

## Summer School, Tartu 2023: Report

# ENGAGE! Engaging Science for Resilient and Liveable Cities

Tartu (Estonia), August 7-18, 2023



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The **ENGAGE!** Summer school held at Estonian University of Life Sciences, Tartu, Estonia from 7<sup>th</sup> to 18<sup>th</sup> August 2023 was a lively combination of interactive sessions, field trips and group projects. T

**AIM :** The aim of the summer school was to provide participants with hands-on project and research experience in the management and planning of urban green and blue infrastructure, with an emphasis on socially engaged science that supports resilient and liveable urban settings.

**Credits:** 3 ECTS

### Expectations regarding the summer school

The expectations of the Chair of Environmental and Landscape Management at Estonian University of Life Sciences (EMU), have been largely met. The aim of the school was to hold a large-scale international training event highlighting the expertise of the group, mobilizing relevant international research networks, and developing the capacity of EMU's partners in the developing world (India, Mongolia, Vietnam), whose representatives have attended the school. Both aims have been fulfilled.

### Publicity created for the summer school?

The school has been advertised via social media, specialized listservs (such as <https://www.summerschoolsineurope.eu>), partner websites, and contact persons in partner universities. During the implementation period we have posted updates in corporate and project social media, invited local TV journalists, as well as disseminated the videos created by the participants through a dedicated YouTube channel, with links to videos also being circulated through corporate and social media. Another dimension of the summer school dissemination was through the implementation of group projects by summer school participants. The participants have been interacting with various stakeholder groups, contributed to stakeholder workshops, did sociological polls on the streets of Tartu, and asked the citizens to fill in online questionnaires. Where relevant, the final group work reports have been submitted to relevant departments of Tartu municipality (3 of 6 reports). A summer school website <https://conference.emu.ee/summerschools/engage/> has been created and periodically updated.

## Number of participants/composition of the group

The summer school have been truly multinational. While URGENT participants from India and Mongolia have dominated the class (25 out of 48), there were also participants from Estonia, France, Germany, Pakistan, Vietnam, as well as online participants from Ukraine.

## Summer school evaluation by the participants

Two evaluations have been run: a mid-term one in a form of an open discussion, and the final one, which was an anonymous online questionnaire. Total 21 responses have been received to the online evaluation requests. On the scale from 0 (the most negative opinion) to 10 (the most positive opinion), the following scores have been received for the following evaluation points:

- How did the ENGAGE! school compare to your expectations? – 7.8
- How did you find communications with the summer school management in the pre-school period (from the acceptance till the arrival, including arrival info etc)? – 8.5
- How did you find communications with the summer school management during the school period? – 8.3
- How did you find the design and the implementation of the introductory phase of the school (introductory sessions, get-together, introduction to case studies, the field trip)? – 8.5
- How did you find the contents of the teaching sessions of the school (lectures, workshops, practical training) in terms of quality of the contents, as well as teachers and their preparedness? – 7.2
- How relevant were the teaching contents of the school compared to your expectations or training needs? – 7.2
- How did you find the case study research period in terms of management and support from the staff? – 8.1
- How valuable was the case study research period in terms of the acquired skills and experience? – 8.0
- How did you find the facilities and services provided at EMU in terms of overall comfort and your educational needs? – 9.0
- How did you like social program provided within the summer school (ice breaking dinner, the Lahemaa trip etc)? – 9.4
- Would you recommend future schools organised at EMU by Kalev Sepp and Anton Shkaruba to your friends and colleagues? – 8.6

The average evaluation score (comprising all the points) was 8.24.



**Summer school faculty:**

Dr. Neeru Bansal, NIRMA University / CEPT University (India)  
Mr. Arjan de Groot, Martin Luther University Halle-Wittenberg (Germany)  
Prof. P.K. Joshi, Jawaharlal Nehru University (India)  
Mr. Attila Katona, Central European University (Hungary)  
Dr. Swati Kothary, NIRMA University (India)  
Ms. Anne Kull, Estonian University of Life Sciences (Estonia)  
Prof. Valdo Kuusemets, Estonian University of Life Sciences (Estonia)  
Prof. Altansukh Ochir, National University of Mongolia (Mongolia)  
Dr. Riccardo Privitera, University of Catania (Italy)  
Mr. Raul Sampaio de Lima, Estonian University of Life Sciences (Estonia)  
Prof. Kalev Sepp, Estonian University of Life Sciences (Estonia)  
Prof. Utpal Sharma, NIRMA University (India)  
Dr. Anton Shkaruba, Estonian University of Life Sciences (Estonia)  
Dr. Monika Suškevičs, Estonian University of Life Sciences (Estonia)  
Mr. Peeter Vassiljev, Estonian University of Life Sciences (Estonia)  
Dr. Viviana Pappalardo, University of Catania (Italy)  
Mr. Patrik Toulá, Czech University of Life Sciences Prague (Czechia)  
Prof. Hui Ping Tsai, National Chung Hsing University (Taiwan)  
Mrs. Gedy Matisen, Tartu Nature House (Estonia)  
Ms. Siiri Külm, Estonian University of Life Sciences (Estonia)

