Benefit Monitoring & Evaluation Study of NCRMP-II

[Revised Inception Report]

Submitted to:

The Project Director,
National Cyclone Risk Mitigation Project (NCRMP)
National Disaster Management Authority (NDMA),
(Ministry of Home Affairs, Govt. of India),
NDMA Bhawan, A-1, Safdarjung Enclave,
New Delhi-110029

Submitted by :

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Content

### Annexure :

✠   **Research Tools**

1. INTRODUCTION

1.1. Background

Fierce whirling winds of destruction, otherwise known as cyclones (also known as hurricanes and typhoons) are known to claim a higher share of deaths and devastation all across the world. They have been responsible for about 19 million deaths worldwide over the last centuries, 10,000 people getting killed each year due to it. The impact from cyclones usually extends over wide areas, along with strong winds and heavy rains. High speed winds, also known as squalls, torrential rain and storm surges, associated with cyclones tend to damage the coastal areas the most.

Cyclone Rampages in India

The Indian subcontinent is one of the worst cyclones affected areas of the world, with about 6% share of the occurrence worldwide. Indian coasts are highly vulnerable to tropical cyclones and the consequent recurrent loss of life and property. Tropical cyclones in India are an annual affair, with almost 92 severe storms occurring in the eastern coast out of a total 262, between the year 1891 and 1990, and several more in the years since.[1]

Cyclone affected regions in India, NDMA

Analyzed data of period 1980- 2000 reflects that on an average, 370 million people are exposed to this natural disaster annually in India.[2]The recent most severe cyclonic events include in 2010, when two cyclones- Laila&Jal consecutively hit south-eastern India, costing the lives of hundreds of fishermen and damages exceeding 100 million USD. In 2013, due to cyclone Phailin a total of 134,426 people had to be evacuated from coastal regions of Andhra Pradesh and Odisha. Cyclone Hudhudcaused extensive damage to the city of Visakhapatnam and the neighboring districts of Vizianagaram and Srikakulam of Andhra Pradesh in October 2014, as the damages were estimated to be crossing over to 2 billion USD.

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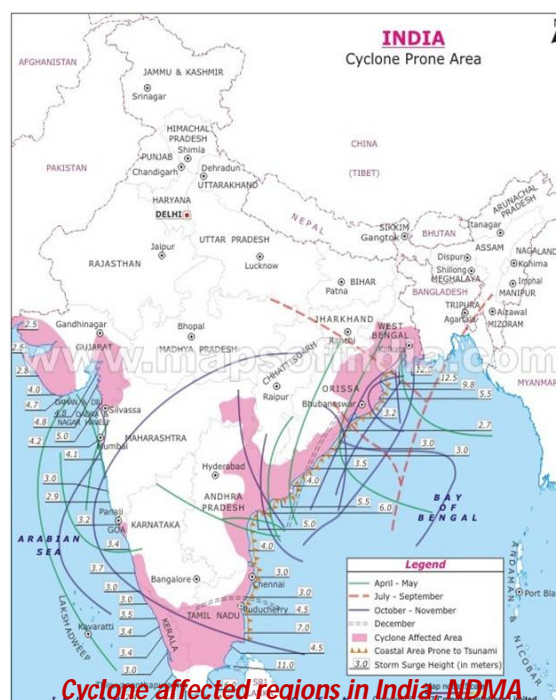
[1] Cyclones, Media & Public Awareness, http://www.ndma.gov.in/en/media-public-awareness/disaster/natural-disaster/cyclones.html

[2]Cyclones & their Impact in India, National Cyclone Risk Management Project (NCRMP), http://ncrmp.gov.in/?page_id=6420

As cyclone Vardah leashed its high speed wind in the east coast of the country on December 12th, 2016, India demonstrated that its cyclone preparedness has reached its mark. Earlier, in the same year NDMA released India's first National Disaster Management Plan, which aimed to make the country resilient to disaster and reduce loss of lives, by strengthening risk- governance, investing in disaster risk reduction through structural and non- structural measures, early warnings and disaster preparedness. In an attempt to further strengthen these measures, NDMA has introduced its project on Cyclone Risk Mitigation.

Project Overview

With a view to address the cyclone risks in the country, the government has introduced National Cyclone Risk Mitigation Project (NCRMP), to undertake suitable measures to mitigate its adverse repercussions across the coastal states and UT. National Disaster Management Authority is the nodal implementing agency of this World Bank aided project. The project has identified 13 cyclone prone states and UTs with varying degrees of vulnerability:

- *Category I: Higher vulnerability States* i.e. Andhra Pradesh,Gujarat,Odisha,Tamil Nadu and West Bengal.

- *Category II: Lower vulnerability States* i.e. Maharashtra, Karnataka, Kerala, Goa, Pondicherry, Lakshadweep, Daman and Diu, Andaman and Nicobar Islands.

Phase I of the project, which covered the coastal areas of Andhra Pradesh and Odisha was approved by the Government of India in January, 2011 and is approaching its completion in March 2018. Phase II of the project, covering six states- Goa, Gujarat, Karnataka, Kerala, Maharashtra and West Bengal was approved in July, 2015, has to be completed by March 2020.

Considering the key objectives of the project- *Reductions in cyclone vulnerability* by creating appropriate infrastructure, *strengthening of cyclone warning systems* by enabling quick dissemination of warning and *enhancing capacity and capability of local communities to response disasters*, the main components of projects are as follows:

COMPONENT A: Early Warning Dissemination System: Last Mile Connectivity for the dissemination of cyclone warnings

COMPONENT B: Construction of physical infrastructure- cyclone shelters, embankments, roads, bridges etc. for risk mitigation purposes.

COMPONENT C: Technical assistance for capacity building on disaster risk management for mainstreaming of DRR policies, programmes

COMPONENT D: Project Management & Monitoring

Rationale

The Project Management Unit of NCRMP in the National Disaster Management Authority (NDMA) has invited proposal forbenefit monitoring and evaluation study at midterm and end term of the Project. The core purpose of this study will be to evaluate the outcomes/ results of project interventions in order to keep a track of its achievements against the targets. The evaluation study will help assess the effectiveness of the project components and strategies, midway of the study, thereby carving out insights for remodeling of field level strategies or undertaking any mid-course corrections if required. The proposed study will seek to generate quantitative and qualitative information specific to the four project components mentioned in the preceding section and will enable a '*before-after/ progress monitoring*' assessment of the same.

The midline and endline study will specifically serve the following purposes. Firstly,they will help identify the extent to which the objectives of the projects have been achieved; and secondly, these evaluations will identify, document and analyze the present level of preparedness and capacity of target states for risk mitigation and management, in case of occurrence of cyclones. The insights generated from the study will guide the officials, agencies associated with the project to shape up the strategies and activities accordingly.

2. TECHNICAL APPROACH AND METHODOLOGY

2.1. Objectives of the Assignment

The proposed benefit monitoring and evaluation study aims at providing a well- researched and documented evidence of outcomes/ results of the project monitoring. On one hand, the study aims to generate the quantitative estimates regarding the socio-economic, health & environmental benefits accruing to the coastal communities as a result of project interventions, the status of warning systems, and risk mitigation infrastructure that is available for use in case of occurrence of cyclones or any climatic hazards, capacities of concerned stakeholders to adequately respond to such situations and sustainability of the project interventions. On the other hand, it will carve out qualitative information about these aspects based on observation, in- depth interviews, literature review, etc. In view of the overarching objective stated above, the main objectives of this assignmentare as follows:

- To update the baseline data of phase II of the project & conduct pilot survey
- To undertake the benefit monitoring & evaluation at mid- term of NCRMP by December, 2018
- To conduct the end- term evaluation by January/ February 2020.

2.2 Conceptual Framework

This section gives an overview of the study approach in terms of areas of enquiry and the information needs related to the project components to be assessed. The proposed study will intend to explorethe various ways in which the project supports the communities in the coastal areas of the identified states. All the endeavours will be oriented towards assessing the perceived understanding of reduced vulnerability of the coastal area communities, the extent to which it has helped promote capacity building, and finally for assessing the extent of sustainability of the project.

In view of the aforementioned research objectives, the study will adopt a multi-faceted approach studying various disaster/ emergency management components. In order to develop a holistic perspective of the midline, and later on, endline condition, to measure the project impacts, the study will focus on four key areas of enquiry related to disaster preparedness **– preparation, response, recovery and mitigation**. The examination of various relevant elements under these aspects would ultimately help in drawing out suitable recommendations and suggestions for improving the strategies undertaken under this project until now. The diagram ahead outlines the research framework proposed to be adopted for the study.
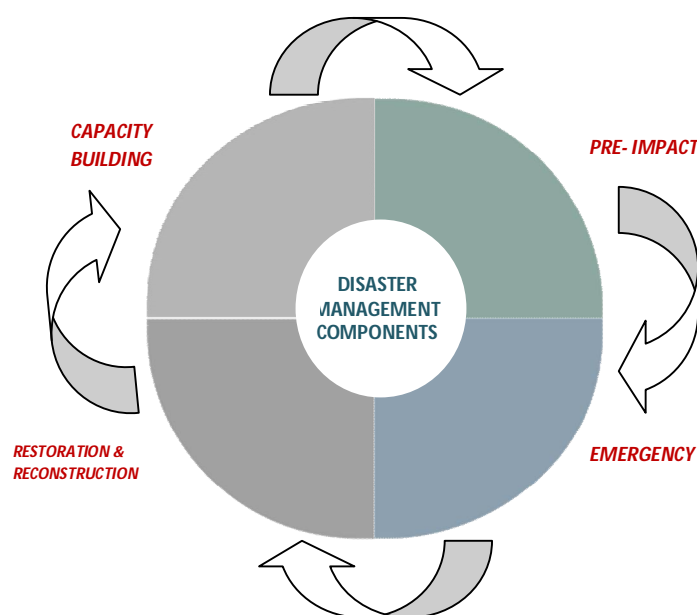
Mitigation.	Refers to preventing disasters from taking place or lessen the impact of the unavoidable ones. Hence, mitigation should occur before emergency takes place. The prime objective of mitigation is to introduce strategies that would eventually minimize the effect of the emergency
Preparedness	Refers to making plans and making the necessary equipment and supplies readily available prior to the occurrence of the natural disaster. Preparedness of a natural disaster includes enabling the **early warning system and as well as knowing and understanding of the warning signs, preparation of the evacuation plans, building shelters, posting emergency numbers, stocking supplies of the necessary ite**ms. This stage includes all the necessary steps to be taken, **before the emergency occurs**.
Response	Refers to the immediate action upon occurrence of the disaster, by protecting oneself and others from further harm. In this stage, one can immediately evacuate from the affected areas based on the plans made, seeking shelters in previously built camps. This stage commences by putting all the preparedness plans into action and takes place **during the emergency.**
Recovery	The recovery, rehabilitation and reconstruction phase are a critical opportunity to build back better, including through integrating disaster risk reduction into development measures. Making repairs and filing insurance are some of the recovery measure that needs to be undertaken after the occurrence of the disaster.

The framework mentioned is carved out from the four priority components of the Sendai Framework, which is supported by the United Nations as well. These four components were also used to build the National Disaster Management Plan of 2016 by NDMA. The conceptual framework will be valuable in guiding us through all the phases of the study.

2.3. Research Design

Pre and post survey evaluation design: To generate midline and end-line estimates of the project impact and establish the causality of intervention with greater confidence it is required to adopt a research design that compares the households over time. This is possible through the **'pre and post survey evaluation design'**. It will rely on baseline data collected before the project is implemented and follow-up data collected after the project is fully operational for a sufficient period of time to generate impact or after the completion of the project, to develop a **"before/after" comparison.**

Mixed-Methods: To enquire into the project dimensions outlined in the conceptual framework, it is proposed to use a mixed methods approach, whereby both quantitative and qualitative research methods would be applied for generating desired information. **Structured questionnaire**s will be designed for the survey of households to generate quantitative estimates for key community related project indicators. To support the quantitative estimates with pragmatic insights, it is proposed to undertake a **semi-structured village survey, focus group discussions and develop case studies** to capture relevant qualitative information for the project. Additionally, the **in-depth interviews**will capture the qualitative insights about the effectiveness of project, challenges & issues that need to be addressed, and carving out ideas & suggestions for way forward from the project stakeholders.

2.4. Scope of Work

Framed by the research design and the conceptual framework described above, the scope of work describes the tasks to be undertaken under the purview of the assignment.

Target Stakeholder	Data/Information Requirement	Means of Data Collection
NDMA officials/NCRMP PMUAssessment	• Salience of the project objectives • Perception of Impact of interventions • Challenges & mitigating measures in implementation	**Desk Review & In-depth Interviews**
SDMA/Line Dept. Assessment	• Salience of the project objectives • Perception of Impact of interventions • Challenges & mitigating measures in implementation	**Desk Review & In-depth Interviews**
Cyclone related studies	• Insight on the strategies & Performance of NCRMP	**Desk Review & In-depth Interviews**
Village Level Assessment	• Challenges faced and how overcame	**Focus Group**

Target Stakeholder	Data/Information Requirement	Means of Data Collection
	• Capacity Building sessions held • Benefits received from the infrastructure, EWDS in coping with cyclone	Discussion (FGD)
Household Level Assessment	• Knowledge & Awareness regarding EDWS, infrastructure. • Difficulties faced by them during last cyclone, how infrastructure etc. helped, • Trainings received	Structured Interviews Observation Checklists
Understanding of Web CRA (RMSI)	• Vulnerability profiling of the villages (methodology) • Identification of vulnerable areas/villages	In- depth interview/ accessing the platform

Cost Benefit Analysis:

Cost-benefit analysis (CBA), an established tool for determining the economic efficiency of development interventions compares the costs of conducting such projects with their benefits and calculates the net benefits or efficiency. The CBA's main function lies during the appraisal, to ascertain whether a particular project has really added value to the society. Estimating disaster risk and the cost and benefits of its management is inherently complex. Disaster events, in this cyclone, are probabilistic events. As a consequence, the benefits associated to the risk management initiatives and infrastructures are probabilistic and arise only when the cyclone occurs. Hence, it is pertinent that the benefits should be measured in terms of probability multiplied by the consequences, leading to an estimate of risk as the product of hazard, vulnerability and exposure (assessment of risks & assessment of avoided risks).[34] A cost-benefit analysis of a project would ideally follow four main principles:-

- ***With and without approach***- comparing the situation with and without the project
- ***Selecting the best option***- Focusing on the best option rather than calculating the desirability to take up the project.
- ***Societal viewpoint***- Social welfare outweighs any cost incurred to make the project desirable.
- ***Defining clear boundaries***- Only losses pertinent to the geographical boundaries are counted.

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[3]Cost-benefit Analysis of Natural Disaster Risk Management in Developing Countries, Reinhard Mechler,2005
[4]Cost-Benefit analysis of disaster risk reduction, David Hugenbusch& Thomas Neumann, 2016

*Methodological Framework-*The section briefly outlines the comprehensive steps and methods for consideration when conducting a CBA of the disaster risk reduction under NCRMP.

