CDRI
Coalition for Disaster Resilient Infrastructure

# CDRI at COP30

## Resilient Infrastructure : Resilient World

# Executive Summary

As leaders prepared to convene at COP30 in Brazil, in November 2025, Hurricane Melissa delivered a reminder of the consequences of climate-related disasters on our communities and critical infrastructure. In Jamaica alone, losses equalled 30 percent of GDP. The country experienced a nationwide power outage, hospitals and homes were severely damaged, roads were blocked, and 32 lives were tragically lost.

Loss and damage to infrastructure undermines the very foundations of economic growth. Economic costs associated with infrastructure failures due to disasters are, on average 7.4 times higher than direct infrastructure damage, impacting up to 14 percent of global GDP growth every year[1]. Transport, telecommunications, power and energy sectors account for around 80 percent of the total annual losses. This erodes hard-won development gains, deepens social vulnerability, and traps countries in recurring cycles of destruction, recovery, and debt.

Infrastructure lies at the heart of both the climate challenge and its solution. Globally, 79 percent of greenhouse gas emissions and 88 percent of adaptation costs are linked to infrastructure systems, while 92 percent of the SDG targets are directly influenced by infrastructure. The IPCC has emphasized the need for rapid and far-reaching transformations in how cities and infrastructure are planned and built to keep warming well below the 1.5°C threshold. Building climate-resilient infrastructure is also a central pillar of the Global Goal on Adaptation (GGA).

The success of both mitigation and adaptation efforts ultimately depends on infrastructure that can withstand intensifying climate extremes. Disaster resilient infrastructure(DRI) strengthens long-term development by driving sustainable investments, safeguarding lives and livelihoods, and ensuring continuity of essential services. It generates a 'resilience dividend', enhancing countries' capacity to absorb shocks while reducing the long-term costs of reconstruction and recovery. Research by CDRI shows that incorporating resilience throughout the infrastructure lifecycle increases upfront costs by 5–15 percent, but yields return of 7 to 12 times the investment over the asset's lifespan.

Disaster resilient infrastructure is not merely a climate necessity; it is in fact the smartest investment choice for countries. At the Disaster Resilient Infrastructure Pavilion, the CDRI secretariat, governments, multilateral institutions, private sector leaders, civil society, and academia came together to demonstrate how DRI safeguards development gains, lowers long-term costs, and protects vulnerable communities.

Through convening policy dialogues, technical sessions, high-level launches of bespoke knowledge products and new research, and interventions at various platforms, CDRI advanced three overarching priorities:

- Unlocking the resilience dividend by positioning disaster resilient infrastructure as one of the most strategic investments
- Advancing global climate adaptation by integrating DRI into national adaptation plans and strategies
- Showcasing scalable, replicable DRI solutions across policy, technology and finance to enable implementation across diverse geographies

1 CDRI (2025). Global Infrastructure Resilience 2025 Report. Coalition for Disaster Resilient Infrastructure, New Delhi

# Key Achievements and Strategic Engagement at COP30

## 1. DRI Pavilion and Side Events

**38 sessions** in partnership with 12 countries and 60 organizations, covering finance, governance, institutions, data, and technology.

**A high-level UNFCCC Side Event** organized with the Government of Antigua and Barbuda, IIED, and the Global Philanthropy Organization on "Building climate resilience through debt reform, infrastructure investment and private sector action."

Thematic side event on **"Resilient Ports for Resilient Pacific"** hosted at the Moana Pavilion, spotlighting SIDS priorities.


[L-R] Raina Singh, CDRI; Carlos Carrillo, UNGRD, Colombia; Rosalia Duval, Dominican Republic; Kennedy Matheka, Ministry of Lands, Public Works, Housing and Urban Development, Republic of Kenya; Mafua-'i-Vai'utukakau Maka, NDRMO, Tonga; Arghya Sinha Roy, ADB.

**CDRI expresses its sincere appreciation to all the high-level dignitaries, session partners and speakers who collaborated to advance the global agenda on disaster resilient infrastructure at COP30.**

