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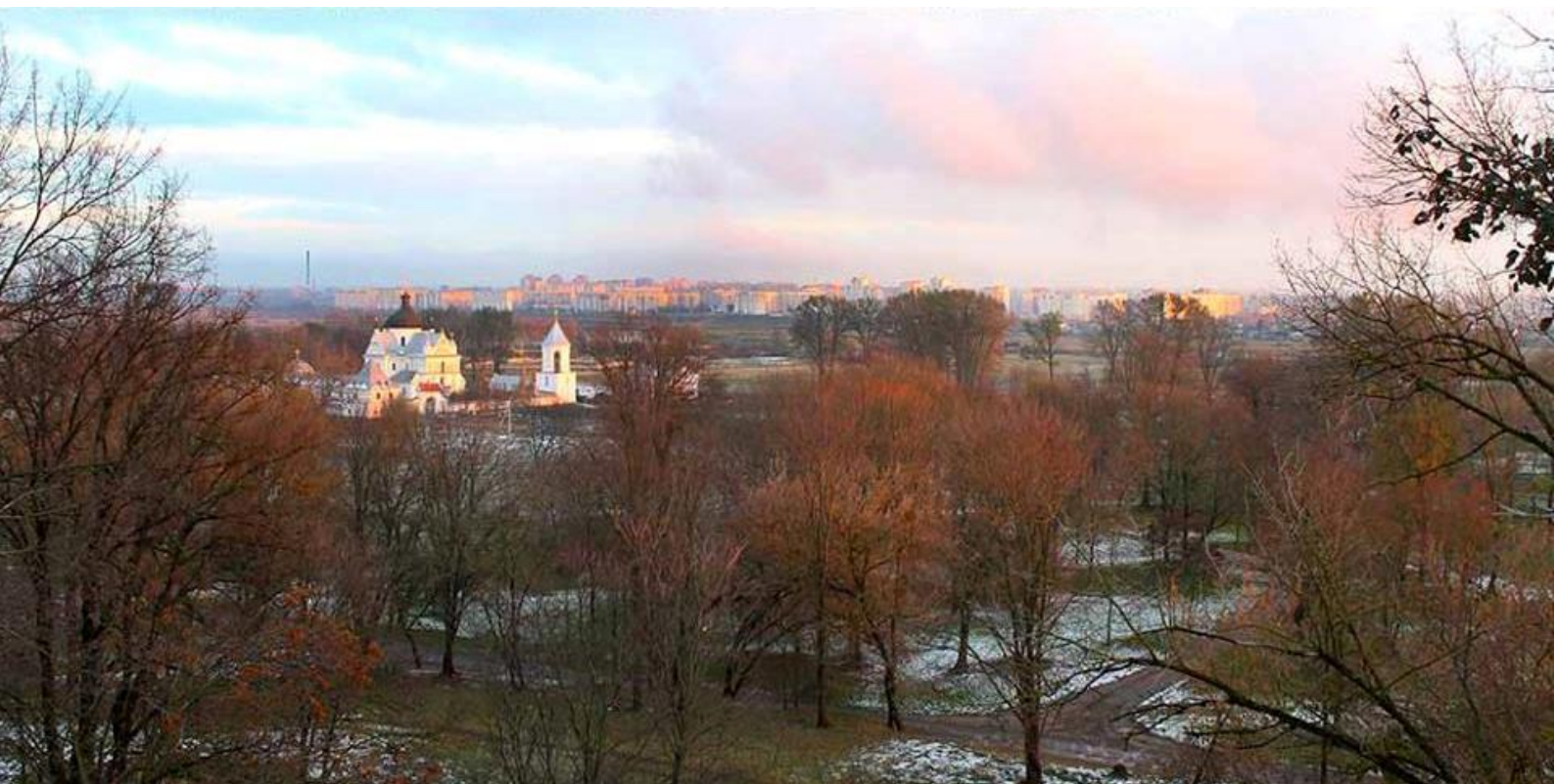
Nature-Based Solutions for Smart Cities

Summer School, Mahilioŭ (Belarus), August 15-26, 2018

Page | 1

Introduction

NEXT summer school offers a number of highly interactive sessions designed to familiarise the audience with the state of art in the field and analytical tools; this will be followed by supervised group research, and then by presentations of research findings to the school faculty and stakeholders (see the program description). The topics for group research will be identified by students with a help of the School faculty and stakeholder representatives. To facilitate the process, we will prepare comprehensive descriptions of four case studies (see the preliminary Summer School program), each characterised by several interrelated environmental, land-use or social conflicts. The task of student groups would be to identify the particular problem they want or are capable to analyse and address given time and resource constraints, and to develop research proposals containing the research question, its justification and research methodology. We will collect research reports and make them available to all the participants, stakeholders and partner universities for curriculum development and learning purposes. We will encourage the students and supervising faculty to re-develop their research reports to academic papers; subject to the quality and number of quality papers, we will consider a special issue of an international peer-reviewed journal.



