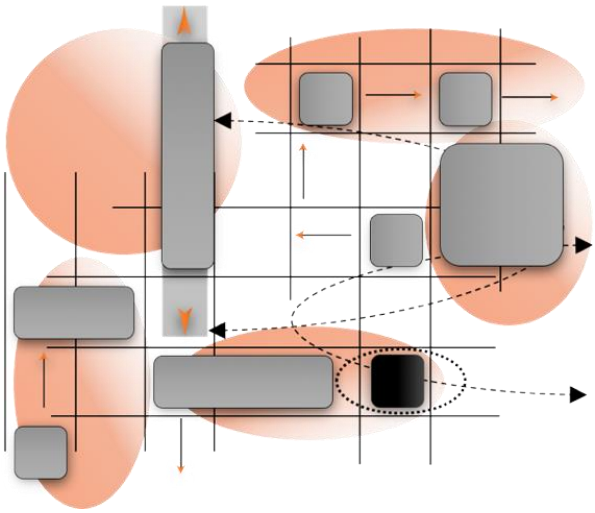


Figure 7. Public parking garage to serve many urban blocks. [Source: Authors, 2016]

As we can see in Figure 6, there is a conceptual urban strategy to offer a variety of public parking garages, instead only one and big architectural structure, also there is need that those type of buildings blend in within an urban composition, preferably incorporated or isolated with a cultivated vegetation. As from urban planning concepts we stand that in those situations, a more suitable are hybrid structures, moreover, parking garages can be realized underground with a closed type of garage. Naturally, those types of architecture structures demand a heavy mechanical ventilation, always preferring to implement a new nanotechnology filters as a contemporary technology answer regarding to air pollution. Prishtina like the other cities must consider to implement a strategy of underground building structures as a whole functional urban system, actually it is with ease helped by new developed technologies. Kosovo has only 10,908 km², therefore we must consider other options of spatial planning, including underground. In the context of chosen urban location for parking garages, we must first conceptually consider:

- Avoiding possible locations for parking garages from built urban structures like: Hospitals, day care facilities, schools, housing and residences.
- Special consideration should be given that those buildings serve many urban blocs instead of one zone, avoiding locations or situations where it's difficult or too far to be reached from inhabitants.
- Indwelling locally and blend in to existing urban composition.

Considering the economics of those type of buildings and emanation of air pollution, those structures are firmly built for many decades, hence, we have to be extra alert and certain for possible locations to build. Moreover, in this case study, chosen location of public parking garage are example of inappropriate indwelling locally and blend in to existing urban composition, a position in mid between primary school "Hasan Prishtina", with 1975 children daily frequented, and Clinical Hospital Centre of Prishtina [23]. "Roadside vegetation barriers have shown the potential to reduce near-road air pollution concentrations; however, the characteristics of these barriers needed to ensure pollution reductions are not well understood … Two potentially viable design options are revealed: a) a wide vegetation barrier with high Leaf Area Density (LAD), and b) vegetation–solid barrier combinations, i.e., planting trees next to a solid barrier. Both designs reduce downwind particle concentrations significantly"[24]. According to the study, "the tree species used for the GAIA-urban forestation project were selected, starting from the green Regulations of the City of Bologna and evaluating important factors such as the potential

for absorption of pollutants (CO_2 and PM_{10}), the release of substances volatile and the allergenic specific factors, the first 24 most suitable species have been identified to fulfil this function"[25]. "There is a considerable potential to further develop the beneficial use of vegetation to promote urban environmental quality and citizen health… Trees and shrubs were compared for PM accumulation on the surface"[26].

Table 10. Trees that can reduce air pollution. Adapted [25].

Tree	Height m'	CO_2 stored 30/yr. City (kg.)	CO_2 stored 50/yr. Park (kg.)	VOC	Ozone format. potential	Potential for absorption of gaseous pollutants	Potential for capturing dust
				Ability to environmental mitigation potential			
Acer Platanoides	25	4807	6601	Low	Low	High	Med.
Tilia Platyphyllos	>25	3660	5070	Med.	Aver.	High	High
Tilia Cordata	15-25	3660	5070	Low	Low	High	High

Urban Access Restrictions, actually many restrictions related to air pollution are in law guidelines throughout Europe. "The most prominent example of local bans on high emitters are Low Emission Zones (LEZ). Local LEZ's can be an effective way of reducing particulate matter (PM_{10}) and soot emissions. An increasing number of cities are implementing LEZs…Vehicles are classified based on their EURO standards"[27].

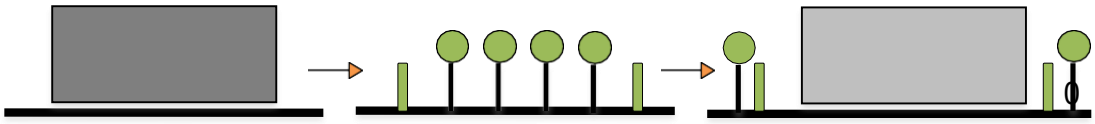


Figure 8. Model **a).** Aboveground public parking garage, with vegetation barriers. [Source: Authors, 2016]

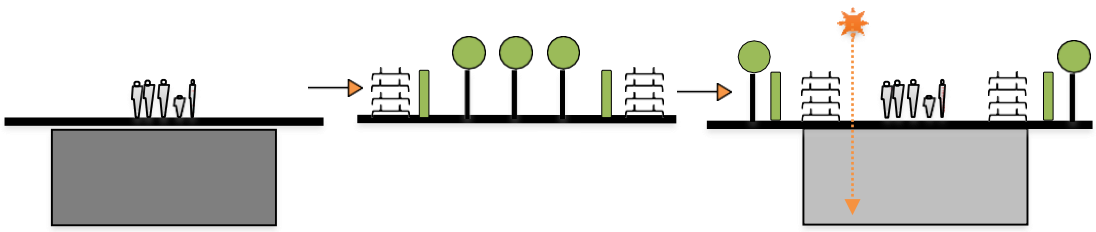


Figure 9. Model **b).** Underground public parking garage, with filters, vegetation barriers and with more bringing natural light. A more expensive solution. [Source: Authors, 2016]

Potential measures for a healthier environment in public parking garages, with underground building concept, include a diversity of system filters which can offer all in one solution, "Where proximity to traffic is unavoidable, the use of high-efficiency particulate air (HEPA) filters is recommended to reduce exposure to particulate air pollution"[18].

"Tri-Mer Ceramic Catalyst Filter Systems, is system for removing particulate PM_{xx}, SO_2, HCl, mercury and heavy metals. Simultaneously, the ceramic catalyst filters destroy NOx, cement organic HAPs, and dioxins"[28].

CONCLUSION

Air pollution is a global issue, therefore, can't be addressed only locally, moreover local actions are irreplaceable and crucially necessary. The current degraded state of environment and urban fabric requires specific responsibilities and activities, especially when the state is directly linked to the quality of life and public health. Implementing approved measures according to the Strategy and Action Plan on Air Quality, by MESP must be immediate and irreplaceable policy action for healthier Kosovo. Hence, according to the results of this study, we prefer urban pattern where parking garages can be certainly located in primary and secondary urban ring. According to the data for air pollution in the actual location, and distance of parking garage to CHCP campus, it is expected that air pollution has to affect more campus and patients of clinics. Moreover, as a sustainable strategy, imperative can be a reconsideration to eventually change the architectural function of public parking garage.

Therefore, where proximity to traffic is unavoidable, and from built urban structures like: hospitals, day care facilities and schools, we consider a more appropriate are urban models of underground public parking garages, with filters as a wide system, and vegetation barriers, but they represent a more expensive solution. If located and designed well, structured multiuse parking garages can be more than just parking places. Based on results of air pollution and urban planning concept presented in this paper, location for the first public parking garage of Prishtina was inadequate, as pattern for future public parking garages. The potential future work and research will be more focused on the transdisciplinary process of design as an environmental municipal strategy, implementing optimized patterns and performance of hybrid structures.

NOMENCLATURE

AQI	Air quality index	
CHCP	Clinical Hospital Centre of Prishtina	
EPA	Environmental Protection Agency, US.	
GBD	Global Burden of Disease	
LAD	Leaf Area Density	
LEZ	Low Emission Zones	
MESP	Ministry of Environment and Spatial Planning	
MEM	Ministry of Energy and Mining	
MI	Ministry of Infrastructure	
OECD	Organisation for Economic Co-operation and Development	
OSCE	Organization for Security and Co-operation in Europe	
CO_2	Carbon dioxide	
CO	Carbon monoxide	
Metric ton		[Mt]
PM_{xx}	Particulate matter	[µg/m^3]
Cubic metre		[m^3]
VOC	Volatile organic compound	

Greek letters

µ	micro	[0.000001]

REFERENCES

1. WHO, Europe, Krzyzanowski et al., Health effects of transport-related air pollution. © World Health Organization. Copenhagen, Denmark, 2005.
2. Brauer, M. et al., Air pollution and development of asthma, allergy and infections in a birth cohort. ©ERS Journals Ltd 2007, 2007. DOI: 10.1183/09031936.00083406
3. Kabashi, S. et al., Effects of Kosovo's energy use scenarios and associated gas emissions on its climate change and sustainable development. Applied Energy Volume 88, Issue 2, February 2011, Pages 473–478, 2011. http://dx.doi.org/10.1016/j.apenergy.2010.06.023
4. http://enrin.grida.no/htmls/kosovo/SoE/energy.htm. [Accessed: 10-August-2016]
5. Ministry of Energy and Mining (MEM). < http://www.ks-gov.net/mem >. [Accessed: 10-August-2016]
6. Tahirsylaj, and Latifi., Quality of Air in Urban and suburban Areas of the Prishtina. Ohrid, FYROM, Macedonia. pp. 1-7, 2011. [Accessed: 11-August-2016] <http://s3.amazonaws.com/zanran_storage/balwois.com/ContentPages/78546993.pdf,>
7. Ministry of Environment and Spatial Planning., Summary report, air condition in 2015. 2016. < http://www.ammk-rks.net/?page=1,21> [Accessed: 11-August-2016]
8. Environmental Protection Agency, [US]. AirNow Department of State. Kosovo, Pristina City. [Accessed: 10-August-2016] < https://airnow.gov/index.cfm?action=airnow.global_summary#Kosovo$Pristina >
9. Kosovo Agency of Statistics., Transport and telecommunications statistics TM2-2016, 2016. < http://ask.rks-gov.net/sq/transporti > [Accessed: 12-August-2016]
10. Kabashi, S. et al., Greenhouse gas and air pollution emissions and options for reducing from the Kosovo transportation sector-dynamic modelling. Management of Environmental Quality: An International Journal Vol. 22 No. 1, 2011 pp. 72-88 © Emerald Group Publishing Limited 1477-7835, 2011. DOI 10.1108/14777831111098499

