PALAU COMMUNITY BASED DISASTER RISK

REDUCTION TOOLKIT

SEPTEMBER 2016
"VISION: SAFE, RESILIENT AND PREPARED COMMUNITIES IN PALAU

GOVERNMENT
REPUBLIC OF PALAU
1981

©NEMO, Kayangel after Super Typhoon Haiyan in 2013

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PALAU COMMUNITY BASED DISASTER RISK REDUCTION TOOLKIT

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FOREWORD
Message from Vice President Antonio Bells
Chairman, National Emergency Committee

Disasters have affected Palau in the past and will continue to happen in the future. It is not the question of if it happens, but when it happens are we ready? This is evidenced by the events of 2012 and 2013, when in less than a year Palau faced disasters as a result of Super Typhoon Bopha and Super Typhoon Haiyan. Additionally, emerging threat of Global Warming is affecting or changing our climatic conditions, which scientist believe will cause more frequent and severe typhoons, sea level rise and other climate related incidents. Knowing this fact, we must begin the process of reducing the risk of disasters at all levels, but particularly at the community level. Globally, the practice of reducing disaster risk was further articulated in the world conference held in Sendai, Japan, to address the issue of disaster risk reduction at all levels. The outcome of that conference is the Sendai Framework for Disaster Risk Reduction, following the end of the Hyogo Framework for Action. This is a global initiative and Palau, as member of the United Nations, is obligated to its terms and conditions.

At the national level, the National Disaster Risk Management Framework (NDRMF) 2010 - 2015 is being revised to include the intergration of disaster risk reduction strategies within the budgetary allocations and planning. Simultaneously, efforts are underway by the National Emergency Committee and the National Emergency Management Office (NEMO) to develop the State Disaster Risk Management Plans (SDRMP) that also adopts disaster risk reduction processes. As well, the Palau Climate Policy has been finalized and should also be used as a reference at the national, state and community level planning. Bottom line is, we must shift our focus from response and recovery to building national resilience from bottom up approach. It is a fact that the community members are the first responders during times of emergency or disaster immediately before, during and after an event. Traditionally, family members take charge and begin immediate recovery for themselves and families and neighbours.

Basically, this Community Based Disaster Risk Reduction Toolkit (CBDRRT) is developed as an executing arm of the National DRM Toolkit and the States DRM Plans down to the community or hamlet level. The process of implementing the toolkit requires conduct of workshops at each vulnerable community, to teach its members, the process of analyzing the risks involved and measures to address these risk using community resources and capacities. Individual communities are required to start the planning and implementation processes of managing disaster risks at their respective communities. An implementation plan for disaster risk reduction then will be developed and implemented for the long term. The National Emergency Committee (NEC) and the NEMO and Office of the Vice President will be ready to assist you and the community in the CBDRM process. Therefore, as the Chairman of the National Emergency Committee, I strongly urge community leaders and organizations to take a proactive part in this process and to create more resilient communities to the effects of disaster and climate change. Only then would we be able to achieve our vision stated in the National Disaster Risk Management Toolkit (NDRMF) 2016-2018, "Safe, Resilient and Prepared Communities in Palau."
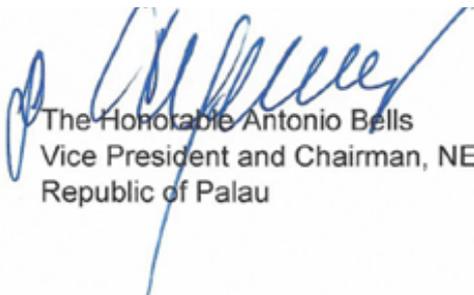
The Honorable Antonio Bells
Vice President and Chairman, NEC
Republic of Palau

ACKNOWLEDGEMENTS

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REPUBLIC OF PALAU

EUROPEAN UNION

EXECUTIVE SUMMARY

Threats and hazards present long-term risks to people and their property. Disaster Risk Reduction measures are actions taken to eliminate, prevent or reduce the negative impacts of hazards. By reducing the impact of disasters through successful risk reduction measures, which facilitates quick response, speedup recovery, creates "building back better" and therefore, a more resilient communities. This CBDRM toolkit establishes a common platform or foundation for coordinating and addressing how communities manages risks, as well as describes mitigation roles across the whole community. The toolkit also addresses how the community will lessen the impact of disaster by employing disaster risk assessment tools. These tools include identifying the hazards, vulnerabilities, and capacities to develop and apply risk reduction measures to reduce loss of life, protect property, social and economic structures.

Local communities possess a wealth of local-based knowledge and experience with regards to disaster. This toolkit aims to capitalize on the local knowledge and experience while further developing Disaster Risk Reduction (DRR) strategies. This can be achieved by engaging community leaders and members, who are the main actors of the whole risk reduction process, with guidance and assistance from the national, state government and other stakeholders.

Effective disaster risk management begins with a comprehensive understanding of the interaction between hazards, vulnerable elements and local capacity available in a given time. Aiming toward the ultimate goal of sustainability and resilience, reducing risks requires a process of continuous learning, adapting to change, managing risk, and monitoring and evaluating progress. Understanding the risks makes it possible to develop strategies and plans to manage

INTRODUCTION

Threatening Hazards in the Community

them. Managing risks from threats or hazards requires decision making to accept, mitigate, reduce, or transfer those risks. These are proven methods of reducing the long-term vulnerability of a community and to build individual and community resilience. This toolkit is driven by risk, rather than the occurrence of incidents. By fostering comprehensive risk considerations, the toolkit promotes the whole community to adopt the culture of resilience through development of activities that will reduce the likelihood of exposure and vulnerability of communities.

