

# 31 August - 4 September 2020 VIRTUAL CONFERENCE

Brenda Case Scheer, FAIA, FAICP University of Utah Salt Lake City, UT, USA

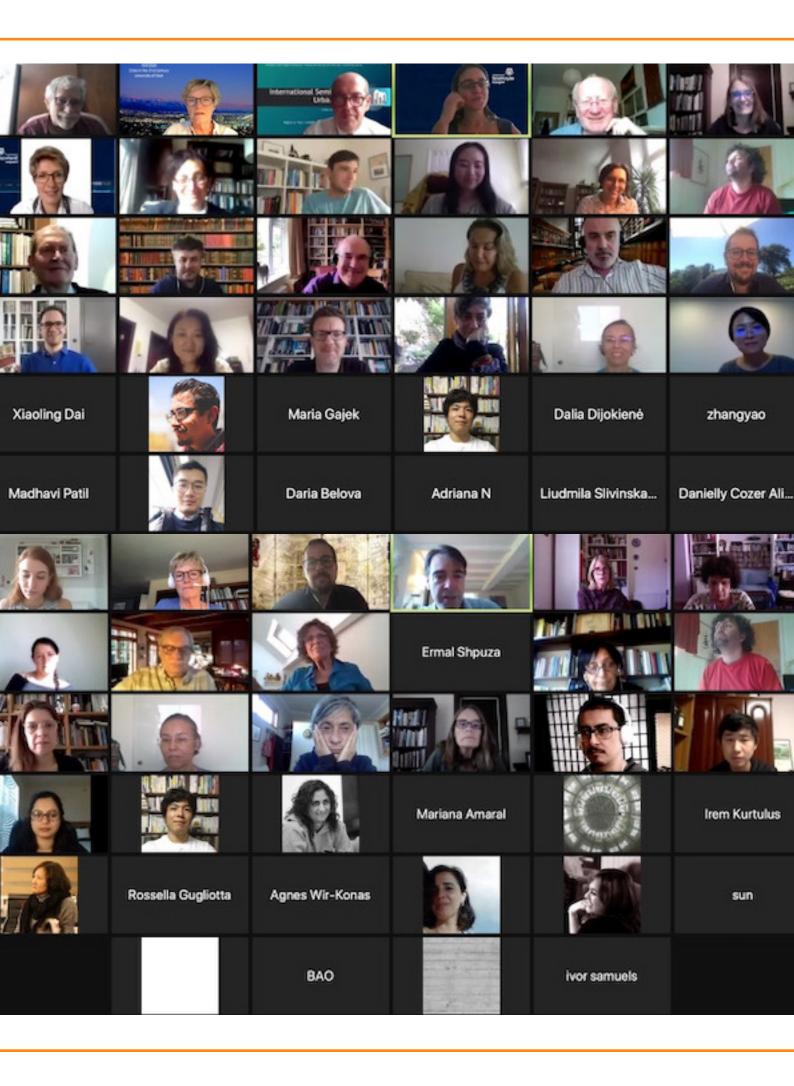
Conference Organizer ISUF Council

Wendy McClure AIA University of Idaho Moscow, ID, USA

International Seminar on Urban Form President

# **ISUF ANNUAL CONFERENCE PROCEEDINGS**

ISSN 2709-5274
UNIVERSITY OF UTAH MARRIOTT LIBRARY DIGITAL COLLECTIONS



### SCIENTIFIC COMMITTEE

The conference committee was chaired by Professor Brenda Case Scheer and the following served as members of the Scientific Review Committee:

| First Name        | Last Name       | Affiliation                                     | Country            |
|-------------------|-----------------|---|--------------------|
| Meta              | Berghauser Pont | Chalmers University                             | Sweden             |
| Adriana           | Nascimento      | Universidade Federal de São João Del-Rei        | Brazil             |
| Agnieszka         | Wir-Konas       | Northumbria University                          | United Kingdom     |
| Anna Agata        | Kantarek        | Cracow University of Technology                 | Poland             |
| Ye                | Zhang           | National University of Singapore                | Singapore          |
| Aleksandra        | Djordjevic      | University of Belgrade, Faculty of Architecture | Serbia             |
| Alessandro        | Camiz           | Özyeğin University, -DRUM                       | Turkey             |
| Chih-Hung         | Chen            | National Cheng Kung University                  | Taiwan             |
| Dalia             | Dijokiene       | Vilnius Gediminas Technical University          | Lithuania          |
| Darren            | Nel             | The Hong Kong Polytechnic University            | Hong Kong          |
| Fei               | Chen            | University of Liverpool                         | United Kingdom     |
| Gerhard           | Bruyns          | The Hong Kong Polytechnic University            | Hong Kong          |
| Shigeru           | Satoh           | Waseda University                               | Japan              |
| Qingyu            | GONG            | Tianjin University                              | China              |
| Gustavo           | Fierro Obando   | Universidad d                                   | Ecuador            |
| Најо              | Neis            | University of Oregon                            | United States      |
| Howard            | Davis           | University of Oregon                            | United States      |
| Hua               | Xiaoning        | Nanjing University                              | China              |
| lvor              | Samuels         | Birmingham University                           | United Kingdom     |
| Tze Ming          | Leung           | MI  | Hong Kong          |
| Juan              | Colomer         | Universitat Politécnica de Valencia             | Spain              |
| Yulia             | Popova          |   | Russian Federation |
| Kai               | Gu              | University of Auckland                          | New Zealand        |
| Koichiro          | Aitani          | Texas A & M University                          | United States      |
| Ayşe Sema         | Kubat           | İstanbul Technical University                   | Turkey             |
| Karsten           | Ley             | Buxtehude University of Applied Sciences        | Germany            |
| Marco             | Maretto         | University of Parma                             | Italy              |
| Maria Cristina    | Teixeira        | Universidade Federal de Minas Gerais            | Brazil             |
| Michael           | Barke           | Northumbria University                          | United Kingdom     |
| Mohammad          | Sarraf          | Uppsala University                              | Sweden             |
| Mujesira          | Bakovic Ergun   | Mimar Sinan Fine Arts University                | Turkey             |
| Nadia             | Charalambous    | University of Cyprus                            | Cyprus             |
| Paolo             | Carlotti        | Sapienza - University of Rome                   | Italy              |
| Peter             | Larkham         | Birmingham City University                      | United Kingdom     |
| Pierre            | Gauthier        | Concordia University                            | Canada             |
| Lian              | Tang            | Nanjing University                              | China              |
| Teresa            | Marat-Mendes    | Instituto Universitário de Lisboa ISCTE-IUL     | Portugal           |
| Thereza-Christina | Carvahlo        | Fluminense Federal University                   | Brazil             |
| Todor             | Stojanovski     | KTH Royal Institute of Technology               | Sweden             |
| Tolga             | Ünlü            | Çukurova University                             | Turkey             |
| David             | Urios-Mondejar  | Universidad Politecnica de Valencia             | Spain              |
| Jason             | Gilliland       | Western University                              | Canada             |
| Vicente           | Colomer         | Universitat Politécnica de Valencia             | Spain              |
| Wendy             | McClure         | University of Idaho                             | United States      |