11. Ministry of Environment and Spatial Planning., Strategy and Action Plan on Air Quality. Kosovo, 2011. <http://www.kryeministri-ks.net/repository/docs/Strategy_and_Action_Plan_on_Air_Quality.pdf > [Accessed: 19-August-2016]
12. OECD., The economic consequences of outdoor air pollution, OECD Publishing, Paris. 2016. [Accessed: 19-August-2016] <https://www.oecd.org/environment/indicators-modelling-outlooks/Policy-Highlights-Economic-consequences-of-outdoor-air-pollution-web.pdf >
13. Qorraj, E., Air pollution from motor vehicles in the city of Prishtina and effects on traffic safety. University of Prishtina. 2016. Hydrometeorology Institute of Kosova. < http://fim.uni-pr.edu/getattachment/dca85ad3-515d-402d-9dfc-f0333604359a/5 ---NDOTJA-E-AJRIT-NGA-AUTOMJETET-MOTORIKE-NE-QYTE.aspx > [Accessed: 19-August-2016]
14. Municipal Assembly of Prishtina., Strategic Plan, Urban Development of Prishtina 2004-2020. Prishtina, 2004. Accessed: August 2016. http://www.bp-home.com/about/plani_urbanistik/plani_strategjik.pdf >
15. Municipal Assembly of Prishtina, (2013). Strategic environmental assessment of urban development plan pristina 2013-2023. Prishtina. https://kk.rks-gov.net/prishtina/getattachment/Sherbime/Tema/Vleresimet-e-planit/Vleresimi-i-planit-zhvillimor-komunal-prishtine.pdf.aspx > [Accessed: 19-August-2016]
16. EuroLab., Kosovar Vehicle Centre. Kosova, 2016.
17. Kosovo Agency of Statistics., Health Statistics 2014, 2015. < http://ask.rks-gov.net/sq/shendetsia >. [Accessed: 19-August-2016]
18. British Columbia Ministry of Environment., Develop with Care 2012: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Supporting Information - Air Quality. University of British Columbia, 2012. < http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare/DWC-Air-Quality.pdf > [Accessed: 19-August-2016]
19. Jacquez, J., Respiratory Physiology. McGraw-Hill. pp. 156–175, 1979.
20. GAP Institute., The economy of cars in Kosovo. 2015. [Accessed: 20-August-2016] < http://www.institutigap.org/documents/40449_EconomyofCars.pdf >
21. Bhatia, R. and Rivard, T., Developing Regulatory Approaches for Traffic—related Air Pollution Hot Spots. San Francisco Department of Public Health. 2008. http://www.baaqmd.gov/~/media/files/planning-and-research/care-program/task-force-meetings/091708-tf/20080917_tf_sfdphroadway.pdf?la=en > [Accessed: 20-August-2016]
22. Haziraj, A. F., Media officer - Regional Police Directorate in Pristina, 2013. <http://www.arkivalajmeve.com/240-mije-vetura-ne-ldquorksrdquo-100-mije-vetem-ne-Prishtine.1047418855/ > [Accessed: 22-August-2016]
23. Municipality of Prishtina, Directorate of Education, Information's 2015/2016. https://kk.rks-gov.net/prishtina/getattachment/Municipality/Departments/Arsimit/Raportet/Informata-e--suksesit-per-gjysmevjetorine-dyte-2015-16.pdf.aspx , pp. 15-18. [Accessed: 25-August-2016]
24. Tong et al., Roadside vegetation barrier designs to mitigate near-road air pollution impacts. © 2015 Elsevier. 2015. [Accessed: 25-August-2016] http://dx.doi.org/10.1016/j.scitotenv.2015.09.067
25. GAIA., Institute of Biometeorology, Bolonia. Baraldi, R., European Life+ project. Trees that can reduce air pollution. 2016. < http://lifegaia.eu/ > [Accessed: 24-August-2016]

26. Saebo, A. et al., S.W. Characterization of urban trees and shrubs for particulate deposition, carbon sequestration and BVOC emissions, 2013. Acta Hortic. 990, 509-517. DOI: 10.17660/ActaHortic.2013.990.66
27. Clean Air., Local bans of high emitters, 2015. < http://www.cleanair-europe.org/ > [Accessed: 24-August-2016]
28. Tri-Mer Corp.©, Ceramic Catalyst Filter system, 2016. http://www.tri-mer.com/pdf-files/Ceramic%20Catalytic%20Filter%20Systems%20Boiler%20MACT%20CISWI%20Cement%20NESHAP.pdf > [Accessed: 24-August-2016]

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER VI

HYBRID STRUCTURES AS A SYMBIOTIC BOND OF ART AND SCIENCE

Language: English

DOI: 10.17160/josha.3.5.233

BUJAR BAJÇINOVCI

2016

Hybrid Structures as a Symbiotic Bond of Art and Science

Bujar Bajçinovci

University of Prishtina, Faculty of Civil Engineering and Architecture, Kosovo.
Email: bujar.bajcinovci@uni-pr.edu

ABSTRACT

The world continues to expand its development in all possible spheres, and this expanding is in an arithmetic mode of progression, hence, as well the population continues to grow. So, in terms of urban dynamics, sustainable architecture and artistic challenges as presents this phenomenon, we need more environmental and sustainable clear objectives. What are hybrid buildings? What do they present? Currently, the potential for hybrid buildings has taken a real evolutive urban concept, in relation, and as a consequence of economics, lack of open spaces, spatial contemporary concepts with the urban prerequisites has increased the overall value of urban future zones. This paper explores the design concepts of structured hybrid buildings as a creative interdependence between science, art, architecture and human development. Hence, in addition this paper explores the possibility of urban patterns and trans functional compositions of structured hybrid buildings. Structure and functionality of future hybrid buildings will be manifested with many possibilities, moreover we argue that within a few decades a more fundamental step in human development will occur, especially in architecture, art and science. Moreover, there is a great potential for further development of future contemporary trends, on architectural structures, with different conceptual objectives, mentalities, habits and the style of living? Art, architecture, science, and human development, hereafter will need a more symbiotic bond! This merge, this new symbiosis of hybridization, will generate a new identity of architectural distinctiveness, and different features will reappear at certain levels of functionalities by which are linked to contentious interdependence of each other. Thus, we conclude that the hybrid building structures present unique challenges with overall varieties, which are both possible and desirable, therefore, hybrid building structures can evolve in different dimensions as per today presented. Ergo, we argue that hybrid building structures will offer more sustainable affinities between: profit, cultural, social, and human development in coming decades.

Keywords: Hybrid Structures, Architecture, Art, Science, Symbiosis

INTRODUCTION

The world continues to expand its development in all possible spheres, and this expanding is in an arithmetic mode of progression, hence, as well the population continues to grow. So, in terms of urban dynamics, sustainable architecture and artistic challenges as presents this phenomenon, we need more environmental and sustainable clear objectives. Thus, on this matter and in regard for sustainable development we need to find acceptable answers, to the primary meaning of those fundamental challenges. In terms of urban planning and urban design, the first and the most valuable objective is demand for quality housing and public health. Moreover, in addition, we also have urgency for: commercial business areas,

green dedicated and cultivated areas, industry zones with less pollution. All these requirements are direct reflected in our health, and style of living. The most crucially, those contemporary developments and features are querying to be answered in an adequate and sustainable response. The actual phenomenon's and the new style of living, especially, have great impact on overall human culture and communities, demanding to be applied new strategies and action plans which will be primary oriented on quality of life. Ergo, those actions must be immediate and irreplaceable policy for a healthier environment or umwelt. Therefore, as a consequence there is a need to be gradually redefined the design concepts, as applied and established per to date. In this regard, we argue that adequate attention should be given to the hybrid multiuse buildings. What are hybrid buildings? What do they present? Currently, the potential for hybrid buildings has taken a real evolutive urban concept, in relation, and as a consequence of economics, lack of open spaces, spatial contemporary concepts with the urban prerequisites has increased the overall value of urban future zones. Hence, the phenomenon of globalisation has growth recognition of so far wealth lacked regions, in addition, the contemporary styling of living, the current cultural trends and the concept of values, additionally has been changed! This growth of the new trends among artists has established a new cultural, humanitarian, and personal values. There are no more, avant-garde taboos, ergo, more of those cultural and artistic challenges meet the conceptual findings of the contemporary science, science and art are furthermore bonding. All architectural designs actually are challenged with fundamental questions: how can we live more cultural, social, sustainable and healthier life in coming decades or centuries? As far as architecture is concerned, there is a physiological gap, a commitment and necessity, that architects have to re-find themselves, associated with resurgence of transdisciplinary new professions. A multiuse, and multidimensional structures with a potency of notions such as holistic breathing, operated as a more of 'the sum of all parts', or mixed functions. Prospective structures which will reflect transdisciplinary professions.

Fenton stated that: "there is a difference between mixed-use and hybrid buildings. He argued, the individual programs of hybrid buildings relate to one another and begin to share intensities. Hybrid buildings can be compared to a genetic cross breed of different species" [1,2]. Moreover, Fenton argued that hybrids structures just from the beginning of the 20th century was a conceptual idea in urban planning as an attempt to modernize United States Cities, ergo, a more contemporary actions reflected on urban design to reformulate the new urban zones. There was a great meditation on urban planning regarding to the multi-useof

new buildings. Also, many designers were also involved in holistic understanding to optimize and reevaluate the planed urban regions, moreover, building designs was anticipated to transform relationships between urbanites and a future perception of the new way of living. A more sustainable and healthier life style approaches, regarding to the more complexed urban and social forthcomings.

“Generally, in regard to functional brief, hybrid buildings are characterized by a high programmatic complexity. These can incorporate different categories of urban uses, allowing a great capacity of adaptation and interaction with the urban environment they integrate, containing unique and distinct characteristics from other buildings of this type in different urban contexts” [3,1].

Similarly, the conceptual artistic and architectural ideas related to the hybridization presents more than just one program, those ideas involve a transdisciplinary symbiosis of disciplines with a clear objective: “responding to three major concerns of our society” [2]:

- “The land scarcity and its high value, the need of intensifying land use in order to contribute to sustainable development and the need of densifying uses in order to revitalize urban centers” [2].
- “The need for specificity is allowing some architects to engage program rather than simply building for maximum (and Generic) flexibility, as was the predominant case previously” [2].
- “Land and construction cost with conservative approaches by government on spending for public infrastructure has forced many civic institutions to find new ways of housing and funding themselves” [2].

From all the states above, we can argue that the multiuse buildings or hybrid multifunctional buildings offer a fundamental unfolding relationships to the contemporary market requirements and profit. A profit, as a generator of social, and cultural development, moreover, actually we are witnessing the demands of those design concepts in Kosovo, a market pressure, wishes for those types of buildings are more than obviously. Hence, we are in a complex situation, actually, development of social phase of Kosovar communities are urging the necessity of growing fiscal state budget, gross domestic product, supply and demand in market determination, quality housing, and public heath demands are in contentious interdependence.

Hence: *Does concepts of hybrid buildings can offer a more sustainable affinity between cultural, social, sustainable and healthier life in coming decades?*

MATERIALS and METHODS

This paper explores the design concepts of structured hybrid buildings as a creative interdependence between science, art, architecture and human development. Moreover, this paper investigates the possibility of urban patterns, and trans-functional compositions of new structured hybrid buildings. The research methods consist of empirical observations to the need of communities and urbanites of Kosovo, with methods of theory analysis, hence, with an emphasised focus to the present urban structure of the capital of Kosovo, Prishtina. In form to receive a clear and exceeding information's, research is made within urban frameworks, shapes of architectural and urban structures, and the possibilities of expanding directions of the city of Prishtina, regarding to the spatial morphologies of shapes which compose the city silhouette. Hybrid buildings were investigated through literature review, documentations, drawings, and sketches. More books and research papers are consulted, articles, maps and old pictures. The supplementary data for this study is explored and sorted by the possibilities of spatial urban planning of city Prishtina regarding to the future concepts of Design Build needs, and promoted-accepted future design strategies of Municipality of Prishtina.

Cities are complex ecosystems with specific phenomenon's directly reflected in our health, natural resources, economics, social, and aesthetic fields. They are open integrated systems, and huge organisms with specific and complex metabolism that transform vast amount of energy, generate huge amount of waste, and emanate a number of specific environmental not so appropriate impacts. However, it can be conceptually considered, that cities are locally and regionally specific, and therefore the negative environmental emanations are authentic activities, and specific attributes of each city [4]. Environmental design strategies must incorporate holistic, and bionomics objectives:

- We must always explore solutions and symbiotic harmonies between the environment, location, architecture and buildings.
- We should encourage buildings which could operate, and offer services 24/7.
- We must always explore solutions and symbiotic harmony between the 'horizontality and verticality' of erected structures, and indwelling's.

- We should encourage urban structures with complex functions and purposes, preferred with diversity, interconnected and dynamic functional relationships.

Hence, The General Assembly of UN, in: "Recalling its resolution 64/236 of 24 December 2009, in which it decided to organize the United Nations Conference on Sustainable Development at the highest possible level in 2012, as well as its resolution 66/197 of 22 December 2011", "Calls on the future We Want" [5]:

- "We therefore acknowledge the need to further mainstream sustainable development at all levels, integrating economic, social and environmental aspects and recognizing their interlinkages, so as to achieve sustainable development in all its dimensions" [5].
- "We recognize that poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development. We also reaffirm the need to achieve sustainable development by promoting sustained, inclusive and equitable economic growth, creating greater opportunities for all" [5].
- "We recognize that people are at the centre of sustainable development and in this regard we strive for a world that is just, equitable and inclusive, and we commit to work together to promote sustained and inclusive economic growth, social development and environmental protection and thereby to benefit all" [5].

Urban planning and the vision of future growth of the city's is characterized by the demand for services which efficiently increases the capacity of functionalities, meaning, as a whole ecosystem, with its basic urban services, and municipals management, as: Energy, Water and Sanitation, Heating, Public Health and Environmental friendly sub-urban areas. Fast growing cities have specific emergency needs, characterized with new specific urban challenges, often, with completely different development demands. Conceptually, there is not an urgency to declare that we should always consider to design a 'new buildings' with multiuse functions immediately. Hence, there is always a possibility to encourage the urban strategy for revitalization of buildings and urban blocks instead, when this possibility encourages, and promote environmental sustainability. This conceptual holistic strategy

additionally supports the contemporary objectives of science, art, and human development. Ergo, those hybrid urban structures preferably must find itself on urban patterns, like:

- These buildings often are presented as interpolation of mixed functional parts.
- As functional demand for urban blocks, regarding to the spatial development.
- Those structures often form a cross functional, and space bridges.
- As a part of revitalisation of old and ruined buildings.
- As a new expanding structure for future businesses.

