

# Partnering for a **resilient future**



PARTNERING FOR A **RESILIENT FUTURE**

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**Concept & Development:** CDRI Communications

**Layout & Design:** Santosh Kumar Singh





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“Infrastructure is not only about returns but also about reach and resilience. Infrastructure must leave none behind and serve the people even during time of crisis. A holistic view of infrastructure is needed. Studying past disasters and learning lessons from them is the way.”

**Shri Narendra Modi**

Hon. Prime Minister of India



## About CDRI

Launched by the Prime Minister of India at the 2019 United Nations Climate Action Summit, Coalition for Disaster Resilient Infrastructure (CDRI) is a global partnership of national governments, UN agencies and programmes, multilateral development banks, the private sector, and academia. CDRI advances the cause of climate and disaster resilient infrastructure (DRI). It is headquartered in New Delhi, India and currently has 46 members—39 countries and 7 organizations.

CDRI was accorded the status of an 'International Organization' by the Government of India in 2022.

## CDRI Mission

To support countries to upgrade their systems to ensure disaster and climate resilience of existing and future infrastructure.

*This shall be fully aligned with the Sustainable Development Goals, the Paris Climate Agreement, the Sendai Framework.*

“ CDRI will help to foster a world that is safer and more resilient to climate shocks... Together with all the members, we are committed to building climate and disaster resilient infrastructure around the world, which will in turn advance progress to meet the objectives of the Paris Climate Agreement and Sustainable Development Goals. ”

**Kamal Kishore (India), and Veena Reddy (USA),**  
Co-chairs of CDRI Executive Committee

# THE CASE FOR DISASTER RESILIENT INFRASTRUCTURE (DRI)





“ Resilience is central to achieving climate adaptation objectives. Resilient infrastructure is a lifeline for sustainable development. Investing in new and existing resilient infrastructure is robust, profitable, and urgent for a resilient world. Join us in our endeavour in effecting the transformational change we envision. Together, we can build a more resilient world. ”

**Amit Prothi**  
Director General, CDRI



**F**rom airports and railways to power stations and fibre optic networks, infrastructure is essential for realizing human potential through access to services including education, health care, connectivity, trade and employment or livelihoods. Reliable infrastructure systems and services are critical for the well-being of communities across the world, especially the vulnerable and the marginalised. Infrastructure investments can thus be a multiplier generating dividends, contributing to the human development through economic growth and societal prosperity, long after the completion of projects.

Annual investments of US\$ 3.7 trillion in infrastructure will be needed till 2035, in order to keep pace with the projected global growth rates<sup>1</sup>. If mobilised, such infrastructure investments would not only replace ageing infrastructure but also establish new infrastructure systems. However, the impacts of climate change and other natural hazards put such infrastructure systems at risk, with devastating and often long-lasting consequences for economies, the environment, and communities. Direct economic losses averaging US\$ 169 billion annually<sup>2</sup> and displacement of over a quarter of a million people have been a result of extreme weather events and geophysical hazards in the last decade. Furthermore, the losses went beyond the monetary value, affecting loss of life, homes and businesses, indirectly also impacting productivity and services.

The World Economic Forum has identified 'environmental risks' as the most critical threat over the next ten years, as well as the most potentially damaging to people and planet, with 'climate action failure' and 'extreme weather' ranking as the most severe risks<sup>3</sup>. Changes in climate and population patterns will continue to escalate and intensify disaster risks.

Accentuated disaster risks and cascading effects of climate change are posing significant threats to infrastructure. Rapid urbanization and a burgeoning population are also contributing to the challenge. To achieve sustainable development and counter disaster risks, which are largely systemic in nature, there is a greater need for development to be risk-informed.

Since COP26, Adaptation and Resilience have emerged as themes for development interventions including infrastructure. This was elevated in COP27 through the launch of 'Sharm-El-Sheikh Adaptation Agenda' with a dedicated fund for "loss and damage" to help vulnerable communities adapt to climate change through innovative and concrete adaptation solutions. However, 'risk-blind' adaptation interventions may lead to

1 McKinsey Global Institute, *Bridging global infrastructure gaps* (2016)

2 CRED / EM DAT (2020)

3 World Economic Forum, *Global Risks Report* (2022)



maladaptation, having significant implications on the ongoing efforts to achieve the Sustainable Development Goals, many of them having direct relationship with infrastructure development.