| Vitor     | Oliveira | CITTA, Universidade do Porto  | Portugal       |
|-----------|----------|-------------------------------|----------------|
| Wowo      | Ding     | Nanjing University            | China          |
| Karl      | Kropf    | Oxford Brookes University     | United Kingdom |
| Frederico | Holanda  | University of Brasília        | Brazil         |
| Luna      | Khirfan  | University of Waterloo        | Canada         |
| Francois  | Dufaux   | Université Laval              | Canada         |
| Laura     | Bandara  | Salt Lake City Corp, AIA Utah | United States  |
| Ole       | Fischer  | University of Utah            | United States  |
| Molly     | Robinson | Salt Lake City Corp, AIA Utah | United States  |
| Brenda    | Scheer   | University of Utah            | United States  |
| Pratiti   | Tagore   | University of Utah            | United States  |
| Paul S.   | Sanders  | Deakin University             | Australia      |
|           |          |                               |                |

## PROCEEDINGS TABLE OF CONTENTS

Please note: only the corresponding author is listed in these tables. Co-authors and contact information can be found in the paper.

| 96          | A Comparative Study of Urban Space in Nanjing and Rome  | Wowo                | Ding                   | China            |
|-------------|---|---------------------|------------------------|------------------|
| 103         | Study on the street interface of the former nine-country concessions' boundary in Tianjin, China  | Ying                | Zheng                  | China            |
| 110         | The city shaped by real estate market: Urban sprawl in Planaltina de Goiás, Brazil  | Patricia            | Assreuy                | Brazil           |
| 122         | How Mexico's chronic violence has destroyed the public realm and how it can be reclaimed  | Francisco<br>Alaniz | Uribe                  | Canada           |
| 165         | A spatial justice study of pedestrian-friendly routes to privately owned public open space in Hong Kong   | Terry Yepeng        | Yao                    | Hong<br>Kong     |
| 190         | How the "Elite" Uses a Public Space: The neighbourhood square in Goiânia/Brazil   | Gabriela            | Tenório                | Brazil           |
| 204         | Study on the Distribution pattern of Urban Small Logistics Dispense<br>Facilities of China Under Internet Economy Background                                      | Yong                | Не                     | China            |
| 219         | The last Market Square in Krakow. Two concepts of a neighbourhood's square  | Maciej              | Motak                  | Poland           |
| 224         | Comparison study of typology transformation in waterfront industrial district: Arsenal in Venice and Yangpu Riverside in Shanghai                                 | Gong                | Zhang                  | China            |
| 235         | Can We Retrofit Suburban Arterials? A Morphological Study of Four Metropolitan Toronto Corridors.   | Paul                | Hess                   | Canado           |
| 243         | The Historic Urban Footprint: A City of Promenades  | Carolyn             | Aguilar-<br>Dubose     | Mexico           |
| 252         | Study on integrated street design connecting the Nishi-Chiba<br>Campus of Chiba University and Midoricho, Japan   | Kenjiro             | Matsuura               | Japan            |
| 259         | Analyzing the phenomena of hybrid blocks as traditional cities respond to the crisis of population growth: a case study in the old city of Beijing                | Mingbo              | Wu                     | China            |
| 265         | Frontages and setbacks: a comparison of English and North<br>American suburban houses   | Alice               | Vialard                | United<br>Kingdo |
| 275         | The Impact of Ungated Community Construction on Traffic Network in Urban China  | Yong                | HE                     | China            |
| 277         | A study on the fabric of courtyard-type Lilong housing  | Ying                | Zheng                  | China            |
| 283         | Referential Housing Type for the 21st Century City: New Typo-<br>morphological Strategies in Brussels   | Alessandro          | Porotto                | Belgiun          |
| 294         | Study on "Acupuncture" regeneration of Songyang Village based on Typo-morphology theory   | Shuyu               | Zhang                  | China            |
| 309         | Evidence-based Design for a Better Connected Riverside - Longhuagang Area in Shanghai   | Xiaoling            | Dai                    | China            |
| 331         | Structuring Historic Signs and Enclosures in the Urban Form: A Co-<br>Evolutionary Strategy for the Small Goose Pagoda Religious Site in<br>the Contemporary City | Laura Anna          | Pezzetti               | Italy            |
| 335         | Morphology of the contubernium as Roman substratum of the medieval row-house  | Alessandro          | Camiz                  | Turkey           |
| 351         | Rethinking "Details" in urban morphology: study on elements of<br>Venice based on Micro Typology  | Shuyu               | Zhang                  | China            |
| 371         | Daylighting in High-Rise Residential Buildings: A Parametric Exploration of a Case Example in Dhaka, Bangladesh   | Sumaiya             | Mehjabeen              | United<br>States |
| 38 <i>7</i> | Spatial modeling method for identifying urban homogeneous zones of open spaces supply: a study of Brasília, Brazil  | Ana Paula           | Costalonga<br>Seraphim | Brazil           |
| 399         | The Renewal of Ancestral House under Ancestor Worship Ritual Culture: Conservation and Revitalisation of Shichuan'gou Village based on Typo-morphology Theory     | Shuyu               | Zhang                  | China            |
| 400         | Transformation of Architectural Types: From Garden-House to Apartment Block, the Case of Güven Housing Cooperative in   | Neris               | Parlak<br>Temizel      | Turkey           |