State governments and its communities are at the threshold of progressive development. It is wise and forward looking to lay a solid foundation for the anticipated development. Unregulated development will only add or increase the vulnerability of the community itself. As such, proper city planning, adoption of appropriate policies and developing master plans are integral part of the overall community resilience and progressive sustainable development.

GLOSSARY OF TERMS

Capacity. The combination of all strengths, attributes and resources available within a community, society or organization that can be used to face and manage adverse conditions, emergencies or disasters.

Climate Change A change in the state of the climate that can be identified (e.g., by using statistical test) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces, or to persistent "anthropogenic"(human-induced) changes in the composition of the atmosphere or in land use.

Climate Change Adaptation The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which induce harm or exploits beneficial opportunities. Activities such as building sea walls, salt intrusion resistant crops. In the context of disaster risk management, these activities are considered as mitigation measures, while in climate change it is referred to as adaptation.

Climate Change Mitigation The process of reducing, preventing or eliminating greenhouse gases emissions into the ozone or atmosphere, which is causing global warming. This can be achieved through reduction of global dependency on fossil fuels; and increasing the use of efficient energy consumption appliances, conversion to alternative energy; such as solar, thermal, wind and hydro power generation, etc.

Community A geographical location where a cluster of households, small village or a neighborhood in a town. A particular interest groups, ethnic groups, professional groups, language groups, particular hazard-exposed groups. In this framework community and hamlet is synonymous.

Community Based Disaster Risk Management Community-based disaster risk management is a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities.

Disabled People Organizations Disabled People Organization is a Non-Government Organization of and for people with disabilities predominantly governed by people with disability.

Disaster Natural or man-made event which causes intense negative impacts on people, goods, services and/or the environment, exceeding the affected community's capability to respond.

Disaster Risk Management A systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impact of hazards and the possibility of disaster.

Disaster Risk Reduction The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the contributing factors to disasters, including through reduced exposure to hazards, lessened vulnerability of the people and property, wise management of the land and the environment, and the improved preparedness for adverse events.

Emergency A situation generated by the real or imminent occurrence of an event that requires immediate action without exceeding the affected community capability to respond.

Evaluation The process of determining the effectiveness of DRR measures based upon the periodic activities (annually, mid-project, end of project, post project.)

Faith Based Organization An organization whose values are based on religious faith and/or beliefs, which has a mission based on social values of the particular faith, and which most often draws its activists (leaders, staff, volunteers) from a particular faith group.

Hazard A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Hazards can be characterized as natural hazard (natural disasters) and man-made hazards (man-made disasters).

Mitigation The lessening or limitation of the adverse impacts of hazards and related disasters.This measures include structural and non-structural projects or programs.

Monitoring The systematic collection and analysis of information as a project progresses. It is a continuous to check how activities are progressing, whether the project is on tract or not, and if responsible persons are doing their tasks properly.

People with Disability Consequence of an impairment that may be physical, cognitive, intellectual, mental, sensory, developmental, or some combination of these that results in restrictions on an individual's abilities to participate in what is considered "Normal" in their everyday society functions. A disability may be present from birth or occurred during a person's life time.

Prevention The outright avoidance of adverse impacts of hazards and related disasters.

Preparedness The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or occurring hazardous events or conditions.

Recovery The restoration and improvement where appropriate, of facilities, livelihoods, and living conditions of disaster affected communities, including efforts to reduce disaster risk factors.

Resilience The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Response The provision of emergency services and public assistance immediately before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Relief This includes activities that are undertaken after a disaster to assist affected people like; search and rescue, providing food and non-food relief, health care, repairing of essential services and physiological interventions.

Risk The potential of an event that may cause harm and damages to people, properties, livelihood, and community infrastructures and systems.

Vulnerability The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

ABBREVIATIONS AND ACRONYMS

CBDRM	-	Community Based Disaster Risk Management
CBDRR	-	Community Based Disaster Risk Reduction
CCA	-	Climate Change Adaptation
CHP	-	Community Hazard Profile
DPO	-	Disabled People Organization
DRM	-	Disaster Risk Management
DRR	-	Disaster Risk Reduction
DM	-	Disaster Management
EU	-	European Union
EWS	-	Early Warning System
FBO	-	Faith Based Organization
HDRMO	-	Hamlet Disaster Risk Management Office
HEC	-	Hamlet Emergency Committee
HICP	-	Hamlet Incident Command Post
HVCA	-	Hazard Vulnerability Capacities Assessment
M & E	-	Monitoring & Evaluation
MSC	-	Most significant changes
NDRMF	-	National Disaster Risk Management Framework
NEC	-	National Emergency Committee
NEMO	-	National Emergency Management Office
NEOC	-	National Emergency Operation Center
NGO	-	Non-Government Organization
PWD	-	People with Disability
SDRMP	-	State Disaster Risk Management Plan
SEC	-	State Emergency Committee
SEOC	-	State Emergency Operation Center

PART 1 - GENERAL

1.1 INTRODUCTION

The community based approaches has been practiced for decades in other parts of the globe. It has been proven to be effective in building resilience at the community level. The Republic of Palau is developing this Community Based Disaster Risk Reduction Tool Kit, in order to provide clear guidance to partners who are willing to support local communities in their efforts to reduce the risks of disasters and create an effective disaster response and recovery systems. Building stronger and resilient communities is another way of strengthening and enabling national and state governments to achieve sustainable development. With every occurrence of disasters, the national and state developmental progress sets back years of hard work in development and more importantly, diverting funds from more important programs such as health, security and education, to address recovery efforts.