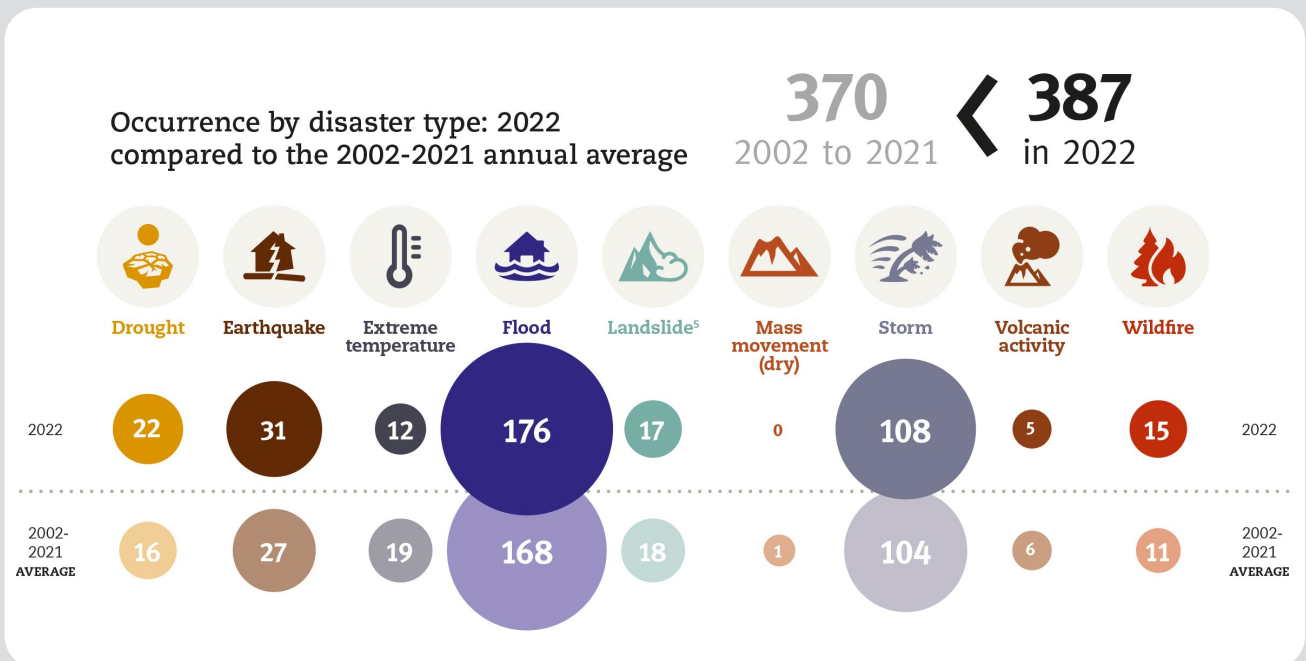
The Sendai Framework for Disaster Risk Reduction (SFDRR) recognizes the need to minimize disaster damage to critical infrastructure and disruption of services, by developing their resilience. Its seven strategic global targets directly or indirectly depend on access to resilient infrastructure. SFDRR's Target (d) has the most direct interest in promoting DRI by reducing substantial damage to critical infrastructure and disruption of essential services. Adaptation of infrastructure development to future climate scenarios will be critical to ensure resilient infrastructure and achieving the aforementioned targets,

This underscores the urgency of adequately addressing risks and promoting resilience in infrastructure planning, financing, design, development and management. Resilient infrastructure can also safeguard hard-earned gains in poverty alleviation, health, education, water, sanitation and progress made across the SDGs.

Demands placed on infrastructure systems in future may be significantly different from today, considering the greater challenges of the climate variability. Furthermore, complexity of infrastructure systems entails shared vision of resilience across sectors, and integrated planning among infrastructure owners, operators, financiers, international agencies and other stakeholders. Constrains such as inadequate data, capacity barriers, limited access to finance, and limited understanding of current and future risks can be barriers to resilience. Additionally, immediate capital deployment may be perceived as an expense against the seemingly intangible and long-term benefits of infrastructure, resilient to climate change and disasters.

The need to upgrade and build resilient infrastructure is more urgent now than ever before.

## Climate 2023



Source: [https://cred.be/sites/default/files/2022\\_EMDAT\\_report.pdf](https://cred.be/sites/default/files/2022_EMDAT_report.pdf)

# CDRI VALUE PROPOSITION AND BENEFITS

## CDRI Value Proposition

**A**s a global partnership, CDRI ensures that the investments of its members and partners are aligned and well-coordinated in support of the shared ambition of disaster and climate resilience of new and existing infrastructure.

## CDRI Benefits

The unique and interconnected benefits of CDRI are:

### A Strong Coalition Driving Collaborative DRI Action

As an active, multi-stakeholder Coalition, CDRI:



Connects and mobilizes local, national, and international stakeholders, working within and across different geographies and sectors, to accelerate and scale-up DRI action, drive increased public and private investment, and deliver concrete progress on the DRI agenda.



Uses its collective influence to advocate for an ambitious, future-focused DRI agenda, and amplify the voices of vulnerable regions and populations most at risk.

### A Solution-focused Centre of Excellence for DRI

As a solution oriented and future focused Coalition, CDRI:



Strengthens member capacities and capabilities on DRI, through direct support, providing opportunities for collaboration, and by brokering member-to member and partner-to-member support.



Generates and curates future-focused research and knowledge, including innovations, to influence DRI policy and practice.



Supports its Member Countries to attain their DRI objectives by leveraging on the Coalition's diversity of expertise and experience to mobilize global cooperation and facilitate transformative action.

## CDRI Impact

CDRI is a platform for its Members and partners to collaborate, cooperate and advocate. The Coalition's collective ambition is:

**“By 2050, over US\$10 trillion of new and existing infrastructure investments and services are resilient to natural hazards and climate change through enhanced capacity, informed policy, planning, and management leading to improved quality of environment, livelihood and life of over 3 billion people.”**

# PARTNERING FOR DRI: MEMBERS AND PARTNERS

“ Since origins of climate change are global, the solution and management would also have to be global. Only if the global efforts and individual countries' efforts are streamlined through responsive policy, planning and governance, the actions are likely to be successful. Bangladesh is ready to join any initiative at a regional or global level dealing with the impacts of climate change. I call for coordinated global efforts and shared vision for climate adaptation mitigation and resilient infrastructure.”

**Smt. Sheikh Hasina**  
Hon. Prime Minister  
of Bangladesh



“ As a new African member of the Coalition, we look forward to fruitful exchanges and activities that have direct impacts on people's lives. ”

**H.E. Andry Nirina Rajoelina**  
President of the Republic  
of Madagascar



39  
Countries

7  
Organizations



# CDRI STRATEGIC WORK PLAN 2023-26

**C**DRISecretariat's Strategic Work Plan 2023-26 outlines planned initiatives in the next four years aligned with CDRI's mandate and Theory of Change. The Work Plan is guided by the three strategic outcomes:

## Strategic Outcome 1

A strong Coalition that has the membership, resources, and global leadership to drive global, national, regional, and local DRI action.

## Strategic Outcome 2

Global DRI research, Coalition-led peer engagement, & CDRI-curated and generated knowledge promote risk informed policy/practice.

## Strategic Outcome 3

Enhanced capacities of government, private enterprises, and communities to implement post-disaster recovery and DRI action at scale.





