



International Conference on Technologies for Climate Resilient Infrastructure

26 November 2024

Online

Organised by

Asian and Pacific Centre for Transfer of Technology (APCTT) of the
United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and
Iranian Research Organization for Science and Technology (IROST), Ministry of Science, Research
and Technology, Tehran, Islamic Republic of Iran

Background

A recent report by the United Nations Economic and Social Commission for Asia and the Pacific¹ highlights that climate change-induced disasters have become a growing threat to Asia and the Pacific, which is the most disaster-prone region globally. Since 1970, disasters have claimed 2 million lives in this region. In 2022 alone, the region experienced over 140 disasters, resulting in more than 7,500 deaths, and impacting over 64 million people. The economic damage from these disasters is estimated at USD 57 billion. Climate change is therefore having profound impacts on human society, reshaping our environment, economies, and daily lives through more frequent flash floods, windstorms, extreme temperatures, wildfires, and prolonged heatwaves, significantly affecting infrastructure planning, maintenance, and operations².

Principles and Technologies for Resilient Infrastructure

Resilience is a system's ability to efficiently bounce back from shocks while maintaining essential functions. Resilient infrastructure systems (such as transportation, energy, and utilities) therefore need to anticipate, absorb, adapt to, and quickly recover from natural and anthropogenic hazards³.

In this context, several new and emerging technologies have been developed in the recent past to enhance climate resilience. These range from advanced materials like high-performance concrete and self-healing materials⁴, smart monitoring systems using IoT and drones⁵, resilient energy systems such as microgrids to Artificial Intelligence enabled predictive modelling and digital twin technologies⁶ for urban infrastructure planning to improve adaptability.

Objectives of the Conference

The key objectives of the conference are:

1. Enhance knowledge and awareness and share knowledge about technologies and best practices in climate-resilient infrastructure.
2. Explore innovative strategies for collaboration among governments, academia, non-governmental organizations to integrate climate resilience into infrastructure planning and investment.

The recommendations from the conference will be presented at the 20th session of APCTT's Governing Council for consideration

¹ UNESCAP. (2024). Seizing the Moment: Targeting Transformative Disaster Risk, *Asia-Pacific disaster report 2023*.

² Chester, M.V., Underwood, B.S., Samaras, C., 2020. *Keeping infrastructure reliable under climate uncertainty*. Nat. Clim. Change 10 (6), 488–490.

³ UNDRR, Disaster Resilience Scorecard for Cities, Undated, <https://mcr2030.undrr.org/disaster-resilience-scorecard-cities>

⁴ Hallegatte et al, 2019. *Lifelines: The Resilient Infrastructure Opportunity*. World Bank.

⁵ Nita Yodo et al , 2023, *Condition-based monitoring as a robust strategy towards sustainable and resilient multienergy infrastructure systems*, Sustainable and Resilient Infrastructure,

⁶ Lv, Y., & Sarker, M. N. I. (2024). *Integrative approaches to urban resilience: Evaluating the efficacy of resilience strategies in mitigating climate change vulnerabilities*. *Heliyon*, 10(6).

Target Audience

The event will bring together government officials and policymakers, private sector representatives, academia and researchers, urban planners and engineers, civil society organizations, financial institutions, technology developers, and environment and sustainability experts.

