

CONFERENCE
PROCEEDINGS

**5th INTERNATIONAL
ACADEMIC CONFERENCE ON
PLACES AND TECHNOLOGIES**

EDITORS

ALEKSANDRA KRSTIĆ-FURUNDŽIĆ

MILENA VUKMIROVIĆ

EVA VANIŠTA LAZAREVIĆ

AND ALEKSANDRA ĐUKIĆ

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There are a number of reasons why the incidence of meningitis due to *S. pneumoniae* may have increased in the United Kingdom. First, the incidence of pneumococcal carriage in the community has increased [11]. Second, the incidence of pneumococcal carriage in day care centres has increased [12]. Third, the incidence of pneumococcal carriage in the household has increased [13]. Fourth, the incidence of pneumococcal carriage in the hospital has increased [14]. Fifth, the incidence of pneumococcal carriage in the nursing home has increased [15].

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TABLE OF CONTENTS

TABLE OF CONTENTS

IMAGE, IDENTITY AND QUALITY OF PLACE: URBAN ASPECTS

THE EFFECT OF BEHAVIOURAL SETTINGS ON THE REGENERATION OF URBAN DYNAMIC ARTS, CASE STUDY: TEHRAN AZADI SQUARE Yasaman NEKOUI Ali Entezarinajafabadi	3
DEVELOPMENT SCENARIOS OF THE ZAGREB'S SATELLITE TOWN DUGOSELO - "THE CITY OF THE FUTURE" Lea Petrović Krajnik Damir Krajnik Ivan Mlinar	11
SUSTAINABILITY OF MODERN-DAY UTOPIAS AS SEEN IN MASS MEDIA Aleksandra Til	18
URBAN DENSIFICATION OF THE POST-SOCIALIST CITY AND ITS IMPLICATIONS UPON URBAN STRUCTURE: A STUDY OF NIS, SERBIA Milena Dinić Branković Ivana Bogdanović Protić Mihailo Mitković Jelena Đekić	25
MUSEUM QUARTERS VS CREATIVE CLUSTERS: FORMATION OF THE IDENTITY AND QUALITY OF THE URBAN ENVIRONMENT Ekaterina Kochergina	35
URBAN NON-MECHANICAL CODE AND PUBLIC SPACE Aleksandra Đukić Valentina Milovanović Dubravko Aleksić	43
ADDRESSING THE SOCIO-SANITARY EMERGENCY IN AFRICA: THEORIES AND TECHNIQUES FOR DESIGNING A COMMUNITY HEALTH CENTRE IN MALI Adolfo F. L. Baratta Laura Calcagnini Fabrizio Finucci Cecilia M. L. Luschi Antonio Magarò Massimo Mariani Alessandra Venturoli Alessandra Vezzi	50
THE NETWORK OF LOCAL CENTERS AS A TOOL FOR STRENGTHENING THE SUPER-BLOCK COMMUNITIES: BELGRADE VS. ROME Predrag Jovanović Aleksandra Stupar	58
TRANSFORMATION OF IDENTITY OF SAVAMALA DISTRICT IN BELGRADE Aleksandra Đukić Jelena Marić Tamara Radić	66
THE CULTURE OF MEMORY AND OPEN PUBLIC SPACE - BANJA LUKA Jelena Stankovic Milenko Stankovic	73

IMAGE, IDENTITY AND QUALITY OF PLACE: ARCHITECTURAL ASPECTS

IMPROVEMENT OF SOCIAL HOUSING THROUGH THE MIXING CONCEPT IMPLEMENTATION Nataša Petković Grozdanović Branislava Stoiljković Vladana Petrović Aleksandar Keković Goran Jovanović	83
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IMPROVING THE IDENTITY OF NON – SURROUNDED COMMUNAL SPACES
WITH USING ARCHITECTURAL PROGRAMING. CASE STUDY: NAJAF ABAD
(ESFAHAN), IMAM KHOMEINI SQUARE 91
Ali Entezarinajafabadi YasamanNekoui

A CONTRIBUTION TO THE STUDY OF THE ARCHITECTURAL OPUS OF NA-
TIONAL STYLE WITH MODELS IN FOLK ARCHITECTURE AND NEW INTERPO-
LATIONS 100
Katarina Stojanović

SHOPPING CENTRE AS A LEISURE SPACE: CASE STUDY OF BELGRADE 108
Marija Cvetković Jelena Živković Ksenija Lalović

ARCHITECTURAL CREATION AND ITS INFLUENCE ON HUMANS 119
Nikola Z. Furundžić Dijana P. Furundžić Aleksandra Krstić-Furundžić

INNOVATIVE METHODS AND TECHNOLOGIES FOR SMART(ER) CITIES

POTENTIAL OF ADAPTING SMART CULTURAL MODEL: THE CASE OF JEDDAH
OPEN- SCULPTURE MUSEUM 131
Sema Refae Aida Nayer

AN INNOVATIVE PROTOCOL TO ASSESS AND PROMOTE SUSTAINABILITY IN
RESPONSIBLE COMMUNITIES 140
Lucia Martincigh Marina Di Guida Giovanni Perrucci

GEOHERMAL DISTRICT HEATING SYSTEMS DESIGN: CASE STUDY OF
ARMUTLU DISTRICT 148
Ayşe Fidan ALTUN Muhsin KILIC

DATA COLLECTION METHODS FOR ASSESSMENT OF PUBLIC BUILDING
STOCK REFURBISHMENT POTENTIAL 157
Ljiljana Đukanović Nataša Čuković Ignjatović Milica Jovanović Popović