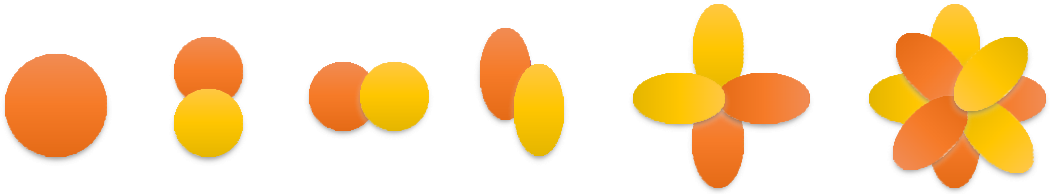


Figure 1. Shapes which functionally evolve, and transforms accordingly to hybrid multifunctional zones. (Source: Author, 2016).

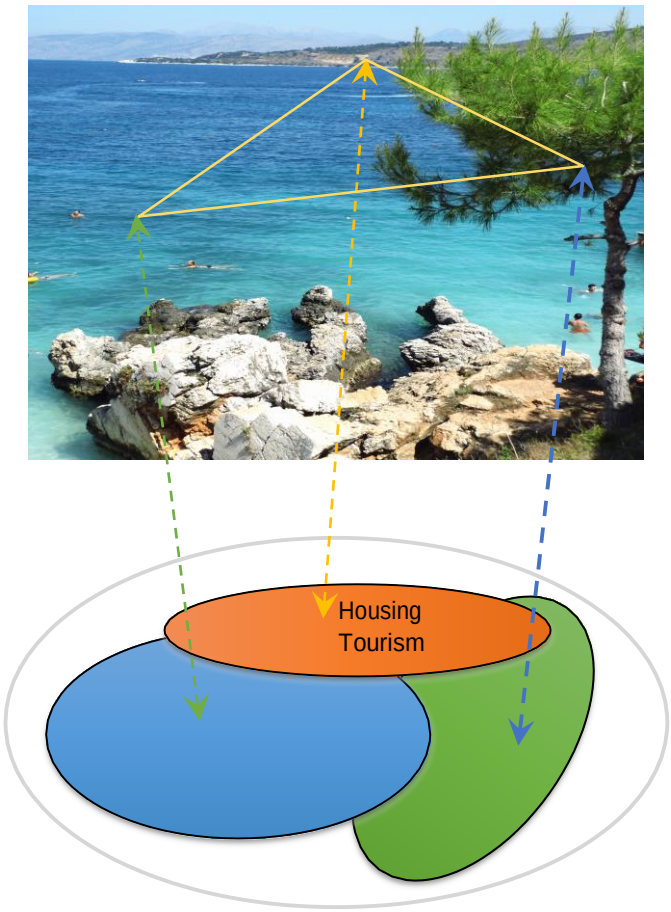


Figure 2. Functional symbiosis of nature and societies: Water, Housing with Tourism, and Vegetation. (Source: Author, 2016).

RESULTS and DISCUSSION

Structure fluid dynamics, and organic multiuse buildings are the possible future objectives of environmental sustainable design. Furthermore, structure and functionality of future hybrid buildings aim many possibilities, in this context, we argue that within a few decades a more fundamental step in human development will occur, especially in human development, art, and science. Moreover, there is a great potential for further development of future contemporary trends on architectural structures, with different conceptual objectives, mentalities, habits and the style of living? Art, human development, science, urban culture, and society concepts will need a more symbiotic bond! This merge, this new symbiosis of hybridization, will generate a new identity of architectural distinctiveness, and different features will reappear at certain levels of functionalities by which are linked to contentious interdependence of each other. A bonding process of art and science reflected on hybridisation of structures, forms, functionalities, and uniqueness's of architecture interpretation.

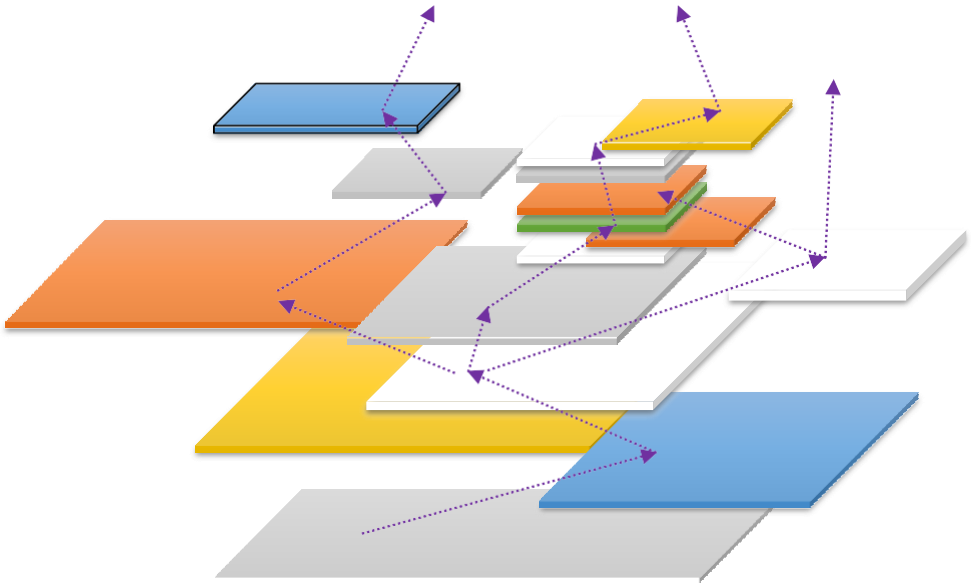


Figure 3. Decomposition of horizontal and vertical zones, art and architectural space wholeness's. (Source: Author, 2016).

Ergo, we must constantly explore for real life functional and structural solutions, in order to manifest co-created values of hybridisation, emphasising to the values of economics and rentability, furthermore, we must carry attention to the commonly named 'full time job' building structures. The 'amalgamation' of more than two functions, can potentially result in a more environmental adaptability, and self-sustain profitability of new architectural structures.

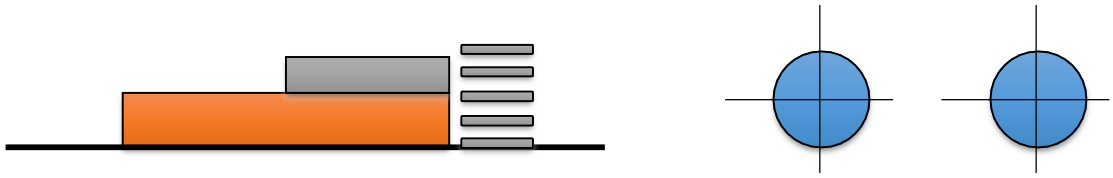


Figure 4. Architectural structures with a 'full time job', 24/7, and rentable economics. (Source: Author, 2016).

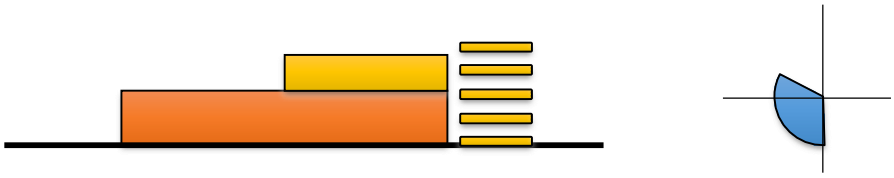


Figure 5. Architectural structures (like Operas), with a 4^{h} service in day, week, or a month. (Source: Author, 2016).

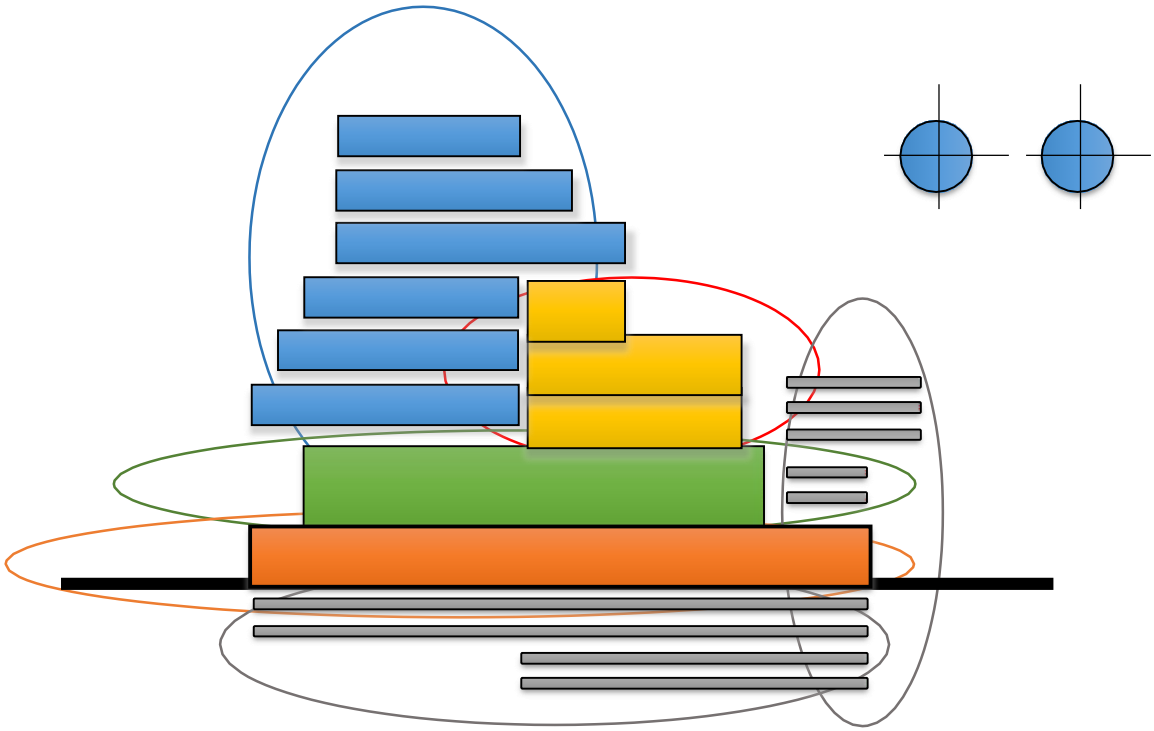


Figure 6. Multi-functional pattern, a more iterations, finding a more diversities in hybrid structures. (Source: Author, 2016).

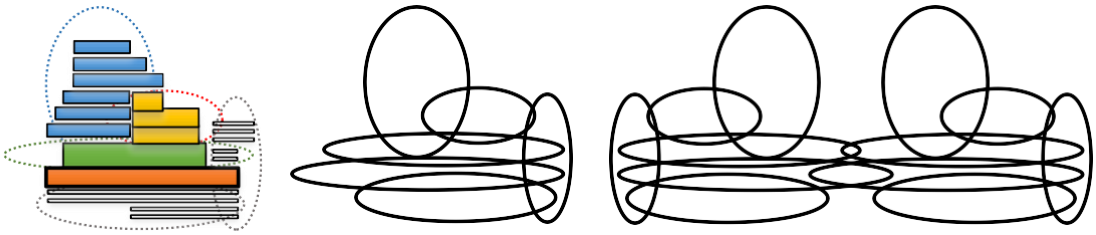


Figure 7. Patterns with a more iterations, finding possibilities: profit, shapes, and functional diversities in hybrid structures. (Source: Author, 2016).