Study Area, Hazard and Vulnerability	Cyclone Risk Mitigation Measures	Monetary/non-monetary values	Presentation of the result	Uncertainties
What risks are the study areas exposed to?	Measures Implemented and How does it affect the disaster risk?	Which costs and which benefits are considered?	How are the results presented?	How are methodological Limitations handled?
Study Area Locations	Strategies adopted	Analysis time	CBR, NPV, IRR	Sources of Uncertainties
Hazard Analysis	Focus of the projects	Value assignment on damage types		Dealing with the same
Vulnerability (Poverty) Analysis	Impact Assessment	Discounting		

COMPONENT 1: Risk analysis: This component entails risk in terms of potential impacts without risk management has to be estimated in the study areas- Goa, Gujarat, Maharashtra, Karnataka, Kerala and West Bengal. This involves estimating and combining hazard(s) and vulnerability. Hazard analysis comprises crucial aspect of the phase, considering Geophysical, hydrological, meteorological and climatological factors. Vulnerability analysis focuses on the two following aspects-

- ✿ *Physical Factors:* related to the susceptibility to damage of engineering structures such as houses, dams or roads owing to cyclones.
- ✿ *Social Factors:* defined by the ability to cope with impacts on the individual residing in cyclone prone areas and institution levels
- ✿ *Economic Factors:* refers to the economic or financial capacity to finance losses and return to a previously planned activity path.*Environmental Factors:* a function of factors such as land and water use, biodiversity and stability of ecosystems. The cost benefit analysis would include the inclusivity aspect of the respondents in the villages.

The resultant risk and damages from the cyclones may be quantified into monetary and non-monetary impacts.

	Monetary		Non- Monetary	
	Direct Impact	Indirect Impact	Direct Impact	Indirect Impact
SOCIAL				
Social (household Level)			Casualties, injuries etc.	Implication on health- physical & stress, Disruption of social fabric
ECONOMIC				

Household Level	Damaged Housing	Loss of income/ wages		
Public sector: Education Health Water and sewage Electricity Transport Emergency spending	Assets destroyed or damaged: buildings, roads, machinery, etc.	Loss of infrastructure services		Increase in poverty
ENVIRONMENTAL				
			Loss of natural habitats	Effects on biodiversity

COMPONENT 2: Risk Management Measures and Associated Costs: This particular component focuses on the potential risk management projects and alternatives, in this case, the roads and bridges, EWDS, shelters and capacity building exercises. The costs in a CBA are the specific costs of conducting a project, whichconsist of investment and maintenance costs.

DRR STRATEGIES			
Type	**Prevention**	**Preparedness**	**Risk Financing**
Effect	**Reduce Risk**	**Reduce Risk**	**Transfer Risk**
KEY MEASURES	Physical works like: ✡ Saline Embankments ✡ Roads ✡ Bridges	✡ Early warning Dissemination systems ✡ Contingency planning ✡ Shelter facilities ✡ Networks for emergency response (Underground cabling) ✡ Capacity building exercises	✡ (Re-) insurance of Public infrastructure and private goods ✡ National and local reserve funds

Prevention measures seek to reduce or avoid exposure by containing hazards and adverse events. Preparedness measures are designed to reduce vulnerability by making arrangements for the impact of hazards. The measures may be structural such as saline embankments, concrete roads and bridges or shelters. Knowledge transfer mechanisms or capacity building exercises are non-structural measures. The benefits of all such measures is to avoid losses and damages to lives, man-made structures or loss of or damage to culturally and historically important places.

COMPONENT 3: Analysis of risk reduction (Cost& Benefit Components of the DRR Strategies): In this stage, the benefits of reducing risk are estimated. For Cost Benefit Analysis, both costs and benefits are required to be expressed as monetary values. The costs include all the expenses incurred during DRR implantation- such as construction & staff expenses and maintenance

expenditures. These are tangible costs. Other costs such as negative health implications on people residing near the construction site or involuntary resettlement people etc. are intangible costs. The benefits include the damages that were avoided due to the DRR strategies such as lesser loss of lives, properties, less employment/ income loss etc. The process of assessing intangible damages and assigning monetary values in order to incorporate them into the CBA is usually complex.

COST & BENEFIT COMPONENTS TO BE INCLUDED UNDER NCRMP II	
COSTS	BENEFITS
Indicators	Indicators
Financial costs of the projects (installation cost, transportation of raw materials, maintenance cost)	Lesser no. of casualties/ injuries and stress factor
Accident risks during the construction phase	Less Economic/ physical losses & less poverty
Land lost due to construction of road/ embankments	Protection of the agricultural land & increase in productivity (Improvement in soil fertility)
Contamination of air, water(surface water, ground water, creek water) & Soil	Less incidence of waterborne diseases
Quantity of solid waste generation	Protection of the coastal areas & resources
Risk to the natural habitat of the coastal areas (forest/wildlife/wetlands)	Less recovery time from the disaster
Involuntary Resettlement of people	Less employment/income losses due to business interruption
Negative Health implications due to air/water pollution	Indirect employment for building the structures
Loss of cultural resources (historical, archaeological, religious)	Increase in land prices
Possible shift in land use pattern (usage of public land/damages to agricultural land)	Forecast accuracies
Loss of livelihoods due to shift in agricultural land	Improved connectivity (owing to roads and bridges)
Implication of the false alarms (EWDS)	Economic improvement (less impact on tourism sector, out- migration for occupation & business)
Misuse of shelters and surrounding areas (illegal waste dumping grounds, vandalize shelters)	Positive impact on the education system (regularity of classes held and less disruption in school attendance)
Impact of poor site selection (may lead to flooding/ change in drainage patterns/ road safety/accidents etc.)	

The above table lists down the factors to be considered to conduct the cost benefit analysis of the cyclone mitigation measures under NCRMP. The cost and the benefits would be measured over the years of project implementation. In CBA, cost and benefits streaming in future periods are discounted by the discount factor- $(1+r)t$, where r signifies the social discount rate and t is the time index. In discounting, human lives are put higher values in the present, invested funds offer profit opportunities in the future.

COMPONENT 4: Calculation of economic efficiency: This may be achieved using three decision criteria- Net Present Value (NPV), the CB Ratio and Internal Rate of Return (IRR).

✿ **Net present value (NPV) Criterion:** Costs and benefits arising over time are discounted and the difference taken, which is the net discounted benefit in a given year. The sum of the net benefits is the NPV. A fixed discount rate is used to represent the opportunity costs of using the public funds for the given project. If the NPV is positive (benefits exceed costs), then a project is considered desirable.

✿ **The CB-Ratio Criterion** is a variant of the NPV: The benefits are divided by the costs. If the ratio is larger than 1, i.e. benefits exceed costs, a project adds value to society.

✿ **Internal Rate of return (IRR) Criterion:** Whereas the former two criteria use a fixed discount rate, this criterion calculates the interest rate internally this represents the return of the given project. A project is rated desirable if this IRR surpasses the average return of public capital determined beforehand (eg. 12%).

COMPONENT 5: Uncertainties: While conducting the CBA, certain uncertainties may arise owing to poor data condition and sources, the assessment and monetarization of vulnerable values, especially intangible and indirect values or application of appropriate discount rate. Some of the uncertainties faced while computing CBA:-

✿ Incomplete damage assessments, as data will not be available for all relevant direct and indirect effects, particularly so for the non-monetary effects.

✿ Correct life and health estimates: Uncertainty lies whether to use global, higher or national values that reflect differences in the per capita income.

✿ Discounting- There are no agreed standards to select the correct discount rate

✿ There are calculation issues related to the deflators and cost.

2.5. Results Framework for the Assignment

The sections ahead present the key components to be studied for benefit monitoring and evaluation study for NCRMP Phase II under each of the dimensions specified in the conceptual framework. Indicators mentioned in the World Bank's Result management framework in the Project Appraisal Documents have been included in the following table.

Outcome	Key Performance Indicators	Key Issues to Probe	Source of Data
Reduced vulnerability of coastal communities in participating states to	• Proportion (%) of targeted population covered by the EWDS and the efficacy of the system in all emergent situations	• Progress of development of EWDS in the respective states • Ever received early warning for disasters in village/ Time period for receiving the warning • Do the warnings reach those at risk in time? • Are the risks and warnings understood? • Is the warning information clear	• Project's quarterly NDMA reports and supervision firm reports • Household Level Assessment • Village Level Assessment

Outcome	Key Performance Indicators	Key Issues to Probe	Source of Data
cyclone and climate related hazards		and usable • Result of vulnerability assessment &comprehensivemulti-hazard riskfinancing strategy for policy making • Multi-hazard riskassessment forselected areas completed • Physical structuralassessment ofinfrastructurecompleted	
	• Increased awareness about warnings and emergency response	• Aware of comprehensive Early Warning dissemination Systems (EWDS) • Location of Early warning system installed	• Project's quarterly NDMA reports and supervision firm reports • Household Level Assessment
	• Proportion (%) of people having access to emergency shelter and their ability to maintain the structures including efficient use of the structures during normal times	• Presence of MPCS in the village/locality/connectivity with village/distance • Capacity of MPCS • Infrastructural facilities in MPCS (drinking water, power supply, clean, toilet facilities) • Awareness on MPCS/, need for MPCS, • Presence of emergency shelter for animals/ Capacity for animals? • Distance b/w MPCS & home • Necessary facilities available for women & differently abled people in the MPCS • CSMMC constituted and functional • MPCS used during normal times • Institution responsible for MPCS • Multi-hazard riskassessment forselected areas completed	• Project's quarterly NDMA reports and supervision firm reports • Household Level Assessment
	• Number of and hectares people of land protected strengthened/improved embankments	• Status of completion • Status of project (whether work awarded, to whom? Finalisation of DPR? Distance) • Presence of saline embankment in village, • Coverage; need for saline	• Project's quarterly NDMA reports and supervision firm reports • Village Level Assessment

Outcome	Key Performance Indicators	Key Issues to Probe	Source of Data
		• embankment, (Kilometers ofembankmentsrehabilitated underthe Project) presence before 2015 • Physical structuralassessment ofinfrastructurecompleted	
	• Increased number of people connected through road communication network.	• Road connected to village & Distance/Length of road, • Need for road, connectivity/before 2015 • Roads rehabilitated • Roads & bridges- planned/ under construction and completed • Multi-hazard riskassessment forselected areas completed • Physical structuralassessment ofinfrastructurecompleted	• Project's quarterly NDMA reports and supervision firm reports • Village Level Assessment
	• Advantages of Under Ground Cabling	• Connectivity to village • Distance/Length of cable (Kilometers of HTand LT lines movedunderground) • Probabilistic riskmodel for selectedareas completed • Need for road, connectivity/before 2015 • Total number of kilometers of high and lowtension lines moved underground by the Project	• Project's quarterly NDMA reports and supervision firm reports • Village Level Assessment
Capacity built towards managing disasters	• % of targeted communities / people trained in use of early warning and evacuation procedures	• CB&T of HH members in EWDS (who? Type? How many trainings? When last trained? Learning from the training?) • CB&T of HH members in disaster management (who? Type? How many trainings? When last trained? Learning from the training?) • Participation in mock drills • Training on shelter management, record keeping, First Aid, Search & rescue • Refresher Trainings • CB&T of CSMMC • Training on corpus fund & Task	• Project's quarterly NDMA reports and supervision firm reports • Village Level Assessment • Household Level Assessment

Outcome	Key Performance Indicators	Key Issues to Probe	Source of Data
		force for each MPCS	
	• Number of government officials trained on specific disaster management skills	• No. of Training of Trainers (TOTs)/Participants • Module Design and Development to prepare sector specific DMP using risk assessment • No. of external audits conducted	• Project's quarterly NDMA reports and supervision firm reports • National and State Level Assessment
	• Preparation of Long-term Capacity Building & Training Strategy and Damage and Loss Assignments		• Project's quarterly NDMA reports and supervision firm reports
	• Completion of risk assessment studies and use of studies for disaster risk reduction	• Status of progress of RA studies • Information on those conducting the studies	• Project's quarterly NDMA reports and supervision firm reports

2.6. Sampling Approach and Methodology

The sections ahead outline the proposed coverage under each component and the approach for sample selection.

2.6.1. Coverage of the Assignment

Vulnerability of States
- High Vulnerability States
- Low Vulnerability States
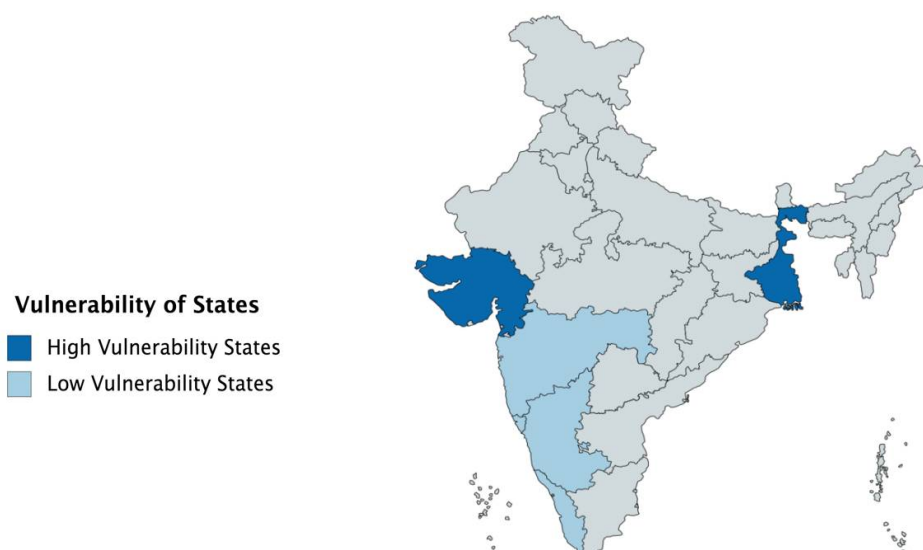
2.6.2. Sample Size

The table ahead gives an overview of the proposed sample coverage across the states. However, post discussion with NCRMP II & World Bank officials, it has been decided to increase the sample size in Gujarat and West Bengal, owing to their vulnerability and higher number of projects under NCRMP II being situated there. It is pertinent to mention the present sample size mentioned in the table ahead is tentative and will be revised once detailed information regarding the structures are obtained from the states.