Summer school faculty:

Dr. **Yanina Benedetti**, Czech Agricultural University (Czechia)

Dr. **Maria Bihunova**, Slovak Life Science University (Slovakia)

Dr. **Matthijs Hisschemöller**, DRIFT – Dutch Institute for Transition, Erasmus University Rotterdam (The Netherlands), **course co-director**

Dr. **Agnieszka Karczmarczyk**, Warsaw Life Science University (Poland)

Attila Katona, Central European University (Hungary) and Hungarian Climate Alliance (Hungary)

Dr. **Viktar Kireyeu**, Institute for Geography and Ecology, Siberian Federal University (Russia) and NGO EKAPRAEKT (Belarus)

Dr. **Federico Morelli**, Czech Agricultural University (Czechia)

Dr. **Ilenia Pierantoni**, University of Camerino (Italy)

Dr. **Daniele La Rosa**, University of Catania (Italy)

Prof. **Massimo Sargolini**, University of Camerino (Italy)

Prof. **Kalev Sepp**, Estonian University of Life Sciences (Estonia)

Dr. **Anton Shkaruba**, Estonian University of Life Sciences (Estonia) and Hungarian Climate Alliance (Hungary), **course co-director**

Dr. **Hanna Skryhan**, Belarusian-Russian University and NGO EKAPRAEKT (Belarus), **course co-director**

Dr. **Marcin Spyra**, Martin Luther University of Halle-Wittenberg (Germany) and Opole University of Technology (Poland)

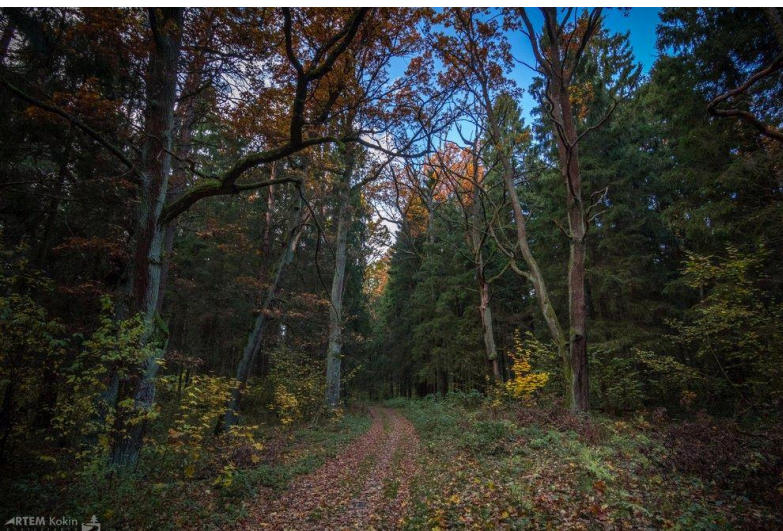
Program overview

- **Pre-School** (June 30-August 19, 2018): pre-course reading and case study materials (made available through a dedicated e-learning site from June 30, 2018), development and collection of course participants profiles with short visions for the course (to be compiled to the course participant directory) and an introductory webinar for pre-course preparatory assignment
- **In-School** (August 15-20, 2018):
 - o (1) kick-off and scoping period (August 15-19)
 - o August 14: Arrival, registration, meet & greet
 - o August 15: Introduction to the theory, methodology and application of nature-based solutions for smart cities, governance of smart cities and nature-based solutions; introduction to the case study challenges and issues of urban & peri-urban landscape quality that need to be addressed, methodology workshop on project planning and transition management
 - o August 16: Methodology workshop on observation techniques, repertory grid, mental mapping, and stakeholder interview techniques; 'Mobile Lab' visits to Case site #1 and #2, World Café-type interviews with key stakeholders
 - o August 17: Lecture on international best practices of applying urban nature-based solutions and development of smart cities; green corridors, green-blue diameters, development of green infrastructure; challenges for physical planning, urban infrastructure management and landscape architecture
 - o August 18: Making small research groups of 3-4 participants (two groups for each of four cases), methodology workshop on visioning and back-casting; preparing brief project proposals in cooperation with other groups, stakeholders and the faculty, then presenting the ideas and receiving feedback
 - o August 19: Recreational and cultural activities, further field trips on an as-needed basis, intercultural evening
 - o (2) research period (August 20-25)