# CDRI PROGRAMMES AND INITIATIVES





# 1. CDRI-Led Conferences

## A. Annual International Conference on Disaster Resilient Infrastructure (ICDRI) *DRI Solutions for a Resilient World*



Inaugural Session, ICDRI 2023, April 2023, New Delhi

**C**DRI's flagship annual conference, ICDRI, convenes global experts and leaders from Member Countries, organizations, and institutions to strengthen the discourse on disasters and climate resilient infrastructure as well as facilitate DRI action.

ICDRI 2023, the fifth edition, was held on 4-5 April 2023, with the theme "Delivering Resilient and Inclusive Infrastructure: Pathways for Risk-Informed Systems, Practices and Investments." The conference was inaugurated by the Hon. Prime Minister of India, Shri Narendra Modi along with Hon. Prime Minister of Bangladesh, Smt. Sheikh Hasina. ICDRI 2023 attracted 2500+ in person and virtual delegates, with over 140 dignitaries and speakers, from 120 plus countries, representing more than 600 organizations participating in 17 sessions over two days.

The sixth edition of ICDRI is scheduled for 24 - 25 April 2024 with the theme 'Investing today for a more resilient tomorrow.' The conference will again bring together governments, the global infrastructure community, multilateral development banks, and the private sector together to agree on a roadmap for putting ideas to action to mobilize public and private investment in disaster resilient infrastructure.

Link: [icdri.cdri.world](https://icdri.cdri.world)

## B. Regional Conferences and DRI Conclaves

DRI regional conferences and conclaves include workshops in different regions, virtual dialogues, thematic roundtables and, seminars interwoven with the Coalition's technical, knowledge, capacity building and research initiatives.

“

The International Conference on Disaster Resilient Infrastructure (ICDRI) has become a global platform for discourse on mainstreaming disaster and climate resilience for infrastructure development.”

**Dr P. K. Mishra**

Principal Secretary to the Prime Minister,  
Government of India, and CDRI  
Governing Council Co-chair

ICDRI 2023  
attracted over

**2500**

in person  
and virtual  
delegates

# International Conference on Disaster Resilient Infrastructure (ICDRI) Americas 2023



**Inaugural Session, ICDRI Americas, October 2023, Washington, D.C.**

CDRI organized its first regional conference in partnership with the US Government on 30 October 2023 at the National Press Club, Washington DC. The conference attracted over 100 participants from 13 countries representing national governments, government agencies, think tanks, academia and research, financial institutions, and the private sector.

## 2. CDRI Engagements on Global and Regional Platforms

CDRI seeks to engage with UN bodies, Multilateral Development Banks and member organizations on global and regional platforms to advocate and champion the cause of DRI. Some highlights in 2023 were:

### A. UNFCCC COP28 in Dubai





CDRI's UNFCCC COP engagements drive the DRI agenda, amplifying its advocacy on infrastructure resilience as an essential component of climate adaptation. At COP28, CDRI led five sessions and partnered in 12 sessions on the themes including data, capacity strengthening and innovation, knowledge sharing, finance, energy, infrastructure governance and transport.

**CDRI was accredited as an Observer Inter-governmental Organization to the UNFCCC at COP28.**



**Amit Prothi, DG, CDRI, delivering Observer Statement at the UNFCCC High-Level Segment for Observers, COP28, UAE**

### Launches

- Global Infrastructure Risk Model and Resilience Index (GIRI)
- Community of Practice (CoP) on Heat
- CDRI-UNDRR's Global Methodology for Infrastructure Resilience Review
- DRI Connect - a digital stakeholder engagement, learning and collaboration platform
- Urban Infrastructure Resilience Programme (UIRP) strategy

## B. G20



**Disaster Risk Reduction Working Group, G20, March 2023, Gandhinagar**

India's G20 Presidency invited CDRI to participate as a guest 'International Organization' in the Sherpa, Finance and Central Bank Deputies meetings (FCBD) and Ministerial meetings, as well as in four G20 Working Groups: Infrastructure, Sustainable Finance, Disaster Risk Reduction, and Environment and Climate Sustainability.



**G20 Summit, September 2023, New Delhi**

In support of the Presidency, CDRI:

- Produced a White paper on 'Pathways for Global Infrastructure Resilience' and a Compendium of Good Practices on DRI.
- Contributed to the Outcome Document and Chair's Summary at the G20 DRR WG meeting Outcomes of the DRR working group
- Contributed to G20 Disaster Risk Reduction Working Group Roadmap and Action Plan (2023-2025)
- Participated as a knowledge partner to Infrastructure Working Group.

At the conclusion of the Presidency, CDRI's Director General, Mr. Amit Prothi addressed the Heads of Government at the G20 New Delhi Summit in September 2023.

### **C. High-Level Political Forum on Sustainable Development (HLPF)**



**Amit Prothi, DG, CDRI at HLPF, July 2023, New York**

CDRI Director General participated in a side event co-organised by CDRI on the theme, "Resilience – Safeguarding Gains in Sustainable Development." The Director General also made an intervention at an official meeting of the High-level Political Forum on the theme, "Small Island Developing States from Recovery to Resilience in the Face of Multiple Shocks."



## D. Latin America and Caribbean Climate Week (LACCW) – October 2023, Panama City, Panama



CDRI organized a session on: Realizing the Vision for Resilient Infrastructure in SIDS while contributing to identifying the LAC region's priorities for resilient infrastructure.

## 3. Infrastructure Resilience Accelerator Fund (IRAF) *Collective Action for Resilience*



At UNFCCC COP27, CDRI launched the Infrastructure Resilience Accelerator Fund (IRAF), a dedicated multi-party trust fund to support global action on DRI, especially in developing countries and SIDS. Established with the support of UNDP and UNDRR, and managed by the United Nations Multi-Partner Trust Fund Office (UNMPTFO), and with initial commitments from the Government of India, Government of the United Kingdom, the Government of Australia and the European Union of \$50 million, IRAF plays a critical role in equipping the Coalition to deliver on its programmes.

