International Summer School

on

STEER - Spatial Technologies for Urban Resilience: Empowering India and Mongolia

12 – 25 February 2024

Co-funded by the Erasmus+ Programme of the European Union

Report

Partner Institutions

National Institute of Urban Affairs

Pondicherry University

About the Summer School

The Summer School, titled "Spatial Technologies for Urban Resilience: Empowering India and Mongolia," was designed to explore the dynamic world of urban resilience through the lens of cutting-edge spatial technologies.

It is a unique opportunity for graduate students and PhD scholars to delve into the realms of Remote Sensing, GIS, mapping, and monitoring.

In the face of rapid urbanization and the challenges posed by climate change, the need for resilient and adaptive urban environments has never been more crucial. This Summer School is designed to equip participants with the knowledge and skills to harness the power of spatial technologies in crafting sustainable solutions for urban challenges.

Key Highlights:

Expert-Led Sessions: Engage with leading experts in the fields of Remote Sensing and GIS through interactive lectures and hands-on practical exercises.

Field Trips: Immerse yourself in the local context with field trips, gaining practical insights into real-world applications of spatial technologies.

Group Projects: Collaborate with peers on group projects, applying your skills to address specific urban resilience challenges in Puducherry, India, and beyond.

Networking Opportunities: Connect with professionals, researchers, and fellow participants to build a valuable network within the realm of spatial technologies and urban resilience.

Invitation

Pondicherry University
School of Life Sciences
Department of Ecology & Environmental Sciences

Cordially invites you to the inauguration of the

International Summer School

on

STEER: Spatial Technologies for Urban Resilience: Empowering India and Mongolia

at

Seminar Hall - 1

Convention-cum-Cultural Centre , Pondicherry University

on Monday, the 12th February 2024 at 10:00 AM

Chief Guest

Prof. K. Tharanikkarasu

Vice-Chancellor (officiating), Pondicherry University

Guests of Honor

Prof. Clement Sagayaradja Lourdes

Director, Culture & Cultural Relations, Pondicherry University

Prof. Utpal Sharma

Director, Institute of Architecture and Planning,
Nirma University, Ahmedabad, India

Prof. H. Prathap Kumar Shetty

Dean, School of Life Sciences, Pondicherry University

Dr. Anton Shkaruba

Senior Researcher, Estonian University of Life Sciences, Tartu, Estonia

Dr. Riccardo Privitera

Urban and Environmental Planning, Università di Catania, Catania, Italy

Head of the Department
Dr. D. Ramamoorthy

Coordinator
Prof. S Jayakumar,
Erasmus Plus URGENT Program

Partner Institutions

Co-funded by the Erasmus+ Programme of the European Union

Pondicherry University

International Summer School
on
STEER - Spatial Technologies for Urban Resilience: Empowering India and Mongolia
(12 – 25 February 2024)

AIM:

The aim of the summer school is to provide participants with a comprehensive understanding of Urban Resilience and Spatial Technologies, equipping them with the knowledge and skills necessary for effective urban planning and management.

OBJECTIVES:

1. To introduce participants to the fundamental concepts of urban resilience and the role of spatial technologies in addressing urban challenges.
2. To familiarize participants with the methods and techniques of acquiring and pre-processing satellite data.
3. To provide hands-on experience in handling and managing GIS data for urban planning and analysis.
4. To enable participants to create accurate urban maps and monitor spatial changes using spatial technologies.
5. To instruct participants on spatial analysis methods for assessing and enhancing urban resilience.
6. To explore the integration of green and blue infrastructure in urban planning for sustainable development.
7. To enhance participants' skills in collecting and analyzing DGPS data through practical case studies.
8. To familiarize participants with the use of ecosystem services in decision-making processes.
9. To provide participants with real-world exposure to urban resilience and spatial technologies.

OUTCOME:

1. Participants will gain a foundational understanding of the key principles of urban resilience and spatial technologies.
2. Participants will acquire practical skills in satellite data handling, enhancing their ability to extract meaningful information for urban applications.
3. Participants will develop proficiency in GIS data manipulation and organization, essential for effective urban spatial analysis.
4. Participants will be able to apply mapping and monitoring techniques to address urban planning challenges.
5. Participants will gain the ability to conduct spatial analyses that contribute to urban resilience strategies.

6. Participants will understand the importance of ecological planning and its impact on urban resilience.
7. Participants will be proficient in utilizing DGPS data for urban planning and resilience applications.
8. Participants will learn to integrate ecosystem services into urban planning decisions for sustainable outcomes.
9. Participants will apply theoretical knowledge in practical scenarios during the field trip, and group project reinforcing their understanding.

THEMES FOR SUMMER SCHOOL:

1. Introduction to Urban Resilience and Spatial Technologies
2. Satellite Data Acquisition and Pre-processing
3. GIS Data Handling and Management
4. Urban Mapping and Monitoring
5. Spatial Analysis for Urban Resilience
6. Green and Blue Infrastructure Planning
7. Case Studies: India's Learning from Building Urban Climate Actions
8. Workshop on Ecosystem Services Use for Decision-Making
9. Capacity Building on High-precision RTK GNSS data collection and processing
10. Group project

Program

Day - 1

12/02/2024 | Monday

Time	Program details
09:15	Registration
10:00	Inauguration of Summer School
11:15	Tea Break
Technical Session	
11:45	Application of Spatial Technologies in Urban Planning and Management - Prof. Utpal Sharma, Nirma University
13:00	Lunch Break
14:00	Heritage Conservation and Urban Renewal in Jaipur and Ahmedabad - Prof. Utpal Sharma, Nirma University
15:30	Tea Break
15:45	Building a resilient future: The power of Data and Knowledge and Sustainability - Dr. Anton Shkaruba, Estonian University of Life Sciences
17:00	End of Day - 1

