World Health Organization
India

CDRI
Coalition for Disaster Resilient Infrastructure

Towards Resilient Health Infrastructure

A CDRI Initiative in Collaboration with the World Health Organization

2024

1. Background

In 2023, disasters affected more than 93 million people globally and led to the loss of nearly 90,000 lives[1]. For every life lost, an additional 1000 people were affected including through injuries or disruption of regular healthcare.

Disasters impact public health, healthcare services and health infrastructure, disrupting essential services when they are needed the most. In February 2023, a series of earthquakes hit Türkiye; a hospital in Iskenderun was damaged during the first shock and collapsed during the second, resulting in many fatalities.

It is essential that health infrastructure functions optimally and has the capacity to expand its support for impacted communities during and immediately after a disaster. However, the scale and frequency of climate-induced disasters are increasing, disrupting health systems while at the same time increasing pressures on emergency services.

One of the global targets of the Sendai Framework for Disaster Risk Reduction 2015-2030 is “to substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030” (global target D). There is also an increasing emphasis on hospital safety, preparedness, emergency response and building disaster resilient health systems in global commitments towards Disaster Risk Reduction (DRR).

[1] *Emergency Events Database (EM-DAT) report, Centre for Research on the Epidemiology of Disasters, 2023*

Evolution of Health in Global Commitments

HYOGO Framework 2005-2015

Health was acknowledged as a critical aspect of disaster risk reduction

SENDAI Framework 2015-2030

Health systems strengthening, including disaster-resilient health facilities and services, is emphasized to ensure effective response and recovery from disasters, thereby safeguarding public health

Paris Agreement 2015

Acknowledges the importance of addressing climate change to protect human health and well-being. Mitigation and adaptation efforts indirectly contribute to reducing health risks associated with climate change

Sustainable Development Goals 2030

Goal no. 3 - Good health and well-being

Goal no. 13 - Climate Action

Goal no. 9 - Industry, Innovation and Infrastructure

COP 28

The 'COP28 UAE Declaration on Climate and Health' signified a global commitment to proactively address climate-related health impacts.

Figure 1: Evolution of Health in Global Policies and Frameworks

2. CDRI-WHO approach to resilience of health infrastructure

The **Resilient Health Infrastructure (RHI)** initiative of the Coalition for Disaster Resilient Infrastructure (CDRI) and World Health Organization India (WHO) focuses on the infrastructure components of health systems that are critical to healthcare delivery during and immediately after disasters.

The RHI initiative has developed a framework that builds upon the WHO's 'Operational framework for building climate resilient health systems' (RHS)[2] and Health emergency and disaster risk management (Health EDRM) framework[3].

The proposed RHI framework comprises five components:

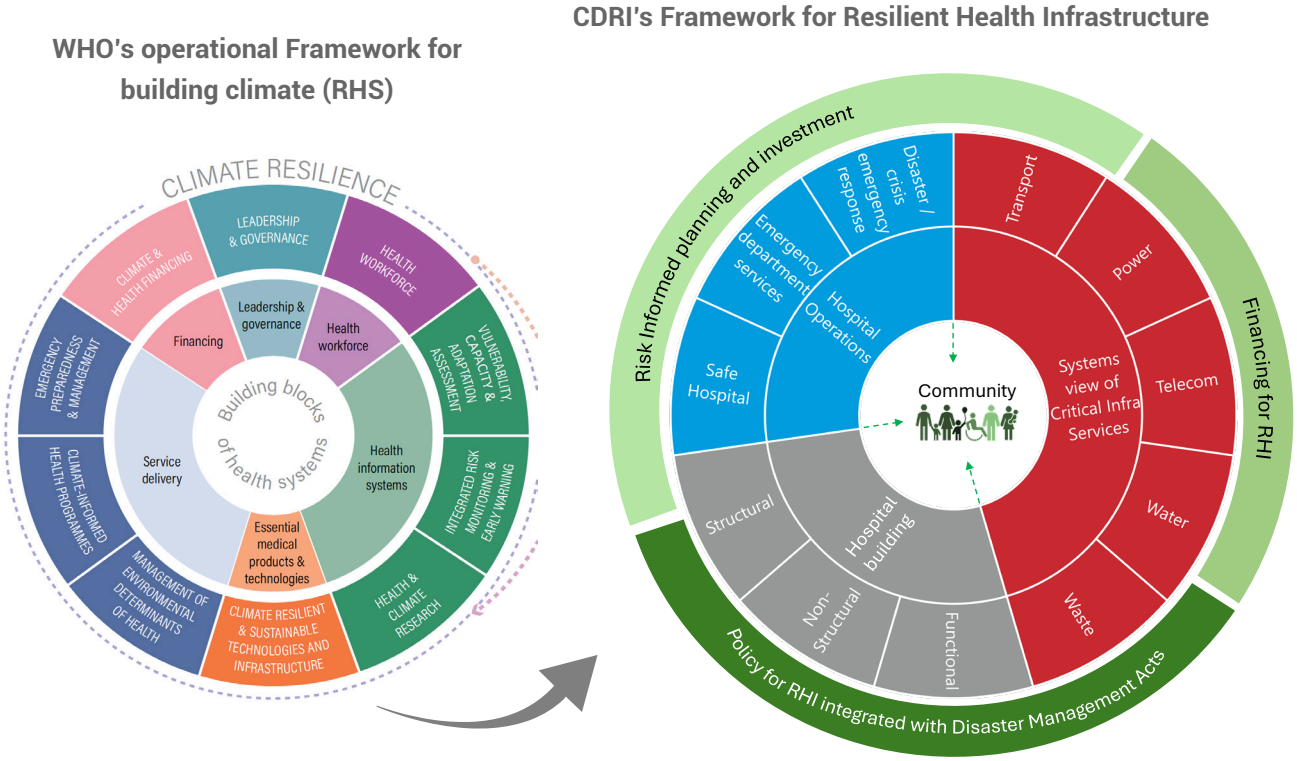


Figure 3: Outline of the proposed RHI Framework

[2] *Operational framework for building climate resilient health systems, World Health Organization, 2015*

[3] *Health Emergency and Disaster Risk Management Framewor, World Health Organization, 2019*

Improving hospital operational preparedness

For a hospital to remain functional during a disaster, the safety of its buildings, emergency department, and the emergency response laid out in the hospital disaster management plan are paramount. The RHI Framework aims to improve the existing disaster management provisions in hospital operations through the lens of climate change and disaster resilience.

Resilience of hospital buildings

For hospitals to minimize the impact of disasters, resilience needs to be integrated into planning, construction and maintenance of facilities. Often resilience function and non-structural elements can be improved with minor interventions, though structural elements may require major interventions.

Resilience of critical infrastructure services

Hospitals are dependent on services such as power, water, sanitation, transport, telecommunications, internet, medical gas systems and others. Resilience of these interlinked infrastructure services is critical for operational continuity and performance of hospitals.

Resilience of community level health systems

Resilience of local health systems can significantly improve the capacity of affected populations to respond to the health needs of the community, especially in remote areas such as high mountains and small islands.

Strengthening policy and governance

The RHI Framework pushes for integration of interventions such as risk-informed planning and risk transfer for RHI within existing disaster management, health systems and institutional mechanisms, and aims to support governments with a long-term policy roadmap for RHI.

3. Towards Resilient Health Infrastructure: The case of Sikkim

The RHI initiative has been implemented in Sikkim, India. Sikkim presented a fitting case for embedding resilience in health infrastructure as the state has been building many health facilities over the past few years. The state also lies in a region prone to earthquakes, flash floods, landslides, forest fires, Glacial Lake Outburst Floods (GLOF) and the hazardous impacts of climate change. The goal of the pilot initiative was to assist the state government in developing a Policy Roadmap for building RHI for the state and equip it with local capacity, know-how and technical support. Lessons from implementing RHI initiative in Sikkim would be valuable for similar regions and can be extended to regions prone to other hazards.