The first initiative to be supported by IRAF are under the programme on Infrastructure for Resilient Island States (IRIS). 11 projects of a total project cost US\$5.85 million (selected under the IRIS First Call for Proposal) are now receiving funding from IRAF.



## 4. DRI Lexicon

### *Shared Understanding of Terms That Matter in DRI*

CDRI has developed definitions for 66 key terms to foster a shared conceptual understanding of infrastructure-related terms and phrases. It provides a set of globally applicable references to concepts and phrases to act as a guide to research and understanding, and aid in infrastructure-related decision making.

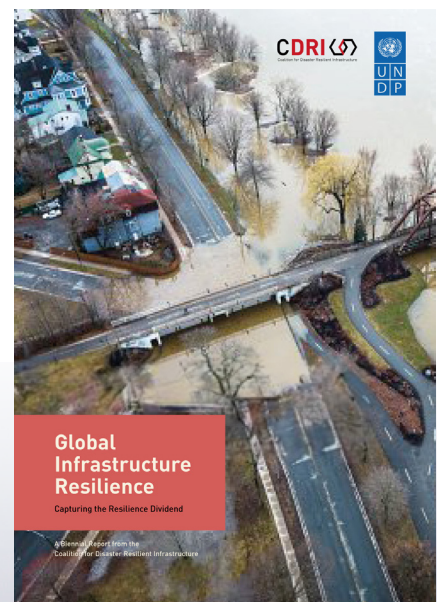
## 5. Global Infrastructure Resilience Report

### *Capturing the Resilience Dividend*

CDRI's Biennial Report on Global Infrastructure Resilience is one of the first comprehensive periodic reports on infrastructure resilience. The first edition of the report was released by Shri Kiren Rijiju, Minister of Earth Sciences, Government of India, at a high-level event in New Delhi.

The Report outlines a 'Resilience Dividend: The comprehensive set of advantages gained from investing in infrastructure capable of withstanding disasters and climate change. The first edition focuses global attention on the critical and multi-faceted challenges posed to climate and DRI, with a thematic focus on Nature-based Infrastructure Solutions (NbIS).

The report includes the first-ever publicly available fully probabilistic risk model - the Global Infrastructure Risk Model and Resilience Index (GIRI) - which highlights that the global Average Annual Loss (AAL) in infrastructure sectors and buildings is now in a range of US\$732 – US\$845 billion taking into account climate change, implying that 14% of 2021 - 2022 GDP growth is at risk. This is an open access, interactive and interoperable online geospatial data platform that is available at a national level for all countries.



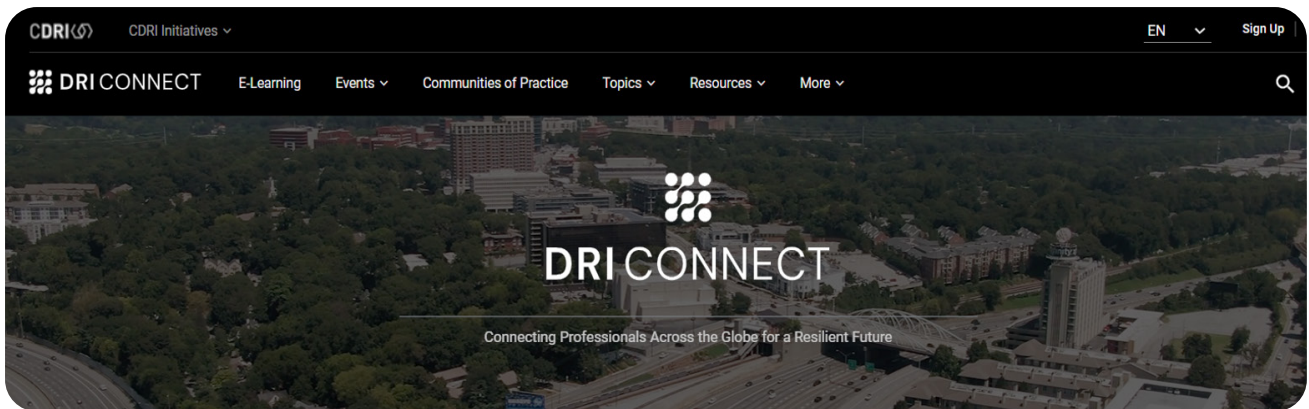
**Link:** <https://biennialdigitalreport.cdri.world/>





## 6. DRI Connect

*A Digital Aggregator, Matchmaker, Convenor*



DRI Connect is CDRI's one-stop digital knowledge exchange, learning and co-creation platform targeted at enhancing capacities, fostering communities and promoting action-based learning on climate and DRI.

**The DRI Connect platform will enable users from across the world to:**

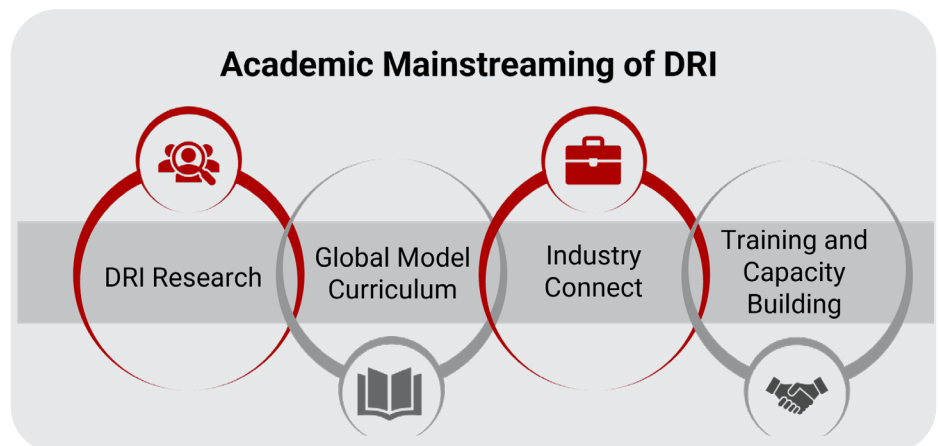
- Access curated knowledge resources and participate in webinars and virtual convenings.
- Build their capacity on relevant DRI via modularized e-learning courses.
- Engage in vital conversations, build networks and co-create solutions with experts and peers through the Communities of Practice modality.