## High-level Dignitaries at DRI Pavilion:

- Hon. Bhupender Yadav, Minister of Environment, Forest and Climate Change, India
- Hon. Orlando Habet, Minister of Sustainable Development, Climate Change & Solid Waste Management, Belize
- Hon. Monique Barbut, Minister of Ecological Transition, France
- Hon. Jader Barbalho Filho, Minister of Cities, Brazil
- Hon. Gillian Martin (MSP), Cabinet Secretary for Climate Action and Energy, Scotland
- H.E. Daniela Vilar, Minister of Environment, Province of Buenos Aires, Argentina
- Hon. Matthew Samuda, Minister of Water, Environment and Climate Change, Jamaica
- Hon. Seidu Issifu, Minister for Climate Change and Sustainability, Ghana
- H.E. Neale Richmond TD, Minister of State for International Development and Diaspora, Department of Foreign Affairs and Trade, Republic of Ireland
- Hon. Ralph Regenvanu, Minister for Climate Change Adaptation, Energy, Environment, Meteorology, Geo-Hazards and Disaster Management, Vanuatu
- Hon. Batbaatar Bat, Minister of Environment and Climate Change, Mongolia
- H.E. Moses Vilakati, Commissioner for ARBE, African Union Commission
- H. R. H. Prince Jaime de Bourbon de Parme, Climate Envoy of the Netherlands
- Senator Rosa Galvez, Independent Senators Group, The Senate of Canada
- Dr. Rachel Kyte, UK Special Representative for Climate
- H.E. Dale Webber, Special Envoy for Climate Change, Environment, Ocean and the Blue Economy, Jamaica
- H.E. Ali Shareef, Special Envoy for Climate Change, Maldives
- H.E. Ruleta Camacho Thomas, Ambassador for Climate Change, Antigua and Barbuda
- H. E. Diann Black-Layne, Ambassador for Climate Change, Antigua and Barbuda
- H.E. Davit Knyazyan, Head of Multilateral Policy and Development Cooperation, Armenia
- Jorge Moreira da Silva, Under-Secretary-General and Executive Director, United Nations Office for Project Services (UNOPS)
- Kamal Kishore, Assistant Secretary-General and Special Representative of the United Nations Secretary-General (SRSG) for Disaster Risk Reduction, and Head of the United Nations Office for Disaster Risk Reduction (UNDRR)

## Session Partners

- Countries: Antigua and Barbuda, Australia, Brazil, Chile, Colombia, India, Maldives, Senegal, Somalia, Sri Lanka, United Kingdom, Zambia
- Organizations: Action on Poverty, ActionAid, ADB, AGNES, ALL ACT, ANTT, Aon, Arup, Bentley, CAF, CDKN, CEEW, Conservation International, COPPE-UFRJ, Deloitte, ENDA, FAST-Infra, FIDIC, Gates Foundation, GCoM, GGGI, GIB Foundation, GIF, GIZ, Global Philanthropy Organization, GlobalABC, IAU-SP, ICC, ICE, ICIMOD, ICLEI, ICLEI-South Asia, ICSI, IDB, IEA, IFC, IFZ, IIED, International Code Council, ISLe Initiative from the Duke University, Kokoda Track Foundation, Live and Learn Environmental Education, Manaswani, MIGA, Nicholas Institute for Energy, Environment and Sustainability, RDC, OKUP, PHIA, Respond Global, SDC India, SEINFRA, SSEF, UNDP, UNDRR, UNDRR ROAC, UNEP, UN-HABITAT, UNOPS, WRI, WWF

## 2. Global Outreach and Advocacy

**72 interventions** by CDRI ensuring strong visibility of DRI across negotiation-linked and action-oriented platforms.

Engagement with **47 countries** and **134 organizations** through sessions, speaking opportunities, and bilateral meetings.

**Submissions to UNFCCC** on actionable measures, financing mechanisms, and implementation strategies for the Baku to Belém Roadmap to 1.3T and the Work Programme for the Climate High-Level Champions and the Marrakech Partnership for Global Climate Action for 2025.

The Director General highlighted the seven-to-twelve-fold returns of resilient infrastructure investments in his **statement at the UNFCCC high-level segment** for IGOs.

**203 speakers** engaged across CDRI-led sessions, reflecting strong cross-regional and cross-sectoral participation.

Launch of Action Agenda on 'Integrating DRI into National Adaptation Strategies led by a Community of Practice of **39 global experts** from **14 countries** and **19 organizations** convened by CDRI.
The experts collectively developed a 10-point action agenda with recommendations for governments on integrating DRI in the national adaptation strategies.

**Two CDRI initiatives featured** under the COP30 Action Agenda's "Plans to Accelerate Solutions":

- Resilient and Adaptive Transport Infrastructure
- Acceleration Plan – Rebuilding with Resilience and Justice

## 3. Launches and Announcements

- Global Infrastructure Resilience 2025 Report.
- Action Agenda 'Integrating DRI into National Adaptation Strategies.
- Data and Technology Strategy for disaster resilient infrastructure.
- Urban Water Infrastructure Resilience (UWIR) Training Module.
- Report 'Shaping Resilience in Mountains: The Case for Disaster Resilient Infrastructure'.
- Guidance "Heat Smart Schools: Building Resilience to Extreme Heat,"
- Report 'Climate Resilient Infrastructure: A Focus on GEDSI'.