SMART HOSPITALS IN SMART CITIES 165
Maria Grazia Giardinelli Luca Marzi Arch. PhD Valentina Santi

INNOVATIVE METHODS AND TOOLS

PRIMARY AND SECONDARY USES IN CITIES – PRINCIPLES, PATTERNS AND
INTERDEPENDENCE 175
Marina Carević Tomić Milica Kostreš Darko Reba

MODELLING AND ANALYSING LAND USE CHANGES WITH DATA-DRIVEN MOD-
ELS: A REVIEW OF APPLICATION ON THE BELGRADE STUDY AREA 183
Mileva Samardžić-Petrović Branislav Bajat Miloš Kovačević Suzana Dragičević

INNOVATIVE DECISION SUPPORT SYSTEM 190
Mariella Annese Silvana Milella Nicola La Macchia Letizia Chiapperino

URBAN FACILITY MANAGEMENT ROLE	196
Alenka Temeljotov Salaj Svein Bjørberg Carmel Margaret Lindkvist Jardar Lohne	
ANALYSES OF PUBLIC SPACES IN BELGRADE USING GEO-REFERENCED TWITTER DATA	205
Nikola Džaković Nikola Dinkić Jugoslav Joković Leonid Stoimenov Aleksandra Djukić	
SENTIMENT ANALYSIS OF TWITTER DATA FOR EXPLORATION OF PUBLIC SPACE SENTIMENTS	212
Miroslava Raspopovic Milic Milena Vukmirovic	
CITIES AND SCREENS: ARCHITECTURE AND INFORMATION IN THE AGE OF TRANSDUCTIVE REPRODUCTION	217
Catarina Patrício	
CITIZEN EMPOWERMENT, PUBLIC PARTICIPATION AND DEMOCRATIC CITIES	
CITIES AS PLATFORMS FOR SOCIAL INNOVATION: AN INVESTIGATION INTO HOW DIGITAL PLATFORMS AND TOOLS ARE USED TO SUPPORT ENTREPRENEURSHIP IN URBAN ENVIRONMENTS	227
Margarita Angelidou	
PROBLEM ISSUES OF PUBLIC PARTICIPATION IN HERITAGE CONSERVATION: GEO-MINING PARKIN SARDINIA	235
Nađa Beretić Arnaldo Cecchini Zoran Đukanović	
A METHODOLOGY FOR STAKEHOLDER EMPOWERMENT AND BENEFIT ASSESSMENT OF MUNICIPAL LONG-TERM DEEP RENOVATION STRATEGIES: A SURVEY WITHIN SOUTH-EASTERN EUROPEAN MUNICIPALITIES	242
Sebastian Botzler	
THE OPPORTUNITIES OF MEDIATED PUBLIC SPACES: CO-CREATION PROCESS FOR MORE INCLUSIVE URBAN PUBLIC SPACES	249
Inês Almeida Joana Solipa Batista Carlos Smaniotto Costa Marluci Menezes	
ARCHITECTURE AS SOCIAL INNOVATION: EDUCATION FOR NEW FORMS OF PROFESSIONAL PRACTICE	255
Danijela Milovanović Rodić, Božena Stojčić Aleksandra Milovanović	
CITY AS A PRODUCT, PLANNING AS A SERVICE	262
Viktorija Prilenska Katrin Paadam Roode Liias	
RAJKA: CHANGING SOCIAL, ETHNIC AND ARCHITECTURAL CHARACTER OF THE "HUNGARIAN SUBURB" OF BRATISLAVA	269
Dániel Balizs Péter Bajmócy	
POSSIBLE IMPACT OF MIGRANT CRISIS ON THE CONCEPT OF URBAN PLANNING	279
Nataša Danilović Hristić Žaklina Gligorijević Nebojša Stefanović	

TOWARDS DIMINUISHING DISADVANTAGES IN MIGRATION ISSUES IN SERBIA
(FROM 2015) THROUGH PROPOSAL OF SOME MODELS 287
Eva Vaništa Lazarević Jelena Marić Dragan Komatina

ARCHITECTURAL DESIGN AND ENERGY PERFORMANCE OF BUILDINGS

APPLICATION OF ENERGY SIMULATION OF AN ARCHITECTURAL HERITAGE
BUILDING 303
Norbert Harmathy Zoltán Magyar

APPLICATION OF TRADITIONAL MATERIALS IN DESIGN OF ENERGY EFFI-
CIENT INTERIORS 311
Vladana Petrović Nataša Petković Grozdanović Branislava Stojković Aleksandar Keković
Goran Jovanović

DETERMINATION OF THE LIMIT VALUE OF PERMITTED ENERGY CLASS FOR
THE KINDERGARTENS IN THE NORTH REGION OF BOSNIA AND HERZEGOVI-
NA 318
Darija Gajić Biljana Antunović Aleksandar Janković

ARCHITECTURAL ASPECTS OF ENERGY AND ECOLOGICALLY RESPONSIBLE
DESIGN OF STUDENT HOUSE BUILDINGS 326
Malina Čvoro Saša B. Čvoro Aleksandar Janković

ENERGY EFFICIENCY ANALYSES OF RESIDENTIAL BUILDINGS THROUGH
TRANSIENT SIMULATION 332
Ayşe Fidan ALTUN Muhsin KILIC

INNOVATIVE TECHNOLOGIES FOR PLANNING AND DESIGN OF “ZERO-ENER-
GY BUILDINGS” 340
Kosa Golić Vesna Kosorić Suzana Koprivica