The scope of the RHI initiative and interventions was designed through high-level meetings, field visits and a two-day multi-sectoral Stakeholder Consultation Workshop which was attended by more than 60 delegates from 12 departments. The workshop included scenario-based brainstorming sessions and high-level discussions to co-curate the interventions and deliverables as part of the initiative.

Highlights of Sikkim RHI Initiative

Six capacity building workshops: One workshop was organized to cover each of Sikkim's six districts, resulting in sensitization of over 500 stakeholders representing policymakers, departments of health, health engineering, fire, defence and the civil society.

- Rapid Visual Vulnerability Assessment (RVVA) and table-top group activities were undertaken to develop **Hospital Disaster Risk Management & Resilience Plans** (HDRM&RP) for major hospitals.
- Mock drills and simulation exercises were also carried out for emergency response management in all districts of the state.

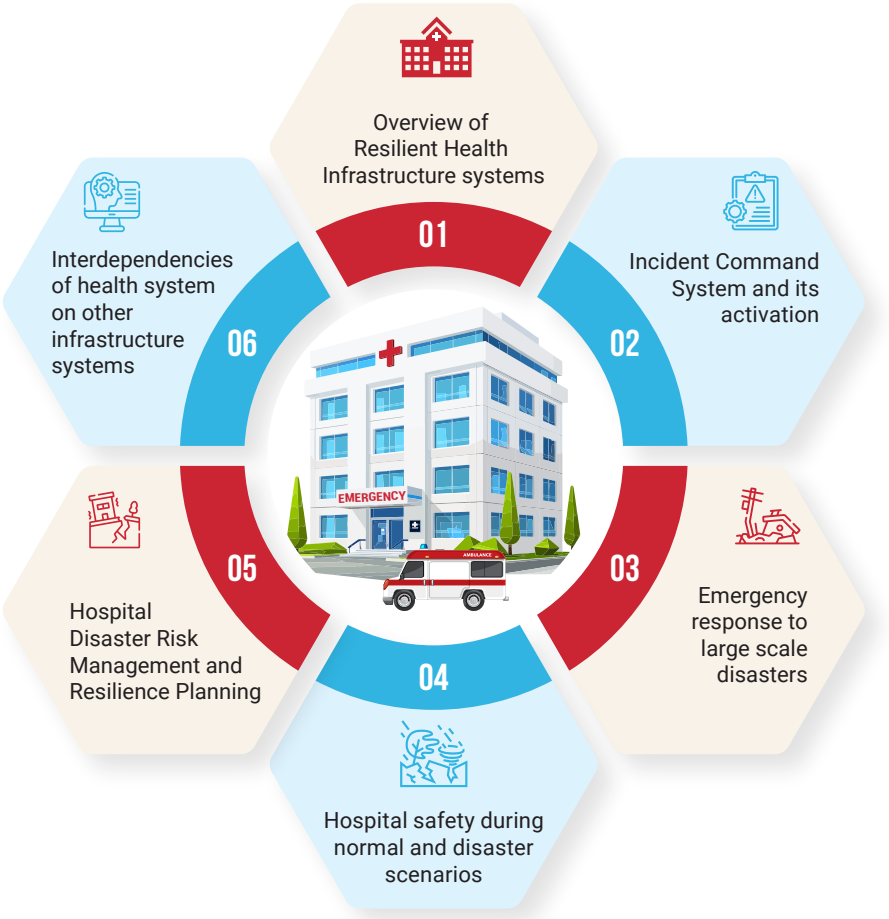


Figure 5: Broad topics covered during the capacity building workshops

Risk and Resilience Assessment of health infrastructure at micro and macro levels

- Risk and resilience assessment at micro level was done through Rapid Visual Vulnerability Assessment (RVVA) of district and other major hospitals.
- The hospital management was part of the screening and vulnerability assessment exercise. Subsequently, actions were taken by the State Government to address the issues identified.

Technical Assistance to stakeholders for

- Development of detailed HDRM&RP for the State Referral Hospital and District Hospitals

Policy and Governance

- A Policy Roadmap on Resilient Health Infrastructure for Sikkim has been drafted, drawing on lessons from all activities undertaken as part of the initiative.
- The Roadmap proposes a graded action plan with potential list of interventions, funding opportunities from existing policies and modules for future capacity building initiatives.