1.2 LEGAL AND POLICY REFERENCES

National Disaster Risk Management Framework 2016-2030: Disaster risk reduction arrangements at the national level, is articulated in:

• Sendai Framework for Disaster Risk Reduction (2016-2030) endorsed improved understanding, strengthening and investing in disaster risk reduction for resilience at all levels. This is the successor to the Hyogo Framework for Action 2005-2015.

• State Disaster Risk Management Plans: Disaster Risk Reduction is articulated in Section 3.2. The SDRM Plans are being developed following the arrangements in the documents above.

• Palau Climate Change Policy: This policy has been approved and it covers matters of climate change at the national level. Currently community-based climate change policies are pending.

1.3 RELATIONSHIP WITH OTHER PLANS

There exist a linkage from the National DRM Framework to the State DRM Plans in terms of arrangements, procedures, terminologies and general guidance in dealing with disaster risks. This CBDRR toolkit targets the grass root level of disaster risk management. This Community Based Disaster Risk Reduction toolkit support and strengthen the global and national effort to reduce the effects of disaster risks at the community level. Likewise, the tool kit must also support other plans or policies such as building code, zoning code, fire code, and urban development plans, etc., if any.

1.4 INTERNATIONAL, NATIONAL AND STATE LEVEL DISASTER RISK MANAGEMENT ARRANGEMENTS

1.4.1 The International, Regional, National and State Level DRM Arrangement

The Sendai Framework for Disaster Risk Reduction which succeeds the Hyogo Framework for Disaster Risk Management depicts the DRM arrangement below. The Framework for Resilient Development in the Pacific, The National Disaster Risk Management Framework and the States Disaster Risk Management Plans also follows the same DRM arrangements. (See Figure 1).

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┌─────────────────────────┐
│    DISASTER RISK        │
│     MANAGEMENT          │
└─────────────────────────┘
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DISASTER RISK REDUCTION	DISASTER MANAGEMENT
Prevention Adaption Mitigation Preparedness	Response Relief Recovery
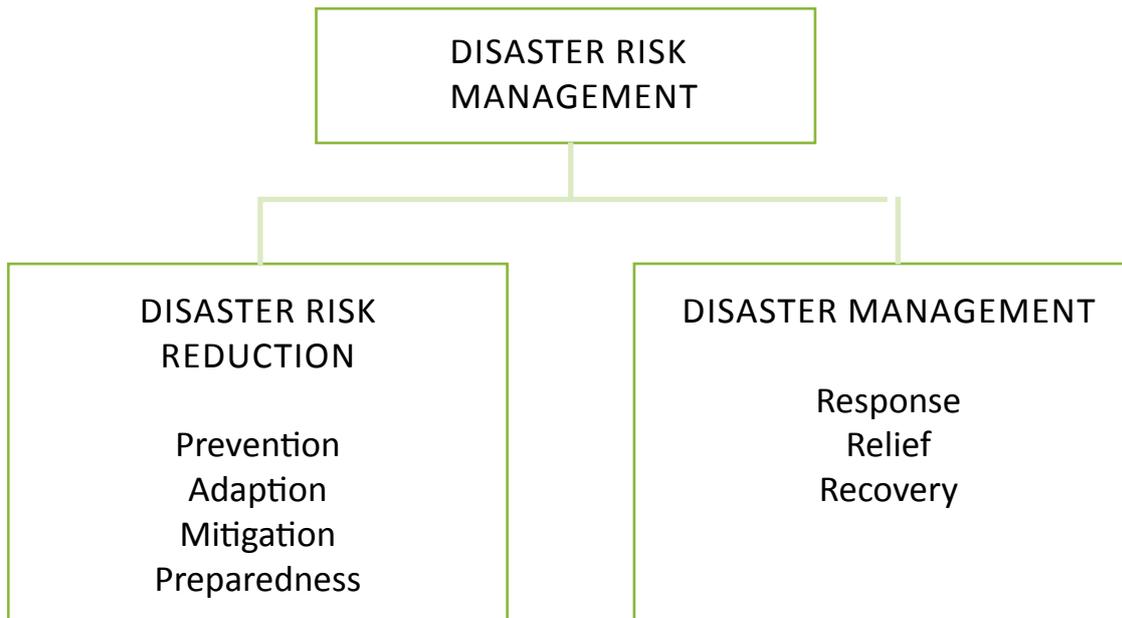
Figure 1: Disaster Risk Management Diagram

1.4.2 Content and Structure:

This document is organized in a way that any community based disaster risk reduction stakeholder or practitioner can utilize it as a field reference and guidelines. This Tool Kit is divided into five (5) parts:

- Part 1   General Information
- Part 2   The Framework and Rationale
- Part 3   Understanding
- Part 4   The Process
- Part 5   Building and Creating Community Disaster Risk Management Organization
- Part 6   Reference Material

1.4.3 State and Community Demographics

The Republic of Palau is comprised of sixteen (16) states and have a population of more than seventeen thousand (17,661 2015 Census of Population, Housing & Agriculture). Five of the 16 states are situated at outlying areas. Each of the states has their own constitutions which governs the governmental operations and arrangements. Along with the constitutional governments, there exist traditional systems within each state and hamlets that governs matters of tradition and customs. The population variability between state to state and communities to communities ranged from less than a hundred (Sonsorol) to couple of thousands (Koror). Some states have hamlets with no inhabitants. The inhabitants have relocated to other hamlets, but maintain its traditional leadership and clan systems and have representatives in state legislatures.