States	Coastal Districts	No. of Villages	HHs per village	Total no of HHs
A. Stage I (Mid-term Evaluation of Phase-II): 6 Surveys				
Goa	2	20	20	400
Gujarat	16	100	20	2000
Karnataka	3	20	20	400
Kerala	9	30	20	600
Maharashtra	6	50	20	1000
West Bengal	3	50	20	1000
Total (A)				**5400**
B. Stage II (End-term Evaluation of Phase-II): 6 Surveys				
Goa	2	20	20	400
Gujarat	16	100	20	2000
Karnataka	3	20	20	400
Kerala	9	30	20	600
Maharashtra	6	50	20	1000
West Bengal	3	50	20	1000
Total (B)				**5400**
(A+B) i.e12 surveys				**10800 HHs**

2.6.3. Sampling Methodology

In order to undertake the number of interviews mentioned in the previous section, we will be following the steps described below. The diagrammatic summary of the sampling methodology is given below:

Vulnerable Coastal Districts in each State

Obtaining Combined List of Vulnerable Villages and Stratification based on consolidated score on vulnerability indicators

Highly Vulnerable Villages (x)

Less Vulnerable Villages (y)

Selection of Villages from Web CRA

Highly Vulnerable Villages [N* (x/x+y)]

Less Vulnerable Villages [N* (y/x+y)]

Total- 270 Villages

Complete Household Listing & Selection using Systematic Random Sampling

20 Households from each Village

Total (N)- 5400 Households

1. **Mapping the vulnerable districts in each state:** A list of all the coastal districts from each of the six identified states will be mapped. The list of the districts is given below:

State	Coastal District	No. of Cyclones
Low Vulnerability Districts		
Kerala (3)	Malappuram	1
	Kozikode	1
	Kannur	1
Karnataka (2)	Dakshina Kannada	1
	Uttar Kannada	1
Maharashtra (13)	Sindhudurg	3
	Ratnagiri	3
	Mumbai	3
	Thane	4
Goa (2)	Goa	2
High vulnerability Districts		

West Bengal	24 Paragana (North and South)	35
	Midnapur	34
Gujarat (28)	Surat	1
	Kaira	1
	Bhavnagar	4
	Amereli	4
	Junangarh	7
	Jamnagar	6
	Kachchh	5

2. Mapping and sampling the coastal villages from in the respective districts

The following steps will be followed for this exercise:

Step 1:A list of coastal villages will be obtained from the district authorities, along with respective data related to severity of the impact of the previously occurred cyclones, size of population and present institutional mechanism for disaster management. The necessary records and information for this will be obtained from the district level officials/ DDMA.

Step 2: A combined score will be calculated for all the villages based on the information obtained to serve as a measure of the extent of vulnerability. Thereafter, a combined list of villages from all the sample districts will be prepared along with the respective vulnerability scores.

Step 3: These villages will then be arranged in descending order of their scores and will be classified into two categories based on a cut-off score which shall be decided in consultation with PMU officials. The category having scores above the cut-off scores will comprise of high vulnerability villages, and that below the cut-off score will constitute low vulnerability villages.

Step 4: After this classification, the desired number of villages to be selected from the state will be distributed across these two categories in proportion to the size of that group/ that is, the number of villages falling in the specific categories. The requisite number of villages to be selected thus worked out will be sampled using **probability proportionate to size method.**

The process of selection of villages will comprise of two components:

- ***Selection of Vulnerable Villages using Web CRA:*** The list of vulnerable villages from the Web CRA prepared for NCRMP II will prove to be instrumental in selection of the 270 villages (as per 270 villages) for the midline study.
- ***Additional Selection (sampling) of villages based on the location of structures constructed under NCRMP II:*** It is proposed, additional villages will be selected from those locations where structures have been constructed under NCRMP II. The sample size will be increased in Gujarat and West Bengal, considering that more number of projects are located in those states.

(The sample size of West Bengal & Gujarat is yet to be finalized as state wise project information are awaited)

3. Selection of hamlets and households

The following steps will be followed for this exercise:

Step 1: On reaching the sampled village, it is proposed that the field officials establish contact with key knowledgeable persons from Village-Gram Sevaks, PRI members etc. With the help of these people, the field staff will undertake a quick mapping of the village to identify its boundary and identify the hamlets within it along with an estimate of the total number of households in each.

STARTING   TRAVEL   MAKE RIGHT   SELECTION OF
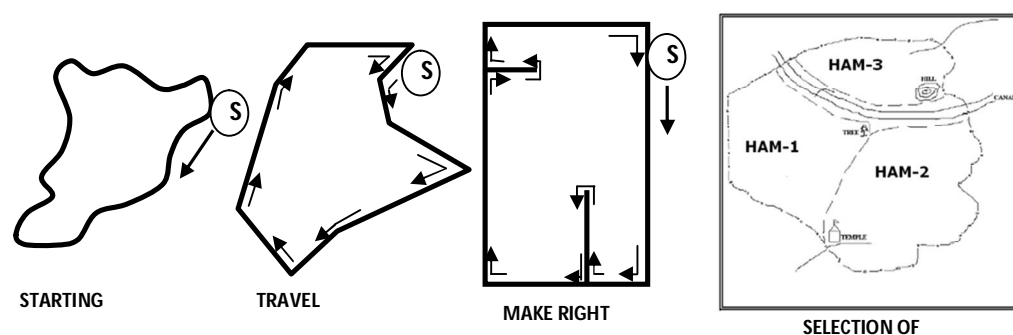
Step 2: If the village has more than 250 households, they will be segmented into clusters of roughly 100-125 households each using natural boundaries in the village. Thereafter, 2 segments will be randomly selected for the survey. it is proposed to administer one semi-structured questionnaire per village to understand the village level status in terms of their exposure to programme interventions, preparedness for cyclone risk mitigation, and the issues and challenges that need to be addressed to help them be better prepared for such calamities.The respondents for village level survey will be a group of knowledgeable persons including the PRI members, members of relevant committees, health and education functionaries, etc.

Step 3: The terms of reference clearly indicates that 20 households have to be covered from each of the village. Each village will be subjected to complete household listing using CAPI software.

Step 4: Thereafter, 20 households will be sampled from each village using systematic random sampling approach. For deciding the random start point in an unbiased manner, the investigators will be instructed to communicate the total number of households listed in the village to their respective supervisor, who will then allocate them a random start number using random number table.The households thus sampled will be subjected to questionnaire survey to elicit required community level information from them. The sample size would also include women, differently abled women and households belonging to the lower end of the economic continuum.

Village Level Assessment

Focus Group Discussions: Besides the household and village survey, it is also proposed that 1 FGD be held in each of the study districts during both midline and endline surveys to gather qualitative insights.

Observation Checklist: In addition to this, the infrastructure works undertaken within the purview of this project located in the respective villages will be surveyed using structured observation checklists. Wherever required photographs will also be taken to generate documentary evidence for the PMU/ NDMA. The observation checklists will also comprise of a section adressed to the necessities of women, differently abled people and those belonging to the poorer section of the economic ladder.

Central and State Level Stakeholders

Besides structured interviews and focus group discussions, the assignment will also undertake in-depth interviews with NDMA, state nodal agencies and associated line departments. This exercise will shed light on the perceptions and opinions of the project implementation stakeholders and other government officials regarding the progress of the NCRMP project. A list of these stakeholders is given below.

No.	Stakeholder Category		Line Department
NATIONAL			
1.	National Disaster Management Authority (NDMA)		Project Management Unit (PMU) – National Cyclone Risk Management Project NCRMP
STATE			
No.	State	Stakeholder Category	Line Department
2.	Gujarat	Gujarat State Disaster Management Authority (GSDMA)	• Roads & Building Department, Dakshin (South) (MCPS, roads etc) • Gujarat Vij Company Ltd. and Paschin (West) Gujarat Vij Company Ltd. (Underground Cabling)
3.	Maharashtra	State Relief & Rehabilitation Department	• Public Works Department **(MCPS)** • Maharashtra State Electrical Distribution Ltd (**(Underground Cabling))** • State's Water Resources Department **(Saline Embankments and Rehabilitation of Bunds)**
4.	Kerala	Revenue and Disaster Management Department	• District NirmitiKendras**(MPCS, Access roads and bridges)**
5.	West Bengal	West Bengal Department of Disaster Management	• Public Works Department **(Multi-purpose cyclone shelters)** • West Bengal Electric Distribution Company (**Underground**

No.	Stakeholder Category		Line Department
			Cabling)
6.	Karnataka	Revenue Department (RD)	• Public Works Department **(MPCS, Access roads and bridges)** • Minor Irrigation Department **(Saline embankments & canals)**
7.	Goa	Water Resource Department	• Water Resource Department **(MPCS, bunds)** • Public Works Department **(Roads & bridges, underground cabling)**

2.7. Research Instruments

On the basis of the data requirements and the stakeholders outlined in section 2.5, the following research tools will be deployed to carry out the following assignment:

Research Tool	Description of Research Tool	Number of Interviews/ Assessments
In-depth Interview schedule for NDMA/SDMA/District authorities	A semi-structure, in-depth interviews (IDI) schedule will be developed to capture qualitative responses on challenges in the design & implementation of the project.	Nearly 50 In-depth interviews with in each round.
Checklist for Desk review of secondary literature	A structured checklist will be designed establish baseline values of key performance indicators mentioned above. This exercise will also help verify compliance of the project activities against the prescribed guidelines.	Will be done in each round to check the compliance of the project activities.
In-depth Interview schedule for NGOs/CBOs	A semi-structure, in-depth interviews (IDI) schedule will be developed to capture qualitative responses on challenges in the design & implementation of the project from the **NGO & CBO officials**	Atleast**one in each district in the two surveys**
Semi-structured/In-depth interview for Village Assessment	A semi-structure, in-depth interviews (IDI) schedule will be developed to capture qualitative responses on challenges in the design & implementation of the projectfrom the officials at **Gram Panchayat and local bodies as respondents.**	1 per village (270 villages) in each of the 2 surveys = **540 interviews**
Observation Checklist for Village Checklist	A structured checklist will be designed establish baseline values of key performance indicators mentioned above. This exercise will also help verify compliance of the project activities against the prescribed guidelines.	Observation checklists (1 per village) in each of the 2 surveys = **540 checklist assessment**

Research Tool	Description of Research Tool	Number of Interviews/ Assessments
Structured Questionnaire for Household Survey	A semi-structure, in-depth interviews (IDI) schedule will be developed to capture qualitative responses on challenges in the design & implementation of the project.	**10,80**0**Structured Interview-** (5400 in each of the 2 surveys)
Focus Group Discussion	An open-ended list of questions will be developed to understand the community's perception of the success of the NCRMP project, its impact so far in ensuring preparedness in responding to cyclones.	**39 FGDs** (1 per district) in each of the 2 surveys

The tentative set of survey & FGD schedules have been attached in Annexure 1

The six state authorities have been approached to share the details regarding the projects initiated under NCRMP II in their respective states. The following information will act as the base for the baseline report. The same information will also be required to finalize the sample size for the midline study.

	List of Information to be obtained from the state officials					
1	NCRMP-II- Year of operationalization					
2	Does the department have a State Project Steering Committee	List of members				
3	State's contribution to the funding of the project					
4	Most important aspects of preparing for a cyclone.					
5	Usefulness of State Disaster Management Plan in ensuring preparedness	How was it incorporated				
6	Line departments involved with the project	Responsibilities				
7	Most affected villages (Web CRA)					
8	Villages with EWDS in place, built under NCRMP	Nos. planned	Nos. completed	List of villages with the structures		
9	Villages with cyclone shelters built under NCRMP	Completed	Under Construction		Capacity	
10	No. of cyclone shelter management and maintenance committee	Role of the committee	List of Members in the committee			**DPR & Screening reports of the projects**
11	Roads built under NCRMP- Length, materials, location on map	Completed	Under Construction	Village Connectivity		
12	Other safe constructions		Bridges	Saline		

#	Description	Total no. planned	No. of structures under construction	List of villages with the structures	No. of structures under restoration	Coverage of land protected by it
	built under NCRMP			Embankments		
13	Buildings					
14	Bridges					
15	Saline Embankments					
16	Organization responsible for EWDS					
17	Mechanisms of EWDS (technologies)					
18	Disinfections of water sources & treatment					
19	DPR for all the structures					
20	Social and environmental Screening for all planned installations					
21	Coordination across the state regarding EWDS (Transition of information)					
22	Risk Atlas prepared for the state					
23	Any barriers to the smooth construction of shelter					
24	How ready are communities to understand official warnings and react					
25	Cyclone awareness workshops held in the state					
26	Capacity building exercises carried out to respond to the EWDS	For Floods	For Cyclone			
27	Subject/content of the trainings (training modules)	If no held reason for the same				
28	Mechanisms to monitor the progress of work under NCRMP					
29	Who is responsible for the monitoring					
30	On site visitations for monitoring					
31	Findings from the monitoring	Need for improvement				
32	Grievance redressal mechanisms	Grievances which have been lodged	Solutions undertaken			
33	Groups which are most vulnerable/or at risk of suffering the adverse impacts of the cyclone/any other natural hazard	Factors which make them vulnerable				

34	Evacuation plan executed during the last cyclone					
35	Presently, how well are the residents prepared for the disasters in the state					
36	NGOs/VOs Collaboration for Disaster Reduction & Responses					
37	Instances where the community/villages have organized themselves and demonstrated agency in preparing for the hazard					

2.8. Detailed Data Analysis Plan

The proposed data analysis plan for the benefit monitoring and evaluation studywould primarily focus on generating reliable midline and endline estimates for various key performance indicators. Besides these, the survey will also gather additional indicators to inform policy makers about the status of respective study areas with reference to the four parameters specified in the conceptual frameworkproposed for the study. The quantitative data gathered during the study would be subjected to the following statistical analysis techniques to generate desired information about the prevailing status of the effectiveness of the NCRMP strategies.

The analysis of quantitative data will be done using SPSS package. Further, the quantitative data gathered during the survey would be subjected to the following statistical analysis techniques to generate desired information about the achievements and effectiveness of NCRMP strategies.

Descriptive statistics will be calculated for range, mean, and standard deviation of the scores for each variable obtained for all the participants. Percentages and values for various estimates desired under the study would also be calculated using the specified formulae for each. Sub- group analysis will be conducted in terms of the households located immediately next to the embankments and farther away from it. Cross tabulations and correlations matrix will be drawn for depicting any specific patterns in the data with regard to the subgroup. Cost- Benefit analysis will be carried out for both midline and endline report in order to assess the economic returns of both the tangible and intangible benefits of the interventions under NCRMP.

Wealth Index: The study would also give proper emphasis on the poverty index. The research tool developed at the household level comprises of certain questions involving ownership of assets of each household. These variables include basic amenities (water supply, toilet), possession of assets (land, homestead plots, livestock, vehicles etc.), other household durables such as TV, Fan etc. Such variables will be required to compute the wealth index, which will factor in the poverty component of the households.

As regards the qualitative information gathered through interview with key functionaries and observations, the first step would be verbatim transcription of all qualitative information collected. The same will then be analyzed in a systematic and methodological manner using atlas-ti software. The transcribed information will be scrutinized for its primary as well as latent content. The following procedure is proposed to be adopted for the content analysis of all the information gathered—

Free Listing: For synthesizing the qualitative information, available responses to a particular question will be listed to obtain the range of responses for all issues addressed in the qualitative exercises. The responses that are considered irrelevant under a specific question will be moved under the appropriate question. During this process, the important statements or quotable quotes with their reference will be extracted verbatim for use in the report as reference material.