## 4. Bilateral Engagements and Partnerships

### 21 bilateral meetings with:

Countries: Belize, Cote d'Ivoire (BNETD), Brazil, Gabon, Jamaica, Kenya, Malawi, Sweden, Vanuatu, Zambia.

Organizations: AUC, GIIF, OPEC Fund, AIIB, KfW Development Bank, DevEx, Climate Mobility Youth Fellows, Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), among others.

Partnership agreements with the Republic of **Cuba and Asian Development Bank Institute.**

**Armenia and Development Bank of Latin America and the Caribbean (CAF)** were welcomed as members of CDRI.


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# CDRI’s Strategic Priorities and Key Recommendations from COP30

**The key takeaways and DRI good practices emerging out of the discussions under the three priorities are:**

## A. Unlocking the Resilience Dividend with DRI as one of the smartest investments

- Infrastructure is often the first and hardest hit by disasters, trapping countries in costly cycles of response, recovery, and reconstruction that drain national reserves and stall development. Every dollar spent on resilient systems yields US$ 7–12 in avoided loss and co-benefits[2], highlighting the dividend of making the shift from reactive rebuilding to proactive resilience.
- Launched at COP30, the Global Infrastructure Resilience 2025 (GIR2025) Report provides compelling evidence that DRI is among the smartest investments countries can make to accelerate climate action, stimulate economic growth, and advance sustainable development while protecting lives and livelihoods.

**The report identifies three critical and mutually reinforcing capacities required to unlock the full benefits of infrastructure resilience:**


It emphasizes the importance of risk assessments, faster reconstruction, and governance reforms to reduce disaster-related losses. It advocates for localized risk modelling, institutional readiness, and innovative financing, including insurance and risk pooling. The report highlights the need for businesses to build end-to-end resilience across supply chains. With over 75 case studies, GIR 2025 provides actionable insights across key pillars, including technology, finance, governance, and nature-based solutions. It calls for global cooperation to ensure infrastructure systems can withstand, adapt to, and recover from disasters.

Despite evidence underlining the resilience dividend, including avoided losses but also broader co-benefits, such as improved service continuity, productivity, and social well-being, there is a widening gap between escalating climate risks and available climate adaptation finance. Developing nations require US$ 310-365 billion annually by 2035[3]. While COP30 secured a commitment to triple adaptation finance to US$ 120 billion per year by 2035, this remains far below actual requirements of vulnerable countries. Also, climate finance is often difficult to access due to complex procedures, limited institutional capacity, and high transaction costs. Scaling resilient infrastructure investment is therefore not only a climate imperative but also an economic and development necessity.

2 CDRI (2025). Global Infrastructure Resilience 2025 Report. Coalition for Disaster Resilient Infrastructure, New Delhi.
3 United Nations Environment Programme (2025). Adaptation Gap Report 2025: Running on empty. The world is gearing up for climate resilience — without the money to get there [Neufeldt, H., Hammill, A., Leiter, T., Magnan, A., Watkiss, P., Bakhtiari, F., Bueno Rubial, P., Butera, B., Canales, N., Chapagain, D., Christiansen, L., Dale, T., Milford, F., Niles, K., Njuguna, L., Pauw, P., Singh, C. and Yang, G.]. Nairobi. https://wedocs.unep.org/20.500.11822/48798.

# Recommendations

- Reframe resilient infrastructure as a strategic investment and an economic opportunity by adopting policies which are embedded with the long-term stability, avoided losses, and co-benefits including the mitigation of indirect and cascading impacts across sectors.
- Focus on resilience should start with upstream risk assessments and run all the way through all aspects of the infrastructure project cycle, covering technical, financial, procurement, safeguards, operations and maintenance dimensions.
- Institutionalize risk-informed planning and decision-making by mainstreaming climate risk assessments and cost-benefit analysis across national and subnational infrastructure to ensure public and private capital is resilient by design.
- Mobilize private capital through clear incentives, policy clarity, risk transparency and bankable public–private partnership structures, with resilience embedded in every stage of the project design.
- Scale up concessional finance, debt-for-resilience swaps, climate-resilient debt clauses, resilience-linked bonds and blended finance instruments to create fiscal space for resilience investments.


Mr. Tanmay Kumar, Secretary, MoEFCC giving address at the launch event of the Neighbourhood of the Mutirão for Cities, Water and Infrastructure


## Global Infrastructure Resilience Report 2025

Launched at COP30, Global Infrastructure Resilience 2025 report builds on the 2023 report that articulated the concept of the resilience dividend and why resilient infrastructure matters. GIR2025 captures how resilient infrastructure can be planned, financed, governed, and delivered in practice. The report expands the analytical lens to include indirect and systemic risks and the cascading effects of infrastructure failures. It reframes resilience not only as a risk management necessity but also an economic opportunity.