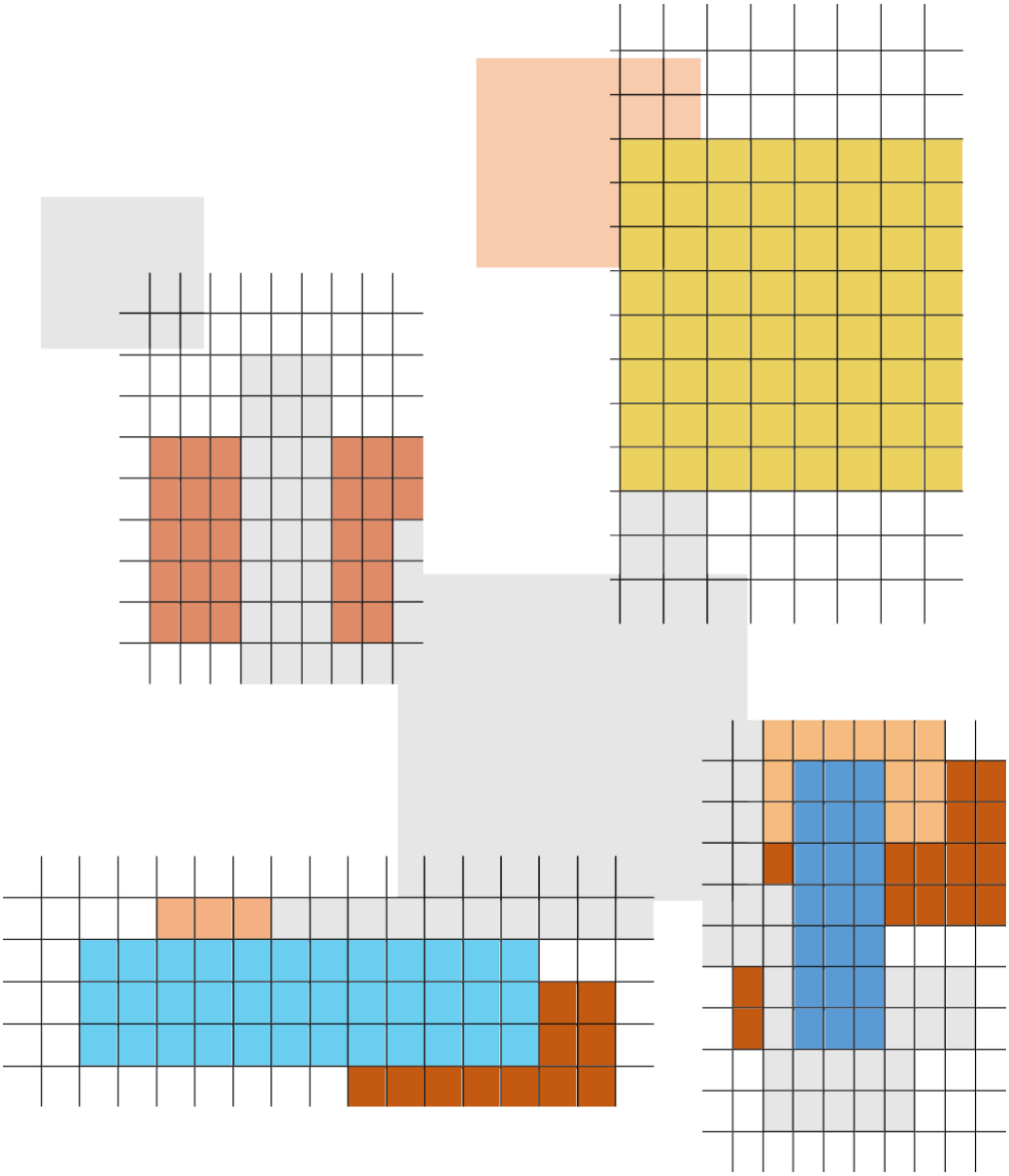


Figure 8. Functional modular zones, seeking attributes of: proportions, relations, dependencies, art expression, form, volume in relation to a successful hybridization. (Source: Author, 2016).

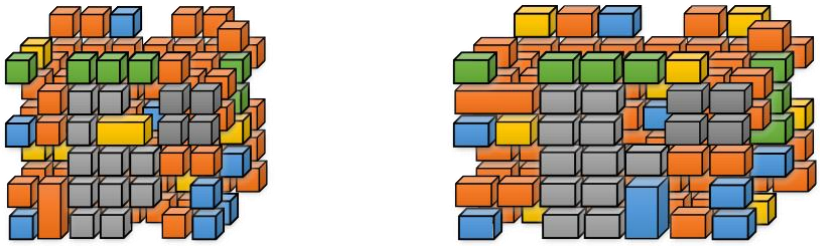


Figure 9. 3D modular iterations, varieties, seeking hybridization. (Source: Author, 2016).

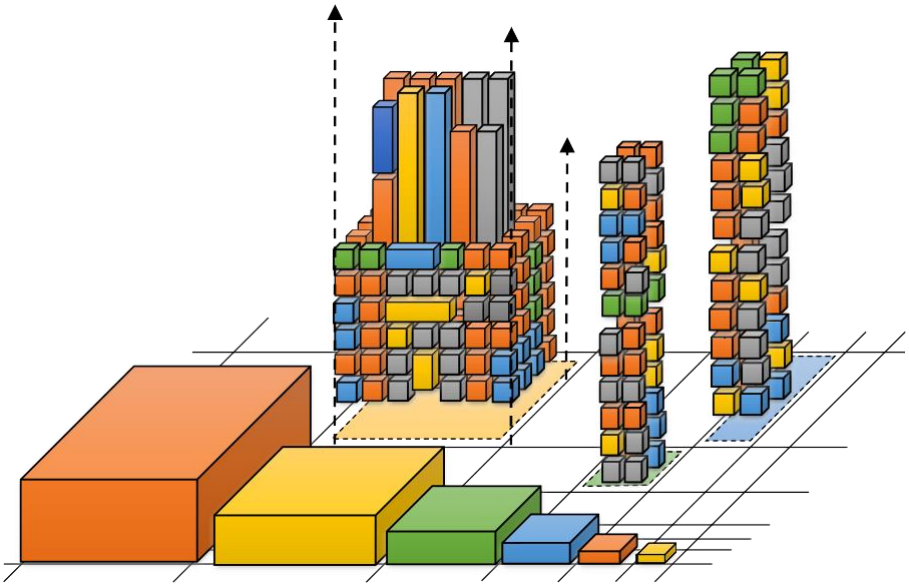


Figure 10. Chosen modular zones, for conceptual hybridization. (Source: Author, 2016).

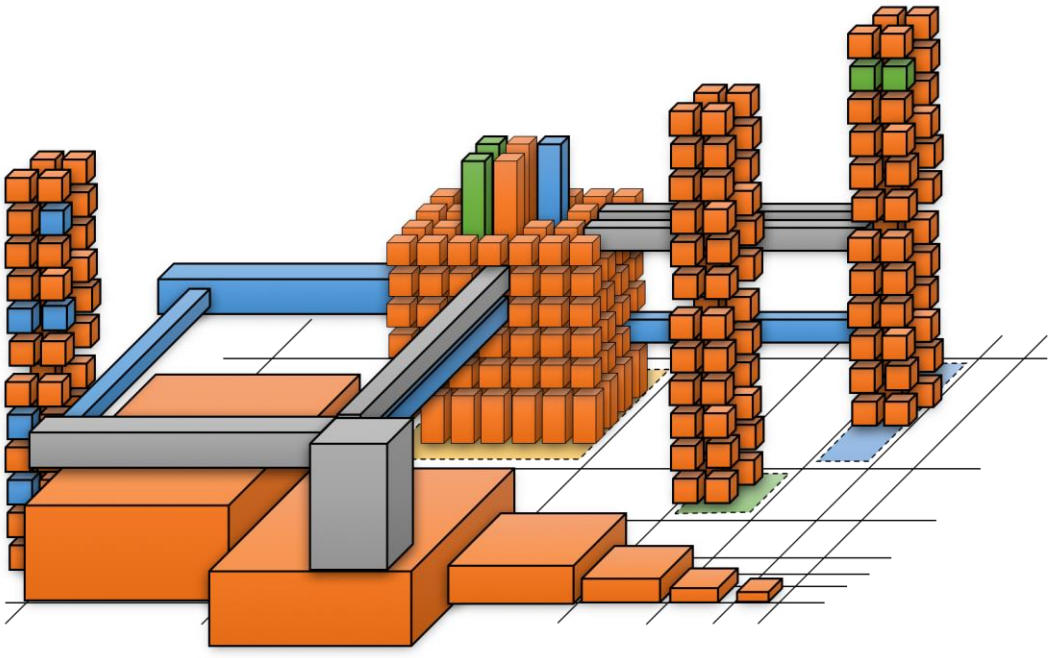


Figure 11. Preferred final concepts of modular hybridization. (Source: Author, 2016).

CONCLUSIONS

Structure fluid dynamics, and organic multiuse buildings are the possible future goals of environmental sustainable design. Furthermore, structures and functionalities of future hybrid buildings will be manifested with many possibilities, moreover we argue that within a few decades a more fundamental step in human development will occur, especially in architecture, art and science. Moreover, there is a great potential for further development of future contemporary trends of architectural structures, with different conceptual objectives, mentalities, habits and the style of living? Ergo, we argue that art, human development, science, urban culture and society concepts, hereafter will need a more symbiotic bond! This merge, this new symbiosis will generate a new identity of artistic, and urban attributes, hence, different features will reappear at certain levels of functionalities by which are linked to contentious interdependence. A bonding process which will more merge art and science, a impression on hybridisation of structures, profit, form, functionalities, and uniqueness's of architecture interpretation. The preferred methods for hybrid structures, stated above are quite evolutive, as to be used for further development and research. With the society moving towards greater energy demand in proportion with degraded environmental sustainability, we must reconsider to adapt and change. Hence, we conclude that the hybrid building structures present unique architectural challenges with many varieties, which are both possible and desirable. Moreover, hybrid building structures can evolve in different dimensions as per today presented, merging more affinities between art, science, and human development in coming decades.

References

[1] Fenton, J. (1985). *Hybrid Buildings*. Princeton Architectural Press.

[2] Byrd, B. (2014). *Hybrid Buildings. ENVD 3300: Green Neighbourhoods Praxis*. Instrutors: Michael Tavel + David Kahn. Spring 2014. http://www.colorado.edu/envd/sites/default/files/attached-files/Hybrid%20Buildings_Byrd.pdf [Accessed: September, 2016].

[3] Sofia, Felisberto das Neves, A. (2012). *Residential Hybrid Buildings Different Temporalities in City's life*. Instituto Superior Tecnico, Universidade Tecnica de Lisboa. https://fenix.tecnico.ulisboa.pt/downloadFile/395144950900/resumo%20alargado%20FINAL.pdf pp, 1-2. [Accessed: September, 2016].

[4] Bajçinovci, B. (2012). PhD Thessis: *Integrated Design Process of Public and Residential Buildings: Transdisciplinary Approach on Evolutionary Design.* University of Sarajevo, BiH.

[5] UN, (2011). *Future We Want-Outcome document. Sustainable Development*. United Nations Department of Economic and Social Affairs. https://sustainabledevelopment.un.org/futurewewant.html [Accessed: September, 2016].

COLLECTION OF RESEARCH PAPERS

JOSHA

PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

COLLECTION OF RESEARCH PAPERS
PUBLISHED AT THE JOURNAL OF SCIENCE, HUMANITIES AND ARTS

PAPER VII

HERITAGE AND ARTISTIC BOON: VALUING PRIZREN CASTLE

Language: English

DOI: 10.17160/josha.3.5.228

BUJAR BAJÇINOVCI
KALTRINA THAÇI

2016

Heritage and Artistic Boon: Valuing Prizren Castle

Bujar Bajçinovci[1], Kaltrina Thaçi[*2]

[1]University of Prishtina, Faculty of Civil Engineering and Architecture, Kosovo.
[2] Cultural Heritage without Borders, CHWB, Kosovo.
[*2]Email: kaltrinathaci@gmail.com , bujar.bajcinovci@uni-pr.edu

ABSTRACT

There are a lot of disagreements of whether heritage assets and boon should be valued. A number of national and international accounting standards board's consider that bringing heritage assets on the balance sheet would improve the quality of the information reported. In order to include heritage assets in the balance sheet it is necessary to understand what they really represent. Hence, conceptually there is much cogitation among professionals about whether heritage assets should be indeed classified as assets, or whether they meet the rationale at all, given that a crucial part of the definition of an asset is that it should provide future wellbeing and benefit to the society. The research methods consist of empirical observation, focussing to the castle campus structure. In order to receive a clearer information's, exploring is made within heritage framework, shapes of architectural heritage structures, position of the castle regarding to the morphology of the city of Prizren. Prizren castle were investigated through literature review, Municipality documentations and old drawings. So, what is a heritage asset, and what in economically terms is defined as an asset? The methods of valuation, are quite difficult to be used as means for valuation of this site. This is mainly because no valuation of cultural heritage properties has been ever done in Kosovo. Surely, Prizren Castle should not be let, even actually its value is not known? On the other hand, we prefer that valuation methods can be modified and used, as a meaning for valuing the property? With the society moving towards greater energy consuming and environmental sustainability, Municipality and authorities must to reconsider to reuse the historic buildings before a new building has to be erected. Hence, we conclude that the valuations of heritage assets present unique challenges and for many of them, valuations are both possible and desirable, therefore valuing heritage assets can help in different means: lease renewal, rent review, taxation, management and conservation of heritage assets.