Normally state operations are overseen by a governor and a legislature. Each community is represented in the state legislatures, while hamlet chiefs oversee traditional or customary practices.

Table 1: List of State and number of communities (hamlets)

Name of State	Number of Hamlets	Population
Aimeliik	5	334
Airai	6	2,455
Angaur	4	119
Hatohobei	1	25
Kayangel	2	54
Melekeok	6	277
Ngardmau	3	185
Ngeremlengui	5	350
Ngerchelong	8	316
Ngatpang	2	282
Ngaraard	5	413
Ngiwal	4	282
Ngchesar	6	291
Peleliu	5	484
Sonsorol	4	40
Koror	12	11,444
Total	**88**	**17,351**

Source: 2015 Census Population, Housing and Agriculture.

PART 2 CBDRM: TOOL KIT

2.1. PURPOSE:

The CBDRR toolkit introduces an array of community based approaches, guidelines and methodologies to partners who are willing to work with the local communities in Palau. The purpose of this document serves as an orientation and reference for CBDRM practitioners at the national and community level for effective disaster risk management.

2.2 OBJECTIVE:

To ensure consistency of approaches in vulnerability and capacity assessment adopted to reduce vulnerability to disaster and climate change impacts at the grassroots level, to embrace and practice the culture of resiliency to disaster through traditional arrangements.

2.3 TARGET AUDIENCE:

It is anticipated that this toolkit will be used by various stakeholders practicing disaster risk management at the community level in Palau. These may include:

• Government agencies
• NGOs (Non-Government Organizations)
• DPOs (Disabled People Organizations)
• FBOs (Faith Based Organizations)
• CSOs (Civil Societies Organizations)
• Donor agencies (Private, Regional and International)
• Other stakeholders interested in community resilience to disasters and climate change

2.4 ROLES AND RESPONSIBILITIES:

- NEC shall approve this toolkit, including subsequent amendments.
- NEMO shall review, update and sustain this toolkit periodically.
- State Governments and communities shall jointly coordinate, implement, monitor and evaluate the DRR process.

2.5 METHODOLOGY

The following approaches and steps were adopted while developing this document:
- CBDRR Training provided to stakeholders.
- Review of other CBDRR guidelines, materials, and manuals.
- Working with core team trained in CBDRR.
- Linkages of arrangements and processes identified in the NDRMF and the SDRMP.
- Introduction of assessment tools for hazards, vulnerabilities, capacities and risks.

PART 3 UNDERSTANDING CBDRM

Community-based disaster risk management (CBDRM) is a process in which at risk-communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities.

3.1 INTRODUCTION TO CBDRM

The importance of community based approaches has been recognized in promoting a culture of safety through reducing local vulnerabilities and building capacities. These approaches have been practiced and replicated by various community groups, national and international organizations and governmental agencies. While the national and state governments have an important role to play in disaster risk management, it is the proactive participation and involvement of local communities at the grassroots that makes the real difference.

This means that people are at the heart of decision-making and implementation of disaster risk management activities. Capacities of local people are enhanced to help them assess the situation, identify risk reduction measures and implement them. Risk reduction measures include mitigation and preparedness activities before a disaster occurs, as well as, response and recovery activities during and after a disaster event.
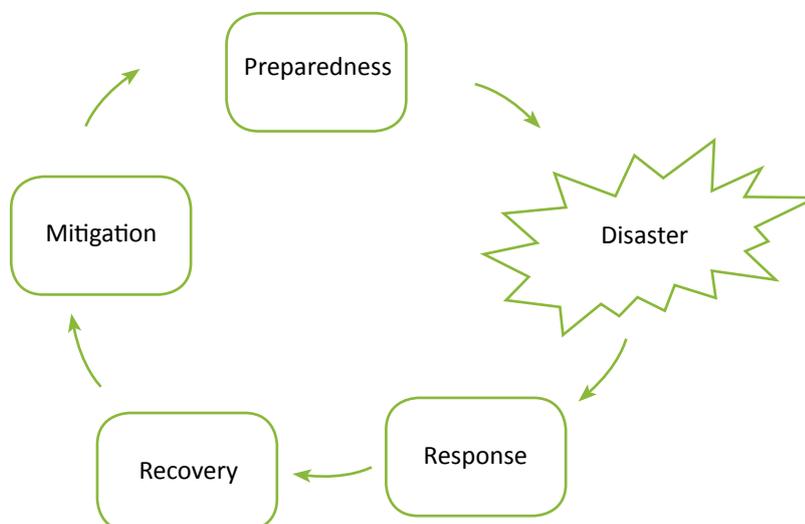
Figure 2: Disaster Risk Management Cycle
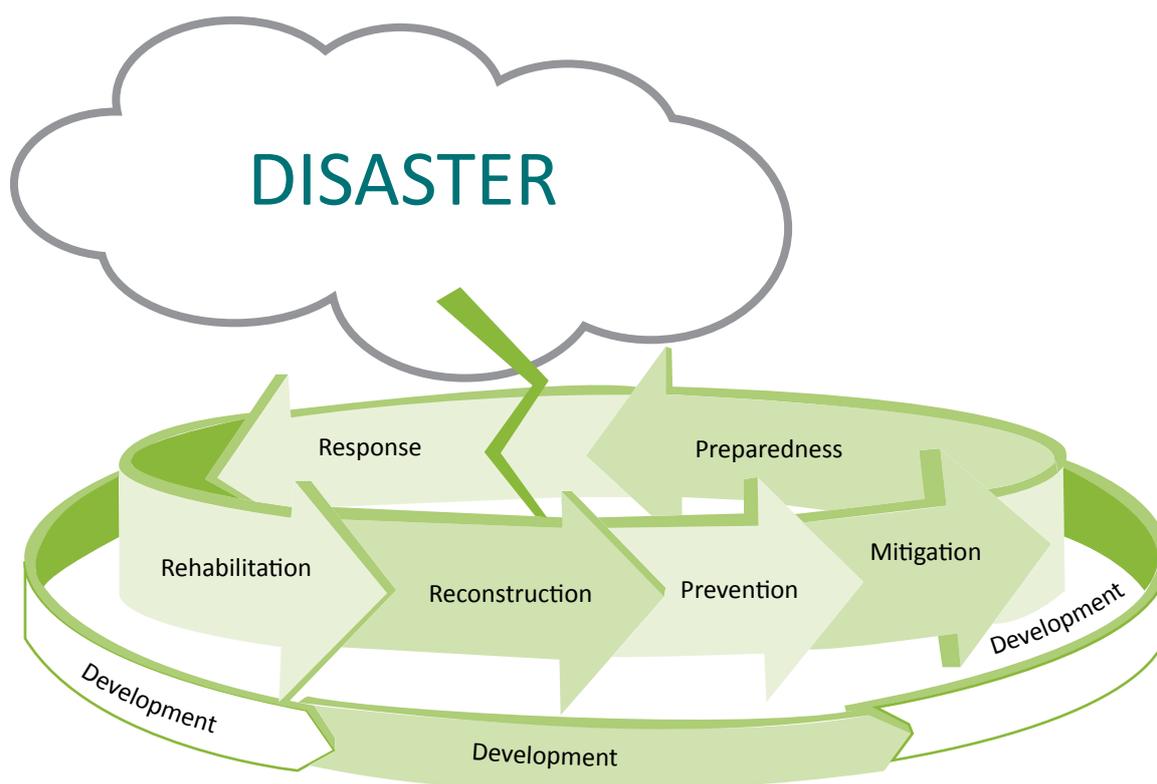
Figure 3: Disaster Risk Management Cycle