**AGENDA**

The agenda of the Summer School is given below:

Day	Time slots (plenary and parallel sessions)						
	9:00-10:30	11:00-12:30	12:30-13:45	13:45-15:15	15:45-17:15		
August 6, Sunday	18:00 - an informal walk and talk about the city, starting from the stairs of the City Hall 20:00 - an informal meeting at the stairs of the City Hall, and shortly after going a suitable beer place (tbc)						
August 7, Monday	Opening: welcome by prof Rein Drenkhan (Vice-Rector), Aret Vooremäe (Director) and Kalev Sepp; explaining the agenda and setting the scene by Anton Shkaruba	"Do you know, why are you so much in love with Estonia and Tartu?" by Kalev Sepp and Get-to-know session by Attila Katona	Lunch	Presentation of case studies: Kalev Sepp, Anton Shkaruba, Arjan de Groot	Field trip - understanding of the case studies		
August 8, Tuesday	"Engaging science - objectives, purpose, and BetterLife Framework" by Arjan de Groot	"Environmental Governance and Sustainable Development 1" by Attila Katona	Lunch	"Environmental Governance and Sustainable Development 2" by Attila Katona	"Nature based solutions brought from home - mapping and making sense of" by Altansukh Ochir, Attila Katona and Arjan de Groot		
August 9, Wednesday	Case study selection seminar by Arjan de Groot, Attila Katona, Anton Shkaruba	<b>Parallel session I:</b> Simulation Session using the Urban Nature Explorer by Attila Katona	Lunch	<b>Parallel session III:</b> "Provisions for Green and Blue Spaces in Urban Development using enabling tools in Indian context" by Neeru Bansal	<b>Parallel session II (continued):</b> "ArcGIS application for urban planning and crowdsourcing" - practical training bt Anne Kull	<b>Parallel session III:</b> "Linking Up Environment, Health and Climate for Inter-sector Health Promotion and Disease Prevention" by Peeter Vassiljev	<b>Parallel session II (continued):</b> "ArcGIS application for urban planning and crowdsourcing" - practical training by Anne Kull
August 10, Thursday	"Developing and understanding of a city through integration of Spatial concepts, learning through large Metropolitan city" by Prof. Utpal Sharma (online)	"Citizen Science (CS): concept, applications in environmental governance and it's outcomes to decision-making" by Monika Suškevičs	Lunch	<b>Parallel session I:</b> "City blueprint approach to urban water management 1" by Altansukh Ochir	<b>Parallel session II:</b> "Identifying, assessing and mapping the elements of risk in urban environment: hazard exposure and vulnerability - GIS exercise" by Viviana Pappalardo	<b>Parallel session I (continued):</b> "City blueprint approach to urban water management 2" by Altansukh Ochir	<b>Parallel session II (continued):</b> "Identifying, assessing and mapping the elements of risk in urban environment: hazard exposure and vulnerability GIS exercise" by Viviana Pappalardo
August 11, Friday	Case study preparation work in groups	Presentations of case study proposals	Lunch	<b>Parallel session I:</b> "Applying remote sensing, UAV, and AI techniques for a sustainable environment" by Hul Ping Tsai	<b>Parallel session II:</b> "Adaptation and Mitigation to Climate Change through Urban Design" - practical exercise by Riccardo Privitera	<b>Parallel session I:</b> "Drone based mapping and monitoring as a source for decision making" by Raol Sampaio de Lima	<b>Parallel session II (continued):</b> "Adaptation and Mitigation to Climate Change through Urban Design" - practical exercise by Riccardo Privitera

August 12, Saturday	Independent group work				
August 13, Sunday	Field trip to the Lahemaa National Park				
August 14, Monday	Independent group work				
August 15, Tuesday	Independent group work	<b>Parallel session I:</b> "Integration of NBS concepts with other infrastructure elements" by Swati Kothary (online)	<b>Parallel session II:</b> Bioblitzes - developing and running by Gedy Matisen	<b>Parallel session III:</b> Development of sustainable and climate resilient urban storm water management systems for municipalities by Valdo Kuusemets	<b>Parallel session II (continued):</b> Bioblitzes - developing and running by Gedy Matisen
August 16, Wednesday	Independent group work				
August 17, Thursday	Independent group work				
August 18, Friday	Presentations of group findings		Graduation		
August 19, Saturday	Group and individual consultations for the students from URGENT project partner institutions				
August 20, Sunday	Group and individual consultations for the students from URGENT project partner institutions				