DRI Connect was officially announced at a side-event in COP28 in December 2023.

## 7. Infrastructure Resilience Academic eXchange (IRAX)

*Enabling the next generation of infrastructure professionals*

Launched at ICDRI 2023, the Infrastructure Resilience Academic eXchange (IRAX) programme will mainstream Disaster Resilient Infrastructure in higher education curriculum. The programme will build/enhance research and capacity building through academic partnerships spread across CDRI Member Countries.

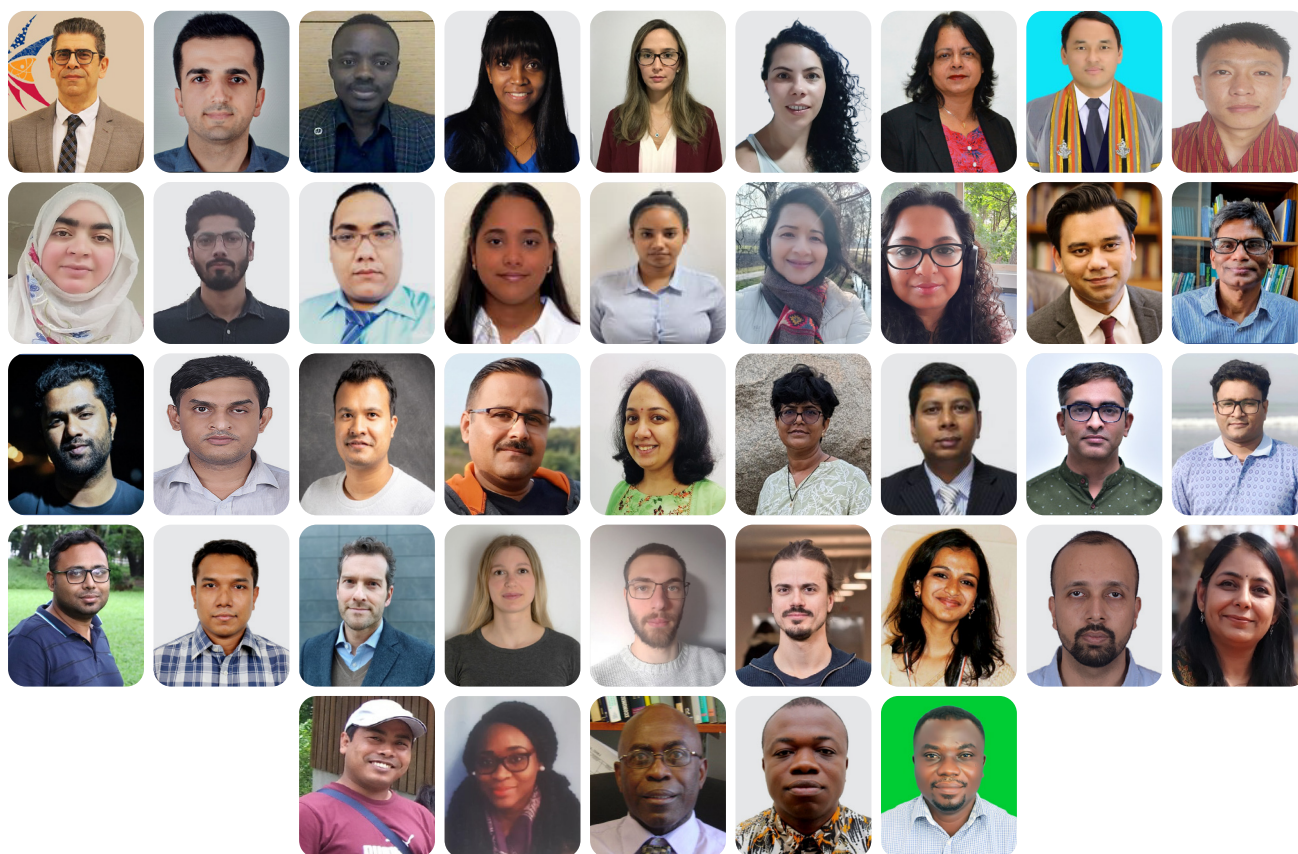


IRAX will engage with the most vulnerable countries to strengthen professional capacity on DRI locally. It will particularly focus on enhancing the capacity of women professionals for championing the cause of DRI.

- IRAX was launched with up to US\$5 million provided by the USAID to support a partnership between US universities and Indian higher education institutions to offer education, research, training, and professional development opportunities on DRI.
- The IRAX University Consortium modality was discussed at ICDRI Americas 2023 by a panel of academia and industry experts from Latin America, India, SIDS and USA.

## 8. Fellowship Programme

### Actionable DRI Solutions



CDRI's Fellowship Programme promotes cutting edge research and innovative solutions to strengthen the resilience of infrastructure to disasters and climate risks through a grant of US\$15,000. The Fellowship also provides peer learning and capacity development opportunities to develop innovative, actionable and scalable solutions for real world issues related to disaster and climate resilience of infrastructure.

The Fellowship pool currently comprises 52 teams across three Cohorts, with 100+ Fellows spread across 22 countries including Afghanistan, Australia, Bangladesh, Bhutan, Brazil, Canada, Chile, Dominican Republic, Ghana, India, Italy, Japan, Madagascar, Mauritius, Nepal, Peru, Sri Lanka, Thailand, Turkey, The Netherlands, the United Kingdom (UK) and the USA.