| 404 | Extremes: The Impacts of Urban Policy on the High and Low-Income<br>Housing Offer in Goiânia - Brazil (2008-2018)                             | Larissa            | Lacerda  | Brazil           |
|-----|---|--------------------|----------|------------------|
| 416 | Research on typo-morphology transformation of Industrial archeology in Treviso: Taking Fornace Guerra Gregorj as an example                   | Gong               | Zhang    | China            |
| 418 | Reading Westmount: Mobilizing Urban Morphology for Physical Planning, Heritage Preservation and Design Control.                               | Pierre             | Gauthier | Canada           |
| 425 | The relationship between physical form and appropriation: a study of the open spaces of Sao Paulo's Avenida Paulista                          | Mariana<br>Meidani | Ripoli   | Brazil           |
| 426 | Improving Open Spaces Surrounding Public Buildings: Focusing on<br>Visibility Graph Analysis of Cases in Sejong                               | Mihyun             | Kim      | Korea            |
| 433 | Reclaim the Public Realm: The Comparative Analysis of the Physical Form and Use of Neighborhood Open Spaces in Seattle, Kuwait City and Xi'an | Xiao               | Hu       | United<br>States |
| 443 | Transitional Urban Morphology and Housing Typology in a<br>Traditional Settlement Of 20th Century, Nanjing                                    | Li                 | Вао      | China            |
| 446 | Integrating a Heritage River in the Urban Form Through Landscape<br>Interventions: Studies on Adi Ganga, Kolkata                              | Souporni           | Paul     | India            |

|     | TWO: CASE STUDIES OF NEIGHBORHOODS AND CENT   |                      | ı               |                   |
|-----|---|----------------------|-----------------|-------------------|
| 22  | Dual expansion: Planning efforts and reality of Beijing's new centers   | Jie                  | Li              | China             |
| 32  | Density and Demographics in Los Angeles Transit Oriented  | Brian                | Garcia          | United            |
| 66  | Development   Unfolding Istanbul's change through its inner-neighborhoods   | 7                    | Tulumen         | States            |
| 00  | Unfolding Islanbul s change through its inner-neighborhoods   | Zeynep               | Tulumen         | Italy             |
| 80  | A "Symbiosis" Urban Morphology Created by New Public Realm in 21st-Century Tokyo  | Yang                 | Yang            | United<br>Kingdom |
| 85  | From Economic Symbol to an livable Urban Future : Repairing urban form of Lujiazui CBD  | Yongjie              | Cai             | China             |
| 86  | An Investigation of the Transformation of Downtown Eugene's Building and Retail Morphology (1965 to 1985) After Implementation of a Pedestrian Mall | Subik                | Shrestha        | United<br>States  |
| 120 | Morphology is Destiny: Calgary's Downtown (re)Evolution   | Beverly              | Sandalack       | Canada            |
| 142 | What are Conservation Areas Conserving? A case study on conservation areas in the UK and China  | Feng                 | Song            | China             |
| 144 | Play in an undesigned urban space: Nisantepe  | Nevset               | Canakciogl<br>u | Turkey            |
| 160 | Common Place- Identity of Indian Towns through Historic Market Places: A case of Lucknow  | Somya                | Mishra          | India             |
| 162 | Modern Megastructures and Its Impact on Traditional Urban Texture:<br>A Beijing Example   | Jiaxuan              | Tang            | China             |
| 164 | The study of the urban morphological palimpsest as a catalyst of the reactivation of the historical downtown of Guayaquil. The Panamá Street.       | Ricardo              | Pozo            | Ecuador           |
| 181 | Transformation of green spaces in the inner fringe-belt in Walled<br>Town of Nicosia between 1800-2020  | Nevter               | Zafer<br>Comert | Turkey            |
| 184 | Urban Densification of Informal Settlements in Sub-Saharan Africa: An<br>Analysis of Recent Developments in Maputo, Mozambique                      | Johan                | Mottelson       | Denmark           |
| 196 | (Ir)regularity: Patterns of urban growth in Brasilia's satellite cities - the case of Sobradinho II   | Patricia             | Assreuy         | Brazil            |
| 205 | A Compact Urban Residential Block Design Method Based on 'Solar<br>Envelope' — Case Study in Nanjing  | Jingjin              | Li              | China             |
| 212 | Morphology and the right to the city: the hidden diversity present in Brazilian slums   | Jonathas<br>M. P. da | Silva           | Brazil            |
| 216 | The Urban Landscape of Zacatecas: Transformation of the<br>Surrounding Buffer Area  | Pablo                | Piombo          | Mexico            |
| 236 | A Taxonomy of Informality: Exploring Block Types in Five Informal<br>Settlements in East Africa   | Alessandro           | Venerandi       | France            |
| 240 | Plot Structure Transformations in Verticalized Neighborhoods of Santiago Metropolitan Area (Chile)  | Magdalen<br>a        | Vicuña          | Chile             |