	Lectures (including lectures with practical exercises)
	Practical exercises
	Social events and field trips
	Plenary discussions and student presentations
	Independent group or individual work

Two sessions scheduled within the same time slot means that the sessions are to be run in parallel; one of the parallel sessions is compulsory to attend for summer school participants

## PROGRAMME

The Summer School was divided into four phases

August 6-18, 2023 Estonian University of Life Sciences, Tartu, <https://conference.emu.ee/>

## 1) Scoping Phase (August 7-8)

### August 7

Participants and faculties were introduced to the school, with a welcome address by Prof. Rein Drenkhan, the Vice-Rector, Aret Vooremäe, the Director and Kalev Sepp, Head of the Chair of Environmental Protection and Landscape Management. Following this, Anton Shkaruba outlined the Summer School's agenda. Later that day, Kalev Sepp, Anton Shkaruba and Arjan de Groot presented various case studies. The participants also received an overview of challenges in socially engaged science and the current state of urban sustainability practices.



### August 8

Arjan de Groot opened the day with an introductory presentation titled 'Engaging Science – objectives, purpose, and BetterLife Framework'. This was followed by Attila Katona gave who provided an insightful talk on Environmental Governance and Sustainable Development. Later, Altansukh Ochun then presented on 'Nature based solutions brought from home-mapping and making sense of', offering valuable perspective on the topic.

In this phase, the presentations and discussions outlined the key themes, objective and frameworks for the Summer School, which ensured that participants had a clear understanding of the scope of the program.

## 2) Methodology training phase (August 9-12)

### August 9

August 6-18, 2023 Estonian University of Life Sciences, Tartu, <https://conference.emu.ee/>



Arjan de Groot, Attila Katona and Anton Shkaruba conducted a case study selection seminar:



**Case study 1:** Arjan provided a case study information on a role play simulation game. Here, participants delved into the real-life study of the Estonian University of Life Sciences operations, focusing on engaging performance regarding socially engaged research. Participants developed essential skills and engagement practices driving positive societal change.

**Case study 2:** Atilla provided a case study ‘Urban Nature Explorer for Tartu’. In this case study, the group developed a case and collected data in Tartu including selection of site, specifications, sustainability challenges, indicators, baseline and target values, and relevant NBS types and amenities. Participants uploaded these data in the Urban Nature Explorer tool, a web-based platform scenario tool for participatory planning addressing urban sustainability which will further be tested, developed and refined.

**Case study 3:** Anton gave a case study on ‘Tartu Energy and Climate Change Plan – (how) could it be more challenging? In this case study, the case study group analyzed the provided document and the relevant policies, and development process. This case study contributes directly to EU Green Deal objectives and better future of Tartu through an analytical Tartu City Energy and Climate Action Plan.

**Case study 4:** Kalev provided a case study on ‘Green areas in conflict with real estate developments – a case study of Sanatorium Park, Tartu’. The Tartu City government planned to build 30 residential building the park and hence, the group working on this case study had a site visit to the park, did a literature overview and compiled ecosystem services (ES) matrix

so as to describe the ecological-environmental values of the park and assess the loss of ES due to construction of housing in the park.

***Case study 5:*** Anne Kull provided a case study talk on development of field map tool to collect the spatial data needed for research purposes. Participants developed a tool using the ArcGIS Pro, ArcGIS online and ArcGIS Field Maps Designer. This will help create highly customizable maps to collected spatial data.

***Case study 6:*** Case study on ‘User monitoring of blue spaces for health Promotion and Disease Prevention’ was provided by Peeter on the Anne Canal situated on a former wetland near the river Emajõgi. This case study was focused on understanding how people use this space to understand the future of this canal to help maximise health benefits and minimize conflicts between stakeholders.

This was followed by three parallel sessions on research methodology. In Session 1, Attila Katona led a simulation game session using the Urban Nature Explorer tool, an intelligent game that makes one think in a holistic approach which is brain stimulating. Session 2 featured practical training by Anne Kull on the application of ArcGIS for urban planning and crowdsourcing. In Session 3, two lectures were presented: Neeru Bansal discussed provisions for green and blue Spaces in urban development, with a focus on enabling tools in the Indian context, while Peeter Vassiljev gave a talk on Linking Up Environment, Health and Climate for Inter-sector Health Promotion and Disease Prevention.