Coding: In the final screening, for every open-ended question, responses will be coded according to the domains. Some responses may be placed under more than one domain as a range of views might be stated in a single sentence. After careful scrutiny, the responses found to be completely irrelevant will be discarded.

Summarizing: Similar information sought from different stakeholders will be triangulated to arrive at a conclusion with greater degree of accuracy as also from the viewpoint of reliability and validity. Analysis will be done according to the study sites to check for 'between sites consistency' and other differences, if any. The results will then be summarized for each of the issues.

Presented above are some of the data analysis methods that we propose to use under this study and the outcomes that we can expect to achieve. These methods will help provide an in-depth insight into the status of understanding and assessing to what extent the strategies undertaken under NCRMP has been successful and challenges and constraints faced by them.

3. WORK PLAN

3.1. Proposed Schedule of Activities

The terms of reference mentions the survey of the midline and endline of NCRMP will be carried out over the period of 22 months, nearly 2 years. Description of activities to be carried out in each phase, their durations, contents and interrelations are stated ahead. The data collection & analysis phase will remain identical for both the midline and endline.

Phase-1: Preparatory Phase: After the award of the assignment, the first week would be spent in making preparatory arrangements for the survey. The core team members would undertake consultative discussion with NDMA and the PMU of NCRMP to understand their mutual expectations. They will procure the baseline report/ data maintained by the PMU and other relevant qualitative information about the project area which will help firm up the baseline estimates for key project performance indicators. Other relevant literature like project design and implementation framework, programme documents, and any internal monitoring reports or database maintained by the client will be sought to develop a thorough understanding of the study requirements. Under the guidance of PMU, the teams will also identify the target districts and villages to be covered from each state, and obtain relevant village level data that will help ascertain the extent of vulnerability of these villages from the respective district offices.

The team members would then thoroughly review the literature and information obtained to gain a better understanding of the project. In order to update the baseline report, the concerned SPIUs will be approached. Screening report of each investment will be taken into consideration during the study. This exercise will help conceptualize the study design, including firming up the sampling approach, and developing draft study instruments for data collection. A detailed inception report describing the proposed approach and methodology for carrying out the study will be prepared and shared with PMU officials to seek their feedback and inputs to finalize the study design.

Phase-2: Set up/ update the Baseline Data: One of the key tasks to be undertaken within the purview of this assignment is to set up/update the baseline estimates for key performance indicators. The review of relevant literature suggested in the preceding phase will be useful in culling out necessary quantitative/ qualitative data/ estimates/ information which can serve as a benchmark against which project achievements may be measured during the midline and endline stages. Thorough review of project implementation framework would yield possible key performance outcome and impact indicators, and thereafter the available data will be scrutinize to search if there is any data/ information available for the same which can serve as a baseline estimate. This exercise will result into a baseline data report covering clear quantitative and qualitative assessment of various key performance indicators of phase-ii of the project. This constitutes the second requisite deliverable under this assignment.

Phase-3: Finalizationof Study Plan and Survey Instruments: The team members under the leadership of Team Leader will review the draft research instruments shared along with inception report in view of the baseline estimates firmed up in the preceding phase. It is also expected that the team will receive some inputs and feedback from the PMU on the draft tools shared with them. The team will revisit each of the research instruments and make necessary additions or modifications based on the client feedback and the available baseline estimates for key project outcome indicators to finalize the instruments. These will be shared with the concerned PMU officials to seek their approval on the same. The approved research instruments which were developed in English will then be translated to local languages for each of the six study states to facilitate ease of administering the survey in the field. The local language survey instruments will be back translated into English to ensure construct validity and consistency between the formats. Detailed guidelines for monitoring will also be developed for survey quality assurance along with the field protocols and survey manual.

During this phase, the team members would also finalize the list of affected districts and villages in each of the study states with the guidance from PMU based on information collected in first phase. Relevant state and district level stakeholders will also be identified in consultation with PMU/ SDMU officials. The list of affected villages, along with required data to measure their extent of vulnerability will be used to draw sample for the study based on the sampling plan finalized in consultation with PMU. The approved plan will then form as a base to draw the sample which will further help draw out detailed state level action and field movement plans which will be duly shared with the client.

Phase 4: Training of Master Trainers and Pilot Testing of Research Tools: Once the tools are finalized and translated into local languages, the respective Survey Team Leaders for each of the 5 states along with one senior field officer from each state will be trained centrally at the agency headquarters. They will serve as master trainers for training the teams in their respective states in local language. A 3-day training of these master trainers (TOT) will be organized where they will be offered orientation about the programme, the research objectives and study design, along with a detailed training on the study instruments formulated. It will be apt to mention here that all the survey team leaders that we propose to deploy are well-versed in English as well as the local language of the respective states. So a combined TOT will be organized in English and then they can go back to their states to undertake the pilot testing in respective local languages. It must also be highlighted here that all the survey team leaders whom we propose to deploy on this assignment have a significant field experience and thus are fully adept at performing the testing of instruments and offering expert advice to improve the flow of questions and the correct way of asking them to be able to elicit unbiased and correct responses from the respective target audience.

After training of master trainers, the respective survey team leaders and senior field officers will go back to their own states and will undertake the pilot testing of the tools. In each state, 2 coastal

cyclone prone villages will be selected. In these villages, the team will administer one village survey questionnaire and 5 households survey questionnaires. In addition, they will also administer 1 observation checklist for each type of infrastructure created under the project Thus, a total of 2 village questionnaire and 10 household questionnaire will be surveyed in each state. The insights generated during the survey will be shared by the team in the form of question-wise feedback. The core team at the agency questionnaire will review the feedback and filled in questionnaire from all the six states and will revise to questionnaire by addressing the issues identified and standardizing it for all the states to be able to collect comparable data across 6 study states.

Phase 5: Development of Software for Data Collection using CAPI based method: The finalized tools will then be used to develop software to enable conduct of computer-aided personal interviews (CAPI). It is planned to administer the household survey, village survey and observation checklists using CAPI devices, that is, tablets with customized software application. Undertaking a CAPI based survey has specific advantages which can be a value addition for this survey. We can capture the GPS readings for the locations covered, take photographs of the structures or persons or data examined during the survey. These will serve as additional evidence generated from the study, which can be useful for the evaluation at a later stage and will also be useful for the programme officials to track the specific location/ structure for internal monitoring.

Having been involved in multiple large scale surveys, the organization has in its possession about 250 Mini laptops and over 360 tablet devices of its own to conduct the CAPI based surveys. Considering the requirements of the proposed survey, and the advantages of using android based application it is proposed to use tablet devices for data collection in the present survey. The specifications of the tablet devices available with the organization are as follows -

Model name	:	Samsung Galaxy Tab 4
Processor	:	1.2GHz Quad Core
Memory	:	RAM Size-1.5 GB; ROM-8GB; External memory support-Up to 32 GB
Average Age	:	1.5 years

It will be apt to highlight here that the organization has undertaken multiple large scalesurveys across the country which involved use of CAPI devices. This has not only helped the organization develop a better understanding of CAPI enabled systems but has also helped gather a pool of research investigators and field supervisors who have become adept at using such methods of data collection. It is proposed to utilize the same pool of field staff that is adequately experienced to handle CAPI based interviewing.

Further, the agency has gained expertise in using as well as designing software customized to survey needs. The agency has majorly worked on two types of software platforms - CS-Pro and Survey CTO, and has qualified staff that can develop both types of software for data collection as suited to the

survey needs. The final questionnaire in 6 different languages will be converted into desired CAPI format. Whether we choose to develop the data collection software on CS-Pro or Survey CTO, there are certain key design features that shall be built into the program. Some *of such unique features that we propose to develop in our software have been presented in Annexure A of this document*.

Phase-6: Recruitment, training & Deployment of the Field Staff: As for the field staff, it would be apt to mention that AMS already has a large pool of culturally conversant research investigators and field supervisors who have been associated on project-to-project basis in these states on a regular basis. They are fluent in local languages and have significant field experience of similar socio-economic surveys. We plan to utilize the same pool for this study. However, any shortfall in consideration with the socio-cultural requirements of the locations would be addressed by employing more candidates through fresh recruitments. The investigators and supervisors who are conversant in the local colloquial languages and area aware of local customs & traditions shall be selected for undertaking the survey.

Training of field staff forms another important component of this phase. It is proposed that the Survey team leaders and senior field officers from the respective states who were trained in the previous TOT will be involved in conducting the training for field investigators. A 5-day training will be organized for the field staff in respective study states. A detailed training methodology and content has been presented as *Section IV* of this technical proposal.

The **field supervisors**to be deployed in each of the states will be responsible for conducting interviewswith other stakeholders and organizing FGDsas per the study plan besides their routine responsibility of data quality assurance. They will be trained separately in a **3-day** training session on the information requirements of the qualitative study instruments and the protocol for organizing the same.

Using a mix of lecture-based sessions cum experiential exercises would help equip the field staff with all the requisite knowledge and skills to collect the required data. During this phase, the senior field coordinators would study the sampled areas, contact some local knowledgeable persons and gather secondary data to conceptualize a field deployment plan. The Survey team leaders in consultation with other team Members will formulate a field deployment plan along with route plans & field movement plans that will help minimize the time taken in the survey. The details regarding field teams deployed, field movement plans and the training conducted will be shared with the PMU and NDMA.

Phase – 7: Field Survey and Data Collection: After training, the field staff would be allotted the zones they need to cover within a period of 6 weeks. The survey team leaders will be responsible for their own respective states and would take their teams in the respective areas and guide them according to the field deployment plan. This phase will include the conduct of following activities –

- The research investigators will collect information from the households in coastal villages using the questionnaire survey developed for the purpose. They are also required to observe the village level infrastructure.

- The supervisor will conduct surprise visits, undertake complete checking of all formats at the end of the days, and surprise checks and back check of at least 10% of all filled in formats randomly.

- The field supervisors would also conduct Focus group discussions / interviews with other stakeholders and key functionaries within the village.

The state coordinators will be responsible for field investigators and supervisors assigned to their respective states.

The organization will deploy RIs in teams of 2 each for the purpose of household listing and survey. On reaching the village, the RIs will first establish contact with some local knowledgeable persons to identify the boundary of the village and create a rough layout map of the same along with seeking an estimation of the total number of households, in order to create segments if required. As explained in the preceding section, if the total number of households exceed 250, they will conduct segmentation to create equal segments of about 100-125 households each using the natural boundaries of the village. The RIs will then communicate the summary of listing information to their respective Supervisors which will include, the total number of households in the sampled village and number of clusters created. The Supervisor will allot a random number to them from the random number table provided to them. The RIs will use the random number allotted to them to sample the cluster for survey. The selected cluster will then be subjected to complete listing starting from north east corner and using right hand rule. The purpose of household listing will be to create a sampling frame for selection of households for the survey. It is estimated that the team of 2 RIs will take 3 days to complete the mapping and listing exercise in a village.

The data collected during the household listing will again be summarized and communicated to the respective supervisors which will include total number of households listed. The Supervisor will then allocate a random number which will form the starting point for sample selection. The RIs will then draw a sample of households by adding the sample interval to the random number for which they will be trained. In view of the expected length of the household survey instrument, each face-to-face interview shall require about 30-45 minutes. Considering these households will be spread throughout the village and they will have sought a suitable time for conducting the interview, each RI shall be able to complete about 5 interviews per day. Considering that each RI team of 2 will have to undertake interviews with 20 households per village, it is estimated that a time-span of 2 RI team days will be needed for completion of survey in 1 PSU.

For the purpose of back checking to ensure the veracity of data, and ensuring quality and timely completion of field work, it is proposed to deploy **Field Supervisors**. The Field Supervisors shall be responsible for guiding them in the sampling procedure, overseeing their work and offer them

necessary supportive supervision. They will perform the mandated spot checks and back check at least 5% of the data collected on a regular basis. The results of back checking will be duly communicated to the core team, along with offering necessary instructions to the field staff and taking actions against them if required.

Phase-8: Data Consolidation, Entry, Coding, and Consistency Checking: One of the most crucial and important tasks in a large-scale survey is the management of database on a regular basis, consolidating it at one place, keeping necessary backups and converting them into desired formats for further use.

Once the investigator completes a household survey s/he will submit it to their respective supervisors who will thoroughly review the entire questionnaire to check for accuracy and completeness. The Supervisors shall anyways be doing surprise checks in the field to check the quality of interviewing of each of the investigators, but at the end of each days' work he will thoroughly check each and every interview format filled in by his team members.

The software will have provision for the Supervisor to be able to see the data filled by his respective team members and make any edits if desired. Once he is satisfied that the data is complete and correct he will have the rights to upload it on the centralized server. In case of CS-pro based application we will make provision for cloud-based server, while in Survey CTO based application the Supervisors' tablets shall be synced with the Survey CTO account and they will have the rights to upload the data in the same. It must be reiterated here that the data can be collected in offline mode considering poor network connectivity in rural areas. But once the data collection is complete, it can be transferred to the centralized server by connecting to the internet as soon as the team reaches an area with connectivity. Only the supervisor shall have the rights to transfer the data to the server. As soon as he connects to the internet, his device will automatically be synced to the Survey CTO account, and then he can transfer the checked and verified data using simple steps.

As regards the qualitative data collected though IDIs and FGDs, first a complete transcription will be done in English language. Thereafter, numeric codes will be allotted to the responses based on the themes emerging. The same will then be entered into Atlas-ti software for further processing and analysis.

The preparation of data sets will be commenced shortly after the initiation of field survey. The centralized data analysis team situated at the head office will work in coordination with each other. Consistency checks would be run on the data and the data will be cleaned to make it fit for generating reliable estimates. The team would also assign variable labels and value labels besides generating a code list of all the study variables. This cleaned data would be further utilized for next phase of the project.

Phase-9: Data Analysis & Generation of Draft Report: The Team Members will work under the guidance of the team leader to finalize the pertinent study findings. The quantitative data will be analysed using SPSS software, while the qualitative data will be analysed using Atlas-ti software application. They will study the location-wise tables and estimates developed by statistical analyst, apply further statistical & econometric analysis techniques on the data, and would interpret the results in collaboration with each other to generate the key findings for the study. The draft report for the midline and Endline Survey will be submitted to PMU of NCRMP and NDMA for their inputs. Cost Benefit analysis would be carried out under both midline and Endlineas a part of the analysis.

Phase-10: Preparation of Final Report & Presentation of Study Findings: The Team Members would prepare the final report by incorporating the suggestions and recommendations offered by PMU and NDMA officials on draft report. The finalized Midline and Endline Survey Report, along with a soft copy of cleaned data set will then be submitted to the client for finalization of the study.