ENERGY REFURBISHMENT OF A PUBLIC BUILDING IN BELGRADE 348
Mirjana Miletić Aleksandra Krstić-Furundžić

TPOLOGY OF SCHOOL BUILDINGS IN SERBIA: A TOOL FOR SUSTAINABLE
ENERGY REFURBISHMENT 357
Nataša Čuković Ignjatović Dušan Ignjatović Ljiljana Đukanović

ARCHITECTURAL DESIGN AND NEW TECHNOLOGIES

EVALUATION OF ADVANCED NATURAL VENTILATION POTENTIAL IN THE
MEDITERRANEAN COASTAL REGION OF CATALONIA 367
Nikola Pesic Jaime Roset Calzada Adrian MurosAlcojor

TRENDS IN INTEGRATION OF PHOTOVOLTAIC FACILITIES INTO THE BUILT
ENVIRONMENT 375
Aleksandra Krstić-Furundžić Alessandra Scognamiglio, Mirjana Devetaković, Francesco
Frontini, Budimir Sudimac

INTEGRATION OF NEW TECHNOLOGIES INTO BUILDINGS
MADE FROM CLT 389
Milica Petrović Isidora Ilić

INTEGRATION OF SOLAR WATER HEATING SYSTEMS INTO GREEN BUILDINGS BY APPLYING GIS AND BIM TECHNOLOGIES 394
Kosa Golić Vesna Kosorić Dragana Mecanov

IMPLEMENTING ADAPTIVE FAÇADES CONCEPT IN BUILDINGS DESIGN: A CASE STUDY OF A SPORTS HALL 402
Aleksandar Petrovski Lepa Petrovska-Hristovska

SIMULATION AIDED ENERGY PERFORMANCE ASSESSMENT OF A COMPLEX OFFICE BUILDING PROJECT 409
Norbert Harmathy László Szerdahelyi

ARCHITECTURAL DESIGN AND PROCESS

THE HABITABLE BRIDGE: EXPLORING AN ARCHITECTURAL PARADIGM THAT COMBINES CONNECTIVITY WITH HABITATION 421
Ioanna Symeonidou

REFURBISHMENT OF POST-WAR PREFABRICATED MULTIFAMILY BUILDINGS 428
Aleksandra Krstić-Furundžić, Tatjana Kosić, PhD

THE FUTURE (OF) BUILDING 438
Morana Pap, Roberto Vdović, Bojan Baletić

COMPARISON OF ARCHITECTS' AND USERS' ATTITUDES TOWARD SPATIAL CHARACTERISTICS OF APARTMENTS 445
Ivana Brkanić

DIGITAL VS. TRADITIONAL DESIGN PROCESS 453
Igor Svetel Tatjana Kosić Milica Pejanović

CREATING THE EASTERN CAMPUS CONCEPT AT THE UNIVERSITY OF PÉCS - CONNECTED THE FACULTY OF BUSINESS AND ECONOMICS 461
Péter Paári Gabriella Medvegy Bálint Bachmann

BUILDING STRUCTURES AND MATERIALS

SUSTAINABILITY BENEFITS OF FERROCEMENT APPLICATION IN COMPOSITE BUILDING STRUCTURES 471
Aleksandra Nenadović ŽikicaTekić

POSSIBILITIES OF ENERGY EFFICIENT REFURBISHMENT OF A FAMILY VILLA IN BELGRADE: A CASE STUDY 479
Nenad Šekularac Jasna Čikić Tovarović Jelena Ivanović-Šekularac

ENHANCING THE BUILDING ENVELOPE PERFORMANCE OF EXISTING BUILDINGS USING HYBRID VENTILATED FAÇADE SYSTEMS 485
Katerina Tsikaloudaki Theodore Theodosiou Stella Tsoka Dimitrios Bikas

STRUCTURAL ASPECTS OF ADAPTIVE FACADES 493
Marcin Kozłowski Chiara Bedon Klára Machalická Thomas Wüest Dániel Honfi

STRATEGIZING FOR INFORMAL SETTLEMENTS: THE CASE OF BEIRUT 500
Hassan Zaiter Francesca Giofrè

THE IMPACT OF USERS' BEHAVIOUR ON SOLAR GAINS IN RESIDENTIAL BUILDINGS 509
Rajčić Aleksandar Radivojević Ana Đukanović Ljiljana

PRESERVATION OF ORIGINAL APPEARANCE OF EXPOSED CONCRETE FACADES, CASE STUDY: RESIDENTIAL BLOCK 23, NEW BELGRADE 517
Nikola Macut Ana Radivojević

ADAPTIVE REUSE

CONVERSION AS MODEL OF SUSTAINABLE SOLUTION FOR DEVASTATED INDUSTRIAL COMPLEXES 529
Branko AJ Turnšek Aleksandra Kostić Milun Rancić

SILO CONVERSION - POTENTIALS, FLEXIBILITY AND CONSTRAINTS 537
Branko AJ Turnsek Ljiljana Jevremovic Ana Stanojevic

ARCHITECTURE OF MULTIPLE BEGINNINGS AS A TOOL OF SUSTAINABLE URBAN DEVELOPMENT 545
Milan Brzaković Petar Mitković Aleksandar Milojković Marko Nikolić