Keywords: Humanities, Art, Prizren Castle, Architecture, Heritage

INTRODUCTION

Prizren is the oldest city of Kosovo. The town is picturesque, with a castle, churches, mosques, numerous old houses and ancient Turkish baths. The cultural heritage of Prizren reflects a town with a large history. It was first mentioned as the Roman town of Theranda in Ptolemy's Geography in the 2nd century AD, and later as Petrizen in the 5th century. In the beginning of the 13th century, Prizren reached the culmination of its development, looking much like a medieval town in Western Europe with sophisticated 23 fortifications, a civitas (administrative and economic centre) and a castellum (castle town) [1] [6] [25]. In the center of the city above

the foot hill, lies the Castle of Prizren. Due to its favourable geographic position, the use of the hilltop goes back to prehistoric times. It seems likely that the area of modern Prizren, at the foot of the hill and extending towards the plain, was also inhabited to some extent. The Fortress itself is located on a high hill on the south east site of the city of Prizren. It is situated close to the centre of the town and old town, where the Mehmet Pasha complex is which consists of a mosque, mausoleum and madrasa (school). The Fortress of Prizren, which was used as a fortification to protect the town of Prizren in times of war, has a direct link with the architecture of the old town and its thousand years of history [2] [6] [25].

"The Prizren castle contains an important part of ancient history of the city. Its topographic position, dominating the city, attractive landscape and the well thought architectural configuration, make this location with indisputable environmental, scientific, historical and touristic values. As an inherited asset from the Byzantine Empire, the castle lies on the southeast side of the city, built on a hill over 120 meters on the left side of the river Lumbardhi" [6] [25]. The primary function of the castle was a fortification that served to protect the population from attacks of various invaders, it was used exclusively as a fortress until 1912. Archaeological excavations conducted in 1969, 2004, and again 2009-2011, resulted in the discovery of the infrastructure, presented with walls reinforced with towers, casemates, mazes, depots and a range of objects within the structure. In terms of construction, the castle consists of three separate complexes, known as the Upper Town, Lower Town and Southern Town, while in terms of fortification during centuries, it belongs to different periods, such as the ancient period, the period of Byzantine rule, the medieval period and the period of the Ottoman Empire rule [6] [25].

According to the copy of plan, the site is owned by the Municipality of Prizren, and this site has statutory protection and is declared a protected cultural heritage asset. Excavation and conservation works are being undertaken by the Archaeological Institute of Kosovo. The Prizren Fortress is also used as a touristic attraction for the visitors as well as for film screening during the annual International Documentary and Short Film Festival. The position of the Fortress, dominating the city, very attractive natural landscape and architectural setting, makes it indisputably valuable [6] [25].

However, there are very little text resources about the Prizren castle. The name of the fortress was recorded for the first time by a Byzantine scholar, Procopius of Caesarea, in the work "De aedificiis" [3].

In this work, among refurbished fortifications in Dardania, ”this castle is evidenced for the first time, so called Petrizen, the name holded nowadays by the city of Prizren” [4]. ”The

castle is built on natural stones. In ancient times it was used as a military stronghold. In its vicinity were discovered Neolithic era settlements and Illyrian pottery and weapons" (Krasniqi, 2002). During the Roman Empire, the original Illyrian town of Theranda was developed as a garrison near the castle. Before the Ottoman Empire, the castle was built as a fortification to protect the population from attacks of various invaders [5] [6] [25].

In most Rumelia cities occupied by Ottoman Empire, castles and fortresses of the Byzantine Empire after restorations were used as military garrisons [3]. During the Ottoman period the castle has been used consistently. During the rule of Mehmet Pasha (1809-36) clock tower was built in the castle, followed by a mosque in 1828. It is possible that the building was first erected in the second half of the 15th century after the conquest of Prizren by the Ottomans in 1455 [6] [25].

After the conquest of Prizren, the Ottoman Empire concentrated all military forces in the city's castle. "After few interventions in the structure until the final withdrawal of the Ottoman Empire, the castle served as the main centre of military forces. In the castle, except special military units, also was space for military arsenal and later a prison was built. In the lower city, were southwestern and western casemates are connected, were placed balls-bombshells. One of these balls remaining from the Ottoman period still exists in the same place. In this part there used to be a weapon sanduk, with some weapons still existing in the same place. The castle had these units: infantry, cavalry, artillery and other Ottoman military units. According to data, in the castle barracks among others, the regiment II of Sultan II battalion also stayed. During the period when Prizren was the center of the vilayete, the castle had 2818 infantry soldiers, 836 cavalry soldier. Thus at that time the Prizren garrison had more soldiers than those in Nis, Skopje and Diber" [5] [6]. The Fortress covers an area of 1.6 ha (approx. 16.00 meters square). It is a heart shaped fortification which consists of three sub-complexes: Upper Fortress; (2) Lower Fortress and (3) Southern Fortress [2] [6] [25].

In 1798 the representative of Prizren, "Rustem Pasha with the help of his servants restored the castle again. Before Rustem Pasha, some representatives including those from Prizren had summer homes in the castle" [5]. By 1808, the fortress was in good condition and in the same year Emin Pasha Rotulli constructed the mosque. The renovation of the mosque was done by Mahmut Pasha Rotulli in 1828. During this time the Clock Tower was also constructed, the clock and the bell were brought from Smederevo [2]. According to Raif Virmica, "in 1831 Mahmut Pasha restored the casle and the mosque, which was demolished during the Austro-Ottoman war. The clock tower was also reconstructed at that time" [5] [25].

The fortress of Prizren was used exclusively as a military fortification until 1882, when some military premises were built in the western part of the town. The castle continued to be used as storage for guns, a jail and had also other secondary uses. Rapid deterioration of the fortress started after 1914. In 1938 a water reservoir was installed near the western covered corridor [2] [6] [25].

Figure 1. Urban morphology of Prizren. Castle silhouette is accented.
Source: Authors, 2016.

Archaeological excavations conducted in 1969 and 2004 resulted in the discovery of the infrastructure, which is presented with walls (pinnacles) reinforced with towers, casamates, mazes, storages and a range of objects within the structure [6].

Continuation of archeological excavations conducted in 2004 and 2009/2011 revealed a prehistoric settlement from the late Bronze and early Iron period, which served as the first core of life in this country. Also for the first time these excavations revealed traces of architecture and evidence of datable material of Roman and late antiquity.

During the Ottoman period, "the castle expanded with fortification walls built and strengthened and enriched with new buildings such as the hammam, mosque and other buildings for military needs. Its last renovation was done in the third decade of the 19th century, by the local family of Rotllaj" [6] [25].

In 2008-2010 some conservation-restoration works started as an emergency measure to prevent the degrading process of the castle [4]. Interventions in the castle undertaken during 50' s were focused mainly in geodesic recording [6].

In 1969 the first archaeological excavations were done. At the same time the adaption plan of the castle was elaborated. Archaeological excavations have continued in 2004, 2009-ong. [25].

Fieldwork already conducted:

- "Restoration – conservation works in 1963 and 1964 [2].
- Archaeological excavation and conservation in 1969, by IPCM Serbia and IPCM Kosovo [2].
- From 1969 to 1999 minor interventions have been conducted on bastions and certain parts of the fortress in order to prevent its further devastation. During that period global works for the protection and parts of the fortress haven't been undertaken [2].
- A path has been laid from St. Trinity church up to the fortress entrance, together with illumination by electricity, in 2003 [2].
- Archaeological excavations and the partial cleansing of the vegetation in 2004 [2].
- Since 2009, archaeological excavations and conservation of structures are financed by the Ministry of Culture, Youth and Sport and implemented by the Kosovo Archaeological Institute" [2] [6] [25].

From past excavations in the fortress, many interventions carried out in different time periods were noticed. These "interventions were mostly conducted in the 16th and 17th century. In the 16th century, the Ottoman Empire after the interventions that separate the upper town and lower town of the castle, built two rectangular towers. While in the 17th century the interventions have largely influenced the growth and change of the overall shape of the castle. In the east side of the castle was built a tunnel, while in the south side of the upper city, the lower city was formed. Among these interventions are the reinforcements of casamates holders between the upper and the lower city" [6]. Also on the north, northwest and northeast side other casamates were built. One of the casemate built on the west side of the lower city was restored after being quite damaged. During the 1969 excavations, were discovered traces of the 19th century mosque. It was also revealed that another mosque dating from the 16th century existed at the same location. Until today the most preserved parts of the castle are those restored during the 16th and 17th

century. In the 19th century, special rooms were built within the casametes. These rooms were used as prisons or might have been built only to resist destruction [5] [6] [25].

MATERIALS and METHODS

The study presented in this paper explored the Prizren urban composition structure, with accent on the Prizrens's castle, and humanities heritage assets. The research methods consist of empirical observation, focussing to the castle campus structure. In order to receive a clearer information's, exploring is made within heritage framework, shapes of architectural heritage structures, position of the castle regarding to the morphology of the city of Prizren. Prizren castle were investigated through literature review, Municipality documentations and old drawings. Most documentation contains old photos, pictures of the urban composition of castle campus, regarding to the city urban spatial regulation. The collected documents include maps, drawings, history observations, government documentations, environmental features and attributes of space. The supplementary data for this study is based on the analysis of the Municipality of Prizren archives, and researches within the Kosovo Institute of Archaeology.

Protection of the heritage site

During the period 1948-1999 the fortress was protected at national level. It was classified as a "first level" monument. Prizren Castle is a protected archaeological site since 1967. The site is in the List of Cultural Heritage under Temporary Protection of the Ministry of Culture, Youth and Sports. (Decision number 1585/48, MCYS, 2014) This site is protected by the Law on Cultural Heritage (No. 02/L-88), Law on Special Protective Zones (No. 03/L-039) and Law on Historic Center of Prizren (No. 04/L-066) [6] [25].

At the local level, in December 2008 the Municipality of Prizren adopted Prizren Historic Area Conservation and Development Plan (2008), which serves as a regulatory plan for the historic area of Prizren. Prizren Castle is in the Zone IV of Potkaljaja- Preserving the urban traditional model. Restoration of the Church of St. Saviour, Theological School and the City Castle [2] [6] [25].

Condition of the heritage boon

The castle is constantly exposed to climate conditions: ″humidity, freezing temperatures, heat and abundant vegetation, which by their complexity systematically harm the castle. The other destructive factor is the lack of protection and the free and uncontrolled movement of visitors over the castle walls, which harms the peripheral walls and the walls of

the other objects within the interior of the castle. The castle is going under a number of threats actually" [6].

An eventual threat might arise from developers wishing to build a local ski link and big asphalt road near the site. There was also a proposal for building a modern hotel on the site in the last two decades. "Lack of a management plan will lead to unplanned buildings in the structure. There is a lack of instructions/ signs for visitors, and no sign showing that the site is a protected asset. There is an emerging need for restrictions as to where people can move on the site and a need for the wall edges to be protected. Approach through the route toward the castle is not adequate. There is lack of a parking lot and no area for the exclusive use of disabled people" [2] [4] [6] [25].

The connotation of the site

"Prizren's Fortress is one of the most ancient forts in Kosovo and is considered to have extraordinary archaeological, architectural, historical and cultural heritage value for the country, in particular, and South-East Europe in general. Located on the south-east side of Prizren, it is considered to be the city's symbol and an important element in Kosovo's cultural identity. Built on a high hill, in a picturesque environment, and having an extraordinary strategic location, the Fortress dominates the town as well as the impressive, deep Lumbardhi/Bistrica valley and the big Dukagjini area" [6]. Its historical values arise from the fact that it was the first cell of the ancient city of Prizren, with a dominant position over the city, in a very picturesque countryside. As such, the castle became a symbol of the city, as well as of the region. There is cultural stratification since the prehistoric period. Parts of its architecture belong to an early Byzantine period, but the Ottoman character predominates. According to historical sources, some objects of Slavic architecture, might have existed. The Ottoman military architecture is individualized by the general concept of a harmonious building conception, using the whole terrain space and the dominant position of the hill. The Castle was built using local materials with traditional techniques. The variety of stones used in the structure increase the Castle's grandiosity [2] [6] [25].

The preservation of the site

The project for the preservation of Prizren Castle is implemented by Cultural Heritage without Borders (CHwB), responsible for the interpretation, adaptation and management plan of the site as well as the Archaeological Institute of Kosovo, responsible for the excavation and

conservation of the castle structures. The length of the project is 36 months, starting from 2015-2017, (CHwB) [6].

