

# Coalition for Disaster Resilient Infrastructure

## Strengthening Capacity of Power Sector Practitioners in the Indo-Pacific Region: Technical Workshop under the Quad Infrastructure Coordination Group (QICG)

05 June 2024, New Delhi, India

Way Forward



# Session 1: Physical and Climate Risk and Guidelines

**Objective:** Understand the current scenario and effects of physical and climate risk on the energy infrastructure sector

*“Climate change and disasters affect economies and humans”*

## Current scenario in the Indo-Pacific Region

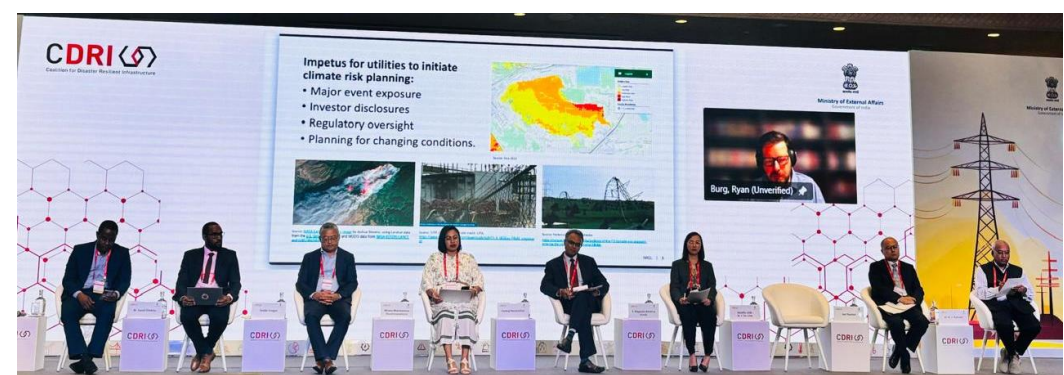
- Lack of data (need robust and granular), low quality
- Need better forecasting models
- Social vulnerability
- System blackouts
- Chronic risks
- Risk associated locally
- Compliance issue

## Impacts on Power systems

- Affected Power lines – transmission and distribution, and impacted power stations
- Safety of power supply, continuity of service
- Have impacts on dependent infrastructure systems such as water supply and sanitation (WASH), affecting communities.
- Particularly pronounced on small power grids

## Challenges

- Planning, risks, fragility, localisation of risks, community-level resilience
- Uncertainty about physical climate risks
- Investing to improve resilience, infrastructure financing
- Prioritising resilience investment







# Session 1: Physical and Climate Risk and Guidelines

*“What can be measured can be improved”*

## Implementation enablers, good practices and solutions

- Exploring future-ready approaches (investment planning and governance mechanisms), focus on utilities
- Strong technical leadership
- Model-informed scenarios
- Managing interdependent infrastructures
- Planning for community resilience
- Prioritising resilience investments
- Having energy disaster information - good mechanism
- Appreciative of models such as GIRI
- Predictive management
- Early warning addresses existing and additional risks



## Key Lessons learned

- Growing opportunity within energy transition landscape for renewables
- Energy systems need to integrate overall system resilience for all the hazards



# Session 2: Power Systems and Assets Vulnerability Assessment

**Objective:** Assess various climate vulnerabilities of the energy infrastructure sector and various mitigating measures

*“Resilience is more than just climate”*

*“We are better prepared than before”*

## Implementation enablers, good practices and solutions

- Take whole-system and asset lifecycle-centric approach
- Design for Excellence, Reliability and Resilience (DFR<sup>2</sup>)
- Think Resilience from Day 1
- Bi-directional criticality analysis, incorporating variable external risks
- Institutional resilience
- Adaptation, resilience, multidimensional analysis
- Introduce interdependence when planning, teamwork
- Create inventory of assets
- Review design standards
- Strengthen Business Continuity Management Plans
- Secure alternative sources of power
- Collaborate, collaborate and collaborate
- Leverage technology for better asset management

## Key Lessons Learned

- Mobilisation of resources: planning and coordination needed
- Retrofitting, predictive maintenance and geo-mapping of assets is key
- Effective early-warning systems are important for early preparedness
- Case studies – Odisha. Adaptive pathways needed
- Capacity building – reskilling, upskilling



**Innovate –  
Communities  
of Practice**

# Session 3: Resilience Planning and Investment Prioritisation

**Objective:** Evaluate various avenues of financing mechanisms and regulatory frameworks for climate proofing of energy infrastructure

*“There is a no-size fits all approach to resilience”*

## Investment prioritisation

- Mixed methodology for planning: integrate quantitative and qualitative, solutions depend on conditions
- Historical and forward-looking analysis is required, with performance metrics and addressing threat risks
- Address multiple hazards, cost-effective (CBA), benefit from coordination with stakeholders, location-specific, energy transition
- Priorities need to be re-evaluated over time as per new developments

*“Funds available, timely actions save the system”*

## Key Lessons Learned

- Variety in definition of resilience, hazards, utility size, risk, and customer base
- Risk creates chain reactions leading to problems, climate risks add complexity and increase costs
- Asset management (incorporating risks) is paramount
- Targeted investment by resilience metrics
- Improve data availability
- Standards and planning criteria drive resilience
- Strengthening the interconnection helps
- SOPs be followed, mock-drills conducted periodically
- Long-term planning guided by issues of redundancy
- Preparing for resilience is difficult but less expensive
- Impacts on assets are different, investments need to be customized accordingly