Sikkim equipped with strategic roadmap & trained professionals to work towards Resilient Health Infrastructure in Sikkim

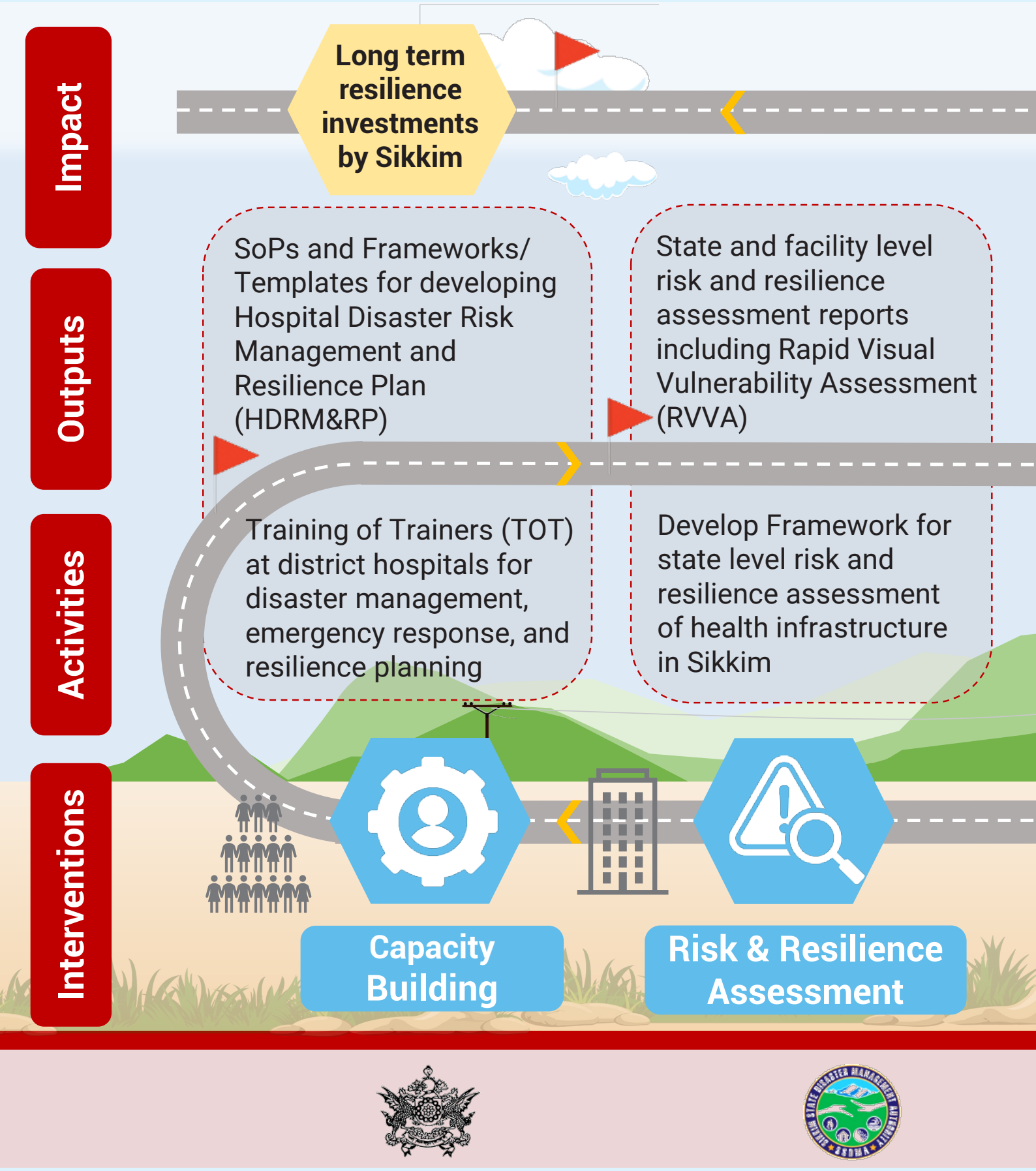
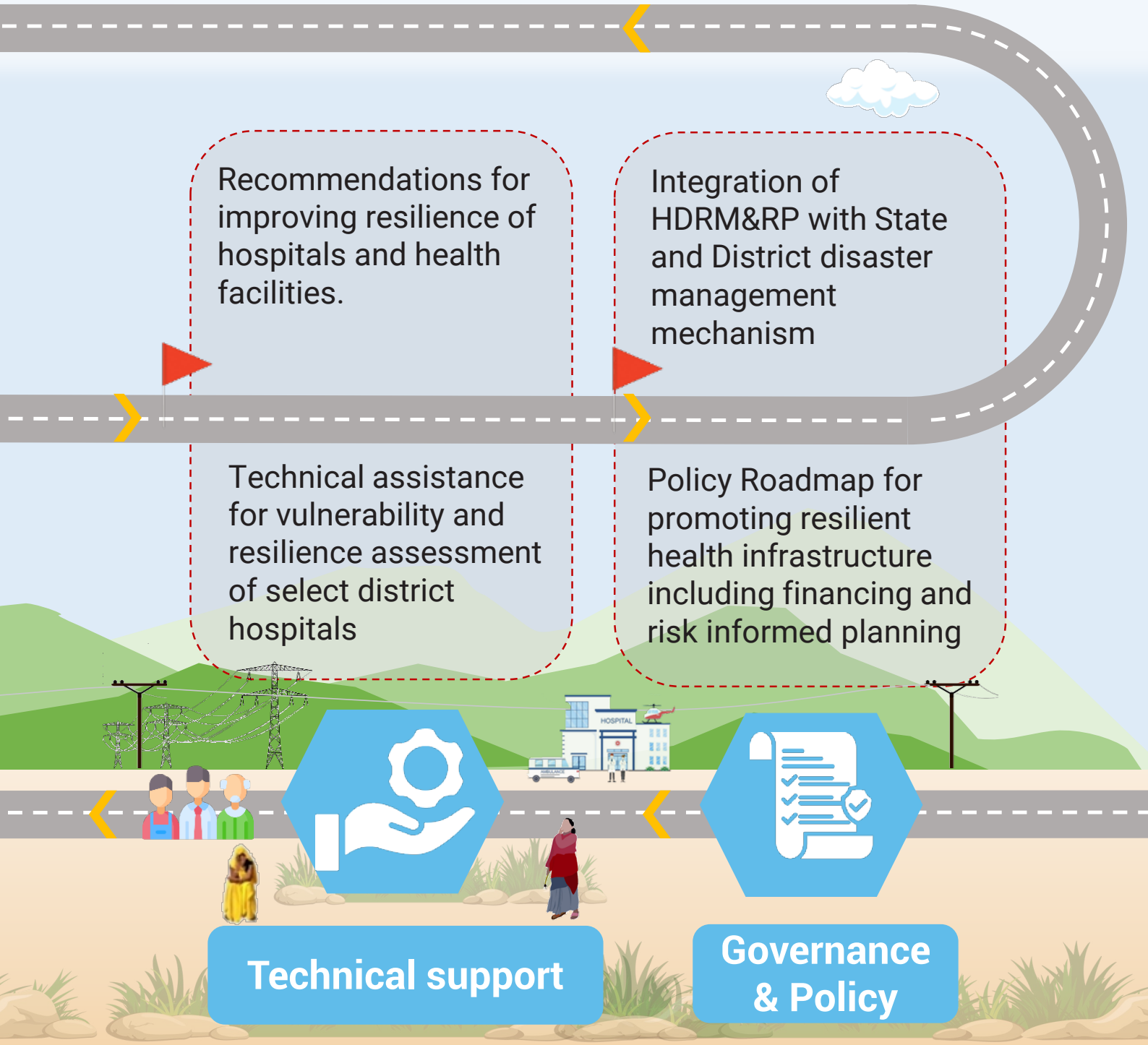