INHABITING THE TOWER. THE PARADIGM OF THE FORTIFIED TOWERS OF MANI AND THE REUSE PROJECT 556
Rachele Lomurno

ADAPTIVE REUSE THROUGH CREATIVE INDUSTRY TOOLS: CASE OF URAL-MASH, YEKATERINBURG, RUSSIA 564
Eva Vaništa Lazarević Timur Abdullaev, Larisa Bannikova

URBAN MOBILITY, TRANSPORT AND TRAFFIC SOLUTIONS

POLICY FOR REDUCING EMISSIONS IN AIRCRAFT OPERATIONS IN URBAN AEREAS BASED ON REGULATORY AND FISCAL MEASURES 579
Marija Glogovac Olja Čokorilo

SIMULATING PEDESTRIAN BEHAVIOUR IN SCHOOL ZONES – POSSIBILITIES AND CHALLENGES 586
Ljupko Šimunović Mario Ćosić Dino Šojat Božo Radulović Domagoj Dijanić

MODEL OF SMART PEDESTRIAN NETWORK DEVELOPMENT USING AN EDGE-NODE SPACE SYNTAX ABSTRACTION FOR URBAN CENTRES 593
Bálint Kádár

THE ROLE OF SMART PASSENGER INTERCHANGES IN THE URBAN TRANSPORT NETWORK 604
Bia Mandžuka, Marinko Jurčević, Davor Brčić

CLIMATE CHANGE, RESILIENCE OF PLACES AND HAZARD RISK MANAGEMENT

THE IMPACT OF CLIMATE CHANGES ON THE DESIGN ELEMENTS OF CONTEMPORARY WINERIES - CASE STUDIES 617
Branko AJ Turnšek Ana Stanojević LjiljanaJevremović

DETERMINATION OF COMMUNITY DEVELOPMENT POLICIES USING URBAN RESILIENCE AND SYSTEM DYNAMICS SIMULATION APPROACH 626
Zoran Keković Ozren Džigurski Vladimir Ninković

QUALITIES OF RESILIENT CITY IN SYSTEMS OF PLANNING SUSTAINABLE URBAN DEVELOPMENT. AN INTRODUCTORY REVIEW. 634
Brankica Milojević Isidora Karan

PLACE-BASED URBAN DESIGN EDUCATION FOR ADAPTING CITIES TO CLIMATE CHANGE 641
Jelena Živković Ksenija Lalović

IMPROVING URBAN RESILIENCE, INCREASING ENVIRONMENTAL AWARENESS: NEW CHALLENGE OF ARCHITECTURAL AND PLANNING EDUCATION 652
Aleksandra Stupar Vladimir Mihajlov Ivan Simic

URBAN RESILIENCE AND INDUSTRIAL DESIGN: TECHNOLOGIES, MATERIALS AND FORMS OF THE NEW PUBLIC SPACE 659
Vincenzo Paolo Bagnato

THERMAL COMFORT OF NIŠFORTRESS PARK IN THE SUMMER PERIOD 666
Ivana Bogdanović Protić Milena Dinić Branković Petar Mitković Milica Ljubenović

LANDSCAPE ARCHITECTURE AND NATURAL BASED SOLUTIONS

SMALL ISLANDS IN THE FRAMEWORK OF THE U.E. MARINE STRATEGY – CHERADI'S ARCHIPELAGO IN TARANTO 679
Giuseppe d'Agostino Federica Montalto

LANDSCAPE AWARENESS AND RENEWABLE ENERGY PRODUCTION IN BOSNIA AND HERZEGOVINA 686
Isidora Karan Igor Kuvac Radovan Vukomanovic

SAVAPARK – A RESILIENT AND SUSTAINABLE NEW DEVELOPMENT FOR ŠABAC	692
Milena Zindović Ksenija Lukić Marović	
ADRIATIC LIGHTHOUSES. STRATEGIC VISIONS AND DESIGN FEATURES	702
Michele Montemurro	
LANDSCAPE ARCHITECTURE AND INFRASTRUCTURES: TYPOLOGICAL INVENTORY OF GREEK WATER RESERVOIRS' LANDSCAPE	710
Marianna Nana Maria Ananiadou-Tzimopoulou	
THE BASIN OF THE MAR PICCOLO OF TARANTO AS URBAN AND LANDSCAPE “THEATRE”	717
Francesco Paolo Protomastro	
INTERWEAVING AND COMPLEXITIES OF THE MAN-MADE ENVIRONMENT AND NATURE	725
Dženana Bijedić Senaida Halilović Rada Čahtarević	
BUILT HERITAGE, NEW TECHNOLOGIES AND DANUBE CORRIDOR	
DIGITAL TOOLS IN RESEARCHING HISTORICAL DEVELOPMENT OF CITIES	737
Milena Vukmirović Nikola Samardžić	
APPLICATION OF BIM TECHNOLOGY IN THE PROCESSES OF DOCUMENTING HERITAGE BUILDINGS	751
Mirjana Devetaković Milan Radojević	
GIS-BASED MAPPING OF DEVELOPMENT POTENTIALS OF UNDERVALUED REGIONS – A CASE STUDY OF BAČKA PALANKA MUNICIPALITY IN SERBIA	758
Ranka Medenica Milica Kostreš Darko Reba Marina Carević Tomić	
MAPPING THE ATTRACTIVITY OF TOURIST SITES ALL ALONG THE DANUBE USING GEOTAGGED IMAGES FROM FLICKR.COM	766
Bálint Kádár Mátyás Gede	
INVENTARISATION AND SYSTEMATIZATION OF INDUSTRIAL HERITAGE DOCUMENTATION: A CROATIAN MATCH FACTORY CASE STUDY	777
Lucija Lončar Zlatko Karač	
CULTURAL LANDSCAPE OF ANCIENT VIMINACIUM AND MODERN KOSTOLAC – CREATION OF A NEW APPROACH TO THE PRESERVATION AND PRESENTATION OF ITS ARCHAEOLOGICAL AND INDUSTRIAL HERITAGE	785
Emilija Nikolić Mirjana Roter-Blagojević	
ALTERNATIVE TERRITORIAL CHANGES OF HOUSING ESTATES TOWARDS A SUSTAINABLE CONCEPTION	793
Regina Balla	