The Programme's fourth cohort (2024-2025) will have the themes: GIRI for Infrastructure Resilience, Multi-hazard Early Warning Systems, Resilient Food Systems, Resilient Infrastructure to Withstand Extreme Heat, Climate Resilient Infrastructure in High Mountain Regions, and Infrastructure Vulnerability to Secondary Hazards.

### Young Professionals Programme

CDRI's Young Professionals Programme (YPP) recognizes the importance of investing in youth as vital stakeholders for a more resilient future. Through this programme, CDRI offers an exciting opportunity to innovate, contribute, and advance the cause of DRI.

The YPP aims at supporting the establishment and implementation of policies, processes, projects and guidelines within CDRI. The YPs are required to provide high-quality inputs in disciplines of disaster management, climate change, development studies, engineering, urban planning, sustainable development, infrastructure, and policy research.



## 9. Critical Infrastructure Resilience Programmes

Critical infrastructure such as transport, power, telecommunications and water supply are essential for quality of life and livelihoods. However, disruptions in infrastructure services can lead to catastrophic consequences for people and economic activities, particularly when exposed to the threats of climate change, natural hazards and man-made hazards.

CDRI is working across Member Countries to map the landscape across these critical infrastructure sectors. Findings from the studies are highlighting current and future risks (including from climate change) and demonstrating options for building resilience through targeted interventions and risk financing.

### A. Power Sector

*Critical for sustained economic growth*



As nations advance and become increasingly dependent on electricity for their growth, building the resilience of power infrastructure will be critical in enabling reliable and sustainable services.

#### Initiatives

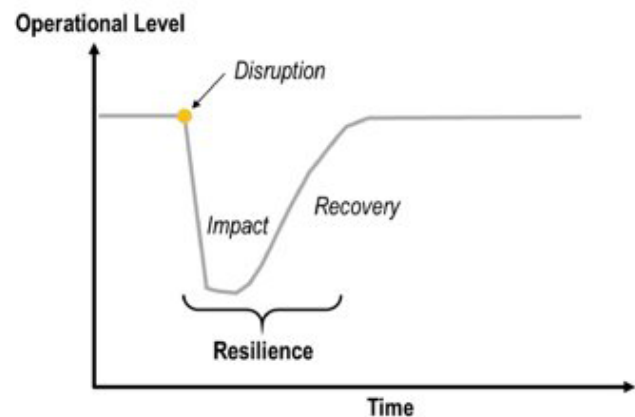
- Three-phase sub-national study of power sector in Odisha, India: Towards Building Resilient Transmission and Distribution Network of Power Infrastructure (2023).
- Country engagement between CDRI and Ministry of Energy, Chile for building climate and disaster resilience in their power generation and transmission infrastructure (2023-2025).
- CDRI, in partnership with EU-India Clean Energy and Climate Partnership (CECP) project, completed a study on "Disaster and Climate Impact of Investments in Infrastructure" which demonstrated proofing methodology in two electrification projects across Odisha and Uttar Pradesh, two Indian states heavily impacted by climate change.

## B. Transport Sector

*The 'Lifeline' of a country*



A risk-informed planning and investment, improvement in standards and governance, and leveraging technology and capacity building across different modes of transport is essential to safeguard transport sector investments and assets.



### Initiatives

- "A Global Study on Disaster Resilience of Airports" to understand the status of disaster risk management and resilience of airports across all continents (2021-2023).
- Phase 1 of the Study captured the perception of airport managers on hazards, exposure, vulnerability and resilience of infrastructure and its systems, from 111 airports in 54 countries. It also provides case examples and recommendations for airports, governments, and knowledge institutions.
- Phase-II of the Study is a comprehensive disaster risk study of infrastructure and resilience finance mechanisms covering various impacting hazards and risks across 12 airports (in 11 Member Countries) from India (2), Bhutan, Japan, Mauritius, Germany, Madagascar, Italy, USA, Peru, Australia, and Fiji.
- CDRI is supporting the Indo-Pacific Region Resilient Seaport Infrastructure Programme under the QUAD which is designed to holistically strengthen the resilience of port infrastructure through the short-term, interim, and long-term activities, leveraging existing Quad initiatives and other regional forums in the Indo-Pacific.
- CDRI is working with the government of Himachal Pradesh, India, to enhance the disaster resilience of critical roads.



## C. Telecommunications Sector

*Connecting people across geographies*



Dependence on telecom-based services and a highly connected world makes telecommunications the 'lifeline Infrastructure system,' Telecommunications is also responsible for smooth functioning of other infrastructure such as airports, power grids and banking services.

### Initiatives

CDRI's Disaster Risk & Resilience Assessment Framework (DRRAF) aims to enhance the resilience of the Indian telecommunication sector at national and state levels.

- Phase 1 of DRRAF is being conducted in the Indian states of Assam, Odisha, Uttarakhand, Gujarat & Tamil Nadu, focusing on:
  - » Natural hazards and disaster events' impact on the telecom sector at national and state level.
  - » Interdependencies and interconnectedness with other infrastructure sectors.
  - » Assess the system-level risk dynamics of the overall Indian telecom network.
- Phase 2 of DRRAF has been completed with the identification of vulnerable districts in the five focus states while Phase 3 has commenced.

## D. Health Sector

*Ensuring resilient services*



A well-designed health infrastructure system consists of several sub-systems such as hospitals and health care institutions, supply chains for medicines and equipment, health finance, associated infrastructure (e.g. water, energy, transport), skilled human resources, policy, and governance systems.

### Initiatives

- CDRI, along with World Health Organization (WHO) and the Global Initiative on Disaster Risk Management (GIDRM), Germany, are supporting the State Government of Sikkim for a programme on 'Resilient Health Infrastructure for Sikkim.' The programme is co-designed with the Sikkim State Disaster Management Authority (SSDMA) and Department of health and family Welfare. Focus areas are capacity building, risk and resilience assessment of health infrastructure systems, technical support, and governance and policy. Lessons from the Sikkim pilot will inform the design of the global health infrastructure resilience programme.
- CDRI provided technical assistance to NDMA, India, in the post-disaster needs assessments (PDNA) of the health sector following flash floods in October 2023 in Sikkim, India.