| 263          | The Historical Cities of Southern Africa Adapted to Future            | Sambirani | Chirwa  | China  |
|--------------|---|-----------|---------|--------|
|              | Development: a Study On Feasibility Strategies for the Protection of  |           |         |        |
|              | Blantyre  |           |         |        |
| 290          | Measuring Spatial Morphology Synergy between Old and New              | Haizhao   | Нао     | China  |
|              | Areas in Fenghuang Town (Shaanxi)                                     |           |         |        |
| 326          | the Morphological Patterns of Residential Neighborhoods in China: a   | Yong      | Не      | China  |
|              | Case Study of Shanghai  |           |         |        |
| 3 <i>7</i> 6 | The Evolution and Renewal Strategy of Shanghai Residential District—  | Lan       | Mi      | China  |
|              | – Yangpu District as an Example                                       |           |         |        |
| 388          | An urban morphology repair towards cultural sustainability: take      | Tongyu    | Sun     | China  |
|              | Hongkou District in Shanghai as an example                            |           |         |        |
| 391          | Measuring Resilient Urban Form: Changing Spatial Representation of    | Xiao      | Hυ      | United |
|              | Culture in the Chinatown, Seattle                                     |           |         | States |
| 394          | Automobile erosion in downtown Detroit – 1920-2020                    | Conrad    | Kickert | United |
|              |   |           |         | States |
| 410          | Block Shape in Historic Cities: A Classification Based on Compactness | Ermal     | Shpuza  | United |
|              | and Fragmentation   |           |         | States |
| 442          | Adding an Underground Layer to Urban Morphology – Case Study of       | Chen      | Yang    | Canada |
|              | Beijing Subway's Implication on Urban Form                            |           |         |        |

| 33   | Fringe belt alienation and new kernels of Chinese megacities: A   | Handuo    | Deng         | China             |
|------|---|-----------|--------------|-------------------|
|      | case study of Qingdao   |           | - 59         |                   |
| 64   | A typological enquiry into the development of Chinese garden  | Yinsheng  | Yυ           | New               |
|      | suburbs: Cases in Guangzhou   |           |              | Zealand           |
| 69   | Co-evolving morphologies in Sub-Saharan Africa  | Ana       | Ricchiardi   | Italy             |
| 72   | Evolution and alienation of the Middle Fringe Belt (MFB) in   | Feng      | Song         | China             |
|      | Shanghai - based on the urban morphology study of Caojiadu district   |           |              |                   |
| 97   | Fringe-belt alienation as a tool to develop cities: Turkish case  | Tolga     | Ünlü         | Turkey            |
| 109  | Sandpit Lakes: Indexing a New Typology  | David     | Karle        | United            |
|      |   |           |              | States            |
| 114  | The Urban Form and its Influence on Centrality: a Case study in the Morphological Centrality of FlorianÓpolis Urban Agglomeration   | lgor      | Almeida      | Brazil            |
| 117  | The morphological constraints of the settlement growth/degrowth   | Giampiero | Lombardini   | Italy             |
| - /- | processes. An interpretation of the concept of territorialisation cycle   |           |              |                   |
| 149  | Elite Education Participates in the Process of Ecological Enclave:  | Chensi    | Shen         | United            |
| 151  | Sino-Singapore Tianjin Eco-city, China  Travel behavior and urban morphology in low-income areas in the                             | Lais      | Bertolino de | Kingdon<br>Brazil |
| 131  | urban agglomeration of Florianópolis, Brazil  | Caroline  | Almeida      | brazii            |
| 152  | Describing Sprawl: A Configurational Analysis of Suburban Form in   | Michael   | Hayes        | Ireland           |
| 132  | the Contiguous Dublin Metropolitan Region   | Michael   | lidyes       | neidild           |
| 156  | Managing Design Issues in the Planning Systems of Saudi Arabia  | Khalid    | Bazughayfan  | Saudi<br>Arabia   |
| 169  | Regeneration in the Historical Urban Fringe Belt: the Southwest<br>Area of Cicheng Town   | Li        | Guo          | China             |
| 170  | Adaptive Redevelopment in the Repletion Layout of Legacies of the 20th Century in China: A Case Study on Nanjing Yihe Historic Area | Peng      | Zhang        | China             |
| 175  | The Evolution of Urban Landscape and Coping Strategies from The   | Liujen    | Chen         | China             |
|      | Perspective of Institutional Change: A Case Study of Dinghai-   |           |              |                   |
|      | Pingliang District, Shanghai  |           |              |                   |
| 207  | Morphology of the Enveloped Peripheries: Fringe Belts of Istanbul, Turkey   | Ayşe Sema | Kubat        | Turkey            |
| 245  | The characterisation and management of the peri-urban landscape:  | Jiangdi   | Tan          | New               |
|      | Evidence from Wuhan, China  |           |              | Zealand           |
| 274  | Rust Belt Cities as Exemplars for Urban Development Practice in a   | Rick      | Sadler       | United            |
|      | Low-Growth Future   |           |              | States            |
| 279  | Policies and facts for mega-urbanization: Middle and outer fringe   | Ezgi      | Kucuk        | Turkey            |
|      | belt developments of Istanbul   |           | Caliskan     |                   |

| 287 | Morphological Contrast and Urban Policies on the Border of Brazil and Paraguay  | Ramon<br>Fortunato | Gomes              | Brazil   |
|-----|---|--------------------|--------------------|----------|
| 292 | County Axis of Yutu Map's Imagery: A Historical Interpretative<br>Method of Shaanxi County's Morphology   | Siran              | Yang               | China    |
| 355 | Cities in transition. The 21st Century Chinese City and its morphology among topography, typology and tectonics. A work program                                     | Marco              | Trisciuoglio       | Italy    |
| 363 | Urban Repair Through Infrastructure: The Transformation of Railway<br>Nodes in Shanghai   | Xiaochun           | Zhang              | China    |
| 369 | Podgorica: from the lastest to the next generation of European capitals   | Rosalba            | Belibani           | Italy    |
| 379 | Delineation and analysis of differentiation in mega-cities with multiple data sources: Beijing and Shanghai   | Mingbo             | Wu                 | China    |
| 384 | Coastal Strip: Studies for the Construction of an analytical and<br>Operation Method through Transitional Morphology  | Martina            | Crapolicchio       | Italy    |
| 385 | From a geostrategic position to an urban node: the urban form of Nampula, Mozambique  | Mário              | Fernandes          | Portugal |
| 414 | The urban form resulting of urban transformations during the twentieth century in Campos dos Goytacazes city in Rio de Janeiro state, Brasil                        | Danielly           | Cozer<br>Aliprandi | Brazil   |
| 430 | The Evolution of Chinese Historic Urban Form in the View of Land<br>Proprietorship Transformation: A Case Study of Nanyang Ancient<br>City Historic District, China | Yinsheng           | Tian               | China    |
| 437 | The Evolution of Urban Forms on Cities Growing along Major<br>Railways in Asia: Lessons from the Five Main Cities along the<br>Chinese Eastern Railway              | Jing               | Lyu                | China    |
| 447 | Transformation of Historic Cities: A Typo-Morphological Approach to the Historic City of Silifke, Turkey  | Sebnem             | Hoskara            | Cyprus   |