3.2.   Survey Quality Assurance:

The midline and endline survey carries a significant value as its data would serve as a strategic input for evaluating the impact of interventions on well-being of the households located in the coastal areas at a later stage. The results obtained from the mudline and endline survey may also act as strategic insight for the NCRMP officials helping them in drawing future plan of action for implementing the planned interventions and upscaling them across the States at a later stage. Owing to its importance and relevance, the project carries the following challenges which would be overcome through systematic planning-

  a)   Timely completion of the survey

  b)   Collection and generation of quality data

Timely Completion of the Survey: To ensure timely data collection, the team leader would seek all the required state level database from concerned authorities well within the first week of signing the contract, to facilitate timely sampling and preparation of Field Deployment Plans. The Survey Implementation expert with assistance from and survey team leaders and field supervisors would get in touch with local personnel and would collect adequate secondary data about the location of various sampled villages. On the basis of such information he would draw detailed field movement plans in such a way, so as to ensure minimization of time & expense required for data collection.

Though sufficient and proportionate number of teams will be deployed, yet to reduce attrition related problems, at least 5% additional field staff will be recruited as a cushion to complete data collection on time and to overcome immediate attritions if any. It will be worth mentioning here that AMS employs the field staff, that is, the Research Investigators and Field Supervisors on a monthly honorarium basis and not on per-diem basis. Depending on their performance, they also carry bright

chances to be absorbed in other projects undertaken by AMS. Moreover, various monetary and non-monetary benefits are also given to better performing staff to retain the best talent.

Collection and Generation of Quality Data: In order to provide accurate results, stringent quality checks will be conducted to maintain the quality of field data collection. The steps outlined hereunder would form the key part of ensuring quality data collection:

- For imparting quality training, senior AMS experts having adequate experience in field investigation will be deployed for the instructing the RIs and Field Supervisors. Moreover, after initial briefings, mock interviews will be conducted, so as to prepare the investigators for the field sessions.

- Further, as already mentioned, the survey team will be recruited from the local areas, so that there are no language and socio-cultural barriers.

- For ensuring the merit of field work, the team of research investigators will be provided supportive supervision by the core team of experts proposed to be deployed for the assignment as and when desired.

- During the data collection, independent back-check of the work of RIs will be done by the Field Supervisors on a daily basis. If errors are found in 2 per cent or more of the back-checked sample, survey of the entire sample unit will be done again.

- The Team Members with assistance from Field survey managers will concurrently check at least 10% of the survey formats for checking the completeness and consistency of formats filled by the investigators before sending them for data coding & entry.

- Additionally, the Survey Team Leaders would also undertake surprise visits and field inspections to ensure the authenticity of data.

- At the time of data coding, the coding team will scrutinize every completed questionnaire and provide the teams with relevant feedback. This would ensure that the information collected is correct, complete and comprehensible.

- Attempts shall be made to undertake range checks, structure checks, and consistency tests to eliminate errors based on field check tables generated.

For further assurance of data quality, specific protocols for risk mitigation, ensuring smooth CAPI operations, data security & safeguards, and quality assurance & monitoring have been presented in the sections hereunder-

3.3. Protocols for Risk Mitigation

It is proposed to adopt a well thought out strategy to mitigate the risks associated with a survey of the present type & magnitude. The said strategy is detailed hereunder—

❖ Recruiting Extra Human Resources: Going by its own standard protocol, AMS recruits 10% extra human resources to deal with the eventuality of attrition of survey team members.

❖ Upkeep of Survey Instruments: It is proposed to earmark 10 percent additional CAPI devices as spare in order to meet the exigencies arising on account of faults in the machines. Over and above the availability of the spare tablet devices, it would be ensured that the organisation is in the knowledge of Repair / Service Centers available at the local level within each group and that the tablets can be repaired at these Centers as and when it is so required.

❖ Additionally, 2 Field IT Coordinators would be deployed in the field for ensuring smooth functioning of all IT related operations in the Field.

❖ Regular Charging of CAPI devices :It is proposed to provide powerbanks to the field staff for ensuring recharging of CAPI devices in case the battery runs out and there is no alternate arrangement for electricity in the villages being surveyed. It will be provided from the organisation's own pool besides ensuring to have arrangements for the regular charging of these power banks as well. Field Supervisors would be responsible for ensuring the charging of power banks aimed at uninterrupted operations of the CAPI devices.

❖ Regular Data Back-up:It is proposed to have a mechanism in place for data back-ups on a regular basis. The Field Supervisors would be entrusted with the job of taking these data backups on a reliable external storage device to meet any exigency arising out of the break down of the CAPI devices.

3.4. Protocol for Ensuring Smooth CAPI Field Operations

❖ A microfiber cloth would be provided to clean the tablet screen. This cloth has been specially formulated to attract and remove dust and oils, without damaging the screen. Besides this, specific instructions would be given to the enumerators on proper use and care of the equipment during their training program. A list of do's don'ts would be provided to them related to maintenance.

❖ In order to take care of power failure, one power bank per team would be provided. In addition, each supervisor shall be provided a wi-fi dongle to ensure daily transfer for collected data to the central server.

❖ For uploading of data on a regular basis, field supervisor's CAPI would be synced with a common drop-box/ survey CTO account where everyday data would get synced whenever his/her tablet gets connected to internet.

❖ It is assumed, that all CAPI's will have automatic saving option, so that there will be less chance of loss of data in case of power failure.

3.5. Protocol for Data Security and Safeguards

❖ At the end of each day, data from the completed household questionnaires from the investigator's CAPI machine would be transferred to respective team Supervisor's CAPI machine. The Supervisor after properly verifying every completed questionnaire would transfer the data to the dropbox/ survey CTO account after every two days. The same day, the headquarter team shall sync the data from various locations to the common database. This process would ensure backup of data at all levels on a regular basis.

❖ Each tools for data collection through CAPI would start with special statements which would explain the purpose of the survey. They would assure a respondent that participation in the survey is completely voluntary and that it is their right to refuse to answer any questions or stop the interview at any point.

❖ The training manual of the interviewers would include special instructions regarding confidentiality of data. They would assure the respondent of the same and explain that the information collected would remain confidential, no individual names would be used for any purpose, and all information would be grouped together to write a report.

❖ The interviewers would never mention other interviews to the Supervisor in front of a respondent or any other person including other interviewers.

❖ Further, to maintain privacy, individual interview would be conducted privately and that all questions would be answered by the respondent. Extra effort would be made to gain privacy from the beginning which would allow the respondent to be more attentive.

3.6. Protocol for Data Quality Assurance and Monitoring at the Field Level

❖ Spot-check and back checks of some of the addresses selected for interviewing would be done by supervisor to be sure that the investigator interviewed the correct households and the correct respondents.

❖ Review of 100% questionnaire would be done by scrutinizers at the head office to be sure it is complete and consistent.

❖ Supervisor would observe some interviews to ensure that investigators are asking the questions in the right manner and recording the answers correctly.

❖ Supervisors wouldmeet with the investigators on a daily basis to discuss performance and take backups of data collected in the day.

Additionally, it is proposed to improve data quality by increasing control over the interviewing process which can be done through control over the sequence of questions asked. It is assumed, that while using CAPI, the interviewer would not able be to move in between sections until all questions in a particular section have been filled up. In-built systems and checks would be built into the program to ensure that the file is partially saved at each stage, to avoid any data loss.

3.7.   Deliverables and Reporting

The key deliverables for the proposed midline and endline study would include –

Deliverable	Description of the Deliverable	Date of Submission
Baseline		
Monthly Report	Update regarding the monthly progress	Every month
Inception Report	detailed methodology of the study, sampling plan and draft survey instruments	within 30 days of signing the contract
Baseline data report	Clear quantitative and qualitative assessment of various key performance indicators of Phase-II within	2 months of signing the contract
Pilot study report	Tools finalized based on pilot study findings	within 4 months of signing the contract
Mid-Term Phase		
Final Mid-term Review Report	Quantitative and qualitative assessment of Key Performance indicators vis-a-vis baseline data and evaluation of Project with suggestions for course-correction	by December 2018
End-Term Phase		
Final End-term Review Report	Quantitative and qualitative assessment of Key Performance indicators vis-a-vis baseline data and evaluation of Project Outcomes and suggestions for upstream activities to ensure sustainability and cost benefit analysis	by January/ February 2020

Our project team would ensure timely delivery of the aforementioned deliverables maintaining utmost quality. The deliverables would be strictly in line with the project objectives and deliver all the requisite information demanded by NCRMP from time to time.

Annexure : Research Tools

MIDLINE SURVEY FOR THE BENEFIT MONITORING EVALUATION OF NATIONAL CYCLONE RISK MANAGEMENT PROJECT (NCRMP)

> *District Disaster Authority Questionnaire*

Introduction and Informed Consent

Namaskar! My name is _____, and I am working with Academy of Management Studies (AMS). AMS is a research organization that conducts development research for Government Departments as well as International Organizations. We are undertaking this survey on behalf of the National Disaster Management Authority (NDMA). We are conducting a survey to undertake the benefit monitoring and impact evaluation of the National Cyclone Risk Management Project (NCRMP). The findings obtained from the study will help in strengthening the action and intervention described by the scheme to improve the quality and enhance the equity of disaster management service provisions across the country. The study report will ultimately enhance the preparedness of the community at the face of a natural disaster, thus mitigating the risk of widespread loss of property and life.

The information provided by you will be kept confidential and will not identify you. I will ask you a series of questions that should take about 20 to 30 minutes. You may choose not to answer any question or all of the questions. However, your answers are important and we hope that you will participate.

At this time, do you want to ask any questions about the survey? Do you agree to participate in the survey now?

I request your consent before I proceed with the questions

        Respondent Agreed..1

        Respondent did not agree...................................1

Section-1: General Information

1.1	State:	
1.2	District:	
1.3	Number of coastal villages under district that are covered under NCRMP-II	
1.4	Name of the Respondent :	
1.5	Gender (Male-1; Female-2)	
1.6	Designation:	
1.7	Experience in current Position (in years):	
1.8	Total WorK Experience	
1.9	Full official address:	
1.10	Mobile Number :	

Section 2: Preparedness

Q.N.	Question	Answers	Skip
2.1	Is there a comprehensive DistrictDisaster Management Plan (DDMP) designed to deal with natural hazards in the area?	Yes--1 No --2	
2.2	If yes, how useful is the District Disaster Management Plan (DDMP in ensuring preparedness to respond to the disaster?	--- --- --- --- ---	
2.3.	In your opinion, are the villages in the district well prepared for a disaster?	Yes--1 No --2	If code 2, skip to 2.3.1
2.3.1.	If yes, what are some of the best practices adopted by them?	--- --- --- --- ---	

Q.N.	Question	Answers	Skip
2.3.2.	if no,what do you think are the main barriers to being prepared?	-- -- -- -- -- --	
2.4	How do you think that preparedness for a disaster has changed over time?	-- -- -- -- -- --	
2.5	What are the most effective communication measures that have succeeded in conveying messages about an impending hazard?	-- -- -- -- -- --	
2.6	Which groups are most vulnerable/or at risk of suffering the adverse impacts of the cyclone, or any other natural hazard?	-- -- -- -- -- -- --	

Section 3: Implementation and functioning of the Scheme

Q.N.	Question	Answers	Skip
3.1	In which year was the NCRMP- Phase II operationalized in your district?	Year------ [ ]	
3.2	Since how long have you been involved with the implementation of the NCRMP Phase-II scheme?	No. of Yrs ----------------- [ ]	
3.3	What is your role in the implementation of NCRMP Phase-II scheme?	-- -- -- -- --	
3.4	Does the department have a District Project Steering Committee (DPSC)?	Yes--- 1 No -- 2	

3.5.	What are the Line Departments that are under your supervision for the implementation of the project?	--- --- --- --- ---	
3.5.1	List the responsibilities of the respective Line Departments in the implementation of the project	--- --- --- ---	
3.6	How are disasterrisks identified and expressed under the project? (Reports, GIS, Maps)		
3.7	What early warning systems are in place in the district?	--- --- ---	
3.8	Are you aware of the warnings transmitted to state, district officials and to the population?	Yes-- 1 No -- 2	
3.8.1	If yes, describe and discuss this pathaway for transsision of this information.	--- --- --- ---	
3.8.2	What means of disaster communication has been most effective in disseminating hazard warning to the wider community?	--- --- --- ---	
3.9	Have cyclone shelters been constructed or are under construction for the evacuation of the community in all the risk-prone villages?	Yes-- 1 No -- 2	if code (2) skip to3.10
3.9.1	If yes, have there been any barriers to the smooth construction process of the shelters?	Yes-- 1 No -- 2	
3.9.2	Mention these barriers	---	

		--- --- ---	
3.10	Have the shelters been useful in providing temporary shelter to the community	Yes-- 1 No -- 2	
3.11	How ready are communities to understand official warnings and react?	--- --- --- ---	
3.12	if they are not ready, have any capacity building and training programmes been organised for the commuty to educate them?	--- --- --- ---	
3.13	Have any training sessions been organised for the district functionaries?	Yes-- 1 No -- 2	if code (2) skip to3.13. 3
3.13.1	If yes, how many trainings have been organised in the last three years?		
3.13.2	What was the subject/content of these trainings?	--- --- --- ---	
3.13.3	If no, Reasons for not organising trainings.	--- --- ---	

Section 4: Monitoring and Grievance Redressal			
Q.N.	**Question**	**Answer**	**Skip**
4.1	Is there any mechanism in place for monitoring the working and effectiveness of the implementation of the project at the district level?	Yes-- 1 No -- 2	If code 2 go to 4.2
4.1.1	If yes, please describe the monitoring process:	--- --- ---	

4.1.2	Who all have been entrusted with the task of monitoring the scheme at district level?	------------------------------------ ------------------------------------ ------------------------------------ ------------------------------------	
4.2	Do you have any formal administrative orders issued for monitoring of the scheme by various officials in the districts? *(Investigator to collect the copy of the orders if the same exist)*	Yes------------------------------------ 1 No ----------------------------------- 2	
4.3	Are on-site visits to the field sites undertaken as part of the monitoring process?	Yes------------------------------------ 1 No ----------------------------------- 2	
4.4	If yes, please provide the no. of villages visited during past 1 year in the district?	Visits made by State level Officials----- ------------------------------------ Visits made by District level Officials-- -------------------------------- [ ]	
4.5	Kindly mention the major findings of the monitoring visits made by the officials to various agencies engaged in the implementation of the project?	------------------------------------ ------------------------------------ ------------------------------------ ------------------------------------	
4.6	Does the department have any grievance redressal system in place to address the grievances of the community?	Yes------------------------------------ 1 No ----------------------------------- 2	If no, go to section -5
4.6.1	If yes, kindly provide the details of the grievances received at the district level during last 1 year and the action taken thereon:	------------------------------------ ------------------------------------ ------------------------------------ ------------------------------------	

SN	No. of grievances received	Type of grievances received	No. of grievances addressed

