

Draft Observer Submission to the UNFCCC on Possible Themes for the Eighteenth Meeting of the Research Dialogue

1. Submission on Research and Systematic Observation

Issue: **Views** on possible themes for the **18th** Meeting of the Research Dialogue, to be held in conjunction with **SBSTA 64**; and related views on means of implementation for strengthening research and systematic observation (RSO) in developing countries.

2. Introduction

The Subsidiary Body for Scientific and Technological Advice (SBSTA) invited Parties and relevant organizations to submit views on possible themes for the 18th meeting of the Research Dialogue, to be held in conjunction with SBSTA 64 (UNFCCC, 2025; UNFCCC, 2026). The Coalition for Disaster Resilient Infrastructure (CDRI) welcomes this opportunity and submits that Disaster Resilient Infrastructure should be recognized as a priority theme because infrastructure systems are where climate risk is most concretely translated into human, economic, and developmental loss, and where climate adaptation can be made operational at scale (CDRI, 2025). CDRI notes that an estimated 75 percent of the infrastructure needed by 2050 is yet to be built, primarily in the Global South. Choices made in this decade will either lock in resilience, or lock in future losses (CDRI, 2025). CDRI's Action Agenda on Integrating Disaster Resilient Infrastructure in National Adaptation Strategies further notes that while Disaster Resilient Infrastructure typically adds 5 to 15 percent in upfront costs, it can deliver up to 7 to 12x returns across the asset life cycle — demonstrating that improved science, observations, and risk analytics are not abstract technical goods but core determinants of efficient adaptation investment (CDRI, 2025).

As Parties move towards implementing the outcomes of the Global Stocktake, failure to embed infrastructure-focused research and systematic observation risks slowing progress on adaptation, resilience, and loss and damage objectives. CDRI stands ready to serve as a bridge between climate science and infrastructure systems, helping translate research outputs and observational advances into practical resilience decisions at scale.

3. Proposed Theme for the 18th Research Dialogue

CDRI proposes the following theme for consideration: *"Research and systematic observation for Disaster Resilient Infrastructure: strengthening climate risk analytics, early warning capability, and resilience decision-making across infrastructure systems."*

This theme would allow the Research Dialogue to focus on the following evidence gaps that are highly relevant to implementation:

1. How systematic observations improve infrastructure-relevant climate services, including hazard characterization, design standards, maintenance planning, and anticipatory action.
2. How multi-hazard risk assessment can move from asset-level analysis to system-level assessment of cascading failures across energy, transport, water, health, communications, and urban services (CDRI, 2025b).
3. How observation gaps in data-sparse countries constrain early warning systems, climate projection, infrastructure planning, and adaptation finance prioritization (WMO, 2026a; WMO, 2023a).
4. How interoperable data platforms, open standards, and international cooperation can support developing countries to generate, exchange, and use climate and risk information in infrastructure decisions (CDRI, 2025; WMO, 2026).

4. Why Disaster Resilient Infrastructure Belongs in the Research Dialogue

First, infrastructure is the backbone of adaptation. CDRI's Action Agenda identifies roads, ports, railways, energy grids, water and sanitation systems, telecommunications, health facilities, schools, and housing assets that make early warning, resilient service delivery, food security, livelihood continuity, and emergency response possible (CDRI, 2025b). When these systems fail, adaptation gains are rapidly reversed because communities lose access to essential services and markets at the very moment when climate stress intensifies (CDRI, 2025).

Second, infrastructure risk is systemic rather than sectoral. A single point of failure, such as a flooded substation, can cascade across food systems, water access, healthcare, communications, and economic activity (CDRI, 2025). This makes Disaster Resilient Infrastructure a particularly suitable topic for the Research Dialogue, which is intended to help bridge scientific knowledge and policy practice under the agenda item on research and systematic observation (UNFCCC, 2025).

Third, the scale of economic exposure warrants dedicated scientific attention. CDRI reports that climate-induced disasters already cause average annual losses of over \$700¹ billion globally, with infrastructure damage constituting the largest share. The economic costs of infrastructure failure are on average 7.4 times the cost of direct asset damage once service disruption is considered (CDRI, 2025b). The second edition of CDRI's Global Infrastructure Resilience Report (GIR Report 2025) further notes that in Africa, average annual loss of infrastructure and buildings damaged by disasters is estimated at \$12.7 billion, with power, roads, telecommunications, and water among the worst affected sectors (CDRI, 2025).