| 28  | How drones and connected autonomous vehicles can reform "smart city" initiatives   | Yi            | Wei      | United<br>States |
|-----|--|---------------|----------|------------------|
| 44  | Distributive Justice and Urban Form Adaptation to Flood Risks: a<br>GIS based study of Priority Areaas for the the Just Allocation of<br>GBIS in Toronto                       | Niloofar      | Mohtat   | Canada           |
| 51  | Density and Form   | Vaneska       | Henrique | Brazil           |
| 70  | 21st century cities  | Vitor         | Oliveira | Portugal         |
| 75  | Plot by plot urbanism project: Conclusions and the Challenges<br>Ahead   | Anna<br>Agata | Kantarek | Poland           |
| 126 | Variation in building heights under zoning regulations of building coverage ratio and floor area ratio: Theoretical and empirical investigation of downtown districts in Tokyo | Hiroyuki      | Usui     | Japan            |
| 127 | New 'World' Morphology: Outlining the Chinese Megablock<br>Urbanism (CMU) Block Morphology and Physical Characteristics  | Yixuan        | Peng     | Hong<br>Kong     |
| 148 | Research on the Weaving Strategy for the Renewal of Historic Blocks  | Wenke         | Wu       | China            |
| 186 | The Sugar in the Milk - A Refugee Pattern Language Cluster 5:<br>Refugees in Neighborhoods and Communities   | Најо          | Neis     | United<br>States |
| 197 | In pursuit of resilient urban form typologies: Testing a quantitative approach for morphologically based urban resilience  | Darren        | Nel      | Hong<br>Kong     |
| 214 | Sustainability in evolving cities through densification: the<br>ABRACADABRA strategy for balancing energy and costs of deep<br>renovation processes                            | Annarita      | Ferrante | Italy            |
| 217 | Refugee Pattern Language – Cluster 7: Housing, Living, and Live-<br>Work   | Најо          | Neis     | United<br>States |
| 251 | How geometric characteristics of blocks make sense: a General Survey in Beijing, China   | Qin           | Zhao     | China            |

| 257 | An Atlas of Urbanism: Data and the production of urban form in   | Cole     | Hendrigan       | Australia |
|-----|--|----------|-----------------|-----------|
|     | the 21st Century   |          |                 |           |
| 273 | Study on the Influence of Urban Form on Thermal Environment from the View of Integrated Albedo   | Yuan     | Huang           | China     |
| 288 | Morphogenetic analysis as a basis for intervention in the old urban areas of Portuguese cities   | Mário    | Fernandes       | Portugal  |
| 296 | A study on the relationship between the renewal of existing buildings and building types under the background of conservation to historical urban landscape: two typical historical districts in Guangzhou | Yingqi   | Kuang           | China     |
| 317 | Ecological Performance Evaluation Methods in Urban Existing Community : A Comprehensive Review   | Tongyu   | Sun             | China     |
| 320 | Urban Repair Morphology of Landscape Transition Area in Urban<br>Cener: Tianma Group in Changsha, China  | Liang    | Zhao            | China     |
| 340 | Urban Public Space in New District in China: What Urban Design<br>Can Do   | Lian     | Tang            | China     |
| 367 | Diagrams and maps in urban morphology. The use of analogical and digital tools understanding urban realities.  | Rossella | Gugliotta       | Italy     |
| 415 | Railway territories – a methodological approach to urban studies   | Inês     | Isidoro         | Portugal  |
| 421 | Urban Morphology Growth Model  | Sigridur | Kristjansdottir | Iceland   |
| 424 | A Study on Annual Heat Island Magnitude of Different Urban<br>Form Types Based On Mobile Surveys   | Yuan     | Huang           | China     |
| 428 | A Study on the Potentiality of Artificial Recognition for Urban<br>Morphological Classification Based on Urban Opening-Source<br>Data  | Yuan     | Huang           | China     |
| 448 | Reading urban form as a studio teaching method: case study in<br>Siberia   | Daria    | Belova          | Italy     |

| 19  | Analyzing and Visualizing Dissemination Patterns and Emerging<br>Trends on Typo-morphology Studies in China   | Хіаохи      | Liang              | Italy            |
|-----|---|-------------|--------------------|------------------|
| 35  | Necessity of Flexible Urban Design Implementation based on<br>Versailles School of Typological Morphology Theory - Targeting<br>Southeast Asian countries | Hwang       | Sun An             | Viet-<br>nam     |
| 104 | A Graph Theory into Street Network Characteristics of the Plain-type<br>and the Slope-type Historical Blocks: Based on China's Southwestern<br>Regions    | Wenyong     | Tan                | China            |
| 107 | Changes in political meaning of the built environment: exemplified by the transformation of the institutional plot pattern in Beijing                     | Feng        | Song               | China            |
| 118 | Self-Organization, Spontaneous Consciousness, Crisis and Territorial<br>Cycles. An Interpretation of Saverio Muratori Thought                             | Giampiero   | Lombardini         | Italy            |
| 174 | Mega Morphologies of 21st Century Landscapes; The Characteristics of an Inverted-Exterior City Form.  | Gerhard     | Bruyns             | Hong<br>Kong     |
| 249 | Inertia, resistance and newer demands: urban form and urban changes   | Theresa     | Carvahlo           | Brazil           |
| 276 | New urban form, old challenges, other choices: sustainability and social equity   | Theresa     | Carvalho           | Brazil           |
| 280 | Modeling the Void Space Inside the Block  | Jun         | Сао                | China            |
| 284 | Vertical versus Horizontal: theory and practice of urban densification in evolving metropolises   | Annarita    | Ferrante           | Italy            |
| 325 | The Hybrid Architecture: a morphological perspective  | Nicola      | Marzot             | Nether-<br>lands |
| 332 | Regeneration under Crisis—Research on the Renewal and Evolution of the Forms of Future Urban Residential Communities                                      | Qian        | Zhang              | China            |
| 361 | Social housing as city project  | Edinardo    | Rodrigues<br>Lucas | Brazil           |
| 396 | Measuring Mixed-use Intensity in Volumetric Cities: Density and   | Christopher | Higgins            | Canada           |

