

## NEXT

# Nature-Based Solutions for Smart Cities

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

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## Introduction

The NEXT summer school will be a vibrant mixture of interactive sessions, field trips, and group work in a unique Eastern European setting, designed to give participants hands-on project and research experience with nature-based solutions for smart cities. After getting familiar with the state-of-the-art field and analytical tools, learning about local and global challenges, visiting five local case study sites in Mahilioŭ (each characterised by several interrelated environmental, land-use and social conflicts), participants will form groups, identify their focus topic, and do several days of supervised group work, followed by the presentation of their ideas and findings to the school faculty and stakeholders. The goal of the group work is to identify a particular urban development challenge, get a multi-angle understanding of the problem, then either 1) propose a vision and a solution to address it with a feasible project plan, OR 2) develop research proposals containing the research question, its justification and research methodology. Student reports would be collected and made available to all participants, stakeholders, and partner universities for curriculum development and learning purposes. Participants and faculty are encouraged to re-develop the final reports into academic papers. Students will be awarded a NEXT Certificate of Completion at the end of the course.

The NEXT summer school will be a valuable learning experience for everyone, but having a great time is also a summer essential. All 40 participants will be students or young experts, therefore we would like everyone to have a memorable time with us in Mahilioŭ!



## Summer school faculty:

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

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

Dr. **Nikolai Bobylev**, St.-Petersburg State University (Russia)

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. **Petr Kiryushin**, Moscow State University (Russia)

**Siiri Külm**, Estonian University of Life Sciences (Estonia)

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

**Anders Oscar Persson**, Uppsala University (Sweden)

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

**Diana Pungar**, Estonian University of Life Sciences (Estonia)

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)

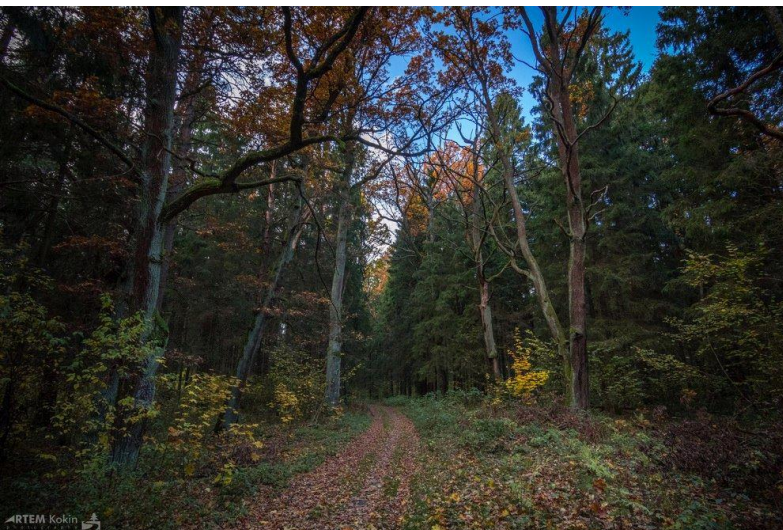
## Program overview

- **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 15-25, 2018):
  - o (1) scoping phase (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, #2, and #3
    - 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; 'Mobile Lab' visits to Case site #4 and #5



- August 18: Making small research groups of 4 participants (ideally two groups for each of five 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
- August 19: Recreational and cultural activities, optional hiking or sightseeing, intercultural evening
- (2) research phase (August 20-25)
  - August 20: Recap of Week 1, cradle to cradle urban design workshop, project planning workshop; stakeholder interviews for each case
  - August 21-24: Supporting workshops (e.g. impact mapping, cost-benefit analysis, proposal writing), group work (field trips on an as-needed basis and desktop research) on cases with the aim to propose viable solutions or research plans (each group supervised by a faculty member well familiar with the local context and containing Belarusian/Russian speaking students to facilitate the sociological part and studying the local sources)
  - August 25: Group project finalization; submission of draft project reports
- (3) reporting and graduation:
  - August 26: the groups present their ideas to stakeholders and the school faculty, undergo Q&A, jury feedback and proclamation of awards; graduation ceremony, farewell evening
  - 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 (1500-2000 words); Proposed vision and solution (1500-2000 words); Implementation strategy, feasibility analysis, business plan and recommendations (1500-2000 words); References

## 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

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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 need to consider conflicting interests of stakeholder groups.

**#2, Padmikolle:** 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 Dubravianka:** Dubravianka 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 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.

**#5, green patches in multi-storey areas:** multi-storey areas developed in the Soviet past (and being developed till now) are usually dominated by green patches, such as green playgrounds, spontaneous and planted tree stands, remnants of gardens or forests existing there before, flower beds and lawns (often neglected) etc. The ownership and management arrangements for such patches are often unclear, contested or even unidentified. This, as well as changing behavioural patterns of tenants (e.g. less interest in gardening and landscaping near the house, significantly smaller numbers of kids playing and roaming around, different priorities and management practices of dedicated municipal agencies, tightened up security standards as regards trespassing etc etc) resulted in transformation and, in many instances, also in the degradation of such green patches.

## Application process

Details about the application procedure and available travel grants are available from <http://en.bru.by/content/departments/internationaldepartment/summerschool>. The application deadline for those who applies for any form of financial assistance and/or needs visa in order to enter Belarus is **May 31, 2018**. The deadline for all other categories of participants is **June 20, 2018**.

**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*



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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).