"The working group of the project composed of representatives of CHwB, the Archaeological Institute of Kosovo, Kosovo Council for Cultural Heritage, Council on Historic Centre of Prizren, the Ministry of Culture, Youth and Sport, Kosovo Institute for the Protection of Monuments, the Ministry of Environment and Spatial Planning, the Municipality of Prizren, NGOs and independent professionals have started the first activities for the implementation of the project" [6] [25].

The "memorandum of understanding for the preservation of Prizren Castle" was signed on the 25th of September 2014, between CHwB Kosovo, Kosovo Archaeological Institute, Ministry of Culture, Youth and Sport and the US Embassy in Pristina, which is also funding the project through the Ambassadors Fund for Cultural Heritage [6] [25].

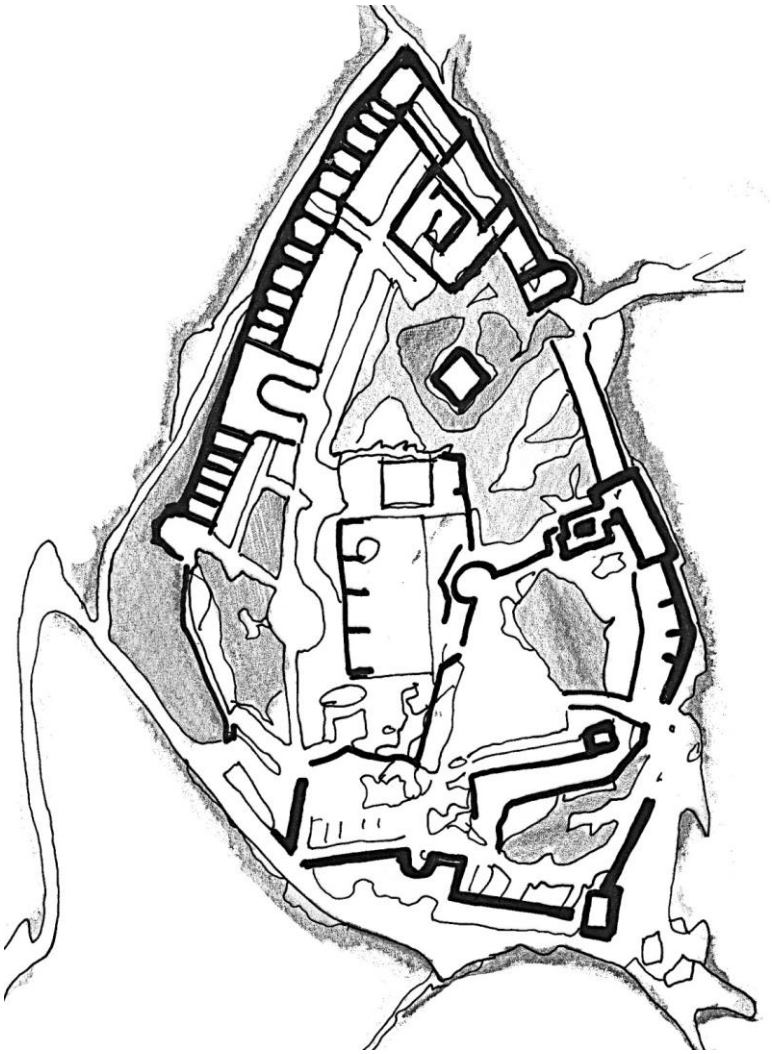


Figure 2. Composition of campus structure, castle in Prizren. Source: Authors, 2016.

RESULTS and DISCUSSION

“The sustainable management of cultural heritage at the service of development bears at least two important dimensions, that of longevity and that of economic, environmental and social viability. Thus in the first instance, the physical aspects of cultural heritage (the brick and mortar of historical buildings, the objects of material culture) are valued and their continued existence in good condition represents a form of sustainability of heritage management… Secondly, no management of cultural heritage is sustainable unless it is economically, environmentally and socially viable” [7].

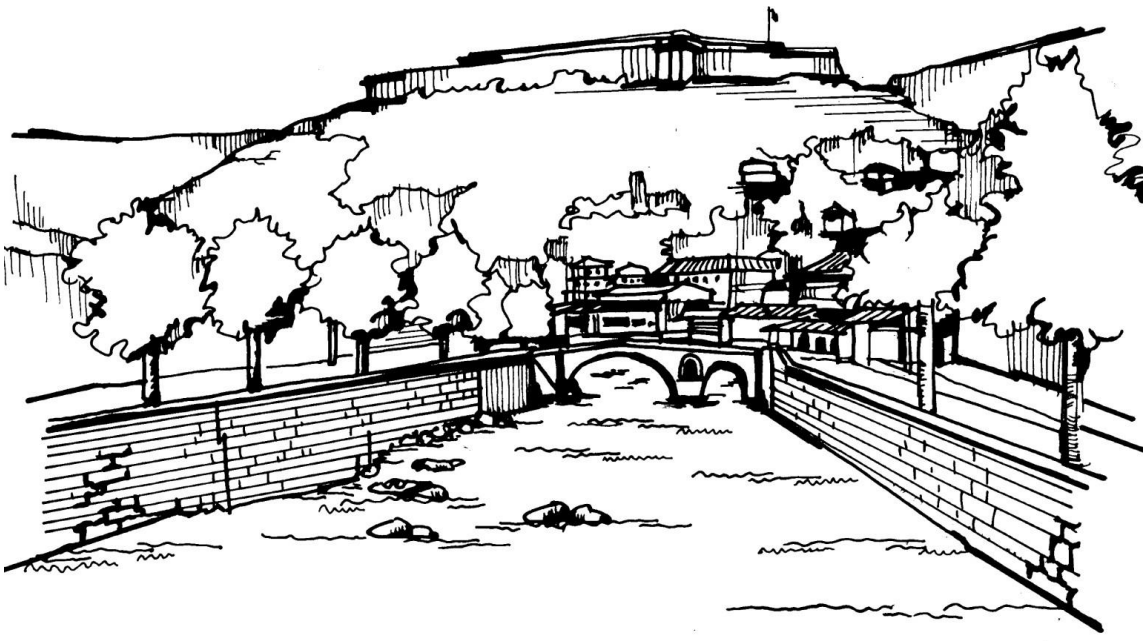


Figure 3. Urban composition and visuality of castle in Prizren. Source: Authors, 2016.

Reminiscence and heritage boon of the site

“The inclusion of heritage assets in the balance sheet could provide the opportunity for governments or other bodies that hold them to obtain useful information about their nature and potential in order to facilitate the achievement of objectives for decision-making and performance measurement“ [8].

“Much of the debate in the literature comes from the Australian and New Zealand cases, where governments were early adopters of NPM techniques, and have required heritage assets to be shown on balance sheet as part of property, plant and equipment. Some commentators

agree with the standard setters that heritage assets are considered assets because they assist the entities to achieve their objectives and so they can be included on the balance sheet" [9].

Even if they are not able to generate direct future economic benefits, these benefits accrue from their ability on satisfying human wants and needs. "The majority of academics who don't agree with the idea of valuing heritage assets argue that they cannot properly be described as financial assets and do not satisfy the criteria for recognition as an asset… Heritage assets "are not assets, either in conventional accounting terms or in commercial or common-sense terms" [10] [22].

Moreover, they argue that "heritage assets have cultural, historical and scientific value that cannot be translated into financial terms". Hence, they are "items held in trust by entities". Repositories of collections are "not commercial enterprises": "Their business is to be and to hold, not to do business and, as a consequence, they have non-commercial objectives" [11].

Hence, Barton 2000, argues that heritage assets are mainly managed by governments as a trustee for the benefit of society. They therefore do not belong to governments but to the community: "They are the people's assets managed and controlled by government on behalf of its citizens". According to, Barton 2000, as trustee assets they must be represented in a separate budget compared to other assets that are used for operational purposes [11].

Similar views are also held by, Pallot 1990 [12], and Mautz 1998 [13], who respectively classify such assets as "community assets and facilities assets". Mautz's earlier work,1988, took the view "that heritage assets should not be considered assets because they are not able to generate positive cash flow". He argues that "heritage assets have a use to the external community, rather than being represented by an economic use through the potential of a future sale. As they are vital to the pursuit of social goals to which the public entities aspire, they will not usually be sold" [13] [22].

Carnegie and Wolnizer, 1995 [9], have built on this view and argue that given their nature, heritage assets are able to absorb wealth but not to generate it in financial terms: "whilst revenue income is low or zero, resources need to be spent maintaining and conserving, thus leading to overall net negative cash flow. As a consequence, it would be more appropriate to classify them as liabilities, or alternatively to call them facilities and show them separately. Facilities encompass all those heritage assets that are acquired principally to facilitate transferring resources (as social benefits) to the community" [10] [22].

These "considerations are valid both for the public and not-for profit sector but including heritage assets in the balance sheet, whether as part of property, plant and equipment,

as required by international standards, or in a separate class as suggested by academics, raises issues about their recognition and valuation", as noted by Christiaens, 2004 [14].

And also their disclosure [15], on the other hand, "there have been so many debates if actually putting a value on heritage assets gives an opportunity to obtain future economic benefits, if heritage assets have historic value which shouldn't be translated into economic value and if heritage assets should be represented in a separate budget. The question is whether these arguments come as a result that many people believe that heritage belongs to social life thus it shouldn't be sold nor economically valued. Some people may ask why we bother to value our heritage at all: surely our heritage is beyond monetary value? But life is not as simple as that, the built heritage does have to be valued, and the methods by which society places value, and the accuracy of these methods, have over the past twenty years become increasingly important when decisions affect the future of our historic heritages" [16] [22] [25].

Approaches of accounting for heritage assets

"The valuation methodology of heritage assets can be split into traditional market valuation methods, which are used for majority of heritage assets, and the non-market valuation methods, which attempt to place a value on the non-functional heritage assets" [16] [17] [22].

Market value valuation methods

"The most common methods are the comparable and investment methods. The comparable method analyses recent transactions of similar properties in the same location. It applies a rate per square metre to the property to be valued, having made adjustments for location, condition and so on. It is a reasonable and accurate method for commercial and residential valuations, but it more complex when applied to historic houses. In some places it is impossible to use this method, for example in the Royal Crescent in Bath, none of historic buildings is identical, and thus the architectural style, attractiveness, history, repair and possible maintenance complicate the approach. The investment method is where an income stream is capitalised at a yield determined by the market" [16].

"Careful analysis of comparable transactions is required to judge the income flow projection. This method applies mainly to commercial properties such as offices, shops, factories and warehouses. Another valuation technique that applies to businesses, especially hotels, is the going concern approach. Some historic hotels and large country houses converted

to hotels can generate a 'heritage premium', and a higher room rental can be achieved because of the historical ambience and architectural style of the property" [16].

"Another valuation method is the Depreciated Replacement Cost, which is not normally considered appropriate for heritage assets" [17].

Non-market value valuation methods

"*The contingent valuation method (CVM):* directly questions consumers on their stated willingness to pay for example an environmental improvement or their willingness to accept compensation for a fall in the quality of the environment" [16].

"*The hedonic pricing method (HPM):* was developed by Rosen, 1974, and is similar to the traditional comparable method. It is the most theoretically rigorous valuation method, which aims to determine the relationship between the attributes of a good and its price. The basis of this method is that any differentiated product unit can be viewed as a bundle of characteristics, each with its own implicit price. In the case of housing, for example, the characteristics may be structural, such as number of bedrooms, size of plot, presence or absence of garage, and can range through to environmental matters, noise levels, presence of views and crime rate" [16] [18].

"*The travel cost method (TCM):* developed by Clawson and Knetsch, 1966, is a simpler method than HPM, because it is based on the premise that the cost of travel to recreational sites can be used as a measure of visitors' willingness to pay" [16] [18]. Loughborough University developed another system that helps to assess the construction projects' value. "It is called Managing Value Deliver in Design (VALiD) and is specially designed to help stakeholders understand one another during team formation and provide a comprehensive view on value" [19].

"The market value of a property is used by local planning authorities and English Heritage when considering applications for enabling development. Both English Heritage and Heritage Lottery Fund use market valuations when assessing certain types of grant assistance, as do leading bodies when valuing heritage properties for lending purposes" [21] [23].

On the other hand, RICS and Kingston University conclude in their report that "many heritage assets are not capable of being valued to Market Value, using conventional techniques. For such assets, the use of a cost approach is also inappropriate. Accordingly, it puts forward for debate some possible alternative methodologies that could be considered appropriate to provide owners and their stakeholders with better information as to the worth of their assets.

The market value approach is recommended for valuations of portable property, taking due account of issues of lotting and location connectivity" [17].