NEXT – Nature-Based Solutions for Smart Cities, Mahilioŭ (Belarus), August 15-26, 2018

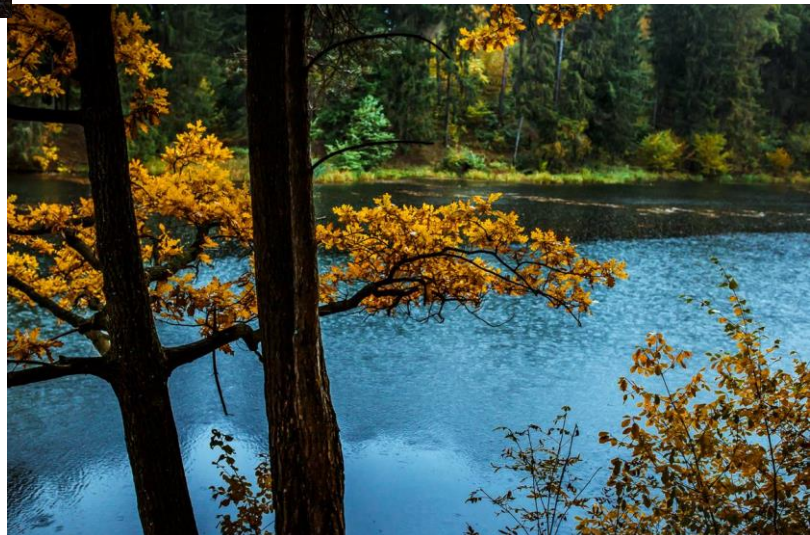
- August 20-21: Recap of Week 1, cradle to cradle urban design workshop, business modelling workshop; field and desktop research addressing specific issues and aiming to propose viable solutions (each group supervised by a faculty member well familiar with the local context and containing several Belarusian/Russian speaking students to facilitate the sociological part and studying the local sources)
- August 22-24: Impact mapping workshop, group work on cases with faculty
- August 25: Project finalization; group work with faculty
- (3) reporting and graduation:
 - August 26: the groups present their ideas to stakeholder representatives and the School faculty, undergo Q&A, jury feedback and proclamation of awards; graduation ceremony, farewell
 - August 27: departures
- **Post-School** (September 1-September 30, 2018):
 - the group leaders send the final version of group reports to be included to the edited on-line volume and case study database of the Belarusian-Russian University and Martin Luther University of Halle-Wittenberg. The final report should include an Executive summary (300 words); Introduction: system analysis, problem definition and framing (2000 words); Proposed vision and solution (2000 words); Implementation strategy, feasibility analysis, business plan and recommendations (2000 words); References (Harvard Reference System).

Pre-selected case studies:



#1, Piačersk Forest: this is a c.a. 900 ha forest on city outskirts and peri-urban areas of the city of Mahilioŭ. The forest was for long a property of the Orthodox Church, and then belonged to the city with a portion managed by the Soviet Army. All that spared the forest from logging, however high land-use pressure and high potential value of the land for greenfield developers take a toll, and the forest is shrinking as a result of numerous legal, half-legal and illegal activities. At the same time the forest is heavily mismanaged that results in pest infestations and also overloaded by visitors; the recreational footprint

is particularly high due to weak or no visitor management, in particular poor information and visitor infrastructure. Yet the forest is a habitat to several red-listed and endangered species, and is recommended by the National Academy of Sciences to be listed as a natural monument. The vision of the municipality is to promote further recreational use of the Forest, while the opinions of other stakeholder groups are split. The Forest (including water bodies located within it) needs sustainable management solutions, and these solutions



NEXT – Nature-Based Solutions for Smart Cities, Mahilioŭ (Belarus), August 15-26, 2018

need to consider conflicting interests of stakeholder groups.

#2, Padmikkole: this is a large area in the valley of the River of Dnieper in the downtown part of the city. A significant part of it is periodically flooded, and this helped to spare the area from recent development. It, nevertheless, was used much more historically, as one can see from a number of important architectural and archaeological monuments. A portion of the area was known as a Jewish district; it was completely flattened down during the WW2, and most of it stayed undeveloped since then too. Due to historical and geographical circumstances, the area is still a large green patch right in the middle of the city and it is a uniquely rich in biodiversity, with wetlands, floodplain lakes and hundreds of veteran trees. The municipality is interested in a re-development of this area to an

amusement park with some lots allocated to developers. The redevelopment started all over sudden in 2016 and was put on a fast track in 2017. It is marked by conflicts with nature and cultural heritage conservation watchdog organisations and activists lamenting over quick developments disregarding and destroying important archaeological artefacts, veteran trees (against warning of the National Academy of Sciences) and wetlands. At the same time, broader public is very hopeful about the new developments, as currently the area is not

easily accessible and gives to many an impression of unpleasantly wild. Solutions are needed to ensure sustainable management of natural and cultural heritage, which would be appealing to local stakeholders.