## 10. Geo-Contextual Initiatives

CDRI is working across targeted geographies including Small Island Developing States, urban areas, high mountain regions, and specific climatic and eco-sensitive zones.

### A. Infrastructure for Resilient Island States (IRIS)

*Resilience for the most vulnerable*



**Link:** [iris.cdri.world](https://iris.cdri.world)

Launched by the Hon'ble Prime Minister of India along with the Prime Ministers of Australia, Fiji, Jamaica, Mauritius and UK at COP26 in 2021, the Infrastructure for Resilient Island States (IRIS) programme in Small Island Developing States (SIDS) is CDRI's commitment to promote resilient, sustainable and inclusive infrastructure in the most vulnerable regions.

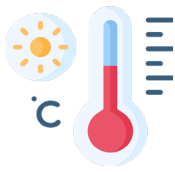
IRIS' goal is to deliver outcomes that can contribute to building resilient, sustainable and inclusive infrastructure in SIDS.

As the first step towards implementation of projects under this initiative, CDRI is funding 11 projects across 13 SIDS. The first round of projects focuses on Multi-Hazard Early Warning System, Retrofitting Housing Strategy, Climate Resilient Transport Infrastructure, and Piloting Disaster Risk Insurance Scheme amongst others. Applications for a second round of project funding will be announced during the 4<sup>th</sup> International Conference on Small Island Developing States in May 2024.



## B. Urban Infrastructure Resilience Programme (UIRP)

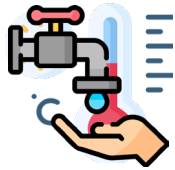
*Ensuring resilient and sustainable communities*



**Temperature Extremes**



**Flooding**



**Water Scarcity & Security**



CDRI is working towards enhancing the liveability within cities. The UIRP seeks to factor resilience into conceptualization, planning, regulation, and management of infrastructure and to urban planning.

### Initiatives

- Launched at COP28, UIRP will promote disaster and climate resilience of new and existing infrastructure in cities across low- and middle-income countries (LMICs). CDRI prepared the UIRP strategy with support from Ministry of Infrastructure and Water Management, Government of Netherlands through Deltares and USAID through Miyamoto International. UIRP's initial work will focus on climate change induced hydro-meteorological challenges including urban flooding, water scarcity, and extreme heat.

### Urban Water Resilience Programme



CDRI's Water Resilience Programme, launched at the UN 2023 Water Conference side event, aims to provide support to Members to build, maintain, and operate water infrastructure systems with a focus on urban areas. This intervention seeks to reduce the impact of disasters induced from hydro-met hazards such as flooding, droughts and water scarcity on both water and other infrastructure systems. The programme will inform urban service delivery, economy, and livelihoods catering to 100 million people globally.

The initial support for training and capacity building is being provided in partnership with Ministry of Infrastructure and Water Management, Government of Netherlands.

## C. Mountain Region Resilience Programme (MRRP)

### Enhancing Mountain Resilience

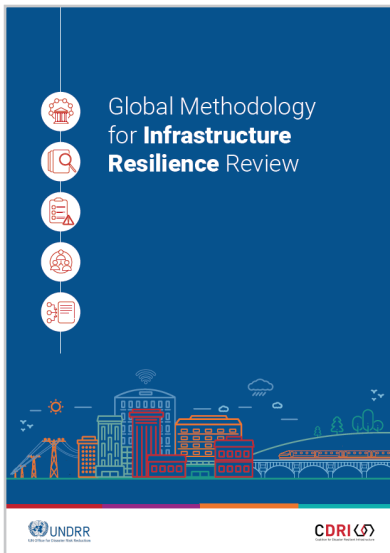


MRRP aims to respond to the unique challenges faced by Member Countries with Hilly Regions.

#### Initiatives

- CDRI is currently undertaking a post-disaster needs assessments (PDNA) in Himachal Pradesh for mapping and improvement of the roads. CDRI will prepare a detailed report on the road map to transform it into an all-weather road.

## 11. Infrastructure Governance



CDRI-UNDRR Project: Enhancing Resilience of Infrastructure through Strengthened Governance.

#### Initiative

CDRI and United Nations for Disaster Risk Reduction jointly developed the 'Global Methodology for Infrastructure Resilience Review' for conducting a (pilot) desk-based analysis of the current state of infrastructure in Madagascar, Chile, Tonga and Bhutan. The methodology will be applied to strengthen national coordination mechanisms, review of regulations and policies governing infrastructure sectors, design policy and strategy recommendations for notification in the selected countries. The methodology will also support countries in assessing the current state of infrastructure resilience and identifying areas for optimal resilience and formulating implementation plans. The methodology was launched at COP28.

## 12. Enabling Initiatives

CDRI's enabling programmes and interventions include work centred around governance mechanisms, financial instruments, nature-based solutions, multi-hazard early warning systems (flood, heat wave, drought), data, technologies, and tools for better monitoring, management and decision making.



## A. Finance

*Vital to achieving SDGs*



The Coalition is committed to support its Member Countries in developing coherent disaster risk financing (DRF) strategies to address the financing needs for (re)building resilient infrastructure in both pre-disaster mitigation and post-disaster recovery and reconstruction phases through 'Finance for Resilient Infrastructure Programme' (FRIP).