HERITAGE, TOURISM AND DANUBE CORRIDOR

CULTURAL TOURISM IN THE BALKANS: TRENDS AND PERSPECTIVES. 807
Kleoniki Gkioufi

CULTURAL TOURISM AS A NEW DRIVING FORCE FOR A SETTLEMENT REVIT-
ALISATION: THE CASE OF GOLUBAC MUNICIPALITY IN IRON GATES REGION,
SERBIA 814
Branislav Antonić Aleksandra Djukić

CULTURAL AND HISTORICAL IDENTITY OF TWIN CITIES KOMÁR-
NO-KOMÁROM 823
Kristína Kalašová

PLACE NETWORKS. EXPERIENCE THE CITY ON FOOT 830
Milena Vukmirovic Aleksandra Djukić Branislav Antonić

STORIES WITH SOUP - CULTURAL HERITAGE MOMENTS ALONG THE DAN-
UBE RIVER 837
Heidi Dumreicher Bettina Kolb Michael Anranter

ETHNIC AND TOPONYMIC BACKGROUND OF THE SERBIAN CULTURAL HERI-
TAGE ALONG THE DANUBE 844
Dániel Balizs Béla Zsolt Gergely

SPATIAL AND RURAL DEVELOPMENT

BEAUTIFUL VILLAGE PROJECT: AN ARCHITECTUAL AND LANDSCAPE DESIGN
STRATEGY FOR NON-HERITAGE VILLAGES IN HEBEI PROVINCE 859
Dapeng Zhao Bálint Bachmann Tie Wang

CHANGES IN DEVELOPMENT OF NORTHERN CROATIA CITIES AND MUNICI-
PALITIES FROM 1991 TO 2011: MULTIVARIABLE ANALYTICAL APPROACH 869
Valentina Valjak

SPECIFICS OF DYNAMICS OF SHRINKING SMALL TOWNS IN SERBIA 879
Milica Ljubenović Milica Igić Jelena Đekić Ivana Bogdanović-Protić Ana Momčilović-Petroni-
jević

BALANCED REGIONAL DEVELOPMENT OF RURAL AREAS IN THE LIGHT OF
CLIMATE CHANGE IN SERBIA– OPPORTUNITIES AND CHALLENGES 888
Milica Igić Milica Ljubenović Jelena Đekić Mihailo Mitković

COLLABORATIVE RESEARCH FOR SUSTAINABLE REGIONAL DEVELOPMENT:
EXPERIENCES FROM “LEARNING ECONOMIES” ITALY-SERBIA BILATERAL
PROJECT 899
Jelena Živković Ksenija Lalović Elena Battaglini Zoran Đukanović Vladan Đokić

ASSESSMENT OF VALUE OF BIOMASS ENERGY POTENTIAL FROM AGRICULTURAL WASTE IN LESKOVAC FIELD AND ITS IMPORTANCE IN THE SETTLEMENT DEVELOPMENT PLANNING 908

Mihailo Mitković Dragoljub Živković Petar Mitković Milena Dinić Branković Milica Igić

MULTIFUNCTIONAL FACILITIES – FROM PRIMARY FUNCTIONS TO SPATIAL LANDMARKS (STUDY OF TWO CASES IN SERBIA AND BOSNIA AND HERZEGOVINA) 918

Aleksandar Videnovic Milos Arandjelovic

CULTURAL LANDSCAPE OF ANCIENT VIMINACIUM AND MODERN KOSTOLAC – CREATION OF A NEW APPROACH TO THE PRESERVATION AND PRESENTATION OF ITS ARCHAEOLOGICAL AND INDUSTRIAL HERITAGE¹

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ABSTRACT

Viminacium, once an important Roman city and a legionary fortress near the Danube, situated in the villages of Stari Kostolac and Drmno, in Serbia, near a strip coal mine and a power plant, today is the most developed archaeological park in Serbia and is visited by many tourists. However, the future sustainable development of the wider area requires the creation of a more comprehensive approach to the presentation of its archaeological and industrial heritage, connecting *Viminacium* and other historical traces into a cultural landscape where industrial progress, heritage preservation and modern tourism are linked.

Keywords: *Viminacium*, *Kostolac*, cultural landscape, archaeological heritage, industrial heritage.