Day - 2
13/02/2024 | Tuesday

Time	Program details
Technical Session	
10:00	Overview of Spatial Technologies: Remote Sensing and GIS - Prof. S. Jayakumar, Pondicherry University
11:15	Tea Break
11:45	Urban greening and tree equity: Opportunities and Challenges (Lecture and case demonstration for usage) Prof. Akhlaq Wani, SKUAST-Kashmir
13:00	Lunch Break
14:00	Workshop on Ecosystem Services Use for Decision Making - Dr. Arjan, MLU (Online)
15:30	Tea Break
15:45	Workshop on Ecosystem Services Use for Decision Making - Dr. Arjan, MLU (Online)
17:00	End of Day - 2

Day - 3
14/02/2024 | Wednesday

Time	Program details
Technical Session	
10:00	India's Learning from Building Urban Climate Actions - Dr. Debjani, National Institute of Urban Affairs
11:30	Tea Break
11:45	Application of Spatial Technology in meeting Sustainable Development Goals and Environmental Impact Assessment – Shri. Rakesh Kumar Patra, GIFT City
13:00	Lunch Break
14:00	Adaptation and Mitigation to Climate Change through Urban Design - Dr. Riccardo Privitera, University of Catania
15:30	Tea Break
15:45	Adaptation and Mitigation to Climate Change through Urban Design - Dr. Riccardo Privitera, University of Catania
17:00	End of Day - 3

Day - 4
15/02/2024 | Thursday

Time	Program details
Technical Session	
10:00	Assessment of urban water management: Mongolia and India - Prof. Altansukh Ochir, National University of Mongolia
11:30	Tea Break

11:45 – 17:00	Field Trip- Visit to Puducherry Town with a special emphasis on Green and Blue infrastructure
17:00	End of Day - 4

Day - 5
16/02/2024 | Friday

Time	Program details
Technical Session	
10:00	High Resolution Urban Mapping: Techniques and Challenges - Prof. PK Joshi, Jawaharlal Nehru University
11:30	Tea Break
11:45	Urban Growth Modeling and Forecasting - Prof. PK Joshi, Jawaharlal Nehru University
13:00	Lunch Break
14:00	Case Study Presentation Work in Group
15:30	Tea Break
15:45	Presentation of Case Study proposal
17:00	End of Day - 5

Day - 6
17/02/2024 | Saturday

Time	Program details
Technical Session	
10:00	Independent Group Work
11:30	Tea Break
11:45	Independent Group Work
13:00	Lunch Break
14:00	Independent Group Work
15:30	Tea Break
15:45	Independent Group Work
17:00	End of Day - 6

Day - 7
18/02/2024 | Sunday

Time	Program details
Technical Session	
10:00	Independent Group Work
11:30	Tea Break
11:45	Independent Group Work
13:00	Lunch Break
14:00	Independent Group Work
15:30	Tea Break
15:45	Independent Group Work

17:00	End of Day - 7

Day - 8
19/02/2024 | Monday

Time	Program details
Technical Session	
10:00	Capacity Building - High-precision RTK GNSS for Urban Mapping – Shri. D. Ragavan, Indian Geoinformatics Centre
11:30	Tea Break
11:45	Capacity Building - High-precision RTK GNSS for Urban Mapping - Shri. D. Ragavan, Indian Geoinformatics Centre
13:00	Lunch Break
14:00	Field Training - High-precision RTK GNSS data collection and processing - Shri. D. Ragavan, Indian Geoinformatics Centre
15:30	Tea Break
15:45	Field Training - High-precision RTK GNSS data collection and processing - Shri. D. Ragavan, Indian Geoinformatics Centre
17:00	End of Day - 8

Day - 9
20/02/2024 | Tuesday

Time	Program details
Technical Session	
10:00	Independent Group Work
11:30	Tea Break
11:45	Independent Group Work
13:00	Lunch Break
14:00	Independent Group Work
15:30	Tea Break
15:45	Independent Group Work
17:00	End of Day - 9

Day - 10
21/02/2024 | Wednesday

Time	Program details
Technical Session	
10:00	Incorporating Nature Based Solutions in Urban Planning - Experiences and Experiments in Urban Agriculture - Dr. Swati Kothary, NIRMA University
11:30	Tea Break
11:45	Independent Group Work
13:00	Lunch Break
14:00	Independent Group Work
15:30	Tea Break
15:45	Independent Group Work

17:00	End of Day - 10

Day - 11
22/02/2024 | Thursday

Time	Program details
Technical Session	
10:00	Group Project - Definition of urban greening scenarios for climate regulation – Dr. Daniele La Rosa, University of Catania
11:30	Tea Break
11:45	Group Project - Definition of urban greening scenarios for climate regulation – Dr. Daniele La Rosa, University of Catania
13:00	Lunch Break
14:00	Independent Group Work
15:30	Tea Break
15:45	Independent Group Work
17:00	End of Day - 11

Day - 12
23/02/2024 | Friday

Time	Program details
Technical Session	
10:00	Presentation of Group Findings
11:30	Tea Break
11:45	Presentation of Group Findings
13:00	Lunch Break
14:00	Feedback from Participants
15:30	Tea Break
15:45	Graduation
17:00	End of Day - 12