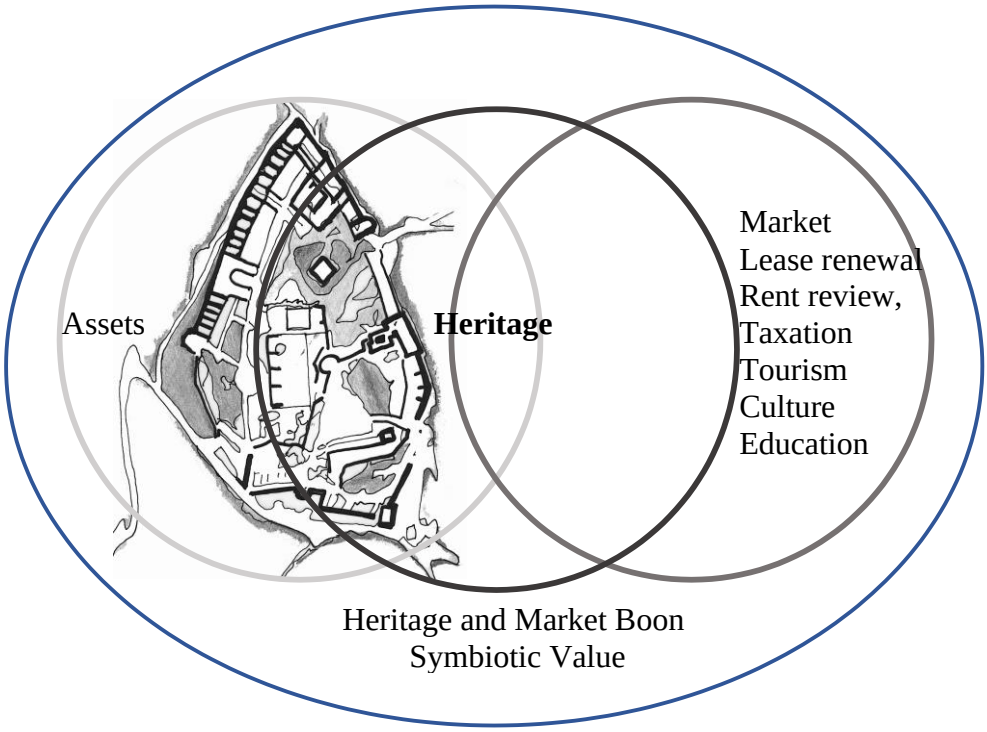


Figure 4. Preferred symbiotic role: Heritage and Market boon. Source: Authors, 2016.

"*Alternative Approaches*: Contingent valuation or contingent choice methods could also be used in this case. While they might produce more precise estimates of values for specific characteristics of the site, and also could capture non-use values, they would be considerably more complicated and expensive to apply" [24].

Hence, conceptually there is much cogitation among professionals about whether heritage assets should be certainly classified as assets, or whether they meet the rationale at all, given that a crucial part of the definition of an asset is that it should provide future wellbeing and benefit to the society.

CONCLUSIONS

The fortress is a site with a great local social impact being the main attraction in the town of Prizren. There are no commercial facilities in the fortress hence the site has not contributed to the development of local commerce. Expectations are high on the role the fortress can play in the sustainable development of the town of Prizren. Hence, these expectations have not been

met and in order to meet them, a lot of efforts are required to make the fortress a self-sustaining site. With such an attractive position overlooking the 'cultural capital' of Kosovo, the fortress is frequently visited by the local community and international visitors. It has great potential for further development of cultural tourism, recreation, and cultural activities. When conserved and adapted for new use, the new function will be designed with the committee and public consultations, and a management plan has to be drafted and implemented. Before drafting the document, a managing body should be established, being it a governmental organization, non-governmental organization, private companies or Public-Private. However, if a castle would be managed by a private company, it should somehow be valued, so that its rent could be calculated properly as well as its income generating. The methods of valuation, stated above are quite difficult to be used as means for valuation of this site. This is mainly because no valuation of cultural heritage properties has been ever done in Kosovo, and for example, the comparable method cannot be considered. Surely, Prizren Castle should not be let, even actually its value is not known? On the other hand, we prefer that these methods can be modified and used, as a meaning for valuing the property? With the society moving towards greater energy consuming and environmental sustainability, Municipality and authorities must to reconsider to reuse the historic buildings before a new building has to be erected. Hence, we conclude that the valuations of heritage assets present unique challenges and for many of them, valuations are both possible and desirable, therefore valuing heritage assets can help in different means: lease renewal, rent review, taxation, management and conservation of heritage assets.

References

[1] Thaci, K. (2011) The interaction between inscribed and potential World Heritage Sites and new developments in the same environment. Unpublished dissertation. London: Kingston University.

[2] European Commission/ Council of Europe (2009) Preliminary Technical Assesment of the Architectural and Archaeological Heritage in South East Europe. Prizren Fortress (Kalaja) Prizren.

[3] Procopius, c. AD. 500, http://research.omicsgroup.org/index.php/Procopius, [Accesed: September 2016.

[4] Ministry of Culture, Youth and Sport (2015) Cultural Heritage Database. Prizren Castle.

[5] Virmiça, R. (1999) Kosova'da Osmanli Mimari Eserleri, Ankara.

[6] CHwB (2011) Conservation and Development Plan for the Historic Zone of Prizren. The project for the preservation of Prizren Castle, 2015. Kosovo: CHwB.

[7] UNESCO, Towards a UNESCO culture and development indicators suite. http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/CLT/creativity/pdf/culture_and_development_indicators/Dimension%203%20Heritage.pdf [Accesed; September, 2016].

[8] Barton, A. (2005) The conceptual arguments concerning accounting for public heritage assets: a note. Accounting, Auditing & Accountability Journal, Vol. 18 No. 3.

[9] Micallef, F. and Peirson, G. (1997) Financial reporting of cultural, heritage and scientific and community collections. Australian Accounting Review, Vol. 7, NO 1.
[10] Carnegie, G.D. and Wolnizer, P. (1999) Unravelling the Rhetoric about the Financial Reporting of Public Collections as Assets, Australian Accounting Review, Vol.9, No1, pp. 16-21.
[11] Barton, A. (2000) Accounting for public heritage facilities - assets or liabilities of the government? Accounting, Auditing & Accountability Journal, Vol. 13 No. 2.
[12] Pallott, J. (1990) The nature of public assets: A response to Mautz. Accounting Horizons, June.
[13] Mautz, R.K. (1988) Monuments, Mistakes, and Opportunities. Accounting Horizons, June.
[14] Christaens, J. (2004) Capital Assets in Governmental Accounting Reforms: Comparing Flemish Technical Issues with International Standards. European Accounting Review, Vol. 13, No. 4.
[15] Stafford, A. & Lacerra, A. (2009) Accounting for the past: the challenges for UK public benefit entities in accounting for heritage assets. A paper for presentation at the BAA Northern Accounting Group Conference, Manchester Metropolitan University. UK: Manchester Business School.
[16] Forsyth, M. (2007) Understanding historic building conservation. Oxford: Blackwell.
[17] Kingston University & RICS (2009) Valuing Heritage Assets. Final report of a research project: Examining the case for the valuation of heritage assets. London: RICS.
[18] Rosen, S. (1974) Hedonic prices and implicit markets. Journal of Political Economy 82. P.34-55.
[19] Clawson, J. & Knetsch, M. (1966) Economics of outdoor recreation. Baltimore: Johns Hopkins Press.
[20] Thomson, D. et.al. (2003). Managing value and quality in design. Building research and information 31, 5. P. 334-345. http://www.valueindesign.com/
[21] Boniface, S. (1998) Mortgage valuations on historic buildings. The building conservation directory. Tisbury: Cathedral Communications.
[22] Aversano, N., Ferrone, C, 2012. The accounting problem of heritage assets, Advanced Research in Scientific Areas 2012. International Virtual Conference.
[23] Whimster, Associates, Enabling development and the conservation of significant places, English Heritage 2008
[24] Travel Cost Method, http://www.ecosystemvaluation.org/travel_costs.htm [Accessed: September, 2016].
[25] Thaci, K., Bajçinovci, B,. Aliu, R. 2015. 3rd International conference, CICOP BiH, The Importance of Place. CICOPBH, Sarajevo Vol. 3 No. 1, 2015.
[26] Porter, S. (2004) An examination of measurement methods for valuing heritage assets using a tourism perspective. Qualitative Research in Accounting & Management, Vol. 1 No. 2.
[27] FRAB (2001) FRAB Fourth Report 2000-2001.
[28] ASB-Accounting Standards Board (2009) FRS 30 42 Heritage Assets. London.

LITERATURE

1. Abel, C.(2004). *Architecture,Technology and Process.* Oxford, UK: Elsevier
2. ACRP, report 130. (2015). Guidebook for Airport Terminal Restroom Planning and Design. Federal Aviation Administration, © National Academy of Sciences. USA.
3. Alfeld, E, L. (1995). Urban dynamics-The first fifty years. System Dynamics ReviewVol. 11, no. 3: 199-217. John Wiley & Sons, ltd.
4. Agjencia e Statistikave të Kosovës. Popullsia e Kosovës 2014. 2015.
5. Audi, R. (2011). *Epistemology*. London, UK. New York. USA : Routledge. Tailor & Francis Group.
6. Asociacioni i Komunave të Kosovës. Deklaratë parimore: Planifikimi urban dhe rural. 2010.
7. ASK. (2018). Statistikat e transportit dhe telekomunikacionit TM 1 – 2016. Ministria e Punëve të Brendshme
8. Asistenca evropiane 128976/C/SER/KOS
9. Averill, A.B; Eldredge, P. (2012). Principles of General Chemistry
10. Batty, M., Torrens M.P. (2005). *Modelling and prediction in a complex world*. London, UK. Salt Lake City, USA : Elsevier.
11. Bajçinovci, B., Thaçi, K. (2016). *Heritage and Artistic Boon: Valuing Prizren Castle.* Journal of Science, Humanities and Arts. JOSHA. ISSN: 2364-0626. Vol. (3), Is. 5. 2016. DOI: 10.17160/josha.3.5.228
12. Bajçinovci, B., Jerliu, F. (2016). Integrated Design as an Evolutive Transdisciplinary Strategy. European Journal of Technology and Design, Vol. (13), Is. 3: pp. 90-98. 2016. DOI: 10.13187/ejtd.2016.13.90
13. Bajçinovci, B. (2016). *Challenges of Architectural Design in relation to Environment and Air Pollution. A Case study: Prishtina's first public parking Garage.* Journal of Science, Humanities and Arts. JOSHA. ISSN: 2364-0626. Vol. (3), Is. 7. 2016. DOI: 10.17160/josha.3.7.254
14. Bajçinovci, B. (2016). *Hybrid Structures as a Symbiotic Bond of Art and science.* Journal of Science, Humanities and Arts. JOSHA. ISSN: 2364-0626. Vol. (3), Is. 5. 2016. DOI: 10.17160/josha.3.5.233
15. Bajçinovci, B., Jerliu, F. (2016). *Urban Resettlements and Environmental Engineering as a Context for Human Development. A Case Study: Hade. Journal of Applied Engineering Sciences*, Vol. 6(19), Is. 2/2016, Art. No. 203, pp. 7-14. 2016. DOI: 10.1515/jaes-2016-0011
16. Bajçinovci, B. (2016). *Architectural Conceptual Design – the Sustainable Shopping Malls Structures*. European Journal of Technology and Design, Vol. (14), Is. 4: pp. 136-143. 2016. DOI: 10.13187/ejtd.2016.14.136
17. Bajçinovci, B., Jerliu, F. (2016). *Achieving Energy Efficiency in Accordance with Bioclimatic Architecture Principles.* Environmental and Climate Technologies. Vol. (18), pp. 54-63. 2016. DOI: 10.1515/rtuect-2016-0013