Figure 4: Roadmap for RHI, Sikkim



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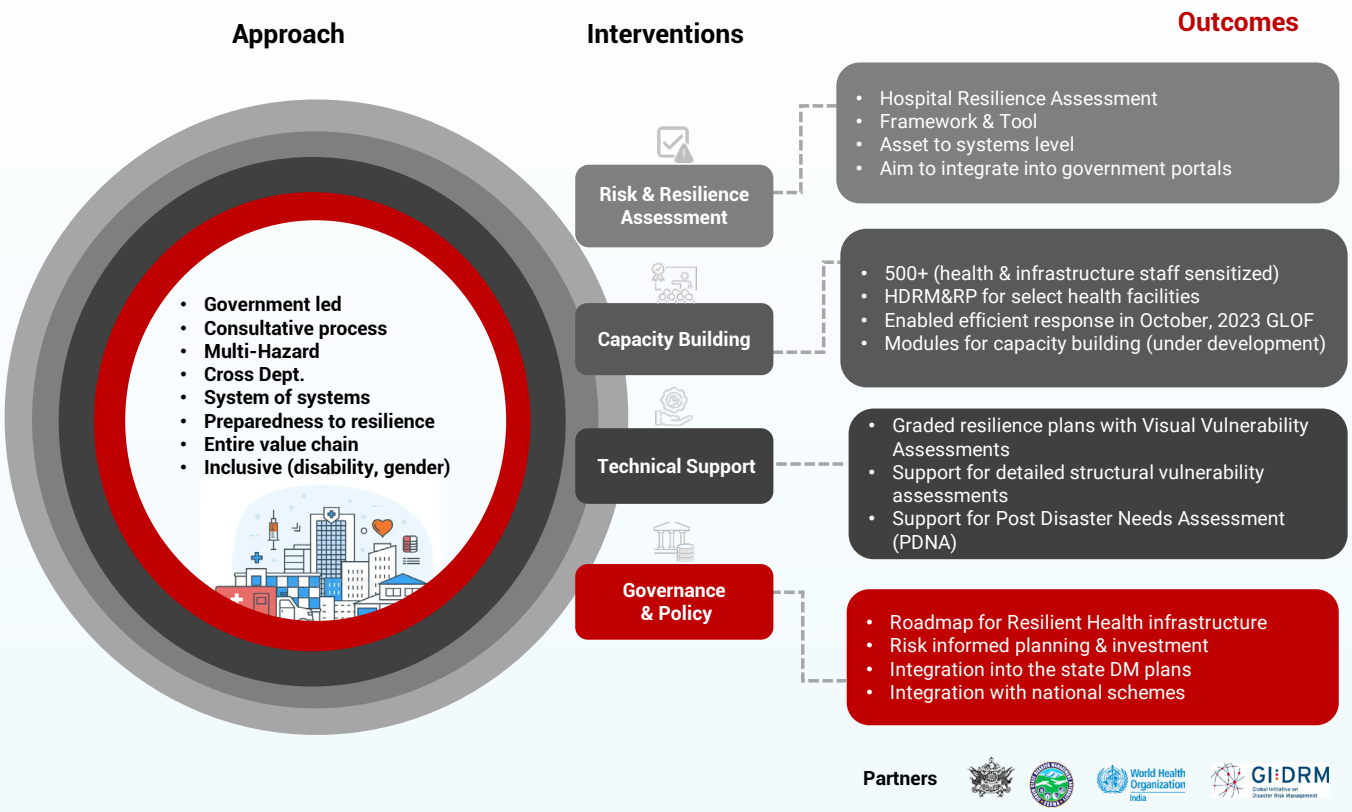

Figure 6: Highlights of the RHI Pilot Project in Sikkim

Way forward

Lessons from the mock drills and capacity building workshops as part of the RHI initiative in Sikkim enabled healthcare and infrastructure practitioners to better respond to the glacial lake outburst flood (GLOF) of October 2023.