Day - 13
24/02/2024 | Saturday

Time	Program details
10:00	Group and individual consultations for the students from URGENT project partner institutions
11:30	Tea Break
11:45	Group and individual consultations for the students from URGENT project partner institutions
13:00	Lunch Break
14:00	Group and individual consultations for the students from URGENT project partner institutions
15:30	Tea Break
15:45	Group and individual consultations for the students from URGENT project partner institutions
17:00	End of Day - 13

Day - 14
25/02/2024 | Sunday

Time	Program details
10:00	Group and individual consultations for the students from URGENT project partner institutions
11:30	Tea Break
11:45	Group and individual consultations for the students from URGENT project partner institutions
13:00	Lunch Break
14:00	Group and individual consultations for the students from URGENT project partner institutions
15:30	Tea Break
15:45	Group and individual consultations for the students from URGENT project partner institutions
17:00	End of Day - 14

Partner Institutes

University of Bremen (UHB); University of Catania (UCT); Estonian University of Life Sciences (EMU); Martin Luther University (MLU); National University of Mongolia (NUM); Khovd University (KHU); Mongolian University of Life Sciences (MULS); Jawaharlal Nehru University (JNU); Pondicherry University, Pondicherry (PU); SKUAST-K Kashmir (SKUAST-K); Nirma University, Ahmedabad (NU); National Institute of Urban Affairs (NIUA) New Delhi. Gift City, Ahmedabad (GIFT); Urban Planning and Research Institute (UPRI); National Garden Park of Ulaanbaattar Mongolia (NGP)

Registration Process:

A website was created to disseminate the information to participants and public about the international summer school (https://sites.google.com/pondiuni.ac.in/internationalsummerschool/home)
The registration was started on December 11, 2023 and it was open until January 5, 2024. In all 30 applications were received and out of the 30 applicants, only 27 participated in the summer school.

List of Participants:

Sl. No.	Name	Affiliation	Current Position
1.	Mehqul Islam	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	Postgraduate student
2.	Anam Gowher	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	Postgraduate student
3.	Sahil Rashid	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	Postgraduate student
4.	Sadaf Fayaz	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	PhD Scholar
5.	Suraya Tasveer	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	PhD Scholar
6.	Sayed Adeel	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	Postgraduate student
7.	Parsa Farkhanda	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir	PhD Scholar
8.	Varun Singh	Jawaharlal Nehru University	PhD Scholar
9.	Ashish Suman	Jawaharlal Nehru University	PhD Scholar
10.	Nitin Rathi	Jawaharlal Nehru University	PhD Scholar
11.	Chandan Das	Jawaharlal Nehru University	PhD Scholar
12.	Uyanga Batbold	National University of Mongolia	PhD Scholar
13.	Tuguldur Dashnamjil	Mongolian University of Life Sciences	Undergraduate student
14.	Amarjargal Batzorig	Khovd University	Undergraduate student
15.	Nemekhbayar	Khovd University	PhD Scholar
16.	Umaraniya Sujan Manilal	Nirma University	Assistant Professor
17.	Parag Vasantkumar Mistry	Nirma University	Assistant Professor
18.	Giulia Jelo	University of Catania	PhD Scholar
19.	Neha Jaiswal	Pondicherry University	PhD. Scholar
20.	Shovashish Karna	Pondicherry University	PhD. Scholar
21.	Atheesh	Pondicherry University	PhD. Scholar

22.	Syed Zaki Ahmed	Pondicherry University	PhD. Scholar
23.	Sankar Thampooran	Pondicherry University	PhD. Scholar
24.	Aafreen Sami	Pondicherry University	PhD. Scholar
25.	Varsha	Pondicherry University	PhD. Scholar
26.	Priya Jha	Pondicherry University	PhD. Scholar
27.	Saoo Wan Emi Phyllei	Pondicherry University	PhD. Scholar

Day – 1: Inauguration

The summer school was inaugurated by the Honorable Vice-Chancellor (officiating) of Pondicherry University, Prof. K. Tharanikkarasu and felicitated by the Prof. Clement Sagayaradja Lourdes Director, Culture & Cultural Relations, Pondicherry University, Prof. Utpal Sharma Director, Institute of Architecture and Planning, Nirma University, Ahmedabad, India, Prof. H. Prathap Kumar Shetty Dean, School of Life Sciences, Pondicherry University, Prof. Akhlaq Amin Wani, Head, Division of Forestry, SKUAST-K, Dr. Anton Shkaruba Senior Researcher, Estonian University of Life Sciences, Tartu, Estonia, Dr. Riccardo Privitera Urban and Environmental Planning, Università di Catania, Catania, Italy.

Prof. S. Jayakumar, Coordinator of the Summer School welcomed the gathering and introduced the

scope of the summer school.

Dr. Anton Shkaruba introduced the URGENT project during the inauguration.

Dr. Riccardo Privitera highlighted the significance of mobility and how mobility under URGENT project helped students and staff to participate in such learning events.

Prof. Akhlaq Amin Wani gave a felicitation address.

Prof. Utpal Sharma explained the significance of events like summer school under URGENT project.

Prof. Clement gave a felicitation address

Prof. K. Tharanikkarasu addressed the gathering and inaugurated the summer school.