Introduction

Viminacium, an archaeological site and a cultural property of exceptional importance for the Republic of Serbia, is located on the right bank of the Mlava river, near the Danube, in the fields of the Stari Kostolac and Drmno villages, by the thermal power plant “Kostolac B” and the strip coal mine “Drmno”, in the vicinity of Požarevac. In 2006, The *Viminacium* Archaeological Park (Golubović, Korać 2013; Anđelković et al. 2013) was established here, and in 2009, the entire area of the fortified ancient city and legionary fortress, along with its close surroundings, was defined as a site with borders and protection regimes (Decision 2009). From 2015, *Viminacium* has been a part of the UNESCO Tentative List with other Roman sites along the Danube limes from Germany to Romania (UNESCO 2015). Located on cultural routes and the most important European corridors, The *Viminacium* Archaeological Park is the main promoter of tourism development in the Požarevac area today, with national, regional and local policies recognising its importance.³

1 The article results from the projects: IRS - *Viminacium*, Roman city and military legion camp – research of material and non-material culture of inhabitants by using the modern technologies of remote detection, geophysics, GIS, digitalization and 3D visualization (No. 47018) and Modernisation of Western Balkans (No. 177009), funded by The Ministry of Education, Science and Technological Development of the Republic of Serbia.

2 Corresponding author

3 The *Viminacium* archaeological site is included in the Spatial Plan of the Republic of Serbia from 2010 to 2020 as a priority cultural area and strategic priority in the field of tourism, protection and sustainable development of the environment, natural and cultural heritage. The Spatial Plan of the City of Požarevac (Spatial Plan 2012) and the Spatial Plan for the Special Purpose Area of Kostolac Coal Basin

However, in accordance with the exceptional historical, cultural and architectural values of ancient *Viminacium*, specific natural qualities of the Danube, as well as the great contemporary significance of the power plant and mine in Kostolac, the main aim of this paper is to point out the need to consider the wider spatial and social context of the area's development, from ancient to modern times, in order to establish a sustainable concept of its preservation, presentation and management, which, in accordance with contemporary UNESCO and ICOMOS doctrines, imply its protection as a specific cultural landscape (Nikolić et al. 2013). The focus will be on the interactions between its natural and cultural elements throughout history, especially between its archaeological and industrial heritage.

Archaeological heritage and contemporary industry in the area of Viminacium

The Kostolac region has been densely populated since the 4th millennium BC. A culture from the Copper Age received its name "Baden - Kostolac" from the first sites in which it was recorded. The oldest Celtic necropolis in the northern Balkans, dated to the 4th and 3rd century BC, was found in this area. *Viminacium* was founded here in the 1st century AD as one of the most important Roman legionary fortresses on the middle Danube. Soon after, a large urban settlement was developed, becoming the capital of the province of *Moesia Superior* (Spasić-Đurić 2015). On the plateau of the Sopotska Greda hill, above the village of Stari Kostolac, there are remains of the medieval town of Braničevo, while at the foot of the plateau there are the mining colony and industrial settlement built by Đorđe Vajfert in the 19th century, with an entrance to the old underground coal mine. Natural beauty is presented here with the Danube, which formed the natural border of many historical empires. On its bank the nearby village of Ram is situated, with the remains of the ancient *Lederata* fort and Turkish fortress from the 15th century (Roter-Blagojević et al. 2013).

Especially important for life in this area are the surface coal exploitation and electricity production in Kostolac, which have been developing here for more than seven decades, that is to say, since The Second World War, when the Germans opened the first surface coal mine in the area of the present town of Kostolac (Marković 1971). Until the opening of the "Drmno" mine and the thermal power plant "Kostolac B" in 1987-1988 (Anđelković 2010), agriculture was very developed in the Stig plain, even in ancient times, when it was the most fertile land in *Moesia Superior* (Medović 2014). However, due to the coal exploitation, a sixth of the total number of households in Drmno village remain completely without land, while 70% of them have less than 2 ha of arable land, almost half of which is planned to be expropriated (Miljković et al. 2009). According to the estimation of deposits, the exploitation will last until 2059. The plan is to reclaim degraded areas as lakes, forests and meadows (Spatial Plan 2013) and to construct wind turbines and solar power plants (Decision 2016).

(Spatial Plan 2013) emphasize the connection between the Danube, Požarevac and Viminacium through tourism. With the support of the Ministry of Trade, Tourism and Telecommunications of RS, the creation of the touristic port in Kostolac was begun in 2015 (MTT 2016). Viminacium is included in the Spatial Plan for the Special Purpose Area of International Waterway E80 – Danube – Pan-European Corridor VII (Spatial Plan 2015a), while the planning and regulation solution for it is determined by the Spatial Plan for the Special Purpose Area of Archaeological Site Viminacium (Spatial Plan 2015b). According to the Master Plan for Sustainable Development of Rural Tourism of Serbia (UNWTO 2011) it is the greatest cultural attractor after the Guča Festival, while in the Master Plan Stig-Kučajske Planine-Beljanica, it is the most prominent tourist potential (INC Ekonomski fakultet Beograd 2012). In the Strategy of Sustainable Development of the City of Pozarevac from 2017 to 2022, Viminacium is the most important tourist attraction with Ljubičevo (Strategy 2017). It is a part of the European cultural route "The Roman Emperors and Danube Wine Route" (European Institute for Cultural Routes 2015) modelled on the route "Itinerarium Romanum Serbiae (IRS)" established by Dr Miomir Korać and The Archaeological Institute, but also one of the points on the bicycle Euro Velo route no.6 and E4 European long distance path (Nikolić, Emilija, Roter-Blagojević, Mirjana. 2017)



Figure 1: Mining colony in Stari Kostolac, a view to Viminacium from the power plant “Kostolac B” (photos: E. Nikolić); Kostolac town (SkyscraperCity.2007); coal mine “Drmno” (archive of the Institute of Archaeology).