## HRH Prince Jaime Bourbon de Parme, Climate Envoy of the Netherlands:

"Two-thirds of the infrastructure that will serve by 2050 has not yet been built and this is a wonderful outcome of this (GIR 2025) report that sees unique opportunity to bring climate proofing into infrastructure going forward, to make resilience inclusive and climate-aligned."

## Rachel Kyte, UK Special Representative for Climate:

"We need to be talking about how we mobilize finance to build this infrastructure (that can withstand shocks) before disasters happen, maintain it over time, and deliver the prosperity we are aiming for. I congratulate CDRI for placing this issue on the agenda".


[L-R] Samia Nascimento Sulaiman, National Secretariat of Peripheries, Ministry of Cities, Brazil; Sangay Chophel, CDRI; Adriana Campelo, UNDRR; Candice dos Santos Ballester, Social Participation and Diversity Advisory Unit, Ministry of Cities, Brazil

## B. Advancing Adaptation through Resilient Infrastructure

The Brazilian Presidency proved COP30 as the 'adaptation COP' where along with committing to triple the adaptation finance, 59 voluntary indicators were adopted to measure progress in building resilience under the Global Goal on Adaptation. The two indicators under target 9e on climate-resilient infrastructure and settlements focusses on upgrading programmes and relocation. Belém-Addis Vision for Adaptation was also launched at COP30 to refine and operationalize these indicators. However, there is still an opportunity to include more nuanced indicators for resilience of critical infrastructure including power, transport, telecom, to capture systemic risks, long-term impacts, and cross-sectoral dependencies.

Countries should consider integrating infrastructure resilience in development pathways and strategies, including their National Adaptation Plans (NAPs). Yet most NAPs still overlook systemic infrastructure risks, nor do they incorporate resilience planning, risk-informed design, or lifecycle financing models. The Action Agenda on "Integrating Disaster Resilient Infrastructure in National Adaptation Strategies" developed by CDRI through a Community of Practice and launched during the UNFCCC high-level side event at COP30 laid out 10 key action areas on how national governments can integrate DRI in their adaptation strategies.

# Recommendations

- Embed resilient infrastructure within National Adaptation Plans (NAPs) and sectoral strategies, ensuring that climate and disaster risk considerations are integrated at the earliest stages of infrastructure planning.
- Design future-ready infrastructure by investing in adaptive design and management systems that protect livelihoods, ensure service continuity, and safeguard communities.
- Develop National Adaptation Plans as whole-of-government instruments, with strong coordination between ministries responsible for environment, finance, planning, and infrastructure to jointly lead adaptation efforts.
- Adopt multilevel governance that empowers cities and local actors, supported by data access, financing, and capacity building, to institutionalize resilient infrastructure through systems thinking, transparency, and sustained cooperation.
- Embed long-term technical expertise within government ministries to close capacity gaps and enable systems-based resilience planning, ensuring resilient infrastructure is fully integrated into NAPs, NDCs, and development strategies even after external support ends.
- National strategies should mandate local investment but also provide financing and technical capacity support. A two-pronged approach is needed: top-down (local input in policy design) and bottom-up (funds and capacity building for implementation).

## Kamal Kishore, SRSG, UNDRR

"The past is no longer a good guide for the future. We need to build infrastructure for the future where extremes will become more extreme."


Mr. Andres Cruz, Senior Portfolio Specialist LATAMC, CDRI, speaking at 'CNT Survey on Climate Resilience in the Transport Sector' session at COP30 Green Zone


### Action Agenda on "Integrating Disaster Resilient Infrastructure in National Adaptation Strategies"

CDRI brought together 39 global experts from 14 countries and 19 organizations through a Community of Practice (CoP) to deliberate on the relevance of DRI in complementing climate adaptation strategies. The experts collectively developed an Action Agenda outlining ten action areas for governments, including political leadership, critical asset protection, equity, and regional cooperation. The agenda calls for systemic reforms including multi-hazard risk assessments, resilient design standards, governance and institutions, innovative financing, and capacity building. Going forward, the scope of CoP will be expanded to include new members and new dimensions and will be identified as CoP on "DRI for Adaptation". In the run up to COP31, the CoP members will reconvene to discuss the implementation aspects of the action areas.


## C. Regional Priorities and Context-specific Solutions

Infrastructure decisions must reflect the distinct realities of different regions, where geography, demographics, and evolving climate risks shape unique resilience needs. As countries plan infrastructure that will serve communities for decades, they must account for changing settlement patterns, shifting population demands, and the increasing fragility of sensitive geographies such as mountain areas and island nations. With climate risks now outpacing traditional planning processes, long-term and forward-looking approaches are essential. Context specific interventions can strengthen system level resilience by leveraging available solutions such as stronger data and risk assessments, targeted capacity building, improved governance, nature-based solutions and community driven resilience approaches.