Fourth, current implementation is lagging because evidence is not yet consistently embedded in policy, codes, and investment decisions. According to CDRI's Global Infrastructure Resilience Survey (2025), consistent hazard and risk assessments are

¹ All \$ figures refer to US dollars unless otherwise specified.

reported by only 26 percent of respondents. Even fewer, just 12 percent report the regular use of advanced technologies such as sensors and satellite imagery for real-time disaster warnings and damage assessments (CDRI, 2025). This confirms that the Research Dialogue should not only review climate science outputs but also focus on how those outputs are translated into operational resilience decisions.

5. Recommended Focus Areas for the 18th Research Dialogue

- **Observation-to-decision pathways:** How meteorological, hydrological, geospatial, and impact data are converted into infrastructure standards, project screening, operations, maintenance, and emergency protocols;
- **Infrastructure-oriented climate services:** Sector-specific applications for transport, energy, water, health, digital networks, ports, and urban systems, including design thresholds and stress testing;
- **Cascading and compound risk:** Approaches for analyzing interdependencies across lifeline systems, including failure propagation and service continuity metrics (CDRI, 2025b);
- **Data interoperability and good public analytics:** Standards for data-sharing across national meteorological and hydrological services, infrastructure ministries, utilities, regulators, academia, and local governments (CDRI, 2025; WMO, 2026); and
- **Research uptake in developing countries:** Institutional pathways for ensuring risk diagnostics, scenario modelling, and locally-grounded observations directly influence project pipelines, budget tagging, and adaptation planning (CDRI, 2025b).

6. Means of Implementation for Research and Systematic Observation in Developing Countries

CDRI recommends that the SBSTA, in its technical guidance and reporting on research and systematic observation, place stronger emphasis on means of implementation for developing countries, especially Least Developed Countries (LDCs) and Small Island Developing States (SIDS), where observational shortfalls and weak infrastructure resilience combine deepen vulnerability (WMO, 2026a; WMO, 2023a). Means of implementation should be understood not narrowly as project finance, but as the integrated provision of finance, technology development and transfer, capacity-building, institutional support, and international cooperation.

In this regard, CDRI highlights the relevance of the Systematic Observations Financing Facility (SOFF). The World Meteorological Organization (WMO) notes that SOFF is a UN fund co-created by WMO, United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP) to close climate and weather observation gaps in countries with the most severe shortfalls, prioritizing LDCs and SIDS. It provides long-term financial and technical assistance for the generation and

international sharing of basic weather and climate observations; and it is a foundational delivery mechanism for Early Warnings for All (WMO, 2026a). This is directly relevant to the RSO agenda and should be explicitly recognized as a practical vehicle for implementation.

CDRI also notes that WMO identifies Climate Risk and Early Warning Systems (CREWS) as a financial mechanism supporting LDCs and SIDS through country and regional projects, technical assistance, and advisory services to establish risk-informed early warning services (WMO, 2023a). Together, SOFF, CREWS, and aligned support through the Green Climate Fund (GCF), Adaptation Fund, Global Environment Facility (GEF), and multilateral development banks provide a workable architecture that can be better linked to the RSO agenda if the Parties choose to do so (WMO, 2024).

7. CDRI, therefore, recommends the following implementation mechanisms:

1. Create a dedicated RSO implementation track for developing countries that explicitly links the strengthening of observation-systems to adaptation outcomes in infrastructure, agriculture, water, health, and disaster preparedness (UNFCCC, 2025; WMO, 2026);
2. Encourage greater strategic alignment between UNFCCC work on research and systematic observation and SOFF, CREWS, Early Warnings for All, and the Alliance for Hydromet Development, so that countries can move from data generation to usable climate services more quickly (WMO, 2024; WMO, 2023);
3. Support national observation modernization packages that combine weather & monitoring station rehabilitation, digital telemetry, open data protocols, maintenance financing, and training for operators, technicians, and scientists (WMO, 2026);
4. Promote regional centres of excellence for climate observation, infrastructure risk analytics, and technical assistance, particularly for SIDS, mountain regions, and transboundary basins, consistent with the regional cooperation approach recommended in CDRI's Action Agenda (CDRI, 2025b);
5. Establish structured twinning and exchange programs between national meteorological and hydrological services, infrastructure regulators, universities, and applied research institutes to accelerate peer learning, staff retention, and practical transfer of methods;
6. Launch an international fellowship programme for infrastructure-oriented climate services, enabling developing country practitioners to build expertise in probabilistic risk modelling, infrastructure stress testing, impact-based forecasting, and resilience financing;
7. Encourage open data hubs that integrate local exposure and vulnerability data with hazard and climate information, as proposed by the Action Agenda, while respecting national ownership and public-interest safeguards (CDRI, 2025); and