Urban Resilience and Adaptation for In
INTERNATIONAL SUMMER SCH
12 - 25 February, 2024
Pondicherry University
Puducherry, India


Urban Resilience and Adaptation for India and Mongolia
INTERNATIONAL SUMMER
12 - 25 February, 2024


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a and Mongolia


Mongolia

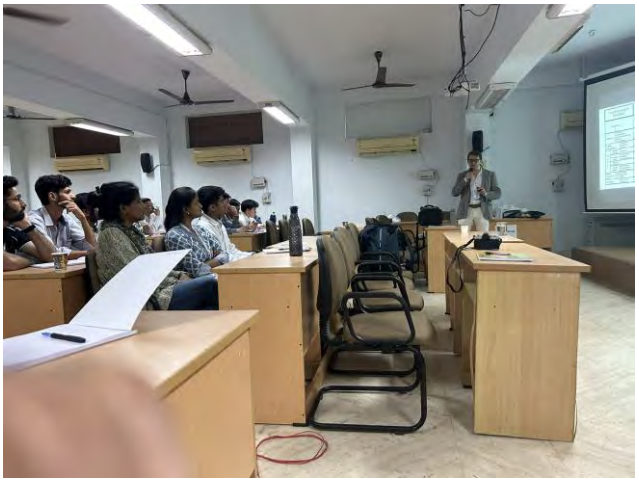

Prof.C.S.Lourdes


Prof.C.S.Lourdes


Prof.C.S.Lourdes

After the inauguration, the technical session of the summer school started with a lecture from Prof. Utpal Sharma.

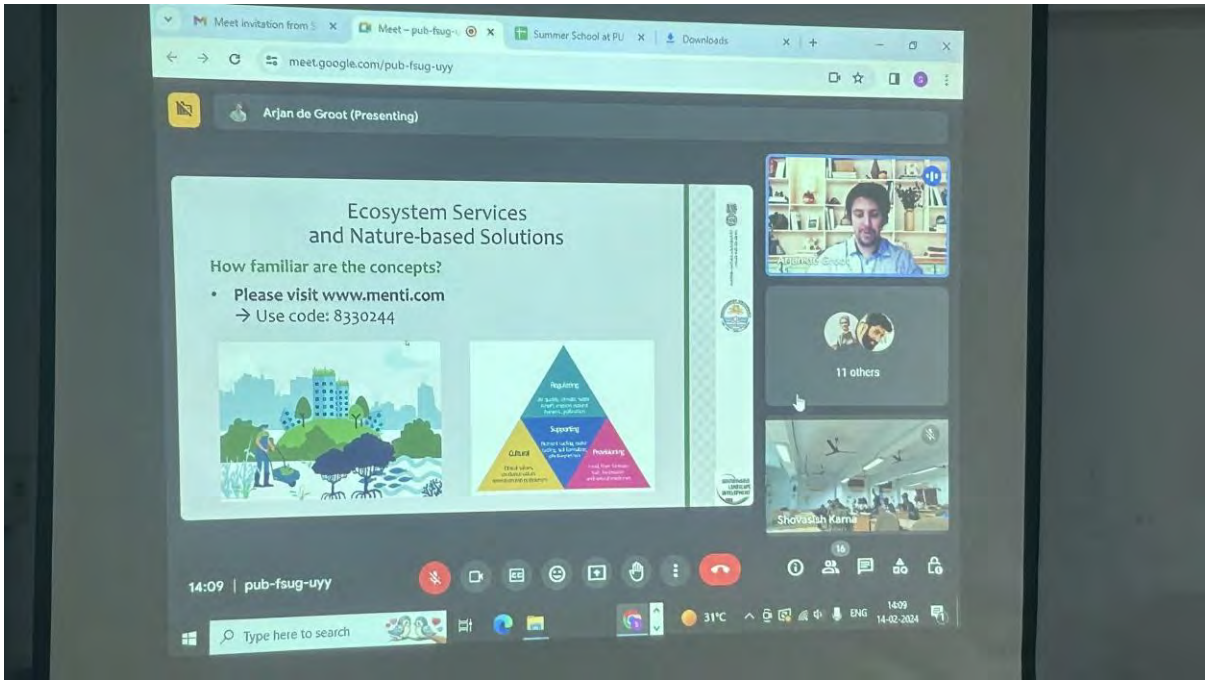
Dr. Anton Shkaruba presented on Building a resilient future: The power of Data and Knowledge and Sustainability.



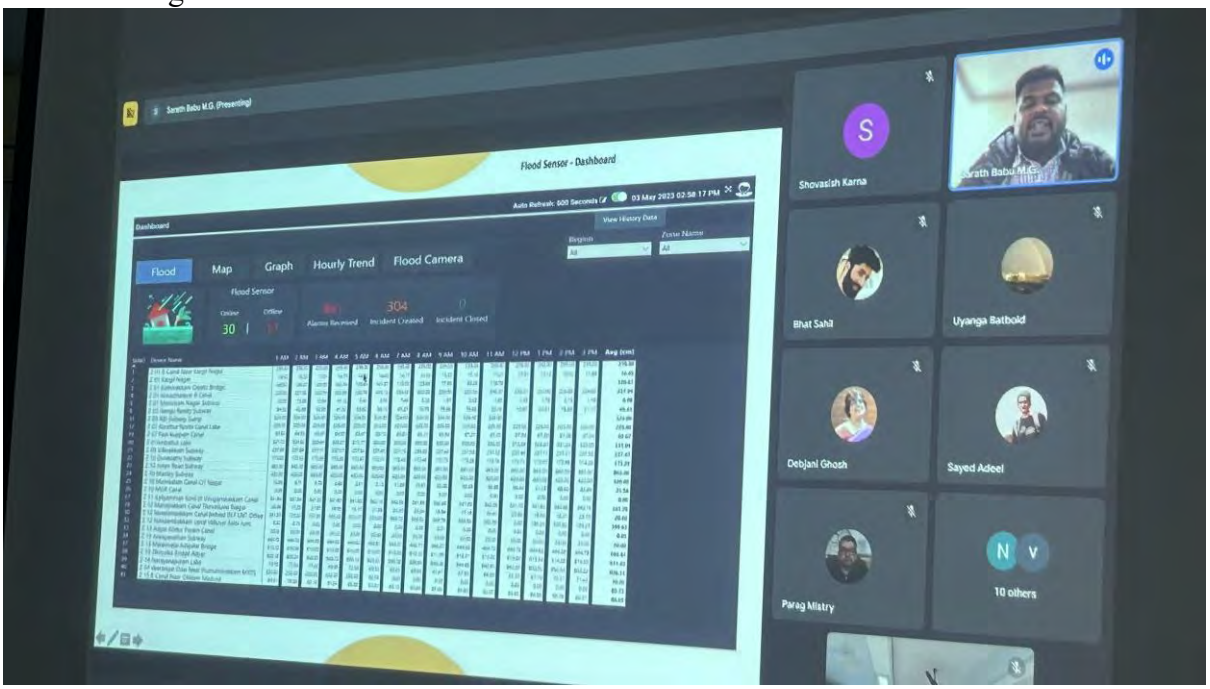
Day – 2: Prof. Jayakumar gave an insights on overview of remote sensing and GIS.