Modernisation and industrial development in the 19th and 20th centuries have negatively affected nature throughout the world with environmental pollution reaching a level which potentially threatens life on Earth. Along with this, cultural heritage has also been influenced. The opening of the underground mines in Stari Kostolac, in (1873), and in the village of Klenovnik (1885), industrial works during the German occupation in the Second World War, as well as the opening of the mine in the village of Ćirikovac in 1956, have led to the destruction of numerous archaeological sites (Spasić-Đurić 2012). At a location where more than ten thousand graves were discovered, dated to the period from the 4th century BC to the 16th century (Zotović 1986), the “Kostolac B” thermal power plant was built, while exploitation in the “Drmno” mine has destroyed sites related to many historic periods. The *decision on determining the Viminacium site in the village of Stari Kostolac for the archaeological site* (Decision 2009) is one of the bases for resolving the conflicting interests that exist between the protection of cultural heritage and industrial development in this area (Maksin et al. 2011). However, it only prohibits the exploitation of coal in the area of the fortified city and the legionary fortress of *Viminacium*, while the remainder of its wider urban territory and other cultural properties from the area have remained unprotected. The only solution for their preservation is relocation, which several buildings of *Viminacium* have undergone to this day, with the support of Electric Power Industry of Serbia (EPS).

Preservation of historical places of exploitation and technology

The archaeological and industrial heritage of the area of ancient *Viminacium* and modern Kostolac can be presented as the result of a continuous process of the exploitation of natural resources and their further technological processing.

The fact that loess with a high content of clay covers most of the territory has helped the development of brick production in the area throughout history. Production in ancient *Viminacium* was done for the purpose of its building industry, but also for the building of other settlements on the limes (Nikolić 2013). In the area of Požarevac, the brick industry was highly developed in the 19th and 20th centuries (Milenković, Protić 1936). In 1885, a brick factory was built in the

area of the Vajfert mine. Soon after, it was closed because it could not compete with small rural manufacturers (Marković 1971). Today, brick factories in the Požarevac area are abandoned and only one rural workshop makes products for further distribution, exporting products to many European countries (Cotto Rustico 2015). This traditional skill is an important immaterial heritage of the area and every attempt should be made to try and preserve it. Recording the old closed workshops in the area and buildings that were built with this product, along with education of young people in villages by old masters and their encouragement in business development, can be part of this process.



Figure 2: Ram stone quarry, *crvenka* quarry, brick kilns from *Viminacium*, brick kiln in a present day village near Viminacium, *Viminacium* wall made of *crvenka*, modern blocks made with *crvenka* (photos: E. Nikolić)

Quarries in the area of the present day village of Ram were exploited for centuries as a source of building stone for *Viminacium*, the Ram fortress, monasteries and rural houses. The quarry near the Danube endangered the remains of the ancient *Lederata*, and exploitation is forbidden today. However, along the river a plateau remained, giving a possibility of presenting the quarry as a piece of archaeological, as well as industrial heritage. Such projects are common in Europe, including ecological interventions (soil and ecosystem recovery) aesthetic interventions (improvement of visual features), as well as functional interventions (creation of sculpture parks and open-air theatres) (Gašparović et al. 2009). In the area of the Ram quarry, nature is slowly recovering, the area's visual features are exceptional, so functional interventions can be considered even today.

Đorđe Vajfert received the concession for the opening of the Kostolac mine in 1873 (Anđelković 2010) and in 1881 became its owner. By 1889 it was the main Serbian coal producer and the only coal exporter (Marković 1971). Coal exploitation in this territory prior to the 19th century is not mentioned in any historical sources. However, coal can be linked to ancient history because of *crvenka* – a natural material whose deposit is located in Stari Kostolac around the mine. It represents a layer of sedimentary rock that passed through a metamorphism due to lower coal layers burning after contact with oxygen and sunlight. As a *natural brick* it was used in Roman *Viminacium* in the early period of the still undeveloped brick industry, but also in the later crisis periods as a cheap and easily accessible material (Nikolić 2013). It was also used by the Romans for the construction of roads, while in modern times, industrial roads and building blocks were made of this material. Its exploitation is prohibited today due to soil

instability, but it left a plateau at the foot of Sopotska greda, which could be presented as an example of archaeological and industrial heritage. Since it is related to a particular soil type in combination with the existence of coal and, thus, is not often encountered, it is also a valuable piece of geo-heritage.

Preservation of industrial heritage and development of contemporary culture

The Vajfert colony was founded as a workers' settlement near Kostolac village. However, the colony and the village soon became one unity (Marković 1971), the present-day Stari Kostolac. Buildings of the colony are listed as cultural properties under prior protection, but today they are in a poor condition and illegally occupied by members of the Roma community. They are owned by EPS, which has no economic interest in their renewal. However, the integration of the story into its corporate social responsibility policy, as well as the application of sustainability principles that promote the preservation of the embodied energy of buildings through adaptive reuse (Roter-Blagojević, Tufegdžić 2016), could lead to their rehabilitation. As a part of the project for the permanent closure of the "Klenovnik" mine, EPS and the Belgrade Mining Institute initiated plans for the reclamation of the area near the old mining colony in 2011. The plans also included the creation of an art colony and sports complex, as well as the Mining Museum in the existing administrative mine building, with the presentation of equipment and underground mining in the open space, along with the construction of a tourist railway, connecting the Danube, Kostolac, the Museum and Viminacium (Radosavljević et al. 2014). All these plans have, to date, remained unrealised.

