Facilitating Institution

Pondicherry University (PU)

Speaker: **Ms Syed Zaki Ahmed, Pondicherry University, Pondicherry**
Topic: **Urban Heat Island in Chennai City Through Ground Level Monitoring & Remote Sensing Technique: People's Perspective & Nature Based Solutions**

Mr Zaki presented a case of Chennai, a rapidly expanding city in southern India, is experiencing a consistent rise in its annual average temperature. This alarming trend necessitates a systematic study to understand the evolving Urban Heat Island (UHI) patterns. The UHI effect, where urban areas are significantly warmer than their rural surroundings, poses significant environmental and public health challenges. This research, vital for ensuring a sustainable future for Chennai, employs a combination of ground-level monitoring and remote sensing techniques, alongside community engagement, to analyze and address the UHI phenomenon. To monitor and analyze UHI patterns in Chennai, this study uses the Temptop handheld air quality monitoring device. This device measures critical parameters such as temperature, carbon dioxide (CO2) levels, particulate matter (PM2.5 and PM10), and the Comfort Level Index (CLI). These metrics provide a detailed view of the city's microclimate and air quality, essential for understanding the extent and distribution of the UHI effect.

The data collected through ground-level monitoring is analyzed using 'R' software, a robust statistical computing tool. R software facilitates detailed analysis and visualization, helping to identify trends and correlations between temperature, CO2 levels, and particulate matter concentrations. By examining these factors, the study aims to determine the primary contributors to the UHI effect in Chennai. Additionally, the Comfort Level Index offers insights into how these factors affect human comfort and health, providing a comprehensive understanding of the UHI's impact on residents. Understanding local views on UHI, global warming, and the potential causes of rising temperatures is a crucial component of this research. Engaging with Chennai's residents through surveys and interviews provides valuable qualitative data. These insights reveal how the public perceives changes in their environment and their awareness of the UHI phenomenon. This community-based approach ensures that the study is grounded in the socio-cultural context, making the findings more relevant and actionable.

The next objective of this study involves using thermal remote sensing to map di-decadal changes in UHI patterns across Chennai. Satellite imagery and thermal sensors offer a macro-level perspective of temperature variations over the past two decades. This long-term view helps identify trends and hotspots, highlighting areas most affected by the UHI effect. Combining ground-level data with remote sensing provides a comprehensive understanding of UHI dynamics, facilitating targeted interventions.

Nature-based solutions (NBS) offer sustainable and effective strategies to mitigate the UHI effect. In Chennai, these can include: Urban Green Spaces, Vegetation Cover and Water Bodies Restoration Addressing the Urban Heat Island effect in Chennai requires a multifaceted approach that combines scientific research, technological solutions, and community engagement. By integrating ground-level monitoring with remote sensing and leveraging nature-based solutions, this research provides a comprehensive understanding of UHI dynamics in Chennai. Engaging with the local community ensures that solutions are culturally relevant and widely accepted, paving the way for a sustainable and climate-resilient future for the city.

More questions pertaining to **Mr. Syed Zaki Ahmed's** research work can be corresponded through her email- zakiahmed9@pondiuni.ac.in


SYED ZAKI AHMED (Presenting)
INTERNATIONAL DOCTORAL RESEARCH SEMINAR
Urban Heat Island in Chennai City Through Ground Level Monitoring & Remote Sensing Technique: People's Perspective & Nature Based Solutions
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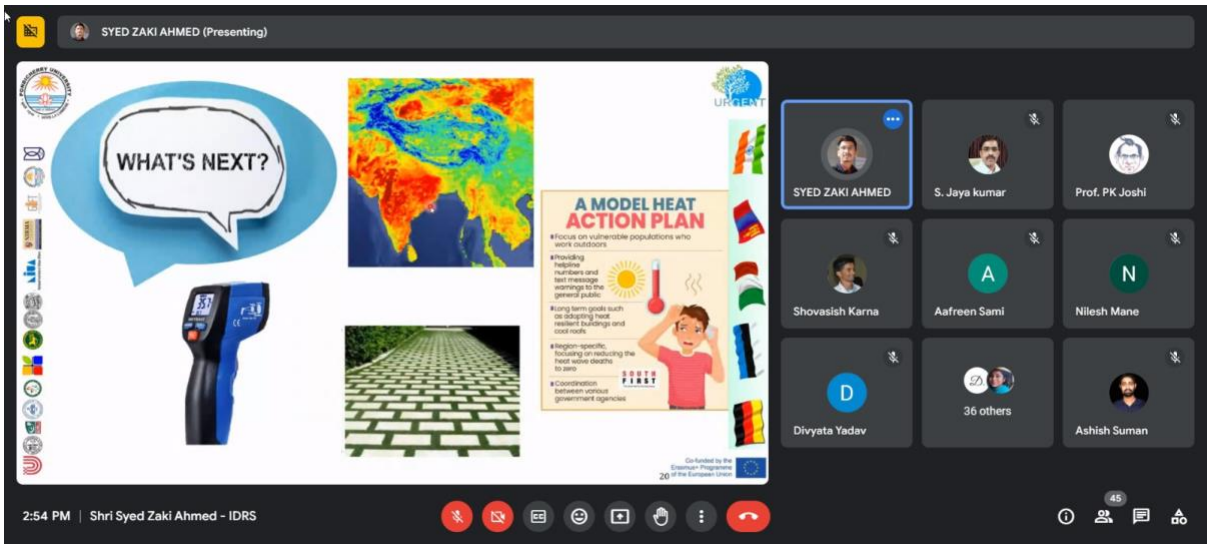
pushpa latha
Divyata Yadav
26 others
Ashish Suman
2:34 PM | Shri Syed Zaki Ahmed - IDRS


SYED ZAKI AHMED (Presenting)
WHAT'S NEXT?
A MODEL HEAT ACTION PLAN
SYED ZAKI AHMED
S. Jaya kumar
Prof. PK Joshi
Shovasish Karna
Aafreen Sami
Nilesh Mane
Divyata Yadav
36 others
Ashish Suman
2:54 PM | Shri Syed Zaki Ahmed - IDRS


SYED ZAKI AHMED
Prof. PK Joshi
Shovasish Karna
Aafreen Sami
P K Joshi
Shweta Suhane
Neha Jaiswal
38 others
Ashish Suman
3:05 PM | Shri Syed Zaki Ahmed - IDRS