3.2 IMPORTANCE OF CBDRM

Through CBDRM, the community benefits by taking an active role in the disaster risk management process. The involvement of the community is important to ensure:

• Relevant information collected will reflect the aspirations and realities of the community members, particularly the vulnerable, the poor, elderly, women, children and people with disabilities and unemployed.
• The capacity (self-confidence, knowledge, skills like: team work, making plans) of the entire community to deal with hazards is developed:
• External expertise including but not limited to consultants and government officers will understand better about the community.
• Disaster management and community development programs and activities will achieve better, more practical and effective results.
• Community existence will become more stable and sustainable.

3.3 CORE GUIDING PRINCIPLES OF CBDRM

The following are the core principles that should guide every step and activities in CBDRM in any location:

a)   The center of all process is the community.
b)   Disaster risk reduction is the highest priority.
c)   Priority should be given to the most vulnerable. (i.e., People with Disabilities (PWDs), the poor, women, elderly and children).
d)   Recognition of different perceptions on risks, vulnerabilities and or capacities.
e)   Application by different stakeholders, i.e., climate change, health, security and safety.
f)   Establish partnership with elected and traditional leaders, men, women and youth groups.
g)   Integration of disaster risk reduction management into local development process.
h)   CBDRM is an evolving and dynamic framework.
i)   CBDRM should take into account emerging global issues such as climate change and epidemics.

PART 4 COMMUNITY BASED DISASTER RISK REDUCTION PROCESS
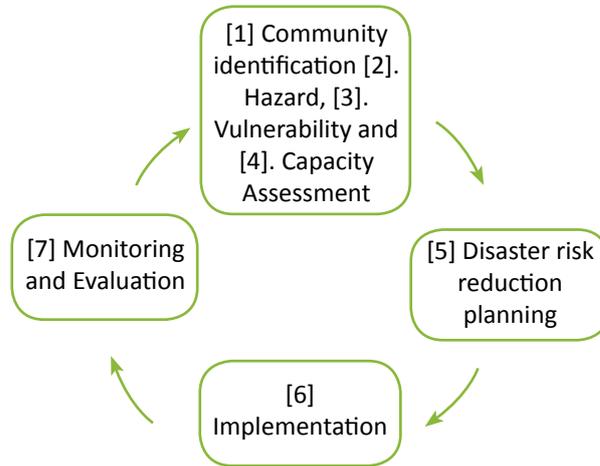
Figure 4. CBDRR Cycle

4.1 COMMUNITY BASED DISASTER RISK MANAGEMENT PROCESSES

The process of CBDRR at the community level involves comprehensive analysis of the risks factors. There are three elements of risk assessments in a community: hazard threats, vulnerabilities and capacities.

Figure 5: Risk Equation

The result of the risk assessment forms the basis for programs, projects and activities, which aim to reduce disaster risks. There are seven (7) steps throughout this process, which the community members are at the center of the activities. Recommended risk assessment tools are introduced immediately following each step.

STEPS FOR COMMUNITY RISK ASSESSMENT

STEP 1: SELECTING AND RANKING COMMUNITIES

Purpose:
To select and rank communities within a given State, a determination of ranking in terms of hazards, vulnerability and capacity are from the least to the most vulnerable. The selecting agency will decide where intervention will be most beneficial and must coordinate with the state government prior to selecting a community.

