



Resilient Design for Dynamic Landscapes: Working with Nature to Build Infrastructure That Lasts

22 April 2026 • 10:00–11:30 a.m. Manila Time (GMT+8) • Virtual via MS Teams



This session highlighted how understanding natural processes and landscape change can guide resilient design, enabling infrastructure to adapt rather than resist. Through case studies, including the Melamchi Water Supply Project in Nepal, the session explored strategies for working with rivers, slopes, and dynamic terrain to build infrastructure that lasts, reducing risk, enhancing performance, and supporting sustainable development across mountain regions and beyond.

Embedding disaster risk management into public planning, private sector standards, and financing mechanism is not a burden—it is a driver of efficiency, competitiveness, and above all, sustainable development.

ARNAUD CAUCHOIS

Country Director, Nepal Resident Mission

SPEAKERS



WELCOME REMARKS

NOELLE O'BRIEN

Director, Climate Change, Strategy and Engagement Division, Climate Change and Sustainable Development Department, ADB



ALEX STROUTH

Principal Geological Engineer, BGC Engineering



MODERATOR

SAURAV KC

Senior Project Officer, Sectors Department 2, ADB



CLOSING REMARKS

ARNAUD CAUCHOIS

Country Director, Nepal Resident Mission, ADB



EMILY MARK

Senior Geological Engineer, BGC Engineering

KEY MESSAGES

- **Design for Change, Not Stability.** Landscapes are dynamic, shaped by shifting rivers, mountain hazards, and changing climates. Infrastructure must adapt to these realities rather than resist them. Nature-informed design—working with natural processes instead of against them—enhances durability, reduces maintenance costs, and ensures long-term performance.
- **Resilience as a Smart Investment.** Investing in resilience delivers strong economic returns. Every dollar spent on risk reduction saves about four dollars in recovery costs. Embedding disaster risk management into public planning, private sector standards, and financing mechanisms drives efficiency, competitiveness, and sustainable growth. Resilience is not a cost; it is a catalyst for development.
- **Harnessing Science and Technology.** Advances in remote sensing, hydrological modeling, and geospatial analysis provide powerful insights into how landscapes evolve. Integrating these tools into planning enables better forecasting, informed site selection, and proactive design. Accessible data and collaboration across disciplines ensure that decision-makers can act on the best available evidence.
- **Building with Nature.** ADB-supported projects show that working with nature strengthens infrastructure. River training that allows channels to shift safely, slope stabilization using vegetation, and urban drainage systems that mimic natural hydrology all demonstrate effective, sustainable design. The Melamchi Water Supply Project in Nepal highlights that resilience must be built in from the start, not added later.
- **Mobilizing Partnerships and Finance.** Scaling resilience requires institutional coordination and innovative financing. Public resources must be complemented by private investment through risk-sharing mechanisms and resilience-linked standards. ADB's Building Adaptation and Resilience in the Hindu Kush Himalayas (BARHKH) initiative exemplifies how technical expertise, financial innovation, and regional collaboration can drive lasting impact.

“Landscape dynamics are nonlinear and reversible; resilient design must adapt across both erosion and deposition timescales.”

GHUFRAN SHAFI

Senior Urban Development Specialist, ADB

FURTHER INFORMATION

[20251024_BARHKH Risk Information Report_Rev1.pdf](#)