### Initiatives

- CDRI commenced fiscal risk assessment to aid asset owners and governments in building disaster resilience through risk financing solutions for Member Countries at National level, initially in India, Fiji, Mauritius, and Nepal and at Sub-National level, initially in India in the states of Himachal Pradesh, Gujarat, Tamil Nadu, and Odisha.
- CDRI is undertaking an appraisal study on the National Infrastructure Pipeline (NIP) of India. A toolkit is being developed to perform a Cost-Benefit Analysis (CBA) of resilience interventions in the infrastructure projects' standard bidding documents and contractual agreement documents. Six sample infrastructure projects from three-line ministries (Power, Roads & Bridges and Railways) have been selected from the NIP to pilot test the CBA toolkit.

## B. Nature-based Solutions

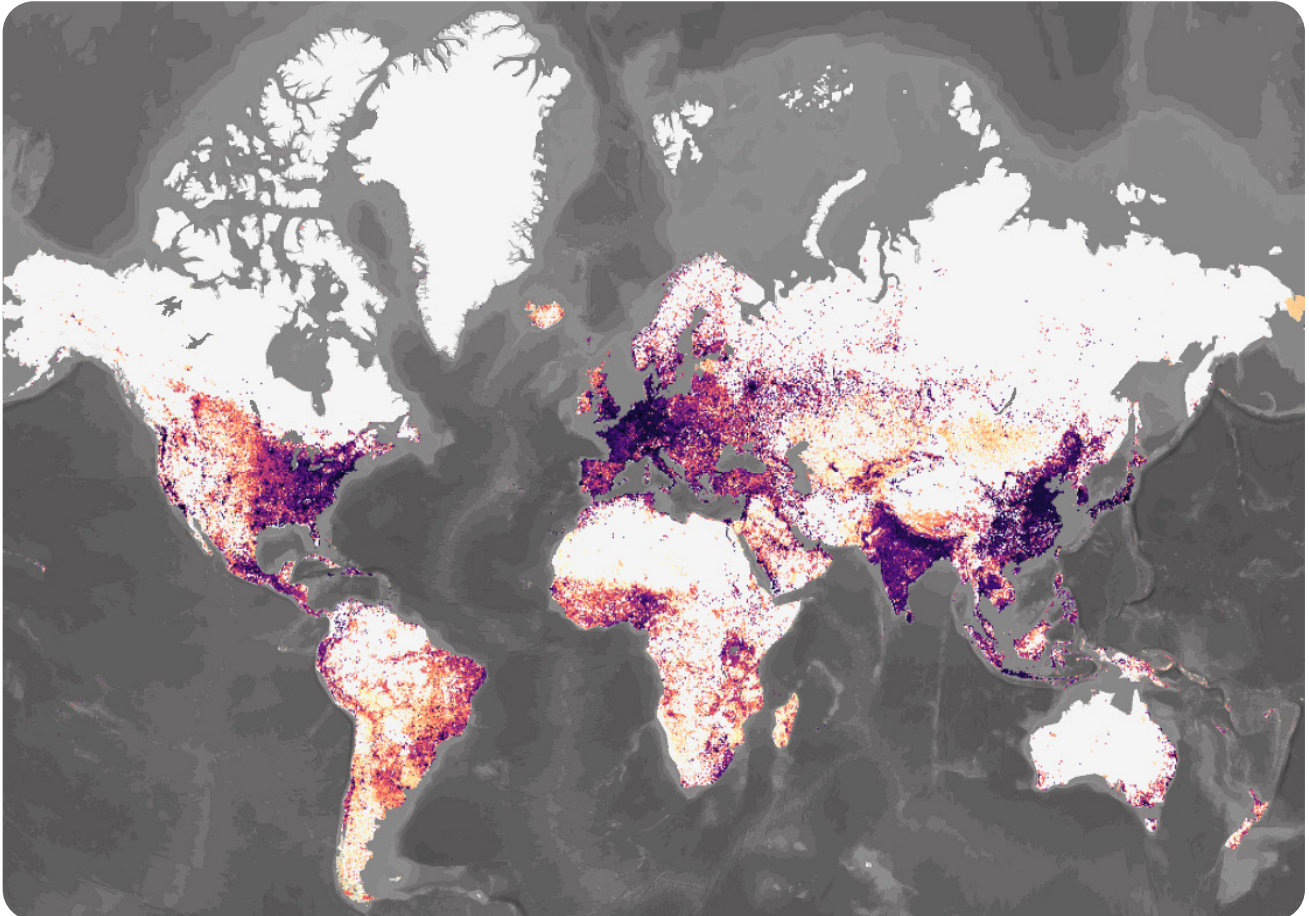
*Preserve, Protect, and Restore*



Over the past decade, Nature-based Solutions have emerged as a cost-effective mechanism to boost resilience, playing a key role in increasing the resilience of infrastructure systems and improving their reliability over a long period of time. In the face of climate related uncertainties, NbS are a pragmatic way forward, for nature's innate ability to adapt to climate variabilities as against permanent gray infrastructure solutions like seawalls, levees, dams, embankments, etc. Because of their adaptive nature, NbS may also prove to be more predictable than entirely gray infrastructure-dependent resilience solutions, while planning infrastructure services delivery.

## C. Natural Hazard Risk Information

### *Ensuring Asset Resilience*



#### **GIRI**

**Link:** <https://cdri.world/giri>

Early warning and natural hazard risk information systems have played a critical role in protecting the lives and livelihoods. Studies show that well-designed end-to-end early warning systems, which are accessible and easily understood, can save lives and damage to infrastructure.

CDRI's work has reinforced the need for strengthening links between early warning and infrastructure. Tools like GIRI Resilience Index are crucial to inform planning, decision-making and bridging investment deficit in disaster resilient infrastructure for developing countries.

CDRI's Biennial Report on Global Infrastructure Resilience includes the first-ever publicly available, open access, interactive and interoperable, fully probabilistic risk model - the Global Infrastructure Risk Model and Resilience Index (GIRI). This online geospatial data platform informs planning, decision making and investment in disaster and climate resilient infrastructure by providing credible and fully comparable probabilistic risk metrics (for six hazards) covering every country and territory in the world.
















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