CRITERIA FOR SELECTING COMMUNITIES:

The following criteria shall be used to rank communities in order to make an informed judgment in selecting or ranking communities:

• Type of hazards, frequency of hazards, and severity of impact.
• Number of people to benefit from CBDRM program.
• Readiness of community to engage in the intervention.
• Communities in remote areas which are difficult to reach immediately before, during and after disasters, such as typhoons, storm surges or tsunamis are most vulnerable and they need to increase their resiliency.

Activity 1: Tools for Selecting and Ranking Communities using the Ranking Matrix.

Using the numbers from 1 to 7, rank each community according to each criteria with 1 being the least and 7 being the most vulnerable. The community with the highest total is selected and others with lower scores may be eligible for the program at a later date.

Table 2: Community Ranking Matrix

Name of community	Types of Hazards	Frequency of each Hazard	History of Severity	Severity of exposure to risk	Number of people to benefit	Readiness of community to engage	Remoteness of community	Total

This activity is performed by an organization or government agency in consultation with the state government and the community to ensure full participation by the community.

STEP 2: COMMUNITY HAZARD ASSESSMENT

INTRODUCTION:

When hazards impact on vulnerable groups of people, infrastructures, socio-economic and environment in a community, the result is a disaster. Hazard assessment is the process of identifying and analyzing a hazard or threat that may affect the community based on local knowledge and experience with recent disasters.

Objective:
• To identify all hazards that have direct impact on the community
• To prioritize the hazards that may have direct impact on the community and to further carry out vulnerability assessment and risk reduction planning

How to carry out a community hazard profile?
Label titles of each column based on hazards criteria such as:
• Type : natural or man-made events
• Magnitude : scale, amount or size
• Severity : degree of destruction or damages
• Frequency : re-occurrences
• Speed of onset : fast or slow onset
• Duration : period or length of impact
• Location : site of impact or area affected
• Warning signs : traditional or scientific

Type	Magnitude	Severity	Frequency	Speed of onset	Duration	Location	Warning Signs
Typhoone							
Drought							
Storm Surge							

Table 3. Hazard Assessment

Figure 6: Hazard Assessment Risk Prioritization

OTHER TOOLS COMMONLY USED FOR HAZARD ASSESSMENTS:

This table can be further complimented by tools listed below. These are other common tools used by community and stakeholders to assess hazards that may affect the community. The purpose of this process is for the community members to identify types of hazards that have continued to affect the community in the past including other emerging hazards that are likely to happen in the future. Results of these tools will enable the community to prioritize DRR measures for the most recurrent hazards with such severity and magnitude which the community would not be able to cope with the aftermath.

- **Hazard Map:** A map of the community showing areas where a particular hazard has impacted or likely to impact. The community members could access and acquire a digital (GIS based map) to identify areas (where people, housing, and infrastructures are located), which are likely to be impacted by a hazard or by drawing a map themselves to indicate the same. This tool gives an overview of the vulnerable elements in the community.
- **Hazard Profile:** Community members divide into groups and identify hazards that have occurred in the past including hazards that may occur in the future. This is a good method of identifying the impacts of climate change and other emerging hazards.
- **Timeline:** Community members divide into groups and identify and review the chronological

Figure 7: Hazard Profile

history of disasters for the past five to ten years, indicating the year, number of deaths, damages incurred, direct and indirect costs, if any. The result of this tool is used to forecast the next disaster.

Table 8. Timeline

• **Seasonal Calendar:** Some disasters have seasons and or episodes (i.e., typhoon season, drought episode). Community members identify types of hazards and indicate a period the hazard is most likely to happen. The result of this is to remind and alert communities to prepare before a season and or an episode of a hazard begins or starts.

Season Calendar

Year	Disasters	1	2	3	4	5	6	7	8	9	10	11	12
2016	El Nino	→→→→→→→→											
2013	STY Haiyan										→→→→		
2012	STY Bopha												
2001	Tropical Storm UTOR						→→→→→→→						
1997	El Nino/ Drought											→→→→→	
1990	STY Mike								→→→				

Table 4: Seasonal Calendar

Five levels are used to rank the hazards risks indicated on the table below.

Probability	Impact				
	Trivial	Minor	Moderate	Major	Extreme
Rare	Low	Low	Low	Medium	Medium
Unlikely	Low	Low	Medium	Medium	Medium
Moderate	Low	Medium	Medium	Medium	High
Likely	Medium	Medium	Medium	High	High
Very likely	Medium	Medium	High	High	High

Table 5: Ranking of level of hazard risk

Plates 2: Photos of Typhoon Damages

STEP 3: COMMUNITY VULNERABILITY ASSESSMENT

INTRODUCTION:

Vulnerability is one of the elements of the risk equation indicated in Figure 7. It is the degree to which a system, subsystem, or system component is likely to experience harm due to exposure to a hazard. The impact of a hazard is therefore a function of exposure to the hazard event and the responsive capacity of the entity exposed. The degree of damages sustained whether be loss of lives, injuries, sufferings, destroyed homes and loss of businesses, loss of essential services such as health, water, power, and communications depend on the capability of the elements at risk that are being exposed to withstand the impact of climate change and disasters. When a significant hazard occurs, it will impact the vulnerable elements in the community. The result is a disaster-loss of lives, injuries, sufferings, destroy homes and businesses leaving people homeless and out of work. Communities, presently, have the capability to respond and recover from a disaster, but to what extent is not known. This is why it is important for the community to begin assessing their capacity so that the vulnerable can be strengthened and the resilient nurtured.