Section-5: Convergence			
Q.N.	Question	Answer	Skip
5.1	Do you work with other departments/agencies/institutions in the State as part of convergence to strengthen disaster risk reduction?	Yes-- 1 No --- 2	If no, go to section-6
5.1.1	If yes, with which other departments/agencies/institutions?	--- --- --- ---	
5.1.2	Do you get adequate support from them?	Yes-- 1 No --- 2	If no, go to section-6
5.1.3	If no, what is expected of them?	--- --- --- ---	
Section-6: Effectiveness of the Project			
Q.N.	Question	Answer	Skip
6.1	In your opinion how effective do you think the NCRMP-II project in mitigating the risk to	(a) Environment/Natural Capital------------ --- --- --- (b) Social & Cultural Capital; ------------------ --- --- --- (c) Economic & Financial Capital------------ --- --- --- (d) Any other service/resource ------------- --- --- ---	
6.2	Has the scheme contributed to limiting loss of life and property due	--- --- ---	

6.3	Do you think that the efforts of NGOs/VOs have contributed to changes in wellbeing and quality of life for the people with disability, their families?	Yes-- 1 No -- 2	
6.3.1	Please state reasons in support of your choice	-- -- -- -- --	
6.4	Generally speaking, what aspects of the NCRMP project do you think work well? What could be improved? Opportunities? Threats/Challenges?	-- -- -- -- -- -- -- --	
6.5	Can you share any instances where the community/villages have organized themselves and demonstrated agency in preparing for the hazard?	-- -- -- -- --	
6.5	Considering the state specific needs with regards to cyclone preparedness and risk reduction, are there any issues that you would like to be included in the project?		
6.5.1	If yes, please elaborate-		

* * * * *

MIDLINE SURVEY FOR THE BENEFIT MONITORING EVALUATION OF NATIONAL CYCLONE RISK MANAGEMENT PROJECT (NCRMP)

> *Observation Questionnaire*

District: _____ Block: _____ GP:_____

Village: _____ Location Code: _____ ☐

Name of Investigator: _____ Date of Interview: _____

Section 1: General			
1.1	Distance of the village from the coast	Aligned to the coast ----------------- 1 Within 5 Kms from the coast ------ 2 Within 10 Kms from the coast ----- 3	
1.2	No. of Households in the village		
1.3	No. of Households residing in the immediate vicinity of the coast?		
1.4	Does the village have a disaster management plan?	Yes -------------------------------- 1 No --------------------------------- 2	
1.5	Does the village an evacuation plan ready for the residents?	Yes -------------------------------- 1 No --------------------------------- 2	
1.6	Does the village have any emergency medical facilities available for such situations?	Yes -------------------------------- 1 No --------------------------------- 2	
1.7	Type of Cyclone Risk Mitigation Measures available in the village	Early Warning Dissemination System -------------------------------- 1 Multipurpose Cyclone Shelter ----- 2 Saline Embankments --------------- 3 Roads and Bridges -------------------- 4 Underground Cable ----------------- 5 Capacity Building Exercises --------- 6	***In case a village does not have a particular infrastructure, skip the section**

	Section 2: Early Warning Dissemination System		
S.No.	**Question**	**Codes**	**Response**
2.1	Is there an early warning dissemination system in the village?	Yes -------------------------------- 1 No -------------------------------- 2	
2.2	From where does the risk warning information reach the village?	State-Emergency Operation Centre ----------------------------- 1 District-Emergency Operation Centre ----------------------------- 2	
2.3	What type of warning system exists in the village? *(Multiple Responses Applicable)*	Alert Tower ----------------------- 1 Very High Frequency ------------ 2 TV ---------------------------------- 3 Radio ------------------------------- 4 SMS alert ------------------------- 5 Police wireless ------------------- 6	
2.3.1	Which type of system is most effective in reaching the community?	Alert Tower ----------------------- 1 Very High Frequency ------------ 2 TV ---------------------------------- 3 Radio ------------------------------- 4 SMS alert ------------------------- 5 Police wireless ------------------- 6	
2.4	Are there any measures in place to ensure that the warning reaches all groups and communities equally?	Yes -------------------------------- 1 No -------------------------------- 2	
2.4.1	If yes, mention some of the ways adopted to ensure that the warning reaches everybody who is at risk. *(Multiple Responses Applicable)*	Training is provided to the community to ensure that they understand the warning ------- 1 Training is provided to the DMT at the village on how to interpret warning --------------- 2 Radio warnings are disseminated in the local languages ------------------------- 3 Community gatekeepers and DMT disseminate warning to households ----------------------- 4 Other (Specify) ------------------- 5	
2.4.2	If no, mention the barriers to ensure universal and equitable reach of warning.	Government chose not to pass on warning information to the public fearing political risk ----- 1 Poor coordination and communication between ------ 2	

		Lack of clarity and completeness in warnings issued ----------------------------- 3	
2.5.	Is the warning issued well in advance before the onset of the cyclone?	Yes --------------------------------- 1 No ---------------------------------- 2	
2.5.1	If yes, how long before the cyclone is the warning issued?		
2.5.2	If no, provide the reasons for delays.		
2.6	Do you think that the community is able to understand and interpret the messages of the risk warning?	Yes --------------------------------- 1 No ---------------------------------- 2	
2.6.2	If not, provide the reason for the gaps in communication. **[Multiple Answer Questions]**	Lack of clarity & completeness in messages ----------------------- 1 Lack of standardization of messages -------------------------- 2 Confusing warning language & terminology ----------------------- 3 Lack of adequate training provided to community -------- 4	
Section 3: Multi-Purpose Cyclone Shelter			
3.1.	Status of multi-purpose cyclone shelter in the locality/village?	Completed ------------------------ 1 Under construction -------------- 2	
3.1.1	If yes, when was it established?	Before 2015 ----------------------- 1 2015-16 --------------------------- 2 After 2015-16 -------------------- 3	
3.1.2	How was the shelter constructed?	Under the NCRMP project ----- 1 Under another Central Government Scheme ----------- 2 Under some State Government scheme ------------------------------ 3 Using community funds -------- 4 Using funds provided by an NGO/CBO ------------------------- 5 Other ------------------------------ 6	
3.2	How far is the shelter from the cost/ areas vulnerable to the cyclone?	*(Kilometres)*	
3.2.1	Location of the shelter	Middle of the village ------------ 1 On the village fringe ------------- 2	

		Outside the village -------------- 3	
3.2.2	Is the shelter located in	Open space ----------------------- 1 Inside the embankment -------- 2 Outside the embankment ------ 3	
3.3.	Were the shelters built on a height?	Yes ---------------------------------- 1 No ----------------------------------- 2	
3.4	What is the average time in which a villager can take to reach the shelter?	Less than 10 minutes ------------ 1 10-20 minutes -------------------- 2 More than 20 minutes ---------- 3	
3.5	Do the villagers face any difficulties in accessing the shelter in time of need?	Yes ---------------------------------- 1 No ----------------------------------- 2	
3.5.1.	If YES, what difficulties do they face in accessing the shelter?	Flooding in the area ------------- 1 Weak or Damaged Road -------- 2 Lack of robust road -------------- 3 Lack of bridges across creek/other water body -------- 4 Shelter is not disabled friendly -- 5 Others ----------------------------- 6	
3.6	Coverage of the Shelter (Number of villages)		
3.7	Coverage of the Shelter (Number of people)		
3.8	No. of people took shelter in the facility during the last cyclone	Nos.: Not Applicable ------------------- 99	
3.9	What is the type of building?	Stand-alone cyclone shelter --- 1 School-cum-shelter -------------- 2 Temple/Mosque-cum-shelter --3 Health-centre cum shelter ----- 4 Others ----------------------------- 99	
3.10	Area of the building	Under 100 sq. metres ----------- 1 100-250 sq. metres -------------- 2 251-500 sq. metres -------------- 3 501-750 sq. metres -------------- 4 751-1000 sq. metres ------------ 5	

		More than 1000 sq. meters ---- 6	
3.11	Size of the building	One-storeyed structure --------- 1	
		Two-storeyed structure --------- 2	
		Three-storeyed structure ------ 3	
3.12	Number of rooms in the building	Less than 4 rooms --------------- 1	
		4-8 rooms ------------------------ 2	
		8-10 rooms ----------------------- 3	
		10-15 rooms --------------------- 4	
		More than 15 rooms ----------- 5	
3.13.1	The walls of the shelter made of -	Reinforced concrete ------------ 1	
		Brick ------------------------------ 2	
		Wood ----------------------------- 3	
		Others ---------------------------- 4	
3.13.2	The roof of the shelter made of -	Reinforced concrete ------------ 1	
		Brick ------------------------------ 2	
		Wood ----------------------------- 3	
		Others ---------------------------- 4	
3.13.3	The floor of the shelter made of -	Reinforced concrete ------------ 1	
		Brick ------------------------------ 2	
		Wood ----------------------------- 3	
		Others ---------------------------- 4	
3.14	Is the shelter in usable and good physical condition?	Yes -------------------------------- 1	
		No--------------------------------- 2	
3.14.1	Describe the issues plaguing the shelter, if any	Cracks in walls, roofs etc.------- 3	
		Loss of plasters in walls, ceilings- --------------------------------------- 4	
		Weak structures ------------------ 5	
		Inadequate facilities (power, drinking water, emergency food supply) --------------------------- 6	
		No issues faced ------------------ 7	
3.15	Does the cyclone shelter have emergency power?	Yes -------------------------------- 1	
		No -------------------------------- 2	
3.16	Does the cyclone shelter have toilet and bath facilities?	Yes, to both ---------------------- 1	
		No, only toilet -------------------- 2	

		No, only bath ---------------------- 3	
		No, to both ----------------------- 4	
3.17	How many toilets are present in the cyclone shelter?		
3.17.1	Are separate toilet/bathing facilities for women available?	Yes -------------------------------- 1 No --------------------------------- 2	
3.18	Are special facilities available for physically disabled people?	Yes -------------------------------- 1 No --------------------------------- 2	
3.19	Is there any Cyclone Shelter Maintenance and Management Committee (CSMMC)?	Yes -------------------------------- 1 No --------------------------------- 2	
3.20	If yes, what are the functions of the CSMMC?		
3.21	Frequency of meetings organized by the CSMMC?	Fortnightly------------------1 Monthly----------------------2 Quarterly --------------------3 Bi-annually--------------------4 Annually----------------------5 Never-------------------------6 Others-----------------------7	
3.22	If no, who is responsible for the maintenance of the cyclone shelter all year round?	PRI members/Local body ------- 1 School Management Committee -- 2 Religious/faith-based leaders. ------------------------------------- 3 District Disaster Management Authority (DDMA) ---------------- 4 Voluntary participation by community ----------------------- 5 NGOs/CBOs ----------------------- 6 Not sure/Don't Know ----------- 7	
3.23	*Does the shelter contain the following equipment?*		

	Type of Equipment	Available (Nos.)	Functional (Nos.)
3.23.1	First Aid Box,		
3.23.2	Free Kitchen Utensils,		
3.23.3	Inflatable Tower Lights,		

3.23.4	Aluminum Ladder,		
3.23.5	Life Jacket		
3.23.6	Search Light, The		
3.23.7	Power Saw,		
3.23.8	Stretcher		
3.23.9	Life Buoy& other essentials		
3.23.10	Siren,		
3.23.11	Flexi-Water Tank,		
3.23.12	Fire Extinguisher,		
3.23.13	Foldable Stretcher,		
3.23.14	Solar Lantern,		
3.23.15	Water Filter		
3.23.16	Handheld Megaphone		

SECTION 4: Roads				
SN	*Question*	*Codes*	*Response*	*Skip*
4.1	Does the village have any access roads that are complete or under construction?	Yes---------------------------- 1 No--------------------------------2		**If code 2, skip to 3.6**

4.1.1 Provide the following details on the roads.

	A	B	C	D	E	F	G
	Road	**Progress status of the road** *(Completed -1, Under construction -2; Under renovation- 3, Planned but not yet constructed- 4; No road- 5)*	**Functional classification** *Trunk or Primary -1; Secondary or Link roads -2; Tertiary- 3)*	**Type of Road** *Rural access -1, feeder, market -2; agricultural, irrigation -3; forestry or community roads-4)*	**Length of Road** *(In Kilometres)*	**Scheme under which road was built or renovated***	**Year in which road was built or renovated#**
	Road #1						
	Road #2						

	Road #3						
	Road #4						
	Road #5						
	* PradhanMantri Gram SadakYojana -1; NCRMP-2:Any other-97; Don't Know-99						
	# Before 2015----1; 2015-16 ---2; After 2015-16---3; Don't know-99						
4.2.	For roads that are completed or under construction, were environment and social regulations followed?	Yes ------------------------------ 1 No ------------------------------ 2					
4.3	Were any village members/community involved in the process of construction of the roads?	Yes ------------------------------ 1 No ------------------------------ 2					
4.4	How long did it take to complete the construction/renovation of the road?						
4.9.	Were the bridges useful during evacuation after cyclone warning was issue?	Yes ------------------------------ 1 No ------------------------------ 2					

Section 5: Bridges

5.1	Does the village have any bridges that are complete or under construction?	Yes ------------------------------ 1 No ------------------------------ 2	**If code 2, skip to 3.10.**

3.7.1. Provide the following details on the Bridges

	A	B	C	D	E	F
	Bridge	**Progress status of the Bridge** *(Completed -1, Under construction-2; Under renovation-3, Planned but not yet constructed-4; No road-5)*	**Length of Bridge** *(In Kilometres)*	**Location of the Bridge** *(periphery of the village-1, middle of the village-2)*	**Scheme under which bridge was built or renovated***	**Year in which Bridge was built or renovated**
	Bridge 1					
	Bridge 2					
	Bridge 3					
	Other (Specify)					

	* PradhanMantri Gram SadakYojana -1; NCRMP-2:Any other-97; Don't Know-99			
	# Before 2015----1; 2015-16 ---2; After 2015-16---3; Don't know-99			
5.2	Were the bridges useful during evacuation after cyclone warning was issue?	Yes ------------------------------- 1 No ------------------------------- 2		
5.3	If yes, describe how the bridges were useful.			