## Urban Resilience

By 2050, 68 percent of the world population projected to live in urban areas. Cities are dealing with multiple interconnected crises which are accentuated by limited use of hyper-local risk information and weak links between local needs (especially in informal and vulnerable settlements), city planning, and scalable financing mechanisms. So, urban resilience requires a holistic approach to tackle this crisis, by institutionalizing city- and neighbourhood-level risk assessments (for heat and flooding) and using them to mandate dedicated local budget lines and a pipeline of bankable urban resilience projects. This will enable cities to package projects into investable portfolios and access instruments such as green/blue bonds, guarantees and blended finance, aligned with national adaptation and urban missions.

### Good Practices

National Delta Program, Rotterdam, Netherlands is a whole-of-society approach where public funds cover major flood defences, while private sector and citizens invest in outer areas and flood-proof systems, ensuring sustainable financing for 30–50 years.

Dubai Electricity and Water Authority (DEWA) is executing a phased adaptation timeline heavily centred on clean energy, AI-driven operations, and water desalination, with the goal of achieving Net-Zero by 2050.

Self-stowing solar panels: Dy-WIND uses advanced solar-tracker design with an autonomous self-stow system that protects panels by shifting them to a safe position during strong winds. TeamTrack automatically adjusts solar panels throughout the day to minimize shading and maximize sunlight capture, boosting overall energy output by up to 6.2 percent.


### Heat Smart Schools - Guidance for Building Resilience to Extreme Heat

The Guidance document for Building Resilience to Extreme Heat was launched during a UNDRR COP 30 High-Level Field Visit to Barcarena. This is a framework comprising of seven actionable steps and recommendations to help schools adapt to rising extreme heat risks. It highlights the importance of inclusive governance, use of science and forecasts, structural and nature-based cooling measures, heat literacy, addressing underlying risks like water and nutrition, mobilizing finance, and preparing for future heat events.

## Mountain Resilience

Infrastructure continues to be planned and financed in an asset-by-asset manner in mountain regions, with climate and disaster risks considered too late. Investments are being designed first and "climate-proofed" later. There is a need to invert this process where the countries first undertake a system-level, multi-risk assessment of the changing mountain risk landscape and then design and sequence infrastructure investments. COP30 proved to be pivotal for mountains with the announcement of a UNFCCC-mandated dialogue on mountains and climate change, Tropical Forest Forever Facility to advance long-term forest finance and a global call for integrated fire management and wildfire resilience.

### Good Practices

Institutional Strengthening & Modernization of Hydromet and Multi-hazard Early Warning Services, Bhutan includes a Road Map for 2024–2034 for Strengthening energy sector planning, establishing the National Centre for Hydrology and Meteorology, monitoring glacial lakes such as Thorthormi, and piloting early-warning and forecasting.

Japan enacted Basic Act for National Resilience, to protect lives and property from large scale disasters. Since resilience measures span all ministries, the cabinet secretariat established the national resilience office to ensure a unified approach. A new five-year resilience implementation plan allocates ~US$ 130 billion for infrastructure resilience.

Himachal Pradesh Disaster Risk Reduction and Preparedness Programme supported by AFD applies a whole of government, multi risk territorial approach to strengthen mountain resilience through better governance, preparedness, and mitigation measures, working closely with local governments.


### Shaping Resilience in Mountains: The Case for Disaster Resilient Infrastructure

Released at COP30 in partnership with the GLOMOS programme (UNU-EHS and Eurac Research), the report highlights opportunities to integrate technological innovation, ecosystem-based adaptation, and indigenous knowledge across resilient infrastructure planning, operation, and maintenance in mountain regions. It offers practical insights on early warning systems, risk-informed planning, community-led solutions, gender-responsive approaches, and diversified financing as pathways for policy, standards, and investment to protect mountain communities.

## Africa

With nearly 70 percent of its infrastructure yet to be built, Africa stands at a once-in-a-generation opportunity to embed resilience from the start. There is a need for resilience-ready and bankable infrastructure projects which are technically and financially sound. There is a need to institutionalize a dedicated, government-led process for project preparation that embeds climate and disaster risk considerations as well as resilient design standards from the concept stage. This will help deliver a ready-to-finance pipeline of priority infrastructure projects for by public financiers and the private sector investors.

### Good Practices

Zambia's Transport Corridors for Economic Resilience (TRACER) Project strengthens efficiency, regional connectivity and climate resilience of key regional transport and trade corridors in Eastern and Southern Africa including 200 km of the Serenje–Mpika stretch along the vital Dar es Salaam trade route.

In Madagascar, CDRI worked with national authorities, regional institutions, and local experts to co-develop a Resilient Infrastructure Roadmap. This roadmap combines hazard mapping, institutional diagnostics, and stakeholder consultations to build a tailored strategy focused on priority sectors.