| 407 | The wall in the progress of regeneration in Haebangchon based on | Shuyu   | Zhang    | China  |
|-----|--|---------|----------|--------|
|     | the urban morphology theory                                      |         |          |        |
| 408 | The Process of Urban Form Production and Transformation in       | Vera    | Tangari  | Brazil |
|     | Brazilian Coastal Cities   |         |          |        |
| 423 | Project Parcel: Methods of Morphology in Places with Strong      | Michael | Piper    | Canada |
|     | Property Rights  |         |          |        |
| 427 | Urban Sprawl and Climate Change: Reframing the Urban Sprawl      | Qiu     | Feng     | Canada |
|     | Debate from a Morphologist's Perspective                         |         |          |        |
| 467 | Gian Luigi Maffei. Specialised buildings: studies and projects   | Matteo  | leva     | Italy  |
| 470 |  | D /     | 6 1      | 1. 1   |
| 472 | Reading the building Type into the Urban form                    | Paolo   | Carlotti | Italy  |

# PODGORICA: FROM THE LASTEST TO THE NEXT GENERATION OF EUROPEAN CAPITALS

Rosalba Belibani, DiAP, Professor of Architecture and Urban Planning, Sapienza University of Rome, Italy Deborah C. Lefosse, DiAP, PhD in Architecture and Construction, Sapienza University of Rome, Italy

#### **ABSTRACT**

Podgorica, a name that means "city under the mountain", is one of the Europe's youngest capitals. As its long history has shown, it is the result of an ongoing rebuilding process: Greek colony, Roman crossroads of rivers and trade, Ottoman fort-gate. After suffering conquests, wars, more than seventy bombings during World War II, it was completely reconstructed in the form of a 20th century soviet city. Based on a floodplain, it shows a hybrid morphology by matching compact urban fabrics to the scattered icons of political and economic power. Today, Podgorica is a dynamic growing city sustained by a close-knit network of international funds in order to become a city in the 21st century. Nevertheless, the rapid transition from a post-socialist model to globalization caused a loss of identity and sense of place. The aim of the research is to bridge the knowledge gap of a relatively recent city and to understand its developing dynamics in the name of innovation and continuity: how can Podgorica represent the next generation of European capitals? Through an integrated approach between morpho-typological analysis and design experimentation, this study attempts to figure out new spatial matrices of urban growth taking into account the traditional home living, the surrounding landscape nature, the functional and economic site vocation. Planning a third-millennium city still means acknowledging the architecture as a vehicle of regeneration and cultural connection between past, present, and future. Keywords: Rebuilding Process, Identity, Innovation and Continuity.

#### INTRODUCTION

Podgorica, a name that means "city under the mountain", is the capital Montenegro and one of Europe's youngest capitals. As its long history has shown, it is the result of an ongoing rebuilding process: Greek colony, Roman crossroads of rivers and trade, Ottoman fort-gate. After suffering conquests, wars, more than seventy bombings during World War II, it was completely reconstructed in the form of a 20th century soviet city. Based on a floodplain, it shows a hybrid morphology by matching compact urban fabrics to the scattered icons of political and economic power. Today, Podgorica is a dynamic growing city sustained by a close-knit network of international funds in order to become a city in the 21st century. Podgorica shares the unfortunate fate of the Western Balkans, nevertheless, the rapid transition from a post-socialist model to globalization caused a loss of identity and sense of place. This is made more evident by the simultaneous presence of the sprawling of contemporary design icons that contrast with the growing absence of collective architectural memory due to the historical fabrics' pauperisation. The disregard for the main monuments, as well as the fading connection between historical and novel buildings, shows proof of serious political and economic problems hidden by the futuristic image of a developing city, projected towards globalization both of goals and morphemes.

In addition to nourish the limited literature on the subject, the paper aims to bridge the knowledge gap of a relatively recent city and to understand its developing dynamics in the name of innovation and continuity: how can Podgorica represent the next generation of European capitals?

This study analyses the historical changes in urban structure by reading typical morphologies and typologies. Furthermore, through design experimentation, it attempts to figure out new spatial matrices of urban growth taking into account the traditional home living, the surrounding landscape nature, the functional and economic site vocation. Planning a third-millennium city still means acknowledging the architecture as a vehicle of regeneration and cultural connection between past, present, and future.

#### MORPHOLOGIES OF CHANGE

Podgorica City is initially analysed through an integrated approach between overlapping history and morphology. It is then shown in future perspective according to the experimental design proposals.