<div align="center">

SECTION 6: Saline Embankments

</div>

6.1	Does the village have any saline embankments that are complete or under construction?	Yes ------------------------------- 1 No ------------------------------- 2		

6.2 If yes, fill details on the following: -

	Emban kments / Bunds	Progress Status@ (Completed -1,Under construction-2; Under renovation-3, Planned but not yet constructed-4)	Length of embank ment construc ted/reha bilitated (In Kilometres)	Area protecte d under the embank ment (Square kilometres)	Location of the embankme nt (periphery of the village-1, middle of the village-2)	Scheme under which it was built or renovated*	Year in which the emban kment was built or renovat ed #
6.2.1							
6.2.2							
	*PradhanMantri SadakYojana -1; NCRMP-2: Any other-97; Don't Know-99						
	# Before 2015----1; 2015-16 ---2; After 2015-16---3; Don't know-99						
6.3	Have the embankments been useful in preventing flooding of the village?	Yes ---------------------------------- 1 No ---------------------------------- 2					

<div align="center">

SECTION 7: Underground Cable

</div>

7.1	Does the village have any underground cables that are complete or under construction?	Yes --------------------------------- 1 No --------------------------------- 2		**If code 2, skip to 3.15**

7.2	If yes, fill details on the following: -					
	Underground Cable	**Progress Status@**	**Type of underground cable**	**Length of cable** *(kilometres)*	**Scheme under which it was laid***	**Year in which the cable was laid down #**
	@ (Completed -1, Under construction-2; Under renovation-3, Planned but not yet constructed-4; No emabnkment-5)					
	* PradhanMantri Gram SadakYojana -1; NCRMP-2: Any other-97; Don't Know-99					
	# Before 2015----1; 2015-16 ---2; After 2015-16---3; Don't know-99					
7.3	Describe how the underground has been useful for the village.					
7.4	If no, provide a reason for not laying down underground cabling.					

SECTION 8: Capacity Building and Training of the Community				
5.1	Are any capacity building and training related to cyclone risk mitigation and preparedness conducted in the village?	Yes-------------------------------- 1 No--------------------------------2		
5.1.1	How many households had any members participate in the training sessions?			
5.1.2	Do the men and women of the village equally participate in these meetings?	**Yes,** men and women participate equally ------------------------------- 1 **No,** men participate more. ------ 2 **No,** women participate more ---- 3		
5.1.3	When was the last training session held?	In the last 6 months ---------------- 1 In the last year ---------------------- 2 Before a year ----------------------- 3		

		In the last 3 years ------------------ 4		
5.1.4	Who organized the training sessions?	PRI members/Local body --------- 1 School Management Committee 2 Cyclone Shelter Maintenance and Management Committee (CSMMC). --------------------------- 3 District Disaster Management Authority (DDMA) ----------------- 4 Voluntary participation by community -------------------------- 5 NGOs/CBOs -------------------------- 6 Not sure/Don't Know ------------- 99		
5.1.5	What was the training session about? *Do not read the options. Encourage by asking anything else until s/he says there is nothing else, and check all responses mentioned* **(Multiple options)**	Cyclone-risk mitigation information -------------------------- 1 How to interpret cyclone warnings----------------------------- 2 How to use technological applications *(GSM mobile phone features/Toolkit Applications and Alert Siren/loudspeaker systems)* --- 3 *How to respond to cyclone warnings----------------------------- 4* *Any other (please specify) ------- 97* Not sure/Don't Know ------------ 99		
5.2.	Were any mock drills carried out to check the preparedness of the community?	Yes ----------------------------------- 1 No ----------------------------------- 2		
5.2.1	Who was responsible for carrying out the mock drill?	PRI members/Local body --------- 1 School Management Committee--- 2 Cyclone Shelter Maintenance and Management Committee (CSMMC). --------------------------- 3 District Disaster Management		

		Authority (DDMA) ----------------- 4		
		Voluntary participation by community -------------------------- 5		
		NGOs/CBOs ------------------------ 6		
		Not sure/Don't Know ------------ 99		
5.2.3	Did you/any member of your family participate in the mock drill?	Yes ------------------------------------ 1 No------------------------------------ 2		
5.3	If not conducted, do you think there is a need to conduct training and capacity building on disaster risk awareness and preparedness?	Yes ------------------------------------ 1 No------------------------------------ 2		

* * * * *

MIDLINE SURVEY FOR THE BENEFIT MONITORING EVALUATION OF NATIONAL CYCLONE RISK MANAGEMENT PROJECT (NCRMP)

> **_Midline Household Survey Questionnaire_**

District: _____ Block: _____ GP: _____

Village: _____ Ward No.: _____

Name _____

Location Code: ………………☐………..   **Household No. from Listing** ☐
Sheet: …………………..

Name of Investigator: _____ Date of Interview: _____

GPS Readings of the House					
Latitude		**Longitude**		**Altitude**	

Section 1: General Profile of the Household				
S.No.	**Question**	**Codes**	**Response**	**Skip**
1.1	Name of the Head of Household:			
1.2	Sex of the Head of Household:	Male -------------------------------- 1 Female ------------------------------ 2		
1.3	Caste/Social Category of the Head of Household	General ------------------------------ 1 Scheduled Caste ------------------- 2 Scheduled Tribe ------------------- 3 Other Backward Castes --------- 4		
1.4	Religion of the Head of Household	Hindu -------------------------------- 1 Muslim ------------------------------ 2 Sikh ---------------------------------- 3 Christian --------------------------- 4 Buddhist -------------------------- 5 Jain ---------------------------------- 6 Any other, please specify ----- 99		
1.5	Economic Category of the Household on the basis of ration card (_Ask the respondent to show the ration card and record details accordingly. If the respondent is hesitant to show the card, ask for the color of card verbally and determine economic category._)	Below Poverty Line (BPL) ------ 1 Above Poverty Line (APL) ----- 2 Others (including No card) --- 99		

S.No.	Name of the Member	Relationship with Head of Household (CODE)	Sex (Male-1; Female-2)	Age (in Completed Years)	Educational Status (CODE)	Marital Status (CODE)	Nature of Disability, if any (CODE)	Primary Occupation (CODE)	Secondary Occupation (CODE)
		A	B	C	D	E	F	G	H	I
1.6.1									
1.6.2									
1.6.3									
1.6.4									
1.6.5									
1.6.6									
1.6.7									
1.6.8									
1.6.9									
1.6.10									

1.6 Please provide the demographic details of the members of the household in the following matrix -

CODES FOR COL.B: Relationship with the Head of Household: Head -1; Mother-2; Father-3; Husband-4; Wife-5; Son-6; Daughter-7; Daughter-in-law-8; Brother-9; Sister-in-law-10; Sister-11; Nephew-12; Niece-13; Grandchild-14; Other-97 *(Start by entering the details of the Head of Household in the table)*

CODES FOR COL.E: Educational status: Numbers 1-12 for classes 1-12; Graduate -13; Post graduate-14; Literate but not formally educated-15; Illiterate-16

CODES FOR COL.F: Marital Status: Married-1; Unmarried-2; Widow/ Widower-3; Divorced-4; Separated-5; Other -99

CODES FOR COL.G: Disability Status: Mental-1; Visual-2′ Hearing-3; Speech-4; Icotomoter-5; multiple-6; No disability-98; Any other, please specify-97

CODES FOR COL. H&I: Occupation: Cultivation-1; Livestock Rearing-2; Agricultural Labour-3; Non-Agricultural Labor-4; Salaried Work-5; Business-6; Any other, please specify_____-97

Section 2: Housing Status & Household Assets				
S.No.	Question	Codes	Response	Skip
2.1	Total Agricultural Land owned by the household *(1 hectare =2.5 Acre)*	*(Record area in Acres)*		
2.1.1	Total irrigated area	*(Record area in Acres)*		
2.2	What is the type of house? (OBSERVE &**RECORD**)	Kutcha---------------------------------- 1 Semi-pucca ----------------------------- 2 Pucca ----------------------------------- 3 Any other, please specify ----------- 97		

2.3	What is the ownership status of the house?	Own House ----------------------------- 1 Rented accommodation ------------ 2 Provided free of cost by employer/ relative/ friend, etc. ------------------ 3 Any other (Please specify) ---------- 97		
2.4.1	Do you have an electricity connection in your house?	Yes --------------------------------------- 1 No -------------------------------------- 2		
2.4.2	What is the average annual income of the household?	Yes --------------------------------------- 1 No --------------------------------------- 2		
2.7	**Does the household own the following assets? (***Available-1; Unavailable-2***) *Ask for each item individually and record availability accordingly.***			

	Item	**Availability**		**Item**	**Availability**
A	Mattress made of Cotton/ Foam		M	Gas Stove	
B	Cot		N	Pressure Cooker	
C	Chair		O	Refrigerator	
E	Electric Fan		Q	Color Television	
F	Sewing Machine		R	Landline Telephone	
G	Radio/Transistor		S	Bicycle	
J	Tractor		V	Animal Drawn Cart	
L	Washing Machine		X	Car/ Jeep	
			Y	Dish TV/ Cable	
Q2.8	Number of Mobile Phones in the Household				
Q2.9	Please mention the Number of Livestock owned by the family				
A	Milch Animal (Cows andBuffaloes)		d	Hen/ Duck	
B	Draught Animals		e	Pig	
C	Goat/ Sheep		f	Any other, please specify	

	Section 3: Disaster preparedness & Recovery from the previous cycone				
3.1	When did the last cyclone hit your village/locality				
3.2	Did you receive warning about the cyclone?	Yes-------------------------------------1 No-------------------------------------2			

3.2.1	How long before the onset of the cyclone did you receive the warning?	Before 72 hours----------------------*1* Before 48 hours----------------------*2* Before 24 hours----------------------*3* Any other (please specify) --------- 4		
3.2.2	What type of warning message was disseminated before evacuation? *Do not read the options. Encourage by asking anything else until s/he says there is nothing else, and check all responses mentioned* **(Multiple Response Applicable)**	Announcement about approaching cyclone-----------------------------------1 Move to safer place / Cyclone shelter/ School. / PanchayatBhavan/ Relatives' house etc.-----2 Asked not to come out/ not to go for fishing------------------------------3 Did not warn/ or make any announcement-----------------------4 Don't Know -------------------------5		
3.3	Is there any evacuation plan made for the village specifically?	*Yes*-------------------------------------*1* *No*--------------------------------------*2*		
3.4	Did you evacuate your home before the cyclone hit your locality?	Yes--------------------------------------1 No---------------------------------------2		If code "2", skip to 3.4.6
3.4.1	If Yes, Did you evacuate with your livestock?	Yes--------------------------------------1 No---------------------------------------2		
3.4.2	Reason for evacuation from own house **(Multiple Response Applicable)**	Kutcha house ------------------------ 1 Pucca house – low plinth height-- 2 Close to coast ----------------------- 3 Flood ------------------------------ 4 Disabled/small children/elders --- 5 Any other --------------------------- 97		
3.4.3	Where did you/your family evacuate to?	Cyclone shelter ---------------------- 1 Multi-purpose cyclone shelter (MPCS) Government Building (school etc.) --2 Other family/friend's permanent structure------------------------------3		
3.4.4	What difficulties do you face in the present shelter facility? **(Multiple Response Applicable)**	Shelter far away from home ------ 1 Lack of space ------------------------ 2 Lack of adequate beds ------------- 3 Difficulty in reaching the shelter-- 4 Lack of drinking water facilities --- 5 Inadequate no. of toilets ---------- 6 Inadequate facilities for women and disabled ------------------------- 7 No difficulties faced --------------- 8 Any other(Specify) ----------------- 97		

3.4.5	How long did it take you to return from the emergency evacuation shelter/cyclone shelter?	Same day ------------------------------ 1 1-2 days ------------------------------ 2 3-4 days ------------------------------ 3 >5 days ------------------------------ 4 Not Aware/Don't remember ---- 99		
3.4.6	If no, reason for not evacuating *(Multiple Response Applicable)*	House is situated far away from the coast ------------------------------ 1 Cyclone was low risk --------------- 2 Don't have any safe place or cyclone shelter to go -------------- 3 Nobody warned us ------------------ 4 Missed the announcement ------- 5 Most of the houses in the area are pucca --------------------------------- 6 Don't know/Not aware ----------- 7 Unable to transport pets/livestock-- 8 Any other(Specify) ----------------- 97	Skip, if code "1" in 3.4	
3.7	Did you suffer any loss due to the cyclone? *(Multiple Response Applicable)*	Loss of income sources ------------- 1 Loss of land --------------------------- 2 Loss of valuable fishing/agriculture tools ------------------------------------- 3 Loss of valuable physical and financial assets ----------------------- 4 Unemployment ---------------------- 5 Disease affliction/injury ----------- 6 House damage ----------------------- 7 Damage to/Loss of transport ----- 8 Damage to house -------------------- 9 Loss of life --------------------------- 10 Any Other --------------------------- 98		
3.8	Did you or any member of your family have to change their occupation due to the cyclone?	Yes ------------------------------------- 1 No -------------------------------------- 2		
3.8.1	New occupation			
3.9	Did you or any member of your family have to migrate out of the village due to the cyclone?	Yes ------------------------------------- 1 No -------------------------------------- 2		
3.10	Did you or any member of your family have to seek medical treatment due to the impact of the cyclone?	Yes ------------------------------------- 1 No -------------------------------------- 2		

| 3.11 | Did any children in your household miss school due to the cyclone? | Yes ------------------------------------- 1
No ------------------------------------- 2 | | |
| 3.12 | Did you or any other household member borrow money through formal or informal sources, due to the adverse effect of the cyclone? | Yes ------------------------------------- 1
No ------------------------------------- 2 | | |

<table>
<tr><td colspan="5" align="center">Section 3: Awareness of and role of Early Warning Dissemination System</td></tr>
<tr><td>S.No.</td><td>Question</td><td>Codes</td><td>Response</td><td>Skip</td></tr>
<tr><td>4.1</td><td>Are you aware of an early warning dissemination system, such as a siren or a loudspeaker, to warn the population about an impending cyclone in the area?</td><td>Yes ------------------------------------- 1
No ------------------------------------- 2</td><td></td><td>code '2' skip to Q4.2</td></tr>
<tr><td>4.1.1</td><td>If yes, then do you know where the EWDS is installed?</td><td>Yes ------------------------------------- 1
No ------------------------------------- 2</td><td></td><td></td></tr>
<tr><td>4.1.2</td><td>Mention the type of EWDS</td><td>Alert Tower ------------------------------- 1
Very High Frequency --------------------- 2
TV ------------------------------------- 3
Radio ------------------------------------- 4
SMS alert ----------------------------------- 5
Police wireless ----------------------------- 6</td><td></td><td></td></tr>
<tr><td>4.2.</td><td>Have you ever received an early warning for a disaster in the village?</td><td>Yes ------------------------------------- 1
No ------------------------------------- 2</td><td></td><td>If code "2" Skip to the next section</td></tr>
<tr><td>4.2.1</td><td>If yes, how long before the calamity did you receive the warning?</td><td>48 hours before --------------------------- 1
24 hours before --------------------------- 2
12 hours before --------------------------- 3
6 hours before ----------------------------- 4
1 hour before ----------------------------- 5</td><td></td><td></td></tr>
<tr><td>4.2.2</td><td>What type of warning message was disseminated before evacuation?
<i>Do not read the options. Encourage by asking anything else until s/he says there is nothing else, and check all responses mentioned</i>(Multiple Response Applicable)</td><td>Announcement about approaching cyclone ------------------------------------- 1
Move to safer place / Cyclone shelter/ School. / PanchayatBhavan/ Relatives' house etc. --------------------------------- 2
Asked not to come out/ not to go for fishing ------------------------------------- 3
Did not warn/ or make any announcement----------------------------- 4
Don't Know ------------------------------- 5</td><td></td><td></td></tr>
</table>