OBJECTIVES:

The objectives of this step are:

• 	Assess the status of the elements at risk (people, properties, environment, economy, and social) and their capability to withstand the impacts of climate change and disaster.
• 	Assess the specific areas within the community that are impacted the most from climate change and disaster.
• 	Assess sources of livelihood within the community that are impacted from climate change and disaster.

In all the tools of conducting vulnerability, the community must participate and be proactively engaged so that they themselves can complete the assessment. The facilitators will begin with the introduction of the tools and allow the community members to complete them.

Plates 3: Vulnerability Assessment W/ Community

HAZARD MAPPING

Discuss with the group to identify and map areas where the greatest risks exist. Using a map of the community, identify the following:
•   Low lying areas or coastal areas vulnerable to storm surges and tsunamis
•   Identify access points to and from the community. (i.e., road blockages, bridge collapse restricting response and relief operations, etc.)
•   Industrial areas and commercial centers. (i.e., fuel depot, shopping centers, etc.)

Plates 4: Hazard Mapping

PHYSICAL VULNERABILITIES MAPPING

Discuss with the group the physical characteristics of dwellings,houses,church,classrooms, community halls, shops etc. Use a map to show the locations of the different types of examples according to their vulnerability in the community.
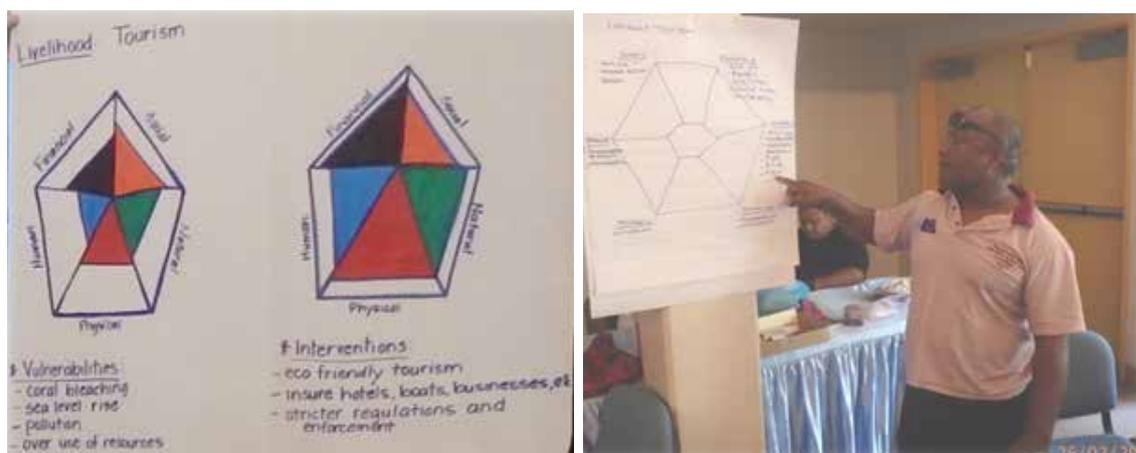
Plates 5: Vulnerabilities Mapping

SOCIAL VULNERABILITIES

Discuss with the group which social systems (youth, men, women, and faith-based groups) are most vulnerable. These include:

•   Social organizations. (i.e., community groups, faith based organizations, social cohesion.)
•   Schools.

CRITICAL INFRASTRUCTURES VULNERABILITIES

Discuss with the group to list critical infrastructures (hospital, power, water, sewer, communication, school, church, etc.) that support the community. Use a map to identify where they are located.

TRANSECT WALK

This tool involves the community members in identifying an area where a hazard may impact and visit the site by walking in one straight direction while making a list of all vulnerable elements seen in the area. This is another method of witnessing the tangible elements which are vulnerable to a hazard. The result of a transect walk is to identify and prioritize the most vulnerable elements.

Purpose:
To acquaint communities to the process of identifying and evaluating vulnerable elements in the community through participation.

1. Identify a group of participants.
2. Discuss with the participants the purpose of the walk, and decide on the path that should be taken to cover the geographical characteristics of the area.
3. Decide with the participants what parameters should be used for recording observations.
4. Conduct the walk and record all the vulnerabilities observed.

HOUSEHOLD WEALTH/INCOME RANKING:

Purpose:
• To collect and analyze data on the perception of wealth differences and inequalities in a community; and for identifying and understanding local indicators and criteria's of wealth, well-being and poverty.

HOW TO DO IT?

In a group discussion identify income status and hierarchy of families. This process will show the extent of the whole community coping capabilities. Special attention must focus on the poor, marginalized persons and single parents who will have a difficult time to perform disaster risk reduction measures.

GENDER MAPPING:

Purpose:
• To identify the vulnerable groups in the community such as women, children, and elderly by making a list indicating their location and their situation. This would allow responders to provide assistance during disasters.

HOW TO CONDUCT IT?

Discuss with a group to identify the most vulnerable groups within the community; and draw a map of their locations. Categorize and group different types of vulnerabilities. Information may be obtained at government agencies and non-government organizations.

PEOPLE WITH DISABILITY MAPPING:

Purpose:
• To identify all people with disabilities, their location and situation. This map will allow first responders to provide timely response before, during and after a disaster.

How to conduct it:
Discuss in a group and draw a map identifying locations of all people with disabilities within the community. Relevant information may be obtained at government and non-government agencies such as OMEKESANG and others.