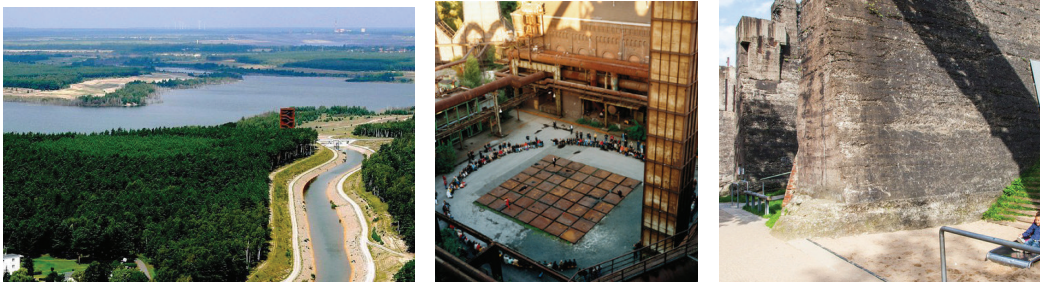


Figure 3: IBA project - Landmark Lusatian lake land (IBA-SEE 2010); Latz + Partner- Duisburg Nord Landscape Park (Latz+Partner 2016); Latz + Partner - Duisburg Nord Landscape Park (Latz+Partner 2016)

Considering the planned reclamation of the destroyed fields, which is important for the reconstruction of the natural landscape, we should mention that these areas could reach an even higher aesthetic value compared to their state before degradation (Spasić et al. 2009). During the revitalisation of coal mines in Germany, artificial lakes and recreation areas were created, hotels and theatres were built, while the former thermal power plant was converted into a cultural space (IBA-SEE 2010). "Emscher Park" in the Ruhr region has been a model for restoration of devastated exploitation fields in Europe since 1988 (Gašparović et al. 2009). Its designers used elements that we accept, but also those that disturb us, both harmonic and interrupting ones (Latz+Partner 2016), embedding green, water and walking surfaces into abandoned concrete structures, which then act as sculptures in space.

In the world, monuments of industrial heritage have been recognised as ambiances for cultural activities and creative economies for many decades. Moreover, the main contribution to the preservation of this heritage does not come from state actions, but from the initiatives of volunteers and representatives of the creative sector. The activation of abandoned buildings

brings economic income from tourism, but also helps non-affirmed professionals, contributing to employment (Čizler 2014). The aforementioned failed realisation of plans for the revival of the area of the “Klenovnik” mine shows that maybe some successful examples of building reuse from Europe and the role of the creative sector should be followed from the start. Even a partially renewed Vajfert colony would be able to accommodate some creative activities which could bring social development. These would be precious experiences which could help in the future reuse of the industrial complexes.

An important fact that gives character to the Viminacium landscape is that the local communities were closely related to mining for 150 years. Many miners from the former SFR Yugoslavia and Europe settled here in the 19th and 20th centuries (Anđelković 2010) and with the local population that changed its agricultural occupation during industrialisation, saw the disappearance of an “ethnically and culturally homogeneous environment” (Romelić 2000). Thus, the Kostolac mines are the witnesses of the beginning of modern industry in Serbia, but also of the social development of SFR Yugoslavia in the post-war period. The establishment of a small museum by a former miner in Kostolac confirms this,⁴ following the world trend of nostalgia for reminders of the past embodied in small niche museums, where visitors can find a more personal connection with the heritage (Robinson 2008).

Conclusions

The synergy of nature with tangible and intangible cultural heritage is the basic feature of a cultural landscape. The Danube, agricultural fields, the *Viminacium* archaeological site and the mining industry equally participate in the creation of this landscape. A pastoral historical landscape with ancient remains in an interaction with industry has become a modern technological landscape which will disappear once the natural resources have been exhausted. A new landscape will then emerge and it should be preserved as a unique testimony to the interactions between man and nature.

The value of cultural landscapes is not only in their physical elements, they are places where the process of building the identity of a region is initiated (Röhring 2011). This is particularly important in the case of local communities that are endangered by industrial development, such as those around the “Drmno” mine, which lost a huge percentage of land. Within a few decades the exploitation of coal will stop here and new opportunities for development of the area will be needed. The cultural tourism industry is one of the most promising potential opportunities. However, it should not be based only on the Viminacium Archaeological Park, as is the case today. Remains of other historic sites, traditional and modern industry and technologies based on the exploitation of natural resources, as well as the rural heritage and nature, should also be included. Only a balanced relationship between these elements can offer a satisfying result in the preservation of the landscape, giving sustainable economic development and prosperity to society.

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the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office for National Statistics 2000).

There is a growing awareness of the need to address the needs of older people, and the need to ensure that they are able to live independently and actively in their own homes.

The aim of this paper is to explore the needs of older people, and to discuss the implications for the design of information systems.

2. Background

The need for information systems to support the needs of older people is becoming increasingly apparent.

Older people are often faced with a range of challenges, including physical, cognitive, and social challenges.

Information systems can be designed to address these challenges, and to support the needs of older people.

3. Needs

The needs of older people are often complex and multifaceted, and can vary significantly between individuals.

Information systems should be designed to address these needs, and to support the needs of older people.

4. Design

The design of information systems for older people should take into account the needs of older people, and the challenges they face.

Information systems should be designed to be user-friendly, and to support the needs of older people.

5. Conclusion

The needs of older people are becoming increasingly apparent, and information systems can be designed to address these needs.

Information systems should be designed to be user-friendly, and to support the needs of older people.

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