PROGRAMME DETAILS

Date: 26 November 2024 | Time: 08:00 am–14:00 pm (Iran Time GMT+3.30) Online

Time	Agenda Item	Speaker
07:00-08:00	Online Registration	
08:00-08:35	Inaugural Session	
08:00-08:05	Welcome address	Dr. Alireza Bassiri General Director for International Scientific Cooperation, Department of Chemical Technology, Iranian Research Organization for Science and Technology
08:05-08:10	Opening Address	Ms. Preeti Soni Head Asian and Pacific Centre for Transfer of Technology of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
08:10-08:20	Special Address	Ms. Lin Yang Deputy Executive Secretary United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
08:20-08:30	Special Address	Representative Islamic Republic of Iran (Tbc)
08:30-08:35	Online Group Photo	
08:35-09:35	Technical Session 1: Technologies for Climate Resilient Infrastructure Exploring technologies for helping countries prepare for climate change induced events Moderator: Tbc	
08:35-08:50	<i>Technological and Policy Innovations for Climate Resilient Infrastructure with lessons from the Asia-Pacific – An Overview</i> Dr. Sanjay Srivastava, Chief of Disaster Risk Reduction, ICT and Disaster Risk Reduction Division, ESCAP	
08:50-09:05	<i>Preparedness of Indian cities for Climate Resilience</i> Dr. Hitesh Vaidya, Former Director, National Institute of Urban Affairs, New Delhi, India	
09:05-09:20	<i>Climate Change Risk Management for Sustainability in Iran</i> Dr. Saeid Hamzeh, University of Tehran, Islamic Republic of Iran	
09:20-09:35	Open Discussion	
09:35-10:00	Long Break	
10:00-11:25	Technical Session 1: Technologies for Climate Resilient Infrastructure (continued)	
10:00-10:15	<i>Technologies for enhancing Urban Resilience in Buildings (Online)</i> Prof. Pradeep Kumar Ramancharla, Central Building Research Institute, Roorkee, India	
10:15-10:30	<i>Iran's Advancements in Adaptation and Mitigation Technologies</i> Dr. Aliakbar Shamsipour, University of Tehran, Islamic Republic of Iran	
10:30-10:45	<i>Innovative Technologies for Climate-Resilient Infrastructure Development in Uzbekistan: Building Sustainable Solutions for a Changing Environment</i> Ms. Fazilat Shiikurovna Kodirova, Agency for Innovative Development, Ministry of Higher Education, Science and Innovations of the Republic of Uzbekistan	
10:45-11:00	<i>Building Climate Resilience into Hydro Power Sector in Nepal: Challenges and prospects</i> Mr. Ram Chandra Poudel, Sr. Divisional Engineer, Ministry of Industry, Commerce and Supplies, Kathmandu	
11:00-11:15	<i>Climate Resilience Infrastructure Technology Development, Upscaling and Deployment: Philippine Experiences and Prospects</i>	

Time	Agenda Item	Speaker
	Caezar AE Arceo, Chief Science Research Specialist, Technology Application and Promotion Institute, Department of Science and Technology, Philippines	
11:15-11:25	Open Discussion	
11:25-11:30	Short Break	
11:30-12:45	Technical Session 2: Green and Blue Climate Resilience Technologies for enhancing Climate Resilience of Infrastructure using the Living Labs Approach⁷ The session will present three case studies using the Living Labs approach for integrating technologies for climate resilience Moderator: Dr. Eun Joo Kim, Principal Researcher, Science and Technology Policy Institute, Republic of Korea	
11:30-11:45	<i>Smart Innovative Daejeon City: Technology-Community Co-evolution towards Carbon Net-Zero</i> Dr. Youngjoo Ko, Principal Researcher, Korea Research Institute of Chemical Technology	
11:45-12:00	<i>Enhancing Water Governance through Multi-Stakeholder Participation: Insights from River Experiment</i> Dr. Sang Hwa Jung, Head of Centre, Korea Institute of Civil Engineering and Building Technology	
12:00-12:15	<i>Open Data and Civic Hacking for Energy Transition</i> Mr. Jongkyu Kim, CEO, 60 Hertz	
12:15-12:45	Moderator's Remarks and Open Discussion	
12:45-12:50	Short Break	
12:50-13:45	Technical Session 3: Panel Discussion - Cross-Sector Collaboration across sectors, industries, and governments to drive identification and scaling up of Climate Resilient Infrastructure in Asia Pacific. An eminent Panel comprising representatives from Member States will share opportunities, constraints and success stories of implementing and scaling up technologies for CRI. Moderator: Dr. Olimjon Tuychiev, Rector, Turin Polytechnic University, Tashkent	
	<u>Representative (s) of member States in the Governing Council of APCTT</u>	
13:45-14:00	Closing session: Iranian Research Organization for Science and Technology, Islamic Republic of Iran and Asian and Pacific Centre for Transfer of Technology of UNESCAP	

Participants wishing to register for the Conference may please use any of the following links:



OR

Click Here

<https://forms.office.com/e/EbVfqscxWb>

⁷ Living Labs (LLs) are open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact (<https://enoll.org/>).