This CDRI-WHO joint effort to develop a long-term policy roadmap for Sikkim has demonstrated potential for scale in terms of bolstering resilient health infrastructure across geographies and contexts. Building further on the pilot RHI initiative, CDRI aims to design and implement a global Resilient Health Infrastructure Programme that will adopt a systems approach with a focus on cross-cutting themes such as gender, diversity and inclusion, and financing. The Programme offerings will include capacity development, risk and resilience assessment, technical assistance and provision of policy recommendations

Addressing the need for tools for end users and actionable recommendations, CDRI is planning to develop tools for risk and resilience assessment of hospitals. CDRI will work with country governments and international organizations to facilitate customization and adoption of the online platform.

CDRI looks forward to engaging with potential partner organizations and interested countries to roll out the global Resilient Health Infrastructure Programme.

For more information
Email: **health@cdri.world**


Resilient Health Infrastructure for Sikkim
A collaborative initiative of SSDMA, WHO and CDRI
CDRI
STAKEHOLDER CONSULTATION
1-2 March 2023
Gangtok, Sikkim


AMBULANCE
FORCE
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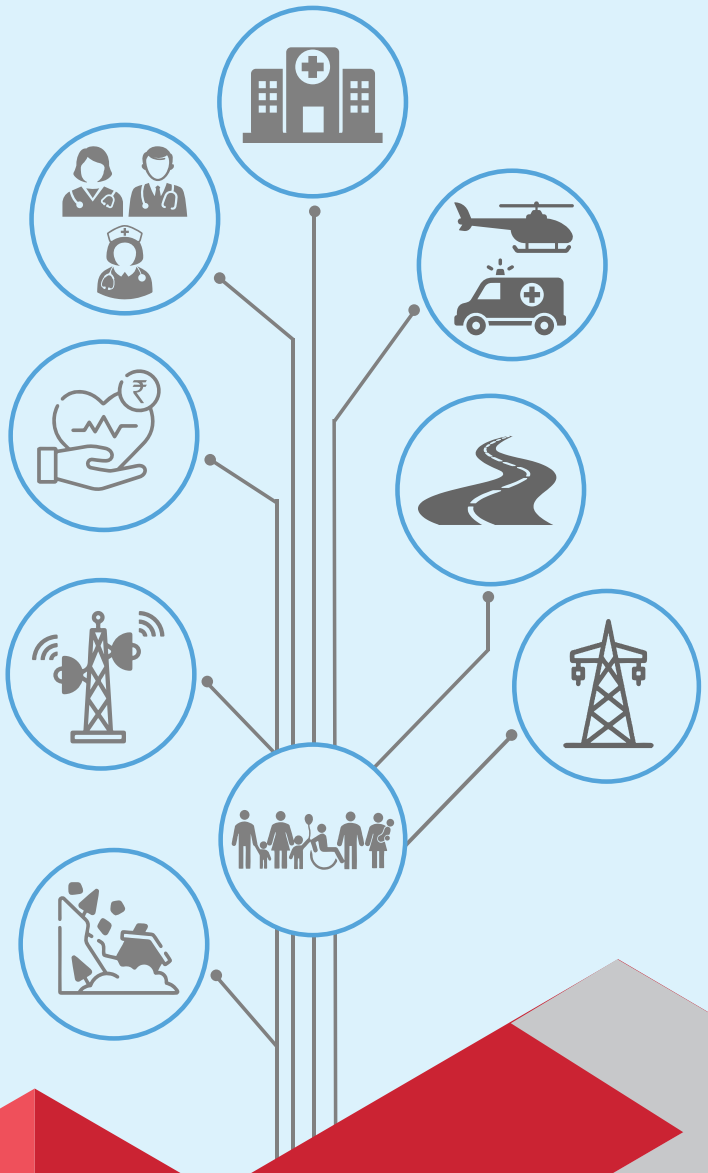
HOSPITAL INCIDENT
COMMAND CENTER


PHC
INCIDENT
PLANNING
LOGISTICS
HOSPITAL INCIDENT
RESPONSE SYSTEM
DEPUTY INCIDENT
TRIAGE
FIRE
LIAISON
INFORMATION &
MEDIA OFFICER



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