Prof. Akhlaq Amin Wani illustrated the essence of Urban greening and tree equity: Opportunities and Challenges.

Dr. Arjan De Groot engaged the participants with his Workshop on Ecosystem Services Use for Decision Making.



Day – 3: Dr. Sarath Babu from National Institute of Urban Affairs talked about India's Learning from Building Urban Climate Actions.

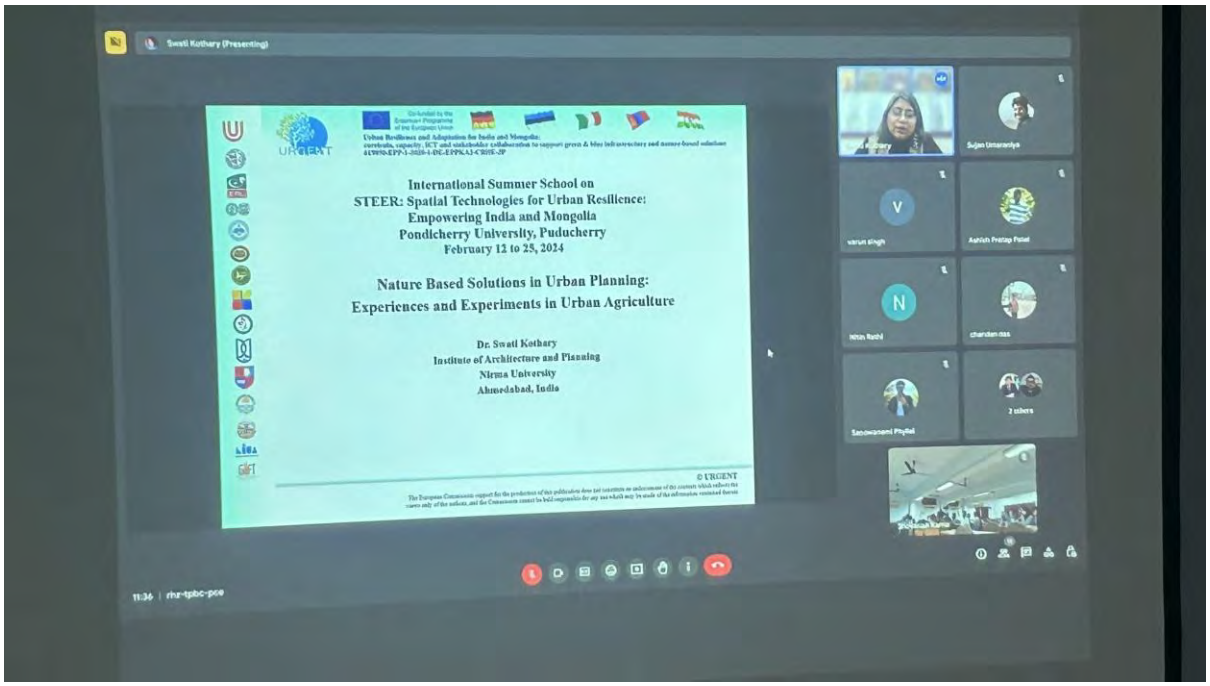


Shri. Rakesh Kumar Patra from GiFT city presented Application of Spatial Technology in meeting Sustainable Development Goals and Environmental Impact Assessment.

Dr. Riccardo Privitera conducted a workshop on Adaptation and Mitigation to Climate Change through Urban Design.

Day – 4: Prof. Altansukh Ochir highlighted the Assessment of urban water management: Mongolia and India.

Dr. Swati Kothari discussed about incorporating Nature Based Solutions in Urban Planning - Experiences and Experiments in Urban Agriculture.



The participants visited the Puducherry town as part of the field trip to explore the available urban blue and green infrastructure.

The Mangrove

The Urban Forest Patch

Day – 5: Prof. PK. Joshi from JNU presented the High resolution urban mapping: Techniques and Challenges and Urban Growth Modeling and Forecasting.

In the afternoon session the participants were divided into three groups based on the selected group project theme. The group selected the following theme as their project work.

Theme: 1. Green Space Optimization

Focus: Identify underutilized spaces in the city for potential green space development, considering factors like accessibility, environmental benefits, and community engagement.

Theme: 2. Heritage Conservation and Urban Renewal

Focus: Explore strategies for preserving and revitalizing the heritage sites and cultural assets in Puducherry, ensuring their integration into the urban fabric.

Theme: 3. Urban Heat Island Mitigation

Focus: Propose measures to mitigate the urban heat island effect in specific areas, such as introducing green roofs, tree planting, or reflective surfaces.