Reading the built environment, its urban structure is clearly recognisable in four main historical fabrics with variable extension:

- The first Roman settlement, known as *Doclea*, was built in 168 B.C. in compliance with the typical Roman model with forum, basilica, and temples. After the fall of the Roman Empire and several later dominations, in 1496 the Catholic cities on the coast of Montenegro chose the protection of the Venetian Republic, while the Ottomans conquered the hinterland. The nucleus of Doclea was abandoned and the new fulcrum was established on the rivers Moraca and Ribnica where it preserved a compact framework until 1850. Low quality artifacts feature the historical core: due to the continuous modernization actions, their aesthetic and material characteristics are difficult to identify. Instead, the Stara Varas district (16th century) presents contemporary building types coexisting within the original Turkish irregular layout.
- A second sector was designed by the twentieth-century urban planning that led to a polar expansion with respect to the Ottoman nucleus. The orthogonal pattern dived into plots results from the late nineteenth-century town plan (1897) while most of the current constructions were built around the 1960s. At the beginning of the First World War, Podgorica kept growing disorderly and unevenly.
- When Marshal Tito set himself up as head of the state, the city was oriented on westward expansion. Its complex structure configured the Titograd's plan (1950), which included new civic institutional and residential buildings. The socialist urbanization is strong, prevailing, evident still today. Its regular setting includes artifacts of different value that is often overwritten by personal interventions by the inhabitants in search for more comfortable spaces. The most recent interventions express the contemporary design research, such as the Block 5 neighborhood, winner of the award as best urban planning in Montenegro. Dated 1967, this project by Mileta Bojovic and Dusan Vulekovic consists in 13 tower buildings with massive volumes emerging on the façade and 1800 residential units totally. Such stony overhangs make them dynamic blocks. The public spaces host common functions and green areas. It is necessary to remember another building of great architectural quality, the Hotel Crna Gora of Svetlana Kana Radevic, realized in the same year (1967). It is settled along the coast of the Moraca river and is characterised by a series of terraces projecting on the riverside. Its brutalist style is related to the architecture of the old city located on the opposite bank. One of the modern socialism symbols was the Galeb Kayak Club of Vukota Tupa Vukotic (1960). Clad in authentic Moraca River stone and currently in a state of decay, it initially included a restaurant, a bar and a kayak club. The building is connected to the

rocky coast, finding the right balance between nature and artifice. It was abandoned due to political and social events and suffered from poor maintenance.

- In spite of the main abusive nature of interventions, around 1970 the settlement model shows a regular grid. This reticular pattern persists until 1980 also affecting the suburban areas and their high-density housing targeted to workers. The common phenomenon of urban sprawl has impacted the outskirts of Podgorica, alternating urban voids, fringe belts and low-density self-urbanism.

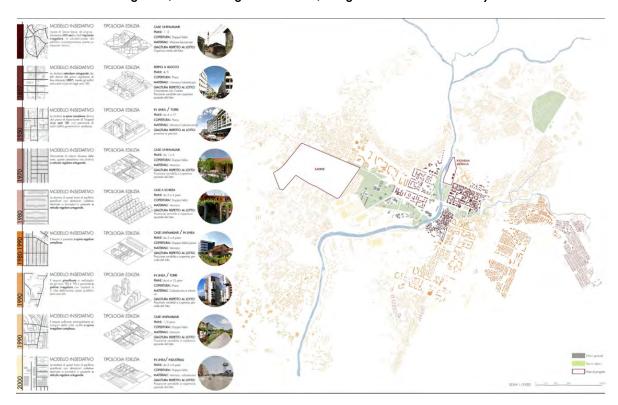


Figure 1. Morphological Analysis of Podgorica (Image from the Master Degree Thesis "Urban projects for marginal landscapes", by S. Bianchi, S. Corrado, F. Corso, D. Orazi. Thesis supervisor: R. Belibani)

#### PODGORICA TOWARDS A NEXT GENERATION OF EUROPEAN CAPITALS

In the current social and urban context, Podgorica aspires to become a European capital and it is necessary to understand how to direct its development dynamics in order to represent the next generation of European capitals in the name of innovation and continuity.

For a necessary verification of the objectives of the MDGs, it is necessary to consider the demographic analysis which shows that the city is characterized by a predominantly young population. In most cases, the families, often composed of young couples, are made up of a variable number of 3 or 5 members, mainly living in owned houses. The population, on the other hand, has a low educated workforce: most young people finish their studies concurrently with the end of higher education, but the unemployment rate is quite high.

As a representative city of Montenegro, Podgorica has signed the Millennium Development Goals along with the other 193 UN members with the aim of achieving a radical improvement in the quality of life in these countries. Likewise, the most acceding countries, Montenegro failed to reach the eight targets by the original deadline (2015).

In line with these objectives, several urban renewal initiatives have been promoted. The city has launched international calls for ideas to realize a general urban renewal focused on the suburbs and surrounding natural landscapes. In social and urban terms, nowadays Podgorica represents a young and proactive capital in Eastern Europe.

#### THE COMPETITION FOR SADINE AND THE PROJECT PROPOSAL

The city, aware of an urban planning that is now resolved in local interventions with a globalizing character, has promoted calls for ideas aimed at the realization of urban projects dedicated to marginal landscapes. The intent is to find proposals that can restore the lost characteristics towards a precise urban identity.

Among these, the international competition for Sadine, a north-west area where a residential and commercial expansion system of the City Kvart, is foreseen in order to turn the urban void into a socio-economic resource to the city. The area is located in the extreme west of the Montenegrin capital and is a great resource for the socio-economic development of the city. The current void creates a caesura between the peripheral fabrics, a sprawl of squatter settlements located in the countryside and of a rural character, and the city center, arranged a short distance from each other. The Sadine area currently marks a boundary between the consolidated urban fabric and the outskirts made by illegal settlements located in the countryside, still close to the inner-city.

The aim of the call is to promote the densification of the area to create a new urban hub that will lighten the urban load of the center of Podgorica and balance it with the introduction of services and architectures such as to project the city towards a European dimension.



Figure 2. Sadine Masterplan (Image from the Master Degree Thesis "Urban projects for marginal landscapes", by S. Bianchi, S. Corrado, F. Corso, D. Orazi. Thesis supervisor: R. Belibani)

The link between the new intervention and the existing city is operated through a green ring equipped by pedestrian and cycle routes. The inner connections are ensured by the large green axis which hosts the soft mobility system, services and public spaces.

The design project aims to densify the area by establishing new polarities that will lighten the urban load of the urban center and balance it with novel facilities and architectures able to usher the new generation of European 21st century capitals.

