

Expert Talk on “Urban and Infrastructure Resilience: Concept and Methodology”

Event Details

- **Organized by:** Department of Civil (Structural Engineering), Gujarat Technological University – School of Engineering and Technology (GTU-SET)
- **Date:** 03 September 2025 (Wednesday)
- **Time:** 03:30 PM onwards
- **Mode:** Online (Google Meet)
- **Speaker:** Dr. Zaishang Li, UKRI Guarantee Postdoctoral Fellow, Department of Civil, Environmental and Geomatic Engineering, University College London (UCL)
- **Coordinator:** Dr. K. M. Gondaliya
- **Convener:** Prof. (Dr.) J. A. Amin, Professor, GTU-SET.

Event Summary

The Department of Civil (Structural Engineering), GTU-SET, successfully organized an expert talk session on “**Urban and Infrastructure Resilience: Concept and Methodology**” on 3rd September 2025. The session featured **Dr. Zaishang Li** from University College London (UCL), an eminent researcher in the field of infrastructure resilience, artificial intelligence, and advanced computational methods.

The program commenced with a welcome address by Dr. Kaushik Gondaliya, who highlighted the importance of resilience in rapidly urbanizing India, emphasizing the vulnerabilities exposed by natural disasters, climate change, and socio-economic disruptions. He stressed how global best practices and advanced methodologies could be contextualized for Indian cities.

Dr. Li’s lecture provided deep insights into the conceptual and methodological frameworks of urban and infrastructure resilience. Using case studies and computational approaches, he explained the application of **agent-based models, system dynamics modelling, and hybrid simulations** to evaluate healthcare system resilience, disaster recovery, and urban functionality under stress. The talk also addressed how artificial intelligence and data-driven strategies can strengthen decision-making in resilience planning.

The session witnessed active participation, with **over 30 attendees**, including faculty members, researchers, and students, who engaged in an enriching discussion with the speaker. **Prof. (Dr.) J. A. Amin** commended Dr. Li’s contribution and emphasized the relevance of such academic collaborations in strengthening the global outlook of GTU-SET.

The event concluded with an interactive Q&A session, leaving participants with valuable perspectives on integrating resilience into urban infrastructure development.

Glimpse of the event

UCL

Urban and Infrastructure Resilience: Concept and Methodology

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unesco
Chair on Disaster Risk Reduction and Resilience Engineering

1. Background

Global trend of urbanisation

Percentage of population residing in urban areas by geographic region, 1950-2050

Cities by size class of urban settlement, 1990, 2010, 2030

1. Background

Urban resilience initiatives

UNDRR
Making Cities Resilient
We are a global partnership to strengthen local resilience
MICRO2020 drives to ensure cities are becoming resilient and sustainable by 2030

United Nations
UN Office for Disaster Risk Reduction

World Bank
City Resilience Program
London

5.4 Healthcare System Resilience | Case Study

Inputs for the simulation

Inputs	Methods
Within the healthcare system <ul style="list-style-type: none">Damage to local and economy (or replacement) rates of medical staff, medical supplies, medical equipment, hospital buildings, and utilities within hospitals	FACT by FEMA Estimated by the damage states of the floors
Out of the healthcare system <ul style="list-style-type: none">Damage and recovery of infrastructure, namely, power, water, transportation, and communication systems	Empirical probabilistic model (Kernoush et al. 2014)
Patient arrivals	HASUSAM 2.1 and empirical model <ul style="list-style-type: none">Four diseases<ul style="list-style-type: none">Disease A (severe trauma like fractures and brain injuries)Disease B (severe trauma like fractures and brain injuries)Disease C (upper respiratory infection and events)Disease D (cancer)
Hazard	<ul style="list-style-type: none">Ground motion data of the 2003 Sichuan Earthquake with a peak ground acceleration of 0.2 m/s²

People

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IN THE MEETING

Contributors

- Dr. Kaushik Gond... (You) Meeting host
- Mridul Seth Meeting host
- Prof. Jignesh Amin Meeting host
- Zaishang Li Meeting host
- Zaishang Li Meeting host

Viewers

- Aamirah Shaikh
- Aayush Nene