Groups discussed about the plan of data collection, analysis and presentation of results and gave a presentation.

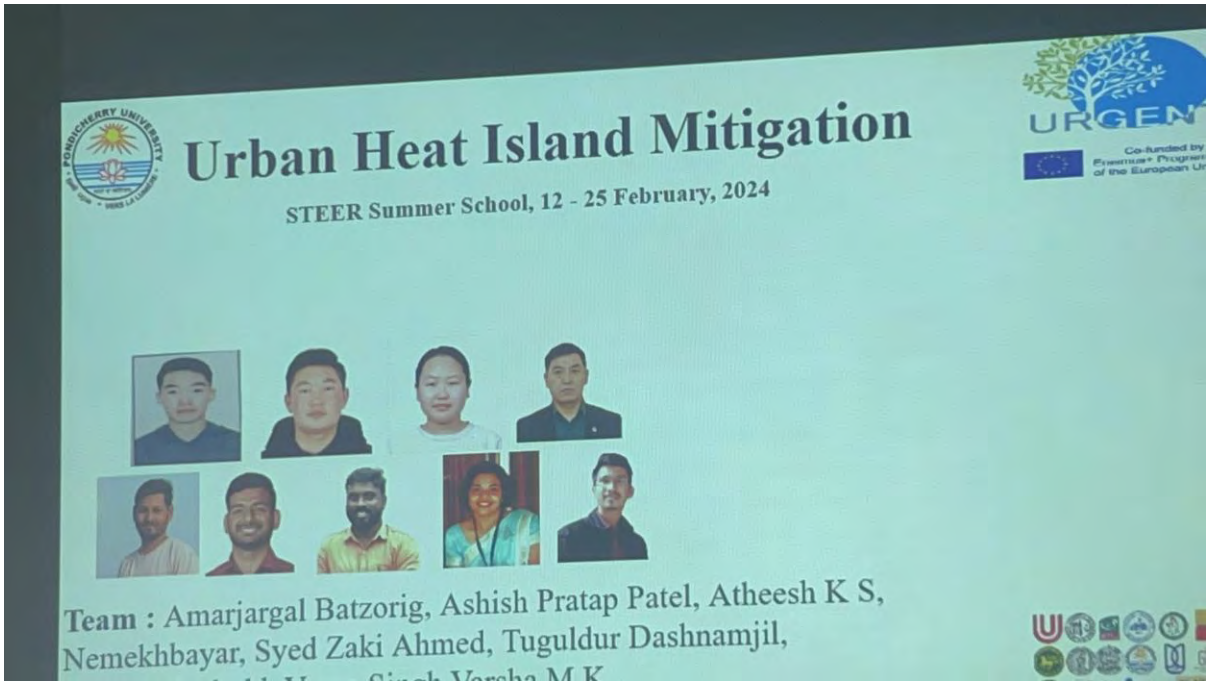
Day – 6 and Day – 7: Participants collected data for selected themes and interviewed people and officials in Pondicherry, had a group discussion.

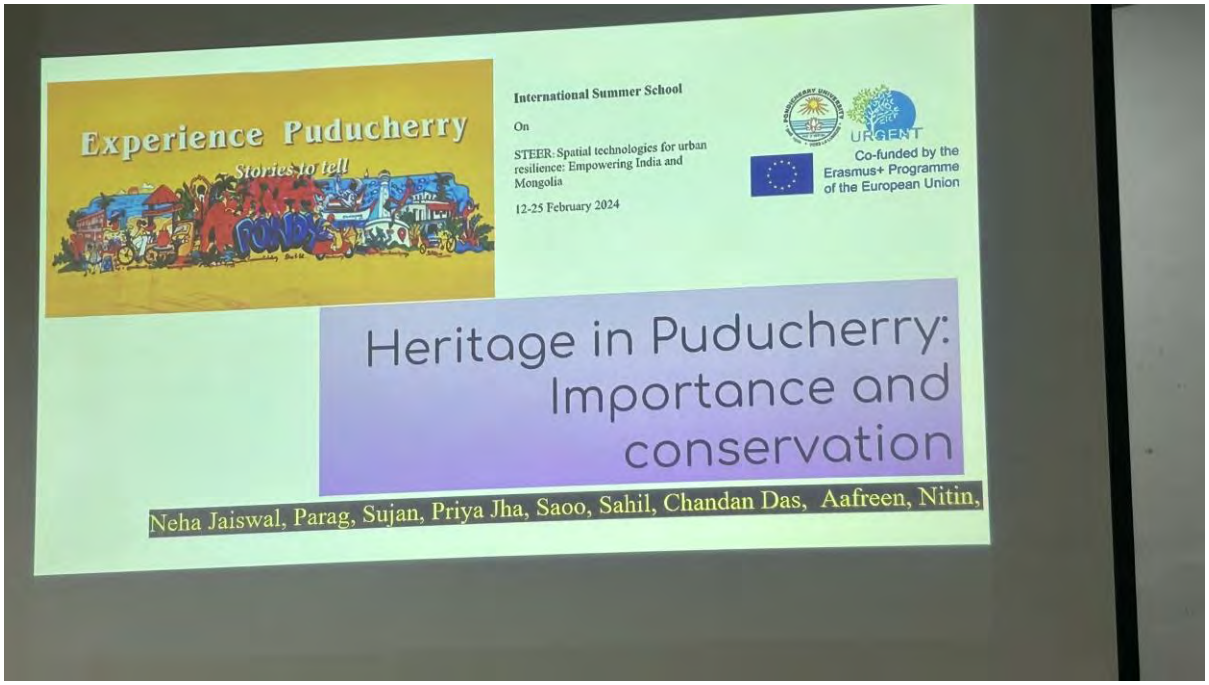
Day – 8: Shri. D. Ragavan, Indian Geoinformatics Centre Capacity Building, one of the Non-academic partners conducted a capacity building on High-precision RTK GNSS for Urban Mapping

Day – 9 and Day – 10: Participants collected data from field and analysed.
Day – 11: Prof. Daniele engaged the participants with his workshop on the definition of urban greening scenarios for climate regulation.

