Season 01: Dialogue 02
Summary

Event details

Title	**Assessing Climate and Disaster Risks of Infrastructure Systems**
Date	11 November 2020
Speakers	▪ **Peter Droogers**, *FutureWater, Netherlands* ▪ **Jim Hall**, *Oxford University, United Kingdom* ▪ **Alexandra Galperin**, *Asian Development Bank* ▪ **Jaiganesh Murugesan**, *Asian Development Bank*
Presenter	▪ **Belinda Hewitt**, *Asian Development Bank*
Discussant	▪ **Coral Fernandez-Illescas**, *Asian Development Bank*
Moderator	▪ **Steven Goldfinch**, *Asian Development Bank*

Source: ADB. (Tongatapu Island, Tonga)

Overview

Understanding risk to inform decisions and strengthen systems

The second session of the Virtual Dialogues on Resilient Infrastructure looked at the importance of **assessing climate and disaster risks** for infrastructure systems in the context of increasing uncertainties faced by countries in Asia and the Pacific. Through four case studies, the session explored good practice and trends for assessing climate and disaster risks for infrastructure systems, the advantages of shifting upstream, the utilization of data and technology, and the need to institutionalize assessment. The role of stakeholders, inclusive participation, and capacity building were underscored.

In **Indonesia**, the complex nature of infrastructure in the water sector resulted in a wider assessment of related critical infrastructure, including the energy and transport sectors, given the interactions, interdependencies, and linkages between the sectors and services. On impact analysis, the usability of assessment results to support decision-makers was underscored, recognizing the inherent uncertainties in climate science and the range of adaptation options available across sectors. Capacity building was recognized as a core element of the assessment process.

On prioritizing investments for transport infrastructure resilience in **Viet Nam** the use of network risk analysis was explored. This approach provides a process to support adaptation decision making by drawing on a layered approach covering different hazard scenarios, looking at asset vulnerabilities and failures at a systems levels, and calculating service disruption. Quantifying and aggregating losses at the local level provides a macroeconomic overview. Applying this analysis with different adaptation options against future climate and infrastructure systems configurations can support investment decisions and prioritize measures.

The role of multi-hazard disaster risk assessment, as demonstrated in the Tongatapu, **Tonga** pilot, was presented as a comprehensive approach to inform longer term decision making. The findings of the multi-sector risk assessment will inform parameters for resilient development and adaptation strategies and related investments. This approach highlighted the need for close communication with stakeholders to build confidence and trust in the process. Given the scale of this type of assessment, refining the outputs throughout the process and having flexibility to adapt the scope is important, as is investing in the capacity of stakeholders and end users.

The **Myanmar** unified platform for disaster risk application was developed following a national risk assessment on riverine flooding and cyclone (wind and storm surge) hazards. The platform covers population distribution, public assets, critical infrastructure, housing, crops, livestock, and aquaculture quantified against a series of return periods to 100 years for historical climate, with future climate change scenarios for 2040 and 2080. The platform provides public access, enabling users to overlay datasets to support decision making. Engagement with government and stakeholders, along with support for capacity building, was seen as critical given the need for continued assessment.

Key Takeaways

1. **Risk assessment is a process** requiring ownership, flexibility, and sustained engagement.
2. **Bottom-up approaches are effective.** Investing in the capacity to assess and understand risk can support resilient infrastructure over the long-term.
3. **Focus on decision making**. Despite the inherent uncertainties and variabilities in climate science, multiple benefits from resilient infrastructure systems can offset unknowns.
4. **Building resilient infrastructure is a long-term process**. Prioritization and planning investments need to bring together stakeholders to enable strategies to be implemented across political and administrative terms.
5. **Account for the value infrastructure services provide** beyond monetary outputs. Recognize existing and future opportunities of building resilience.
6. **There are an increasing number of open source datasets** that can be used to support decision making. Where imperfect, work with what there is to promote further collection and analysis.
7. **Stress test networks and systems** against a range of possible future scenarios to ensuring a wider understanding of possible outcomes and the implications on public policy.
8. **Invest in relationships and capacity** as this can yield results throughout the process and support application and sustainability.