18. Bajçinovci, B., Thaçi, K., B. Q. Bajçinovci (2016). *Architectural Reflection on Italo Calvino's Invisible Cities.* Journal of Science, Humanities and Arts. JOSHA. Vol. (4), Is. 1. 2018. DOI: 10.17160/josha.4.1.261
19. Bajçinovci, B., Jerliu, F. (2016). *Complexity of Iterative Model - Architectural Integrated Design as an Evolutive Transdisciplinary Strategy. Case Study: A City Without a River.* Journal of Science, Humanities and Arts. JOSHA. ISSN: 2364-0626. Vol. (4), Is. 1. 2018. DOI: 10.17160/josha.4.1.264
20. Bajçinovci, B. (2018). *Ecological Factors Regarding to the Site Selection and Architectural Design of Parking Garages.* European Journal of Technology and Design, Vol. (5), Is. 1. 2018. DOI: 10.13187/ejtd.2018.1
21. Bajçinovci, B., Jerliu, F. (2016). *The Concept of "Modelarium" and its Impact on Creativity and Artistic Education.* Review of Artistic Education, Vol. (14), Is. 1. 2018. DOI: 10.1515/rae-2018-0030
22. Bajçinovci, B., Jerliu, F. (2018). *Impact on pollution and Urban liveability – Abandoned Quarries.* Pollution Research, Vol. (36) , Is.1: 23-28.
23. Bajçinovci, B., Bajçinovci, U., B. Q. Bajçinovci. (2018). *Aloft Metabolism: A Juncture of Architecture Future Design.* European Journal of Technology and Design, Vol. (5), Is. 1: 14-19. DOI: 10.13187/ejtd.2018.1.14
24. Bajçinovci, B. (2018). Sustainable Architectural Design - Principles - in the Albanian Language. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.4.3.306
25. Bajçinovci, B. (2018). Airports - Planning and Design- in the Albanian Language. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.4.3.309
26. Bajçinovci, B. (2018). Commercial Hybrid Buildings - Planning and Design- in the Albanian Language. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.4.3.307
27. Bajçinovci, B. (2018). Hotels - Design Principles - in the Albanian Language. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.4.3.312
28. Bajçinovci, B. (2018). Industrial Complexes – part 1, Planning and Design - in the Albanian Language. Unpublished, part of the Project: Industrial Complexes - Planning and Design - in the Albanian Language. ResearchGate, DOI: 10.13140/RG.2.2.23049.13923, DOI: 10.13140/RG.2.2.29969.74082, DOI: 10.13140/RG.2.2.33639.75686 DOI: 10.13140/RG.2.2.14293.52965, DOI: 10.13140/RG.2.2.27805.41441
29. Bajçinovci, B. (2018). Industrial Complexes – part 2, Planning and Design - in the Albanian Language. Unpublished, part of the Project: Industrial Complexes - in the Albanian Language. ResearchGate, DOI: 10.13140/RG.2.2.15086.10564
30. Bajçinovci, B. (2018). Variegated Dynamic Functions as a Blend of Architectural Design and Contemporary Integrated Conceptualization. European Journal of Technology and Design, Vol. (5), Is. 2. 2018. DOI: 10.13187/ejtd.2018.2.46
31. Bajçinovci, B. (2018). The Vertical Farm - Architectural Design Principles - in the Albanian Language. Unpublished, part of the Project: The Vertical Farm - in the Albanian Language. DOI: 10.17160/josha.4.5.354
32. Bajçinovci, B. (2018). Research Centres and Laboratories - Architectural Design Principles.. JOSHA, Journal of Science, Humanities and Arts. Volume: 4 Issue: 5, Freiburg Germany. DOI: 10.17160/josha.4.5.355

33. Bajçinovci, B. (2018). Research Centres and Laboratories – Part 2.Architectural Design Principles.. JOSHA, Journal of Science, Humanities and Arts. Volume: 5 Issue: 3, Freiburg Germany. DOI: 10.17160/josha.5.3.414
34. Bajçinovci, B., Gjinolli, I., Beqiri, Rr. (2018). Measuring Vitality of the Ottoman Public Space in Kosovo Cities. JOSHA, Journal of Science, Humanities and Arts. Volume: 5 Issue: 4, Freiburg Germany. DOI: 10.17160/josha.5.4.417
35. Bajçinovci, B., Nushi, V. (2018). Building Rating System: Kosovar imperative in sustainable context. JOSHA, Journal of Science, Humanities and Arts. Volume: 5 Issue: 2, Freiburg Germany. DOI: 10.17160/josha.5.2.387
36. Bajçinovci, B., Aliu, V. (2018). Visual Organization of Industrial Functional Compositions. JOSHA, Journal of Science, Humanities and Arts. Volume: 5 Issue: 5, Freiburg Germany. DOI: 10.17160/josha.5.5.437
37. Bajçinovci, B. (2018). Creativity of Interactive Academic Education for Sustainable Urban Development. JOSHA, Journal of Science, Humanities and Arts. Volume: 5 Issue: 5, Freiburg Germany. DOI: 10.17160/josha.5.5.441
38. Bajçinovci, B. (2018). Sustainability of Waste Materials in Affinity with Ecologically Sustainable Development: A Case Study of Kosovo. ECOL CHEM ENG S. 2018;25(2):279-293. DOI: 10.1515/eces-2018-0019
39. Banka evropiane për rindërtim dhe zhvillim. Strategji për Kosovën. 2013.
40. Birkby, J. (2016). Vertical Farming. NCAT. A program of the National Center for Appropriate Technology.
41. CAA. (2006). *An Architect's Guide to Designing for Sustainability*. Edgware. UK:Commonwealth Association of Architects.
42. Commission. EACI. Brussels, Belgium:Executive Agency for Competitiveness and Innovation. 6.
43. Clayton, S., Opotow, S.(2003). Identity and the Natural Environment, *The Psychological Significance of Nature*. London, UK : MIT Press.
44. Corbusier, L. (1989). Towards a new architecture. Oxford: Butterworth Architecture.
45. Degen, M. M.(2008). *Sensing Cities*. Rgeneration public life in Barcelona and Manchester. London, UK. New York. USA : Routledge. Tailor & Francis Group.
46. Dhankhar, S. S. (2010). *Environmental Studies*. CSS HAU. Hisar.Dept. Agrometeorology: Agricultural University. 28.
47. Drejt zonës evropiane të sigurisë rrugore: orientimi i politikave për siguri rrugore 2011-2020 . COM82010, 389 final, 20.7.2010.
48. Downton, P. (2009). *Architecture and Cities for a Changing Climate*. Colligwood, Australia:Springer.CSIRO Publishing.
49. Ed. C, Gallo., M, Sala., A.M.M, Sayigh. (Eds). (1988). Architecture: Comfort and Energy. Elsevier.
50. Ed. Banister D.(Eds).(2005). *Transport and Urban Development*. London.UK: Taylor & Francis. E & FN Spon, an imprint of Chapman & Hall.
51. Ed. Clayton, S., Opotow, S. (Eds).(2003). *Identity and the Natural Environment, The Psychological Significance of Nature*. London: MIT Press.
52. Ed. Quatman. W., Dhar, R.(Eds).(2003). *The Architect's Guide to Design-Build Services*. American Institute of Architects. New Jersey & Canada: John Wiley & Sons. Inc.
53. Ed. S. William et al..(Eds).(2005). *Understanding the Global Dimensions of Health*. New York, NY: Springer.

54. Ed. Wilson, A.(Eds).(2001). *Greening Federal Facilities*., Brattleboro, Vermont: U.S. Department of Energy.
55. EU. (2004). Architect's Council of Europe. Architecture and Quality of Life, Bruxelles, Belgium: EU.
56. Evans S. D.; Schmalensee, R.(2007). Catalyst Code: *The Strategies Behind the World's Most Dynamic Companies, Harvard* : Harvard Business School Press.
57. Forrester, J. 1969. Urban Dynamics. Pegasus Communications, Inc.
58. Forrester, J. 1979. World Dynamics. Productivity Pr, 2 ed.
59. Gallo, C., sala, M., Sayigh. M.(Eds).(1998). Architecture : Comfort and Energy. Oxford, UK : Elsevier.
60. Hadorn, H. G. et al.(2008). *The Handbook of Transdisciplinary Research*. Zurich.Switzerland : Springer.
61. Hadrović, Ahmet. (2008). *Bioclimatic Architecture*: Searching for the Path to Haven. Booksurge Publishing: Amazon. com.
62. Highmore, B. T.(2010)*Ordinary Lives*: Studies in the Everyday.London, UK. New York. USA : Routledge. Tailor & Francis Group.
63. Ibrahim, R., Fruchter,. R., Sharif, R. (2007, November). International Journal of Architectural Research. *Framework for a cross-border transdisciplinary design studio education.*, *100*(03).
64. I. Krasniqi, G. Latifi. (1982). *Teknika e tensioneve te larta*. FET, Universiteti i Prishtinës.
65. Kargon, R.,Molella, A.(2008).*Invented Edens*. Invented-Cities of the Twentieth Century. Cambridge, Massachusetts : Massachusetts Institute of Technology.
66. Krasniqi, Fejzullah. Selimaj, R., Malsiu, I.(2004). *Instalimet Makinerike.* Universiteti i Prishtinës.
67. Krasniqi, Fejzullah.(2000). *Ngrohja dhe klimatizimi-II.* Universiteti i Prishtinës.
68. Kwok G.A. et al.(2007). *Environmental strategies for schematic design*. Oxford. UK : Elsevier.
69. Lawson B.(2005). *How Designers Think*. Oxford. UK :Elsevier.
70. Lebel J.(2003). *Health, An Ecosystem Aproach*. Canada : IDRC.
71. Lee, G., Sacks, R., and Eastman, C. M. (2006). *Specifying parametric building object behavior (BOB)for a building information modeling system*. Automation in Construction, *15*(6), pp.758–776.
72. LEED. (2011). U.S. Green Building Council, standard certificates : USA.
73. Mallgrave, F. H.(2010). The Architect's Brain *: Neuroscience, Creativity, and Architecture.* Chichester, West Sussex, UK : Wiley Blackwell, Wiley & Sons,
74. Margolis, L., M., Robinson, A.(2007). Living Systems *: InnovatIve MaterIals and technologIes for landscape archItecture.* Berlin, Germany:Birkhäuser Verlag AG.
75. Mega, P. V.(2010). *Sustainable Cities for the Third Millennium*: The Odyssey of Urban Excellence. New York, Dordrecht, Heidelberg, London : Springer.
76. Meijer, F., Visscher, H., Sheridan L.(2002). *Building regulations in Europe*. I. Nederlands :Delft Uni. pp. 6-188.
77. Ministria e Energjisë dhe e Minierave, (2008). Raport
78. MMPH. Raport për gjendjen e ajrit. 2012.
79. OECD (2010), *Cities and Climate Change*. Paris, France :OECD Publishing.
80. OGC, CABE,.(2002*). Improving Standards of Design: in the Procurement of Public Buildings*. London,UK:OGC. 24.
81. OPR. (2007). ASHRAE.*Energy Efficiency and Environmental Sustainability. ASHRAE Standard 90.1-2004.* Atlanta, USA :ASHRAE.

82. Orr W. D. (2002). *The Nature of Design. Oxford*, UK :Oxford Uni. Press.
83. Plani Global i dekadës së strategjisë së sigurisë rrugore 2011-2020, e shpallur nga Asambleja e Përgjithshme e Kombeve të Bashkuara me 2.3.2010
84. Piotrowski, A.(2011). *Archirecture of Thought*. Minneapolis, USA : University of Minnesota Press.
85. Projekti PUP, Prishtinë. (1987). *Projeksioni Prishtinës 2000*.
86. Pushka, A. (2004). "Statistikat vitale të kohës më të re", ESK. Prishtinë.
87. Politika evropiane e transportit per 2010: Koha te vendosim . COM(2001) 370 final, 12.10. 2001.
88. Programi evropian për siguri rrugore – Përgjysmimi i numrit të viktimave nga aksidentet rrugore deri me 2010 ne Bashkimin Evropian: Pergjegjesi e perbashket. COM (2003) 311 final, 2.6. 2003.
89. RKS. Qeveria. Strategjia Sektoriale dhe Transportit Multimodal 2015-2025 dhe Plan i veprimit 5 vjeqar. 2015.
90. RKS. Qeveria. Ministria e Infrastrukturës. 2015, v1.6. Strategjia e Sigurisë Rrugore dhe Plani i Veprimit në Kosovë
91. Road Transport, 2012. European Union. Luxembourg: Publications Office of the European Union, 2012.
92. Samuelsson, L. (2008). *The moral status of nature*. Umeå,Sweden : Umeå University.
93. Shedroff, N.(2009). *Design Is the Problem*, The Future of Design Must be Sustainable. Brooklyn, NY. USA : Rosenfeld Media.
94. Statistikat dhe analizat e aksidenteve të komunikacionit në periudhën 2013 - 2014, Drejtoria e Komunikacionit, Policia e Kosovës
95. Smuts, J. (1927). *Holism and Evolution*. London, UK: McMillan and Co Limited.
96. UN. Habitat: World Cities Report, 2016.
97. UN, DESA. UN. Habitat: Living Planet Report, 2015
98. WHO, World Health Organization. (2009). Global status report on road safety, time for action. Printed in Switzerland.