Participants had a group discussion with their team mates on group projects and prepared presentation for their project.

Day – 12: Participants gave a detailed presentation on their group project.




Experience Puducherry
Stories to tell
International Summer School
On
STEER: Spatial technologies for urban resilience: Empowering India and Mongolia
12-25 February 2024
URGENT
Co-funded by the Erasmus+ Programme of the European Union
Heritage in Puducherry: Importance and conservation
Neha Jaiswal, Parag, Sujan, Priya Jha, Saoo, Sahil, Chandan Das, Aafreen, Nitin,


Co-funded by the Erasmus+ Programme of the European Union
Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
619050-EPP-1-2020-1-DE-EPPKA2-CBHE-JP
Greenspace optimization in White town of Pondicherry
Compiled by
Suraya Tasveer
Parsa Farkhanda
Shovasish Karna
Shankar Thampuran M V
Sadaf Fayaz
Sayed Adeel
Anam Gowhar
Mehqul Islam
Giulia Jelo
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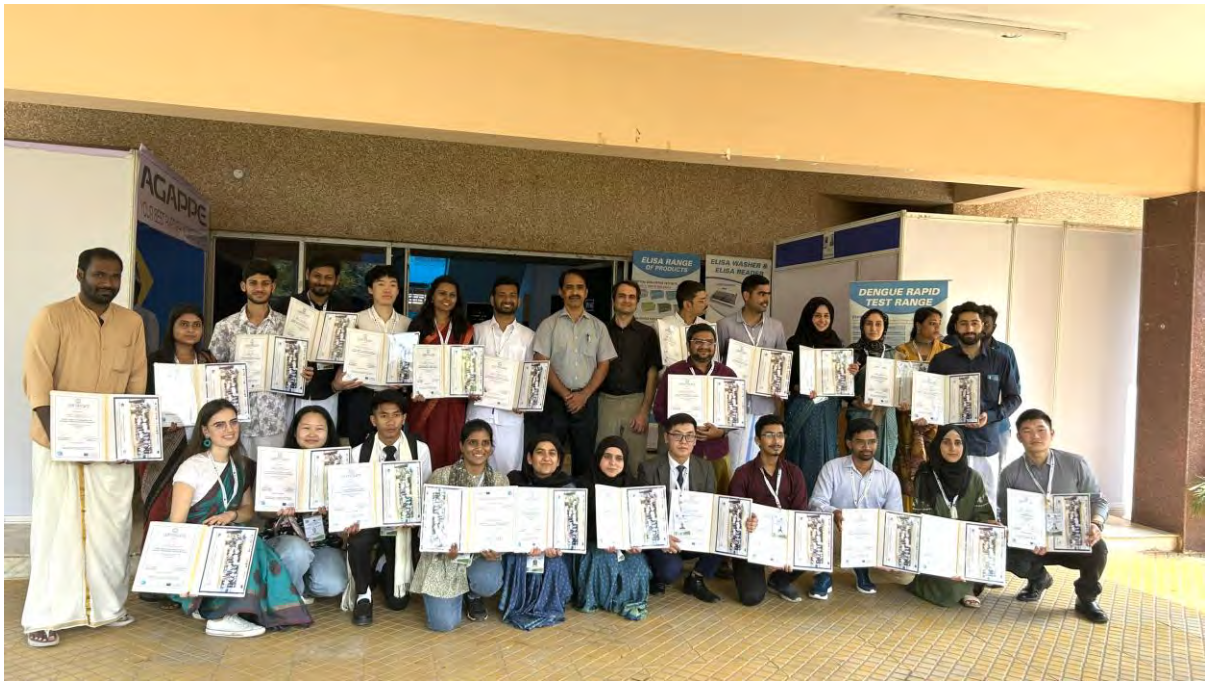
Objectives
Urban Resilience and Adaptation for India and Mongolia
INTERNATIONAL SUMMER SCHOOL
STEER - Spatial Technology for Urban Resilience: Empowering India and Mongolia
12 - 25 February, 2024
Pondicherry University
Puducherry, India

Finally, all the participants were presented with a certificate.



Day 13 and Day 14: Participants had a group and individual consultations with URGENT project partner institutions.

Model Certificate:

PONDICHERRY UNIVERSITY

CERTIFICATE

NO. PU/SS/

hereby confirms that

has successfully completed and met all the requirements of the summer course :

STEER- Spatial Technologies for Urban Resilience: Empowering India and Mongolia

conducted during the period of February 12 to 25, 2024
at Pondicherry University
and gained 3 ECTS

Prof. S. JAYAKUMAR
COORDINATOR SUMMER SCHOOL
Pondicherry University

Prof. K. THARANIKKARASU
DIRECTOR, SEI&RR
Pondicherry University

Puducherry, February 25th 2024

This Summer School was co- organised by the Erasmus+ CBHE project URGENT-Urban Resilience and Adaptation for India and Mongolia.