8. Promote sustained financing for Disaster Resilient Infrastructure as the GIR Report 2025 stresses that weak maintenance, fragmented data systems, and staff shortages undermine resilience. Means of implementation for RSO should, therefore, cover operations and maintenance, not only capital expenditure (CDRI, 2025).

9. Conclusion and Specific Requests

CDRI respectfully invites the SBSTA to:

- Mandate that the 18th Research Dialogue dedicate a structured session on infrastructure risk analytics and observation-to-decision pathways;
- Prioritize discussion on how research and systematic observation can strengthen infrastructure resilience planning, climate services, and early warning systems in developing countries;
- Encourage greater alignment between the RSO agenda and delivery mechanisms such as SOFF, CREWS, and Early Warnings for All; and
- Promote international cooperation, peer exchange, and regional centers of excellence so that observational advances translate into practical resilience gains where they are most needed.

Additional Request

CDRI confirms its availability and extends its support to the UNFCCC Secretariat, Parties, and Observers to the UNFCCC, to provide further insights pertaining to this submission.

Submitted by: Coalition for Disaster Resilient Infrastructure (CDRI)

The Coalition for Disaster Resilient Infrastructure (CDRI) is a global coalition dedicated to enhancing the resilience of infrastructure systems to climate and disaster risks. With 65 Members, it includes national governments, international organizations, academia and the private sector collaborating to share knowledge, conduct research, and invest in Disaster Resilient Infrastructure.

To learn more about CDRI, visit <https://cdri.world/>

Contact: Vitumbiko Chinoko, Lead Specialist – International Processes and Engagement

E-mail: Vitumbiko.Chinoko@cdri.world, ipe@cdri.world

Telephone: +91 93 11103869

Date: 13 March 2026

References

1. CDRI. 2025 Global Infrastructure Resilience 2025: Capturing the Resilience Dividend. Coalition for Disaster Resilient Infrastructure, New Delhi.
2. CDRI. 2025b. Action Agenda: Integrating Disaster Resilient Infrastructure in National Adaptation Strategies. Coalition for Disaster Resilient Infrastructure, New Delhi.
3. UNFCCC. 2021. Glasgow Work Programme on Action for Climate Empowerment. Decision 18/CP.26 and Decision 22/CMA.3 annex.
4. UNFCCC. 2025. Report of the Subsidiary Body for Scientific and Technological Advice on its Sixty Second Session, held in Bonn from 16 to 26 June 2025 (invitation for views on themes for the Eighteenth Meeting of the Research Dialogue).
5. UNFCCC. 2025. Decision 3/CMA.7, Modalities of the United Arab Emirates Dialogue on Implementing the Global Stocktake Outcomes.
6. UNFCCC. 2025. Call for Submissions - First half of 2026 (compiled secretariat notice reflecting submission deadlines and mandates for 2026).
7. UNFCCC. 2026. Action for Climate Empowerment webpage and 2026 call for views on matters to be addressed at the 2026 ACE Dialogue and technical workshop.
8. WMO. 2023. Early warning system topic page (including CREWS, SOFF, and GBON implementation information). World Meteorological Organization.
9. WMO. 2025. Global Status of Multi-Hazard Early Warning Systems 2023. World Meteorological Organization. <https://library.wmo.int/records/item/69684-global-status-of-multi-hazard-early-warning-systems-2025>
10. WMO. 2024. Early Warnings for All Factsheet (May 2024). World Meteorological Organization and partners.
11. WMO. 2026a. Systematic Observations Financing Facility (SOFF) activity page. World Meteorological Organization (WMO).