*“It is a balancing act”*





# Group Activity Sessions: Summary of Learnings

## Key Challenges

- Ageing infrastructure, Absence of integrated networks
- Funding for building resilience for the power sector
- Need justification for funding - how to convince regulators, builders for such investments
- Reliability requirements - looking forward to a resilience matrix/metrics
- Asset mapping
- Institutional capacity, proper planning
- Challenging to access grants - compliances

## Policy and Regulatory Enablers

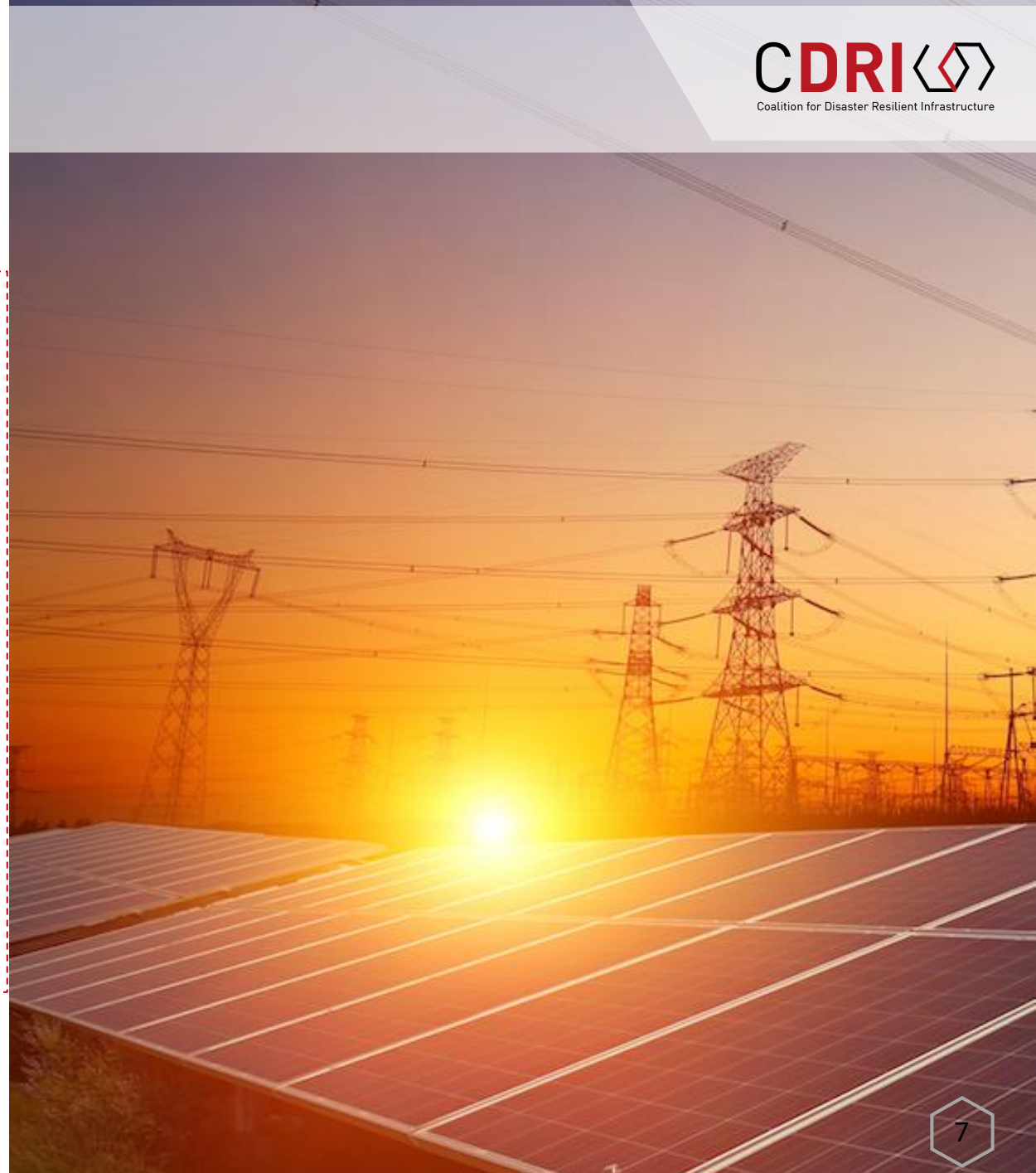
- Long-term vision for resilience: policy planning for the power sector resilience
- Policies to be adopted for building resilience (should be in place) - for the industries to follow and mainstream DRR into the planning process
- Policies and regulatory operations to be supported with law
- Building new assets – for e.g. in India, a tariff bidding process is followed



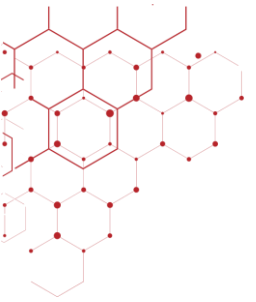
# Group Activity Sessions: Summary of Learnings

## Financing Mechanisms

- Insurers can be critical stakeholders
- Presence of loss and damage fund
- Collect 1% cess for building resilience of infrastructure
- National consolidated fund for power sector utilities for DRI works
- Support through grants from development partners available
- Development sector (bilateral support) beneficiaries - should have technical assistance to understand how to avail and access these grants
- Establish cost recovery mechanisms through regulators or relevant entities
- Public private partnerships to be leveraged










# Thank You

## Coalition for Disaster Resilient Infrastructure

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