URGENT

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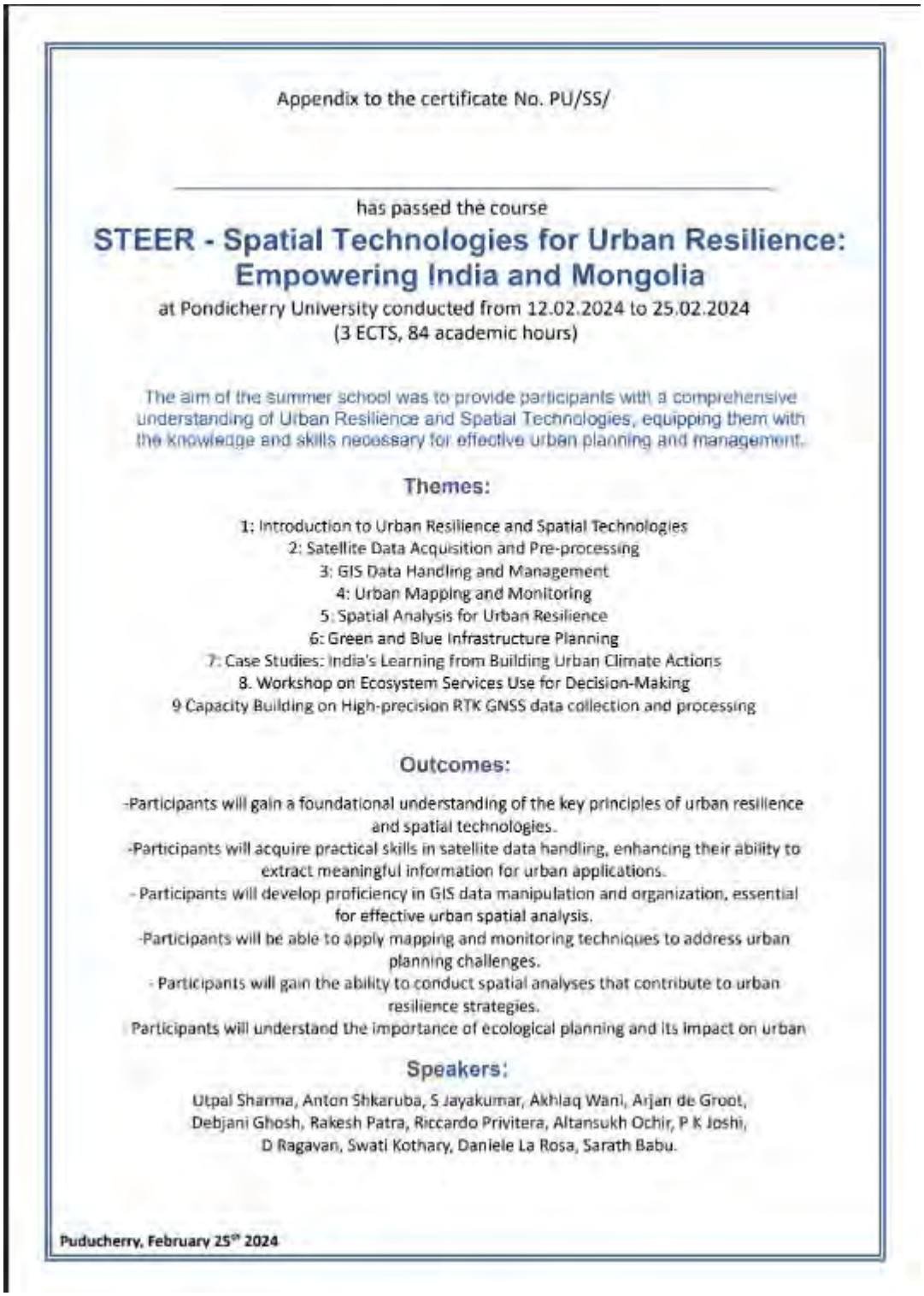

Appendix to the certificate No. PU/SS/

has passed the course

STEER - Spatial Technologies for Urban Resilience: Empowering India and Mongolia

at Pondicherry University conducted from 12.02.2024 to 25.02.2024
(3 ECTS, 84 academic hours)

The aim of the summer school was to provide participants with a comprehensive understanding of Urban Resilience and Spatial Technologies, equipping them with the knowledge and skills necessary for effective urban planning and management.

Themes:

1: Introduction to Urban Resilience and Spatial Technologies
2: Satellite Data Acquisition and Pre-processing
3: GIS Data Handling and Management
4: Urban Mapping and Monitoring
5: Spatial Analysis for Urban Resilience
6: Green and Blue Infrastructure Planning
7: Case Studies: India's Learning from Building Urban Climate Actions
8. Workshop on Ecosystem Services Use for Decision-Making
9 Capacity Building on High-precision RTK GNSS data collection and processing

Outcomes:

-Participants will gain a foundational understanding of the key principles of urban resilience and spatial technologies.
-Participants will acquire practical skills in satellite data handling, enhancing their ability to extract meaningful information for urban applications.
- Participants will develop proficiency in GIS data manipulation and organization, essential for effective urban spatial analysis.
-Participants will be able to apply mapping and monitoring techniques to address urban planning challenges.
- Participants will gain the ability to conduct spatial analyses that contribute to urban resilience strategies.
Participants will understand the importance of ecological planning and its impact on urban

Speakers:

Utpal Sharma, Anton Shkaruba, S Jayakumar, Akhlaq Wani, Arjan de Groot, Debjani Ghosh, Rakesh Patra, Riccardo Privitera, Altansukh Ochir, P K Joshi, D Ragavan, Swati Kothary, Daniele La Rosa, Sarath Babu.

Puducherry, February 25th 2024

*The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein