

Tackling cyclones head-on

National Cyclone Risk Mitigation Project of NDMA

The Government of India in collaboration with the World Bank has initiated the National Cyclone Risk Mitigation Project (NCRMP) with a view to address cyclone risks in the country. The overall objective of the project is to undertake suitable structural and non-structural measures to mitigate the effects of Cyclone in the coastal states and UT's of India.

National Disaster Management Authority (NDMA) under the aegis of Ministry of Home Affairs (MHA) is implementing the project in coordination with participating State Governments.

The Project has identified 8 cyclone prone states and Union Territories (UTs), with varying levels of vulnerability and based on the frequency of occurrence of cyclone, size of population and the existing institutional mechanism for disaster management.

The Project has Four Components which are elaborated below;

A. Early warning and dissemination system (EWDS) and capacity building of coastal communities:

This component will help in reducing the vulnerability of coastal communities by tackling the existing gap in dissemination of warning to communities. Installation and

operation of early warning communication and dissemination system will allow the state and or district or sub- district level control center to send communication directly to the villages to achieve the last mile connectivity. The component also includes providing satellite phones to key officials for fool proof EWDS. The technology solution adopted by NCRMP States are based on INMARSAT, VSAT modem, DMR and electronic Sirens.

B. Cyclone Risk Mitigation Infrastructure:

The purpose of this component is to improve the access to emergency shelters, evacuation and protection against cyclones and other hydro-meteorological hazards. This is being done through investment in construction of multipurpose cyclone shelters, up-gradation of existing roads helping in connecting the habitations and Cyclone shelters, construction of underground cabling, Roads, Saline Embankment and Bridges. The corpus fund for operation and maintenance of cyclone shelters is being created and these managed through local people based community organizations.

C. Technical Assistance for Cyclone Hazard Risk Mitigation, Capacity Building and Knowledge

Creation: The activities under this component will be in assisting NCRMP states and UTs to improve their understanding of natural disaster risks and vulnerabilities, and strengthen their institutional capacity to address such risks and vulnerabilities

D. Project Management and Implementation Support:

This component provides support for Project management and implementation by financing incremental operating costs for PMU, SPIUs and Nodal units in line departments.

The first phase of NCRMP was approved in January 2011 for the States of Andhra Pradesh & Odisha. The project was completed in December 2018. The infrastructure created under Component B of NCRMP Phase-I are mentioned below:

Activity	Total activity created
Multi-Purpose Cyclone Shelter (In Nos.)	535
Saline Embankment (In Kms)	88.12
Road (In Kms)	1086.52
Bridges (In Nos.)	34

The second phase of NCRMP was approved in July 2015 for the States of Goa, Gujarat, Karnataka, Kerala, Maharashtra and West Bengal. The project is nearly in completion stage.

Early Warning and Dissemination System (EWDS) has been installed & Commissioned in Andhra Pradesh and Odisha and same is under progress in the State of Goa,

Karnataka & Kerala. Total 243 nos. of Multi Purpose Cyclone Shelter, 1286 Km Underground Cabling (UGC), 12.91 Km Saline Embankment and 205 Km Road has been constructed under NCRMP phase-II upto May 2022.

As part of reducing disaster risk and strengthen the capacity of various govt. departments and communities, training and capacity building is one among the subcomponent of the project. 15681 Govt. officials have been trained through 648 nos. of Capacity Building Trainings on various topics as well as 61099 community representatives have also got trained through 2942 Shelter Level Trainings under NCRMP Phase I & II.

Apart from that, 766 Cyclone Shelter Management & Maintenance Committee has also been constituted across 8 project States to effectively manage the shelter arrangements. Each committee was comprised with the participation of various govt. officials, community representatives, women & weaker section representatives etc.

The Cyclones Shelters constructed under NCRMP were used for various relief and rehabilitation purposes during the Covid-19 pandemic and recent cyclones. 31 such MPCs in Gujarat state have been utilized as evacuation centers when cyclone Tauktae hit Gujarat on the western coast and 4080 people from 25 villages were shifted to MPCs. Similarly, 316 MPCs were used as storehouse to stock relief materials and 49150 people were evacuated to different MPCs constructed in the States of West

Bengal & Odisha when cyclone Yaas hits the eastern coast.

Apart from the trainings, the various studies are also being undertaken in Component C of NCRMP Phase –II. These studies would help to mitigate the disaster by strengthening the capacity of the stakeholders. The Studies are as follows;

1) Development of Web-DCRA & DSS (Web based Dynamic Composite Risk Atlas & Decision Support System) Tool:

The Web-DCRA will be used for Impact Forecasting with respect to cyclone and associated impacts for 13 coastal States/UTs.

2) Hydro-meteorological Resilient Action Plan (HmRAP):

Hydro-meteorological Resilient Action Plan will focus on extreme weather events; develop resilience solutions/recommendations for sectors impacted by disaster such as agriculture, livelihoods, infrastructure, etc; and focus on urban hot-spot areas in helping develop urban resilience plans for six cities, once each in six NCRMP (Phase-II) States [ie. Panaji (Goa), Ratnagiri (Maharashtra), Mangalore (Karnataka), Kochi (Kerala), Porbandar (Gujarat), and Bidhannagar (West Bengal)]. The final output of the study will be Hydro-

meteorological Resilient Action Plans, including an ‘action and investment matrix’ for the selected cities and Framework document for city resilience.

3) Design of Comprehensive Multi-hazard Risk Financing Strategy (CMhRFS):

The overall objective is to work out risk transfer financial instruments and to develop risk financing strategies in 4 States (Gujarat, Odisha, Kerala and Uttarakhand).

4) Strengthening Disaster Risk Governance Framework in India: Learning from Global Best Practices:

The objective of the study is to undertake an analysis of the DRM systems and process in selected countries and highlight good practices that could be adopted for the Indian context.

The Five FAQ-NCRMP

1. What is CRMI work?

Component B of NCRMP is Cyclone Risk Mitigation Infrastructure (CRMI) which is being implemented under NCRMP. The sub-component of CRMI works are i) Multipurpose Cyclone Shelters (MPCS), ii) Road, iii) Underground Electrical Cabling (UGEC), iv) Bridges and v) Saline Embankment (SE).

2. Can MPCS be used only during the time of disaster?

Multi-purpose Cyclone Shelters can be used during the disaster as well as in the peace time. These shelters are a public property which can also be used for multi-purpose such as a community hall for various events subject to the approval of the Chairman of Cyclone Shelter Maintenance & Management Committee (CSMMC).

3. What are the capacities to accommodate evacuees in the MPCS?

The MPCS being created under NCRMP are of 'Universal design' (Designed in such a way that differently abled person can also use the infrastructure without any hurdle). The different MPCS has different structural characteristics as well as accommodation capacity. MPCSs are having 450, 600, 700 and 1000 person capacities to accommodate people.

4. Who will be the Project Beneficiary?

The primary beneficiaries will be coastal communities, including the aged, differently abled, women and children, in the target states benefitting from cyclone risk mitigation infrastructure and early warning dissemination system. Site selection for investments is based on population density and availability of alternatives for evacuation and shelter, thus benefitting poorer communities with higher stocks of kutcha housing.

5. Why is it called disaster Mitigation Project not a Management Project?

The main objective of the project is to mitigate the effects of the potential hydro-meteorological disaster by creating resilient infrastructure as well as to increase the coping capacity of the community by imparting various training programs.

Photographs of Assets created under NCRMP Phase-II



Figure 1: MPCPS at Zankar, Gujarat



Figure 2: MPCPS at Maktupur, Gujarat



Figure 3: UGC work under progress at Alibag, Maharashtra



Figure 4: SE work under progress at Benavale, Maharashtra



Figure 5: SE work under progress at Manikatta, Karnataka



Figure 6: Bridge work under progress at Udupi, Karnataka

Photographs of Assets created under NCRMP Phase-II



Figure 7: Road at Mangalore, Karnataka



Figure 8: MPCS at Hosebette, Karnataka



Figure 9: MPCS at Kasargude, Kerala



Figure 10: MPCS at Taranagar, West Bengal



Figure 11: UGC at Digha, West Bengal



Figure 12: MPCS at Dabolim, Goa

Photographs of Assets created under NCRMP Phase-II



Figure 13: Mono pole tower of EWDS at MPCs, Goa



Figure 14: Spun tower of EWDS, Goa

Photographs of Assest created under NCRMP Phase I



Figure 1: Bridge at Narayanapuram, Andhra Pradesh



Figure 2: MPCs at Solmon, Andhra Pradesh



Figure 3: SE at Kruthivenu, Andhra Pradesh



Figure 4: EWDS (Alert Siren) at Donuku, Andhra

Photographs of Assets created under NCRMP Phase-I



Figure 5: Road at Dindi, Andhra Pradesh



Figure 6: EWDS (Alert Siren) at Basudevpur, Odisha



Figure 7: MPCS at Satrusola, Odisha



Figure 8: SE at Chasisabha, Odisha