

India's Disaster Management Evolution: 2013–2023

Progress Towards the Sendai Framework Goals

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India's Disaster Context

- One of the most disaster-prone countries in the world.

Main Sources of vulnerability		Other sources
Earthquake	59%	Fire & industrial accidents, changing demography & socio-economic conditions, unplanned urbanisation, development within high-risk zone, climate change
Flood and river erosion	12%	
Cyclones & Tsunamis (Coastline)	76%	
Drought	68%(Cultivable land)	
Landslide	15%	

SDG Link to DRR

Framework	Goals	Targets	Indicators	Lead Agency
UN Global SDG Framework	17	169	232	UNDESA & UNSC
India's National Indicator Framework (NIF)	17	169	~308	MoSPI & NITI Aayog

1 NO
POVERTY



Reducing Disaster
vulnerability

11 SUSTAINABLE CITIES
AND COMMUNITIES



Resilient urban
planning

13 CLIMATE
ACTION



Adaptive capacity
enhancement

17 PARTNERSHIPS
FOR THE GOALS

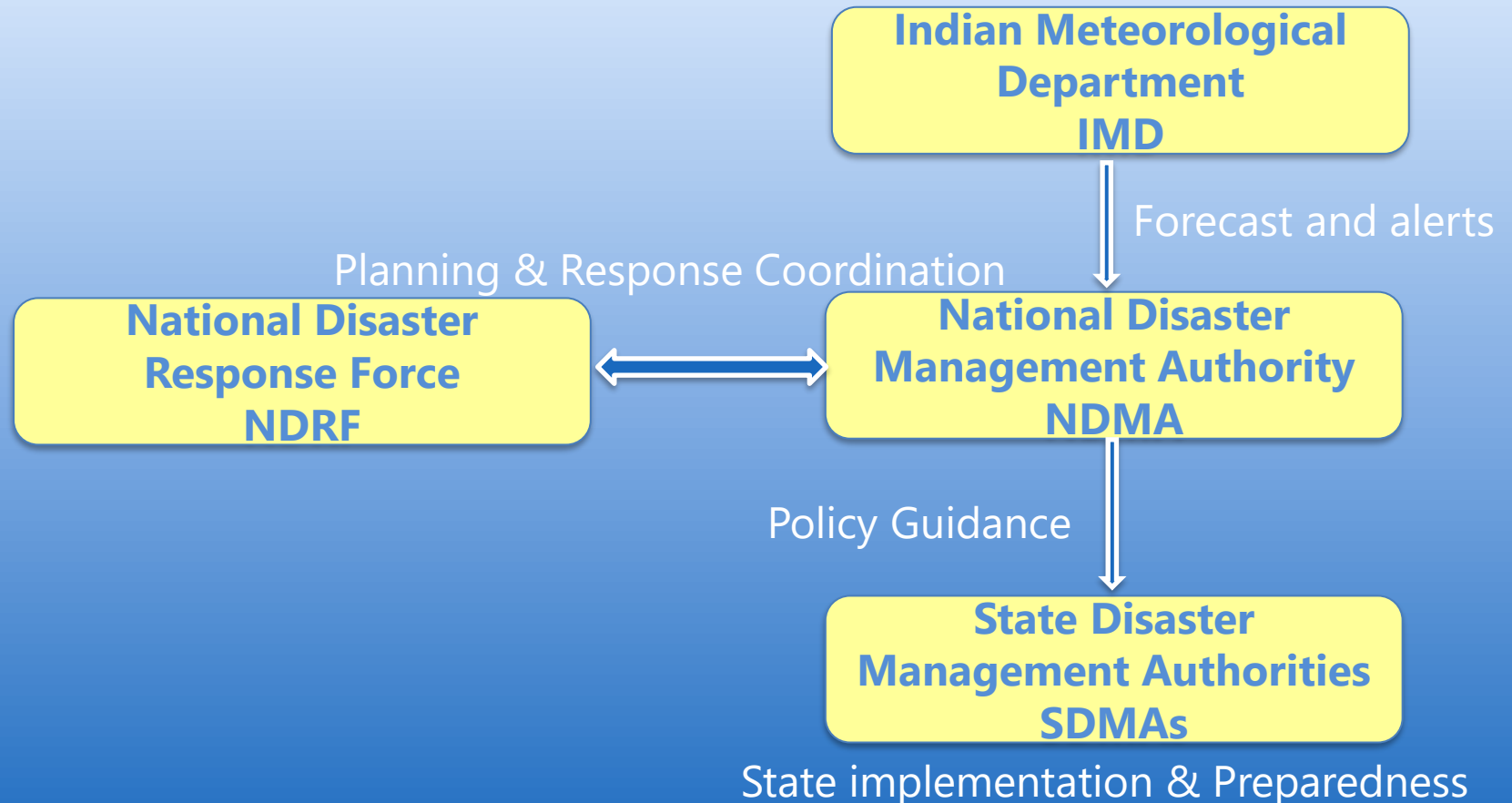


National & intl.
cooperation

SDG ↔ DRR

SDG	Goal Title	SDG-DRR Policies/Initiatives
 SDG 1: No Poverty	End poverty in all its forms	Pradhan Mantri Jan-Dhan Yojana, PMAY, MGNREGA
 SDG 11: Sustainable Cities and Communities	Make cities inclusive, safe, resilient, and sustainable	Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation
 SDG 13: Climate Action	Take urgent action to combat climate change and its impacts	National Action Plan on Climate Change (NAPCC), LiFE Movement
 SDG 17: Partnerships for the Goals	Strengthen implementation through global partnerships	South-South Cooperation, International Solar Alliance (ISA)

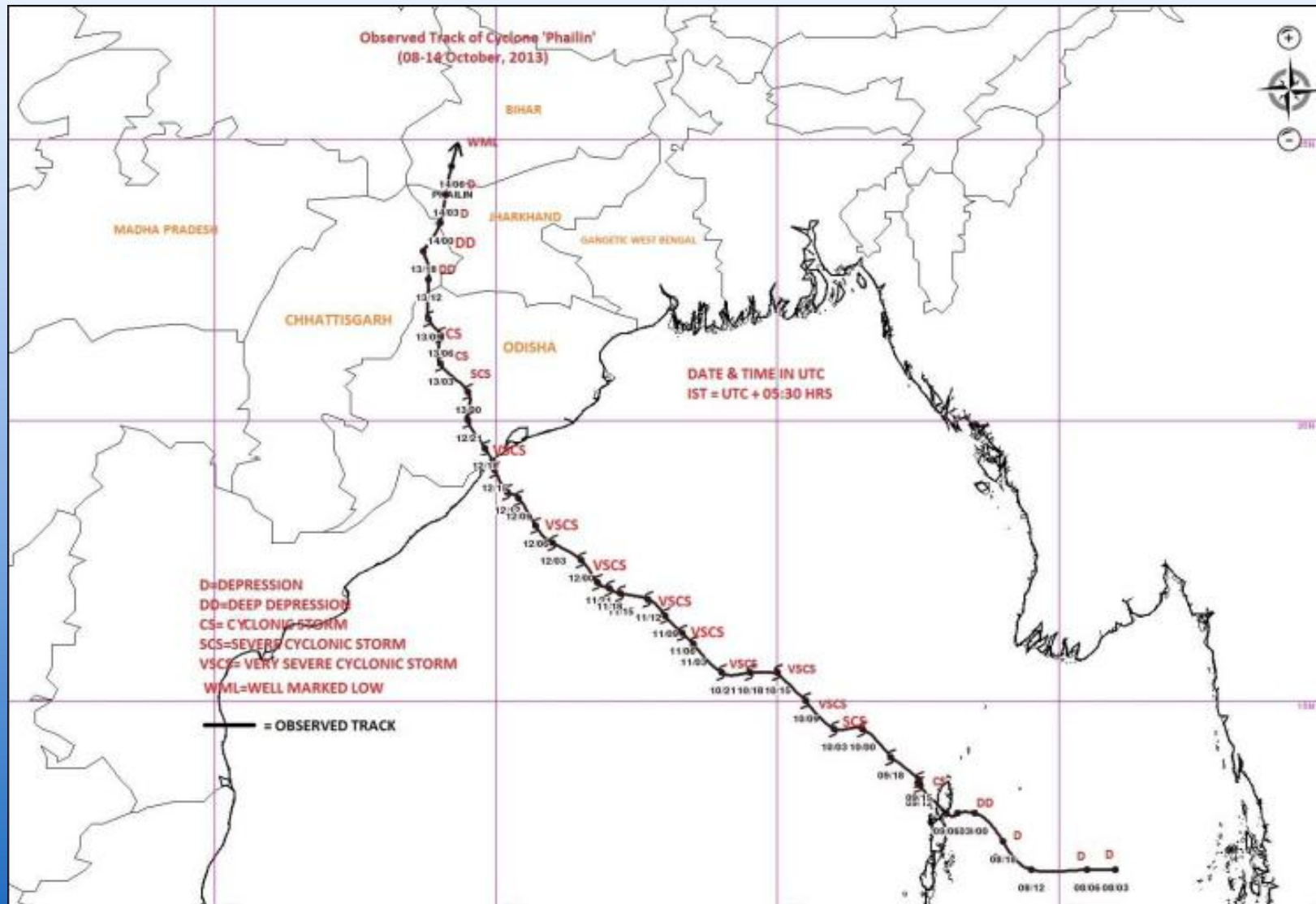
Institutional Framework for Disaster Management



Source: NDMA, IMD, NDRF, and state Disaster Authorities

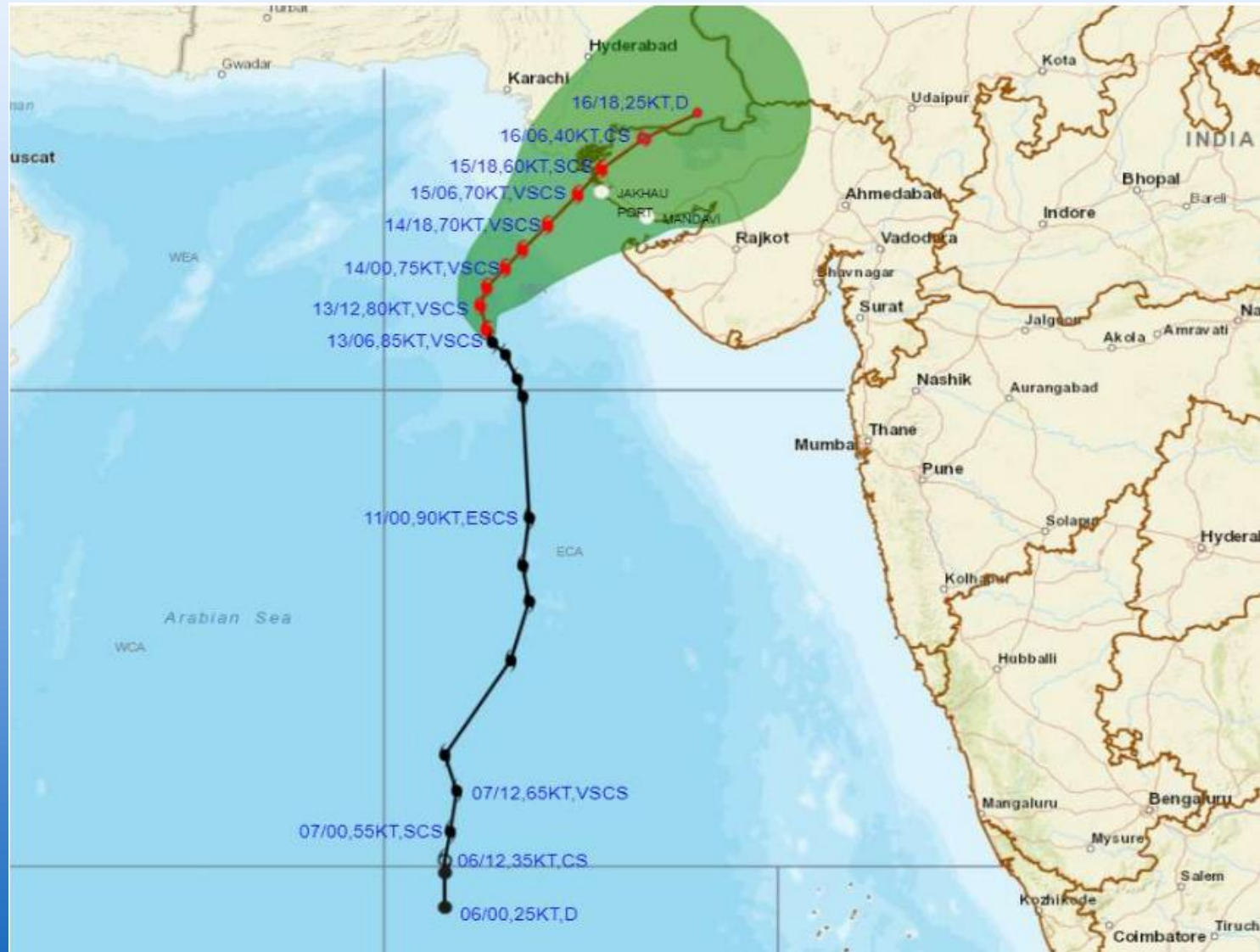
Case Study

Cyclone Phailin (2013): Odisha & Andhra Pradesh



Source: India Meteorological Department (2013)

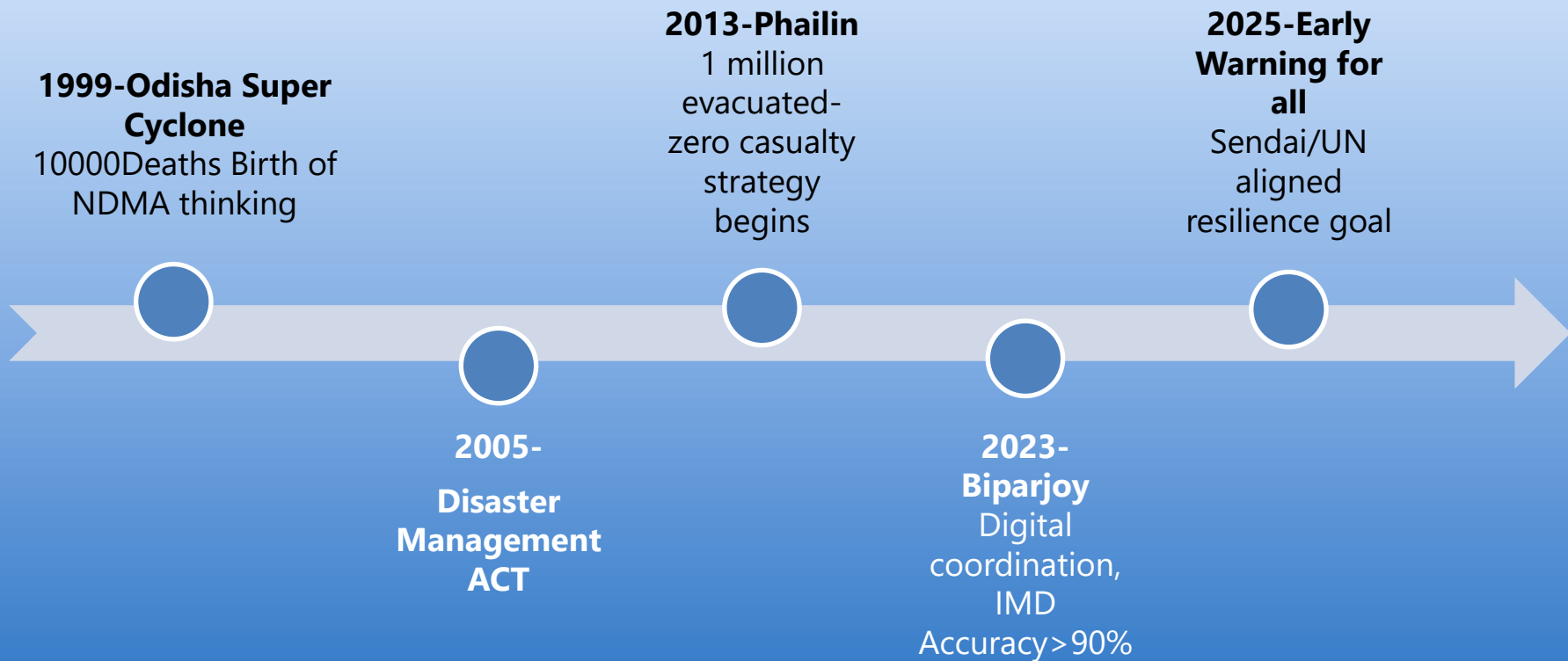
Cyclone Biparjoy (2023): Gujarat & Western Coast



Source: India Meteorological Department (2023)

Aspect	Cyclone Phailin (2013)	Cyclone Biparjoy (2023)	Progress / Key Insights
Region affected	Odisha and North Andhra Pradesh (East Coast)	Gujarat and adjoining Rajasthan (West Coast)	Demonstrates national-level capability across both coasts.
Intensity	Very Severe Cyclonic Storm (≈210–220 km/h winds)	Very Severe Cyclonic Storm (≈125–140 km/h winds)	Both were major, life-threatening cyclones.
Lead time for warning	~4 days (early by IMD standards in 2013)	~5–6 days (more refined models and ensemble forecasting)	Forecast accuracy and duration improved due to upgraded IMD systems.
Evacuation	~1 million people evacuated before landfall (India’s largest at that time)	~94,000 people evacuated before landfall	Evacuation scaled to threat level; planning remains exemplary.
Agencies involved	IMD, NDMA, OSDMA, NDRF, ODRAF, local administration	IMD, NDMA, NDRF, GSDMA, Indian Coast Guard, Navy	Similar multi-agency coordination, but 2023 used a more digital, unified command system.
Forecast & communication tools	Early satellite imagery, basic impact forecasts, SMS alerts	High-resolution radar data, impact-based forecasts, social media, mobile alerts, multi-language advisories	Shift from basic warning to real-time, impact-based, multi-channel communication.
Community participation	Local volunteers, SHGs, NGOs, loudspeakers for remote villages	Panchayat-level coordination, WhatsApp groups, village volunteers, FM radio alerts	Digital tools now complement traditional networks.
Shelter infrastructure	Cyclone shelters built after 1999 Super Cyclone; crucial to success	Pre-identified shelters and multipurpose buildings used; better logistics	Long-term investment in infrastructure paid off in both.
Casualties	< 50 deaths (vs > 10,000 in 1999 cyclone of same area)	< 10 deaths (mostly accidental)	Both demonstrate “zero-casualty” success through preparedness.
Post-disaster recovery	72 hours to restore electricity & transport; rapid assessment	Power restored within 48–72 hours; quick reopening of ports and industry	Enhanced restoration capacity due to better planning & equipment.
International recognition	Praised by UN & World Bank for “model evacuation”	Praised by World Meteorological Organization for forecast accuracy & coordination	Consistent international validation of India’s DRR systems.
Key lesson	Early warning + community readiness = lives saved	Technology + coordination + community trust = resilience	Shows India’s evolution from reactive to proactive disaster management.

Timeline: India's DRR Evolution (1999–2025)



Key Success Factors



Alignment with Sendai Framework and India's DRR

Sendai Priority		Achievement
1	Understanding disaster risk – data and analytics	- IMD's high-accuracy forecasts (>90%) - National Database for Emergency Management (NDEM) operational - Community-level disaster mapping under NDMA & SDMAs
2	Strengthening governance – NDMA/SDMA roles	NDMA institutionalized (2005), strengthened post-2013 - State & District DM Plans aligned with national guidelines - Coordination among IMD–NDMA–NDRF–SDMAs refined through SOPs
3	Investing in resilience – infrastructure and funding	- National Cyclone Risk Mitigation Project (NCRMP) – 800+ shelters - Coastal Warning Systems modernized - State-level funds for infrastructure & resilient housing
4	Enhancing Disaster preparedness- Building back better – post-disaster recovery focus.	- NDRF rapid response deployments - Integration of early warning with social media/digital networks - Post-disaster reconstruction incorporating climate adaptation

Lessons and Future Directions

- Maintain real-time risk monitoring systems
- Enhance local-level preparedness and training
- Integrate climate adaptation into DRR planning
- Sustain 'Zero Casualty' as a national mission

Acknowledgements

- National Disaster Management Authority (NDMA)
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- National Disaster Response Force (NDRF)
- Odisha & Gujarat SDMAAs
- World Meteorological Organization (WMO)

Thank You