Africa Adaptation Acceleration Program (AAAP) and AAAP2.0, the joint initiatives of AfDB and GCA -aim to mobilize $25 billion to accelerate and scale climate adaptation action across the continent. 'The African Infrastructure Resilience Accelerator Pillar' will scale up new technologies, designs, and nature-based solutions to adapt urban and rural infrastructure to Africa's current and future climate.

### H. E. Moses Vilakati, AUC Commissioner:

"The reality calls for a renewed approach that ensures infrastructure becomes a driver of economic transformation as well as resilience. With 70 percent of Africa's future infrastructure yet to be built, the continent has a unique opportunity to shape a new development model for the global South."

## Latin America

The main bottleneck identified for this region was weak and fragmented governance and implementation systems. To systematically embed disaster and climate resilience requirements into public investment systems, resilience screening, risk-informed project preparation and procurement should be mandatory. Sub-national capacity to apply tools must be strengthened, and common data, standards and stress-testing methods should be institutionalized. This will enable resilience to move from policy statements to routine, scalable implementation across infrastructure portfolios.

### Good Practices

Brazil's AdaptAÇÃO Project aims to increase territorial resilience and adaptive capacity, while ensuring the right to the city for all. The project will assist mun icipalities in embedding climate adaptation into land use and zoning decisions.

Through the "Strengthening Resilience Levels in Critical Infrastructure initiative", Costa Rica integrated risk into public investment and became a regional model for resilient infrastructure governance. This project used a multisectoral approach to assess eight infrastructure sectors using UNDRR's Principles for Resilient Infrastructure and Stress Test tool.

Colombia's Gramalote Macroproject is relocating approximately 1,000 families from the old town which was destroyed in the La Niña triggered landslide in 2010. The project also includes reconstruction of the municipality's institutional core, the market square, the main plaza, the school, and the hospital.


Launch of the "Heat Smart Schools - Guidance for Building Resilience to Extreme Heat" during UNDRR COP 30 High-Level Field Visit to Barcarena on 'Urban Resilience and Disaster Risk Reduction in the Amazon

## Small Island Developing States (SIDS)

Hurricane Melissa has left Jamaica with losses totalling US$10 billion and the pool of funds they secured over years will cover just 5 percent of this cost. Warming of sea surfaces triggered by climate change are causing such hurricanes which are projected to happen more often, increasing risks for island nations. In SIDS, the ability to deliver and sustain resilient infrastructure is constrained by limited local capacity, small and dispersed communities, and high logistics and operating costs. Despite the existence of global funds and mechanisms, SIDS are often unable to access fast, adequate and flexible finance immediately after disasters. Slow disbursement, heavy bureaucracy, and under-capitalisation of instruments such as loss-and-damage fund mean SIDS are repeatedly forced to rebuild with what they can afford in the short term, rather than what is resilient, appropriate, and long-term. There is a need to create rapid, post-disaster financing and delivery mechanisms that can immediately bridge the "resilience cost gap" and allow SIDS to rebuild to resilient, multi-hazard standards after a disaster. Also, there was a call to systematically embed community-led and nature-based solutions into the planning, design and financing of critical infrastructure (such as roads, coastal protection, water systems and connectivity assets), with sustained local capacity and operations support.

### Hon. Matthew Samuda

"Particularly for Jamaica, the Global Infrastructure Resilience Report had identified US$ 107 billion in exposed assets and USD 608 million in annual average losses. These figures reflect the reality that we are now witnessing on the ground. Recent events such as Hurricane Beryl (2024) followed by Hurricane Melissa (2025), have shown how quickly a region's development gains can be placed at risk"

### Good Practices

REnew Pacific is the Australian Government's $75 million investment in locally led projects that provide off-grid renewable energy for rural and remote communities across the Pacific and Timor-Leste.

Health Emergency Logistics Preparedness and Response (HELPR) initiative by Respond Global strengthen local disaster response capability and support regular outreach of essential services in remote communities. HELPR-1 is a health and logistics response vessel, flagged and based in Vanuatu.

The Climate Infrastructure for Resilient Coastlines and Riverbanks (CIRCAR) Project by Live & Learn Environmental Education strengthens climate resilience and safeguards key infrastructure (such as roads and cable landing stations) by integrating nature-based solutions (NbS) into planning, design, and implementation in Fiji, Tuvalu, Kiribati, and Papua New Guinea.