The study presented was developed within a Master's Degree seminar, promoted by the Master's Degree in Architecture of the Sapienza University of Rome, entitled "Urban Regeneration in Podgorica, Montenegro" which took place in Podgorica, at the Univerzitet Crne Gore - University of Montenegro - Faculty of Architecture, in collaboration with Prof. Ilija Lalosevic and an research team<sup>1</sup>. With an approach that integrates type-morphological analysis and design experimentation, the project seeks to configure new spatial matrices of urban growth. The study for the development of the Sadine area summarizes in a complex masterplan the articulation of different urban projects, with specific destinations, which qualify as new marginal landscapes. The project includes a business center near the west limit of the city, already consolidated, the extension of the Crne Gore university center with a center for the visual arts and a sports area with a stadium, a residential area and an agricultural market. The project also includes the creation of two polarities which, through services and public spaces, reconnect the residential fabric to the city by a green infrastructure that runs throughout the Sadine area.

#### THE MEDIATION PROJECT BETWEEN THE AGRICULTURAL AND URBAN PARKS

With Sadine's vocation as a center the center of economic development, the project places a business center on the consolidated margin, a landmark visible from all over the city, consisting of three skyscrapers, two for offices and an international hotel. The buildings are connected at the base by a common multi-storey platform dedicated to commerce and leisure with a green roof that is characterized as a road-park ring. At the center of this system, a large circular square at zero altitude focuses the perceptual and directional vectors and leads to the common parking lot via a large ramp.

At the north-west edge of the Sadine area, awaiting further development towards the countryside, is the ex novo project of a km0 market and other public and private services for the production, dissemination and enhancement of local resources. The area overlooks a hilly landscape characterized by an existing residential fabric, consisting of houses with pitched roofs with cultivated gardens and equipped with pergolas. The project, the terminal pole of the tram axis, is confronted with a peripheral peri-urban, spontaneous, residential fabric and a rural landscape open to the Montenegrin countryside, creating a formal and functional integration between city and countryside. In this context, the covered market and its square act as a fulcrum: the square as a meeting place and the market as a gateway to the Sadine area, but also as the end point of the functional path, from production to distribution. In the area there is a sequence of functions that make it possible to move from agricultural production to residential fabric. Specifically, services are planned in reserved areas: for agricultural and artisanal production; for the distribution of locally made products; for agricultural residences in direct relationship with the existing fabric.

<sup>&</sup>lt;sup>1</sup> Prof. G. Svetislav Popović, Prof.ssa S. Stamatović-Vučković, Prof.ssa Sanja Vlahović, Prof. A. Ašanin.

In the central part of the masterplan, the design of a mediation area is envisaged, able to make the historic city and the new rural expansion interact. This is how the new residential district originates, which, along the central axis in continuity with the business center, has a rich fabric of tall buildings, built according to languages that recall the development of a socialist matrix. To connect the high fronts of the new buildings and the pre-existing fabric at the edges, characterized by small single-family houses with vegetable gardens and gardens, a fabric of mediation and completion is inserted: these are low-density and medium-height residential buildings. The project aims at a dynamic interaction of the typologies that characterize the new urban fabric and that already present at the edge of the study area. Thus, a symmetrical central section is created, consisting of residential buildings that are gradually more and more sparse and lower towards the surrounding natural landscape.

In the hypothesis presented, the connection between the new intervention and the existing city promotes sustainable mobility that includes gardens and a green ring, alternating pedestrian and bicycle paths and green areas equipped with services. The connection of the entire Sadine area is operated by this large green axis that houses the soft mobility system, neighborhood services and meeting spaces, sized according to their location and function.

The proposal is completed by a new cultural center on the Morača river which, by arranging itself on the ruins of a former barracks, tries to mend the lost relationship with the river by recalling the original intent of the project for the Kayak Club.

#### CONCLUSION

In light of the morpho-typological analysis described, between old and new layers overlapping, Podgorica already presents the typical complexity of a European capital. The impulses of programming and planning also seem to project it towards the new generation of European capital. In particular, the intention to adhere to the MDGs and the proposed project highlight its full potential to become a sustainable city at an urban, social and economic level. The relationship between city and nature will play a key role in this evolutionary process and in confirming architecture as a vehicle for regeneration and cultural connection between past, present and future in the city of the third millennium.

#### **REFERENCES**

Alihodzic, R., Stamatovic Vuckovic, S., Ashanin A. (2019) Residential Skyscrapers by Architect Stanko Fabris; Contribution to the Urban Morphology and Typology of Collective Housing in Podgorica, Prostor: 27 (1 (57)), 118-131

Hirt, S. (2013) Whatever happened to the (post)socialist city, Cities 32, 29-38.

Hirt, S., Stanilov, K. (2009) Twenty Years of Transition: The Evolution of Urban Planning in Eastern Europe and the Former Soviet Union, 1989–2009. UN-Habitat, Nairobi.

Komatina, D., Kosanovic, S., Aleksic, J. (2016) Urban devastation: the case study of Podgorica, the capital of Montenegro. Archit. *Urban Plan* 12(1), 52–58.

Popovic, S.G., Lipovac, N., Vlahovic, S. (2016) Planning and creating place Identity for Podgorica as observed through historic urban planning. Prostor: 24 (1 (51)), 62-73.

Popovic, S.G., Đurović Mašanović, N., Savić, S., Bajić Šestović, J. (2019) Urban renewal of settlement Orja Luka, Danilovgrad, Montenegro. Gangemi Editore, in: Abitare la terra: rivista di geoarchitettura = Dwelling on Earth: a magazine of geoarchitecture: XVIII, 50.

Ramet, S.P. (2013) Memory and identity in the Yugoslav successor states. Natl. Pap. 41(6), 871–88.

Stamatović Vučković, S. (2018) Arhitektonska Komunikacija: Objekti Kulture U Crnoj Gori/1945–2000, University of Montenegro, ISBN: 978-86-7664-146-8

#### CORRESPONDING AUTHOR

Rosalba Belibani, Professor of Architecture and Urban Planning, Department of Architecture and Design, Sapienza University of Rome, Via Flaminia 359, Rome, RM, 00196, Italy. rosalba.belibani@uniroma1.it