#3, The Valley of Dubravienka: Dubravenka is a small river with a very impressive valley stretching from city outskirts and further through the very downtown area. It was very important historically due to its fortification value and as water supply. The downstream part of the valley (located in the very downtown) was heavily mismanaged, and the broad consensus (however contested by the environmental communities) in the city is that it needs to be a straight canal between concrete embankments, with all the areas along the watercourses fortified and developed. The middle stream part of the river is still an alive watercourse with beautifully natural floodplains, and mostly troubled by eutrophication originating from large districts of countryside-like wooden detached houses and by occasional waste dumping and storm drain outlets. There is no any particular vision for that part of the river as yet, although its high natural value suggests that it needs to be preserved and promoted. The vision is better to appear soon, as land-use and environmental pressures are growing.



#4, Bujničy: this suburban area downstream of Mahilioŭ has a significant concentration of historical and natural sites, including a Stone Age Settlement, an Iron Age Hillfort, a 17th century monastery, Pipenberg Park (an 18th century estate of the Belarusian Governor), WW2 Memorial Battlefield and

NEXT – Nature-Based Solutions for Smart Cities, Mahilioŭ (Belarus), August 15-26, 2018

fortifications, Zoological Garden, picturesque floodplain and gullied landscapes. Most of these sites are being threatened by rapidly expanding housing development, unauthorized landfills, and the excavation of building materials. Large areas are occupied by abandoned water treatment facilities (filter beds and cascades of settling ponds). There are several conflicting interests in the area. Environmental activists see this area as a major hub of the city's green infrastructure network, constantly shrinking because of the housing development. Zoological Garden wants to expand to the floodplain area and Pipenberg Park. They have already constructed fences blocking the bicycle route along the Dnieper River and the access to the park for the local people and the visitors of Mahilioŭ Regional Horse Riding Centre.

Application process

Details about the application procedure and available travel grants are available from <http://en.bru.by/content/departments/internationaldepartment/summerschool>. A limited number of full or partial DAAD travel grants is available for German nationals), Visegrad grants for the nationals of Visegrad (Czechia, Hungary, Poland, Slovakia) and Eastern Neighbourhood (<http://www.euneighbours.eu/en/east/eu-in-action>) countries. Applicants affiliated with partner institutions of Erasmus+ CBHE action INTENSE (<http://intense.network/>) need to consult project focal points at their organisations. Upon request, Belarusian-Russian University provides accommodation in shared rooms in its student dormitory free of charge or for a very small fee.

Information about the host institution: *The project is hosted by the Department of Occupational Health and Safety (OHS) at Faculty of Construction Engineering, the Belarusian-Russian University (Mahilioŭ, Belarus). Its 16 resident and 3 visiting academic faculty (including 12 members with PhD degrees) deliver courses related to environmental protection, sustainable urban planning, OHS, industrial ecology, energy efficiency, management of industrial and natural hazards, and natural science methodology for all the educational programs run at the university, and supervise MSc & PhD students. The Department hosts the Research Laboratory of Environmental Technology, and student laboratories for civic defence, safe lifestyles, occupational safety, ecology. BRU is also working on becoming the centre of excellence in support to the Covenant of Mayors for Climate and Energy in Belarus (<http://www.covenantofmayors.eu>).*



BRU offers high quality venue with all the classroom and webcast equipment required for high-level international events. E-learning will be supported through the BRU Moodle-based e-learning platform. The main campus is located in the downtown Mahilioŭ and enjoys a direct access to a broad range of reasonably priced accommodation and catering options.

Information about the summer school organisers: *NEXT is co-organised and co-funded by a consortium of international partners financed by several funding programs, including CBHE Erasmus+ INTENSE (Estonian Life Science University), Visegrad International Foundation (Czech Agricultural University, Slovak Life Science University, Warsaw Life Science University, Hungarian Climate Alliance, Belarusian-Russian University, NGO EKAPRAEKT), Central European Initiative (Belarusian-Russian University), DAAD (Belarusian-Russian University), ERANET Urban Europe Smart-U-Green (Erasmus University Rotterdam, University of Camerino).*

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