S.No.	Question	Codes	Response	Skip
4.2.3	Did you face any difficulty in understanding the purpose of the warning?	Yes -------------------------------------- 1 No -------------------------------------- 2		
4.2.3.1	If yes, then how did you seek clarification regarding its message? *(Multiple Response Applicable)*	Sought advice from community leaders on what to do next------------------------ 1 Sought advice from local government functionaries on what to do ------------- 2 Sought advice from friends/neighbours- -- 3 Did not seek clarification ---------------- 4 Any other (Please specify) ------------- 99		
4.2.3.2	If no, where did you learn about the EWDS?	Family/Friends/Relatives -------------------1 Local PRi members ------------------------ 2 From NGOs/CBOs ------------------------ 3 Capacity Building meeting at the village- -- 4 Newspapers/TV/Radio-------------------- 5		
4.4	What was your/your family's response to the warning?	Immediately move to the nearest evacuation shelter with family ---------- 1 Tied-up their roofs with a tree ------- 2 Kept food in safer places ----------------- 3 Move to the nearest evacuation shelter after one day ------------------------------- 4 Lock yourselves in your respective homes --------------------------------------- 5 Did nothing -------------------------------- 6 Any other (Please Specify) ------------- 97		
4.5	Do you think there is a need for a mechanism to inform the community about an impending cyclone?	Yes -------------------------------------- 1 No -------------------------------------- 2		If code 1, skip to 3.6
4.6	Provide the reason for a need for an early warning dissemination system. *(Multiple Response Applicable)*	To warn the community so that they can evacuate ------------------------------- 1 To warn the community so that they save their property ---------------------- 2 To warn the community so that they save their livestock---------------------- 3 Any other (Please specify) ------------- 97		
4.7	What kind of difficulties do you have to face with respect to the EWDS? *(Multiple Response Applicable)*	Couldn't hear the message ------------- 1 Couldn't understand the warning ---- 2 Message reached only selected groups in the village ------------------------------ 3 Did not know what to do next -------- 4 Any Other -------------------------------- 98		
Section 5: Multi-Purpose Cyclone Shelter				
S.No.	Question	Codes	Response	Skip
5.1	Are you aware of any MCPS in the village/locality?	Yes ------------------------------------- 1 No ------------------------------------- 2		If code "2," skip to 4.1.2

5.1.2	If not, how far away is the nearest MCPS from the house?	Less than 2.5 Km----------------------1 Between 2.5 Km to 5 Km------------2 More than 5 Km----------------------3		
5.1.3	Reasons for selecting/preferring the given cyclone shelter *(Multiple Response Applicable)*	There is no other place to take shelter-- 1 Easily accessible ------------------------ 2 Near Proximity --------------------------- 3 Higher than other places ---------------- 4 Strong structure -------------------------- 5 Any other, please specify ------------- 97		
5.2	*How long does it take for you and your family to reach the MPCS*	Less than Half an hour ------------------ 1 Up to an hour ----------------------------- 2 More than an hour ---------------------- 3		
5.3	*How do you reach the shelter?*	On foot -------------------------------------- 1 Boats --- 2 Motorbike ----------------------------------- 3 Bicycle --------------------------------------- 4 Others -------------------------------------- 97		
5.4	Do any of your family members face any difficulties in accessing the shelter in time of need?	Yes -- 1 No --- 2		If code "2", skip to 5.5
5.4.1	If YES, what difficulties do you face in accessing the shelter? *(Multiple Response Applicable)*	Flooding in the area ---------------------- 1 Weak or Damaged Roads ---------------- 2 Lack of robust road ----------------------- 3 Lack of bridges across creek/other water body -------------------------------- 4 Shelter is not disabled friendly --------- 6		
5.5	Is the shelter in usable and good physical condition?	Yes -- 1 No --- 2		
5.5.1	If NO, describe the issues plaguing the shelter *(Multiple Response Applicable)*	Cracks in walls, roofs etc.---------------- 1 Loss of plasters in walls, ceilings ------- 2 Weak structures-------------------------- 3 Any Other---------------------------------- 4		
5.6	Does the shelter also accommodate livestock/animals?	Yes -- 1 No --- 2		
5.6.1	How many livestock/animals can the shelter accommodate?	Upto 100 animals ------------------------- 1 100-250 animals -------------------------- 2 250-500 animals -------------------------- 3 >500 animals ------------------------------ 4 Do not know ------------------------------- 5		
5.7	Do you feel that the shelter is overcrowded?	Yes -- 1 No --- 2		
5.8	To what extent do you feel safe at	Completely safe --------------------------- 1		

	the cyclone shelter?	Somewhat Safe---------------------------- 2 Not safe------------------------------------- 3 Completely unsafe ----------------------- 4		
5.8.1	If codes (3) and (4), then give reasons why.	The cyclone shelter is located near a sea/river/creek ----------------------------- 1 The shelter is built on low ground ---- 2 The foundation of the shelter is weak--- --- 3 Any other, please specify--------------- 97		
5.9	Were you or any member of your family involved in the construction or upgrade of the shelter?	Yes --- 1 No -- 2		
5.10	What is the cyclone shelter used for during non-emergency time?	School --------------------------------------- 1 Community Centre ----------------------- 2 Religious Centre -------------------------- 3 Any other (Please specify)--------------- 4		
5.11	What do you think would be the possible advantages of having a cyclone shelter? *Do not read the options. Encourage by asking anything else until s/he says there is nothing else, and check all responses mentioned* **(Multiple Response Applicable)**	Protection of life during storm surges--- --- 1 Protection of livestock during storm surges-- 2 Protection of property during storm surges-- 3 Reduced fatalities------------------------- 4		
5.12	Does the shelter home fully accommodate the entire vulnerable population of the village?	Yes --- 1 No -- 2		
5.13	Does the shelter have the following facilities			
5.13.1	Adequate drinking water	Yes --- 1 No -- 2		
5.13.2	Uninterrupted power supply	Yes --- 1 No -- 2		
5.13.3	Good Toilet and Bathing facilities	Yes --- 1 No -- 2		
5.13.4	separate toilet/bathing facilities for men and women	Yes --- 1 No -- 2		
5.13.5	Kitchen facility	Yes --- 1 No -- 2		
5.13.6	Facility of store room for equipment	Yes --- 1 No -- 2		
5.13.7	Adequate No. of beds	Yes --- 1 No -- 2		
5.13.8	Are special facilities available for physically disabled people?	Yes --- 1 No -- 2		
5.14	Experience of staying in MPCS/	No fear -------------------------------------- 1		

	anotherplace during Cyclone (*Multiple Response Applicable*)	Feeling of safety, just like being at home -- 2		
		No issues or difficulties ------------------ 3		
		Worry about home ------------------------ 4		
		Worry about livestock -------------------- 5		
		Facilities lacking such as toilet drinking water, power ------------------------------ 6		
		Facilities such as food supplies, emergency kit etc. ----------------------- 7		
		None -- 8		
		Any other (specify) ---------------------- 97		
5.15	What are the advantages of having a proper cyclone shelter in the village? (*Multiple Response Applicable*)	Protection of life during storm surges--- -- 1		
		Protection of livestock during storm surges-- 2		
		Protection of property during storm surges-- 3		
		Reduced fatalities------------------------- 4		
SECTION 6: PHYSICAL INFRASTRUCTURE (ROADS)				
6.1	Is there a new road connected to the village*?*	Yes ------------------------------------- 1 No ------------------------------------- 2 Under Construction ---------------- 3 Planned ----------------------------- 4		If code "2," skip to the next section
6.1.1	If yes, is the structure in good condition?	Yes ------------------------------------- 1 No ------------------------------------- 2		
6.1.2	If No, issues with the structure	Work is unfinished------------------- 1 Old and Dilapidated----------------- 2 Weak foundation structure------- 3 Cracks on the plaster -------------- 4 Any other (please specify)-------- 97		
6.2	Does the road connect to the MPCS?	Yes ------------------------------------- 1 No ------------------------------------- 2		
6.3	Has the structure helped in strengthening preparedness to respond to cyclones?	Yes ------------------------------------- 1 No ------------------------------------- 2		
6.4	Has the village benefitted from the constructed road/s?	Yes ------------------------------------- 1 No ------------------------------------- 2		
6.5	Was the road/bridge constructed used for communication during the cyclone?	Yes ------------------------------------- 1 No------------------------------------- 2 Don't Know------------------------- 99		
6.6	What are the perceived advantages of the structure?			
6.7	Did you face any problems/issues in accessing the roads?	Yes ------------------------------------- 1 No------------------------------------- 2 Don't Know------------------------- 99		
SECTION 7: PHYSICAL INFRASTRUCTURE (BRIDGES)				

7.1	Is the village connected through a bridge ?	Yes----------------------------------- 1 No----------------------------------- 2 Under Construction----------------- 3 Planned ----------------------------- 4		If code "2," skip to the next section
7.2	If yes, is the structure in good condition?	Yes ----------------------------------- 1 No ----------------------------------- 2		
7.3	If No, issues with the structure	Work is unfinished ------------- 1 Old and Dilapidated ---------------- 2 Weak foundation structure ------- 3 Cracks on the plaster ------------- 4 Any other (please specify) ------- 97		
7.4	Has the village benefitted from the constructed bridge?	Yes ----------------------------------- 1 No ----------------------------------- 2		
7.5	Was bridges constructed used for communication during the cyclone?	Yes ----------------------------------- 1 No----------------------------------- 2 Don't Know----------------------- 99		
7.6	What are the perceived advantages of the structure?			
7.7	Did you face any problems/issues in accessing the bridges?	Yes ----------------------------------- 1 No ----------------------------------- 2 Don't Know ------------------------ 99		
SECTION 8: PHYSICAL INFRASTRUCTURE (SALINE EMBANKMENTS)				
8.1	Is the village land protected by saline embankments?	Yes ----------------------------------- 1 No ----------------------------------- 2 Under Construction ---------------- 3 Planned ----------------------------- 4		If code "2," skip to the next section
8.1.1	If yes, is the structure in good condition?	Yes ----------------------------------- 1 No ----------------------------------- 2		
8.1.2	If No, issues with the structure	Work is unfinished ----------------- 1 Old and Dilapidated --------------- 2 Weak foundation structure ------ 3 Any other (please specify) ------- 97		
8.2	Has the structure helped in strengthening preparedness to respond to cyclones?	Yes ----------------------------------- 1 No ----------------------------------- 2		
8.3	Has the saline embankment constructed been useful during the cyclone?	Yes ----------------------------------- 1 No----------------------------------- 2 Don't Know ------------------------ 99		
8.4	What are the perceived advantages of the structure?			
8.5	Has the village/households faced any difficulties with the saline embankments?	Yes -----------------------------------1 No-----------------------------------2 Don't Know--------------------------99		
SECTION 9: PHYSICAL INFRASTRUCTURE (UNDERGROUND CABLING)				

S.No.	Question	Codes	Response	Skip
9.1	Is the village land protected by saline embankments?	Yes -------------------------------------1 No ------------------------------------- 2 Under Construction ---------------- 3 Planned ----------------------------- 4		If code "2," skip to the next section
9.2	If yes, is the structure in good condition?	Yes ------------------------------------- 1 No ------------------------------------- 2		
9.3	If No, issues with the structure	Work is unfinished ------------------ 1 Does not cover the entire village 2 Any other (please specify) ------- 97		
9.4	Has the structure helped in strengthening preparedness to respond to cyclones?	NCRMP/SDMA ---------------------- 1 PradhanMantri Gram VikasYojana - --- 2 PradhanMantri Gram SadakYojana --- 3 Red cross has used old scheme ----- --- 4 Any other (please specify) ------- 97		
9.5	Has the underground cable constructed used for communication during the cyclone?	Yes ------------------------------------- 1 No------------------------------------- 2 Don't Know ------------------------ 99		
9.6	What are the perceived advantages of the structure?			
9.7	Has the village/households faced any difficulties with the saline embankments?	Yes -------------------------------------1 No-------------------------------------2 Don't Know-------------------------99		
Section 10: Capacity Building and Training of the Community			
S.No.	Question	Codes	Response	Skip
10.1	Are you aware of any capacity building and training related to cyclone risk mitigation and preparedness conducted in the village?	Yes ------------------------------------- 1 No ------------------------------------- 2		If code "2," end the intervi ew
10.1.1	Did/does your family participate in these training sessions?	Yes ------------------------------------- 1 No ------------------------------------- 2		
10.1.2	Which member(s) of your family participated in the training?	Head of the household------------- 1 Wife---------------------------------- 2 Brother------------------------------- 3 Son------------------------------------ 4 Daughter----------------------------- 5 Any other (please specify)--------- 6		
10.2	When was the last training session held?	In the last 6 months--------------- 1 In the last year ---------------------- 2 Before a year ---------------------- 3		

		In the last 3 years ----------------- 4		
10.3	When were training sessions first held?	Before 2015------------------------- 1 2015-16----------------------------- 2 2016-17----------------------------- 3 2017-18----------------------------- 4 2018-19----------------------------- 5 Never------------------------------- 6 Don't know------------------------ 99 Any other (please specify)---------97		
10.4	What was the training session about? *Do not read the options. Encourage by asking anything else until s/he says there is nothing else, and check all responses mentioned* **(Multiple options)**	Cyclone-risk mitigation information -------------------------- 1 How to interpret cyclone warnings----------------------------- 2 How to use technological applications (GSM mobile phone features/Toolkit Applications and Alert Siren/loudspeaker systems)------------------------------------- 3 How to respond to cyclone warnings----------------------------- 4 Any other (please specify)—----- 97 Not sure/Don't Know------------ 99		
10.5	Were any mock drills carried out to check the preparedness of the community?	Yes ------------------------------- 1 No---------------------------------- 2		
10.5.1	Who was responsible for carrying out the mock drill?	PRI members/Local body---------- 1 School Management Committee 2 Cyclone Shelter Maintenance and Management Committee (CSMMC). ---------------------------- 3 District Disaster Management Authority (DDMA)------------------- 4 Voluntary participation by community--------------------------- 5 NGOs/CBOs-------------------------- 6 Not sure/Don't Know------------- 99		
10.5.2	Did you/any member of your family participate in the mock drill?	Yes ------------------------------- 1 No---------------------------------- 2		

Annexure II: Branch Office Addresses

State	Addresses	Contact Details
Goa	2-A Wing, ShreeyashApts, 1st Floor, 597 Narayan Peth, Kelkar Road, Pune (Maharashtra)	
Maharashtra		
Gujarat	205, Blue Bell Complex, Opp. PNB,Atmajyoti Ashram Road, Ellorapark, Vadodara (Gujarat)	Dr.J.Mary John 9447971846
Kerala	Koodaram, Parvathy Nagar, Menamkulam, Trivandrum (Kerala)	
Karnataka		
West Bengal	CZ 33, Metropolitan Co-Operative Housing Society Ltd, Kolkata (West Bengal)	