



APCTT
Asian and Pacific Centre
for Transfer of Technology



Ministry of Science, Research & Technology
Iranian Research Organization
for Science and Technology

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.