## Data and Technology

Digital twins, AI, and integrated data systems offer the opportunity to build precise, proactive, and risk-informed infrastructure that prevents failures. Countries already have data and access to new digital tools, but the data is scattered, hard to share and access, and not packaged in a way that engineers and decision-makers can use for infrastructure planning and operations. There should be a focus on turning data into simple, decision-ready products especially for infrastructure agencies. This can be done by using common data standards, linking different datasets on one platform, and training government and asset managers to use tools such as digital twins, risk maps and early warning or predictive-maintenance systems in their day-to-day work. SIDS Global Data Hub is one such initiative which aims to establish a well-equipped and sustainable repository for comprehensive data on SIDS for effective decision-making.

### Good Practices

JAXA's Global Satellite-Based Rainfall Mapping (GSMaP) provides real-time global rainfall monitoring with hourly updates, offering a highly scalable early warning and disaster response tool operational in 160 countries. JAXA with University of Tokyo also developed 'Today's Earth' – A Global Hydrological Simulation Platform that provides actionable, cross border flood and water risk insights for regions lacking ground-based monitoring.

Digital twins enable the simulation of hazards before they happen. Grenada's national digital twin provides a high-resolution, AI-enabled 3D model , both realistic and holistic that helps country officials predict climate risks and design targeted solutions for adaptation. Lisbon built a digital twin of its drainage network to cut rising flood risk, projecting about $100 million in savings over 20 years.

IWMI's Climate-Smart Governance (CSG) Dashboard is an integrated decision-support platform integrated with GIRI tool to help governments, planners, and stakeholders access, visualize, and use climate-related data for adaptation planning and investment prioritization. The CSG AI Agent is an AI component of the dashboard or a conversational analyst that turns data into actionable guidance for planners and policymakers.


### CDRI's Data and Technology Strategy

Launched at COP30, CDRI's Data and Technology Strategy aims to strengthen the ability of Member Countries, especially LDCs and SIDS to use high quality risk and geospatial data for risk informed policies, resilient infrastructure planning, and sustained technical capability across systems.

## Capacity Building

Capacity building models for disaster resilient infrastructure must evolve from short-term project-based trainings to continuous, institution-embedded and practice-based, built around communities of practice and "learning-by-doing" on real infrastructure projects. This way, diverse stakeholders can build capacities with support from universities and professional bodies and modern learning tools including digital, micro-learning and peer exchange.

### Good Practices

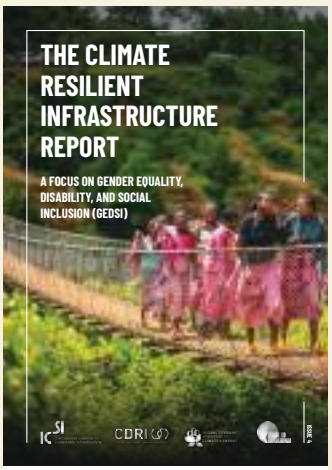
Universities in New York partnered with the city to develop Climate Resiliency Development Guidelines, guiding all city projects and enabling direct community support.

CDRI's IRAX program engages over 17 universities to strengthen academic partnerships by delivering training programmes and developing online courses, with plans to expand support to local governments and cities.

Project Echo creates micro communities of practice that use case-based learning on health sciences and regular peer interaction to strengthen knowledge sharing and bridge gaps between academia and industry.


Mr. David White, Director, Advocacy and Communications speaking at "Resilient Cities: Urban Planning for an Unpredictable World" session organized by Allianz Insurance Forum

**The Climate Resilient Infrastructure Report: A Focus on Gender Equality, Disability, And Social Inclusion (GEDSI)**




**Urban Water Infrastructure Resilience (UWIR) Training Module**

## Nature-based Infrastructure Solutions

Real-world pilots and strong scientific evidence have shown that nature-based solutions (NbS) such as mangroves, wetlands and reefs can reduce disaster losses significantly. Mangroves prevented an estimated US$4.1 billion in damages during Hurricane Ian and US$725 million during Hurricane Irma[4] in Florida. However, these solutions are yet to be implemented at scale. This is majorly because practitioners and engineers lack training and practical understanding of the design, clear valuation and financing tools to integrate NbS into standard infrastructure projects. There is a need to train engineers and public work agencies to systematically build a standard practice for developing green–grey and nature-based infrastructure, using shared technical guidance and cost–benefit tools. It is important that nature-based options are thoroughly explored, assessed and designed for the upcoming infrastructure projects alongside grey alternatives.

4. Narayan, S., Thomas, C. J., Nzerem, K., Matthewman, J., Shepard, C., Geselbracht, L., & Beck, M. W. (2025). The spatially variable effects of mangroves on flood depths and losses from storm surges in Florida. Cell Reports Sustainability, 2(12).

Resilience Credits concept aims to monetize the current benefits of nature-based solutions (like mangroves) for protecting people and property and reward projects that deliver measurable adaptation benefits.