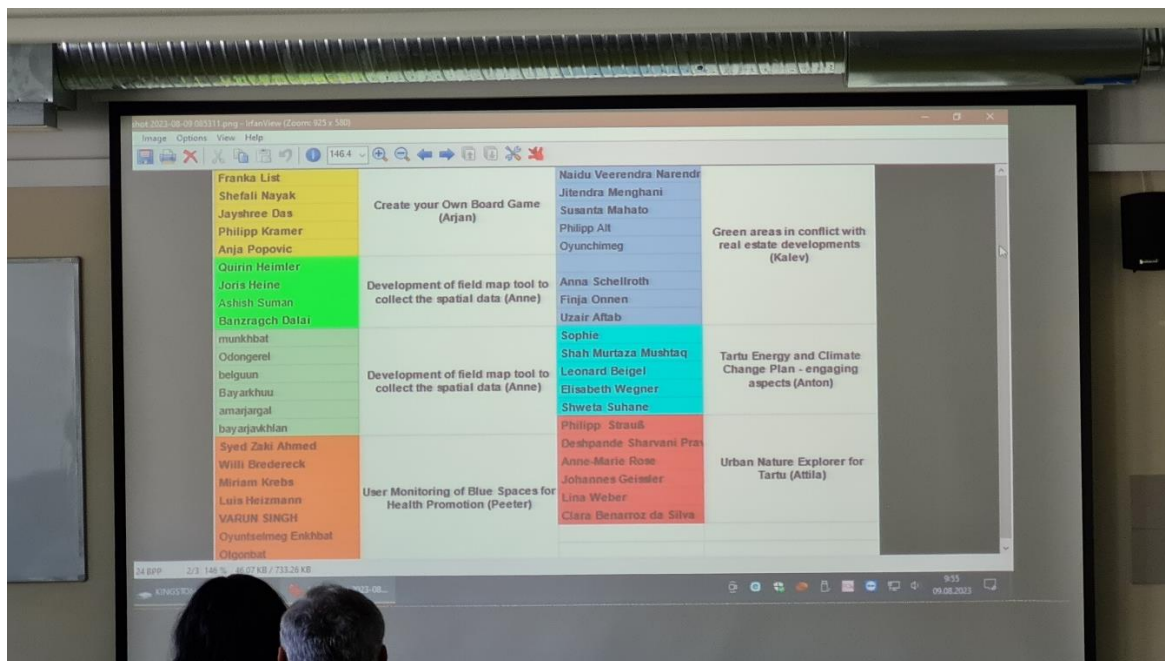


On August 10, Prof. Utpal Sharma from Nirma University, India, delivered an online lecture titled ‘Developing and understanding of a city through integration of Spatial concepts, learning through large Metropolitan city’. Monika Suškevičs followed with a lecture on the



concept of Citizen Science, its applications in environmental governance, and its impacts on decision making. Later that day, two parallel sessions were held. Altansukh Ochir presented on the 'City blueprint approach to urban water management 1' while Viviana Pappalardo led a hands-on GIS exercise focused on identifying, assessing and mapping elements of risk in urban environments, including hazard exposure and vulnerability.

On August 11, participants were divided into groups to initiate the case study preparation, which began with the presentation of case study proposals. Two parallel sessions were organized to further support the participants' learning. In the first session, Hui Ping Tsai gave an insightful talk on the use of remote sensing, UAV and AI techniques to promote a sustainable environment. Raul Sampaio de Lima followed with practical demonstration and training on the application of drones for mapping and monitoring, highlighting their role in supporting decision-making processes. In the second session, Riccardo Privitera led a practical exercise, guiding participants through strategies for adapting to and mitigating climate change through innovative urban design solutions.



On August 12, participants dedicated the day to their independent group work, collaborating closely to refine their case study proposals. Each group engaged in discussions, brainstorming ideas, and developing strategies based on the methodologies learned during the seminar sessions.

### 3) Field research phase (August 13-17)



On August 13, participants embarked on a field trip to Lahemaa National Park which provided an opportunity to observe various environmental features and discuss conservation efforts in the area.



The following day, August 14, was dedicated to group work.

On August 15, three parallel sessions were organized: In Session 1, Swati Kothary delivered an online lecture on integrating nature-based solution concepts with other infrastructure elements. In Session 2, Gedy Matisen focused on developing and implementing Bioblitzes through a practical. Lastly, in session 3, Valdo Kuusemets discussed the development of sustainable and climate-resilient urban stormwater management systems for municipalities.

August 16 and 17 were also dedicated to group work, allowing participants to collaborate on their projects.





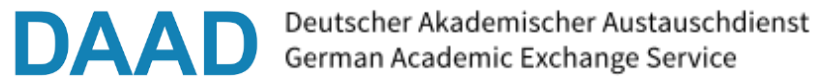
#### 4) Reporting and graduation (August 18)

The presentation of group findings took place on August 18, marking the culmination of the participants' hard work. During the same event, students also celebrated their graduation.





PARTNERS:



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