EcoShape's Building with Nature uses natural processes and materials to create adaptable, resilient water infrastructure such as flood defences, sustainable port development and for the restoration of ecosystems.

Van Oord's Quelimane Mangrove Restoration (QMaR) initiative restores degraded mangroves by addressing both the disrupted ecological conditions and the socioeconomic drivers that led to depletion. Also, Van Oord reinforced 29 km of Romania's coastline by installing breakwaters and adding sand to protect Constanța's beaches from erosion and flooding while enhancing tourism in the region.

[L-R] Luis A Macareño, Govt. of Cuba; Amit Prothi, DG CDRI; H.E Davit Knyazyan, Govt. of Armenia; H.E. Dale Webber, Special Envoy for Climate Change, Environment, Ocean and the Blue Economy, Jamaica; Amb. Carmen Azurin, MOFA, Peru; H.E. Ali Shareef, Special Envoy for Climate Change, Maldives

# Road to COP31

The evidence is clear that DRI should occupy a far central place in global climate discussions than it currently does. At COP30, the DRI Pavilion brought together a diverse group of global experts to examine a wide range of thematic issues, clearly demonstrating the immense value that resilient infrastructure delivers. Through multiple sessions, participants presented compelling case studies, good practices, and region-specific solutions. These discussions not only highlighted practical approaches to strengthening infrastructure systems but also articulated a strong business case for resilient infrastructure as a sound and strategic investment.

## Emerging priorities for COP31:

### 1 Strengthening the indicators on infrastructure under the Global Goal on Adaptation (GGA)

The Global Goal on Adaptation witnessed significant progress at COP30 with the adoption of adaptation indicators. However, only two indicators have been included under Target 9(e) on infrastructure and human settlements.

Given that critical infrastructure is inherently cross-cutting and underpins outcomes across all GGA targets, infrastructure resilience must be strategically embedded throughout the indicator framework. A more comprehensive and integrated approach will be essential to accurately measure adaptation progress and ensure systemic resilience.

### 2 Guiding Implementation of the Action Agenda on "Integrating DRI in National Adaptation Strategies"

While Parties were encouraged at COP30 to submit their NAPs, many submissions remain pending. NAPs are among the most important strategic instruments for building long-term national resilience.

It is imperative that climate and disaster-resilient infrastructure is systematically integrated into these plans. The CDRI Action Agenda on "Integrating DRI in National Adaptation Strategies" identifies ten priority areas for integration. Moving forward, the focus at COP31 should shift toward operationalizing these action areas and translating them into implementation frameworks at national and subnational levels.

### 3 Leveraging the Resilience Dividend to Close the Adaptation Finance Gap

COP30 secured a commitment to triple adaptation finance by 2035. However, these commitments must now be translated into actionable pathways with clear financing mechanisms and accountability structures. Discussions at the DRI Pavilion underscored that investments in resilient infrastructure generate a substantial resilience dividend, reducing long-term losses, strengthening economic stability, and safeguarding development gains. This dividend should be strategically leveraged to help close the adaptation finance gap and accelerate progress toward global adaptation finance targets.

## 4 Scaling Up Solutions under the Global Climate Action Agenda (GCAA)

The Global Climate Action Agenda identifies resilient cities, infrastructure, and water as one of the core action pillars and has consolidated a broad portfolio of solutions alongside Plans to Accelerate Solutions (PAS). The priority for COP31 must be to move beyond solution identification toward scaled implementation. This will require strengthened partnerships, enhanced financing channels, and a clear shift from dialogue to delivery, ensuring that tangible, measurable outcomes are achieved on the ground.

## 5 Building Climate Resilience in Pacific Island Nations

As global attention turns toward the Pacific in the lead-up to COP31, resilient infrastructure for SIDS must remain a central priority. Ongoing IRIS initiatives in the region, alongside the 'Call to Action' outlining ten concrete measures to unlock finance and strengthen resilient infrastructure in SIDS, provide a practical roadmap for accelerating resilience. Sustained focus on Pacific Island Nations will not only address acute climate vulnerabilities but also demonstrate scalable models of resilience for similarly exposed regions worldwide.

Together, these priorities position resilient infrastructure not as a sectoral issue, but as a foundational pillar of global climate adaptation and sustainable development.

### Two areas will be central to CDRI's engagement in preparation for COP31:

- Expand and reconvene the Community of Practice on 'DRI for Adaptation' to move from agenda-setting to implementation—testing pathways to integrate DRI into adaptation and development strategies.
- Convene and supporting UNFCCC negotiators from CDRI member countries so DRI is embedded across key negotiating tracks at COP31.

Resilient infrastructure must be a universal priority across global frameworks, including disaster risk reduction, sustainable development, climate action, and urban agendas, all of which call for reliable, sustainable, and climate-resilient systems backed by coordinated, multi-level action.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