STEP 4: COMMUNITY CAPACITY ASSESSMENT

INTRODUCTION:

Capacity is the ability of the community to cope with disasters before, during and after an event. Coping strategies include preparing to respond when a warning is issued by authorities, supporting each other in the community immediately after a disaster such as providing temporary housing for those displaced. Historically, communities often depend on the national government and non-government organizations to facilitate its coping strategies. The concept of CBDRR is to reverse this trend and empower the community to lead its disaster risk management activities, particularly, reducing disaster risks and improving emergency responses. The national and state government will assist the community throughout this endeavor. In the long term, communities should be able to improve and strengthen its disaster risk management skills.

Objectives:
- Analyze the social coping capacity that exists in the community (traditional, social system, faith based support system, etc.
- Analyze the resources in terms of human, materials, organizations, equipment that are available in the community that can be used to support any response.
- Analyze the aspect of physical, social, and attitudinal motivation.

RECOMMENDED TOOLS FOR CAPACITY ASSESSMENT

VENN DIAGRAM

Introduction:
To identify organizations/groups/individuals both local and outsider including their roles/importance and perceptions that people have about them, especially activities related to disaster prevention and response.

Purpose:
To identify potential organizations using circles to illustrate how agencies interact with each other in a given community to support disaster risk management activities. Also the location of the circle indicates whether the agency is within the community or outside, while the size of the circle indicate its importance and linkage to the community.

Steps to create a Venn Diagram:
- Creating a Venn diagram is best performed by a group in a workshop setting. The group with knowledge and understanding of the community decides which agencies are represented within the community.
- Draw a large circle to represent the community. Draw other circles in the larger circle to represent agencies located within the community and indicate its importance by its size. Then finally draw additional circles outside the larger circle to represent agencies/organization located outside the community and indicate with an arrow toward the community if they can support or provide assistance.
- Closeness of the circles indicates strength of interaction. Overlapping circles means a strong relationship.

STATE CBDRR VENN-DIAGRAM
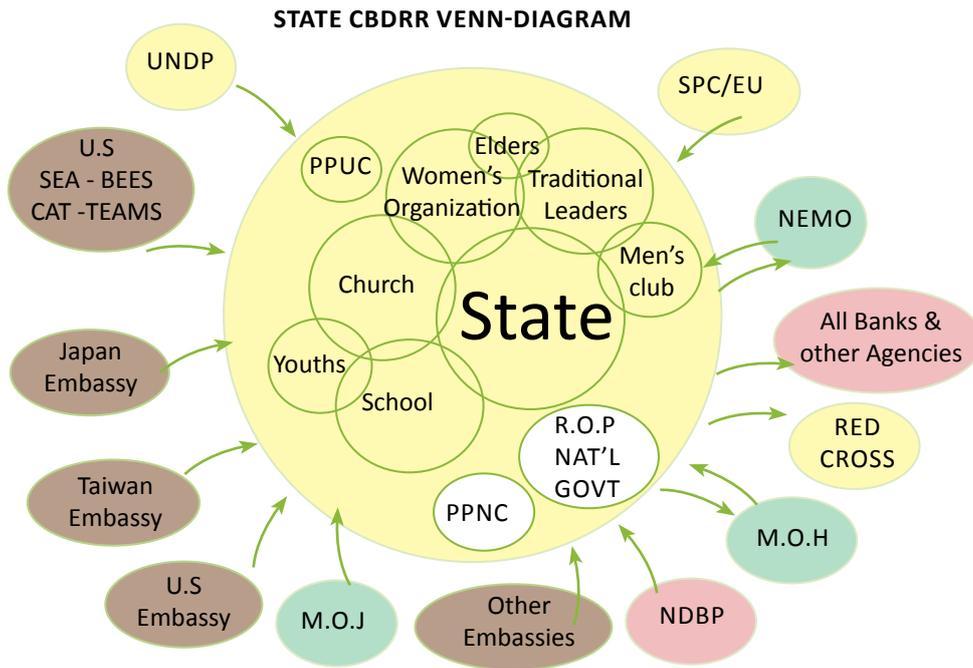
Figure 9: Venn diagram

HAZARD VULNERABILITY CAPACITY ASSESSMENT HVCA MATRIX:

Purpose:
Given the hazards, vulnerabilities and capacities in a community, this matrix allows the community to get a complete picture of the overall ranking of the community in terms of disaster risk reduction activities.

How to conduct it?
Step 2 through Step 4 covers each of the HVCA.

HVCA MATRIX

HAZARDS	VULNERABILITY	CAPACITY
Hazard Map Hazard Profile Timeline Seasonal Calendar	Hazard Mapping Physical Vulnerability Mapping Social Vulerability Critical Infrastructures Transect Walk Community Participation Household wealth/income ranking Gender Mapping People w/ Disability Mapping	Venn Diagram Historical Profiles Early Warning System Emergency Plan Public Awareness Program Public Participation

Figure 10: HVCA Matrix

HISTORICAL PROFILE OF DISASTER DAMAGES.

Purpose:

To allow the community to see the historical profile of past disaster damages and their impacts, and the cost of recovery. This process enables the community to implement disaster risk reduction or build back better.

How to do it?

In a group discuss the disaster damages from past events such as typhoon, droughts, etc. Using the table below indicate each event in chronological order.

Year	Event	Development	Reconstruction

Table 6:   Historical Profile

STEP 5: COMMUNITY RISK REDUCTION PLANNING (PUTTING IT ALL TOGETHER)

Purpose:

Using the vulnerability assessment developed by the community under Step 3, the members develop a community disaster risk reduction plan. The concept and practice of reducing disaster risks through systematic efforts are to analyze and manage the contributing factors to disasters, including through reduced exposure to hazards, lessened vulnerability of the people and property, wise management of the land and the environment, and the improved preparedness for adverse event.
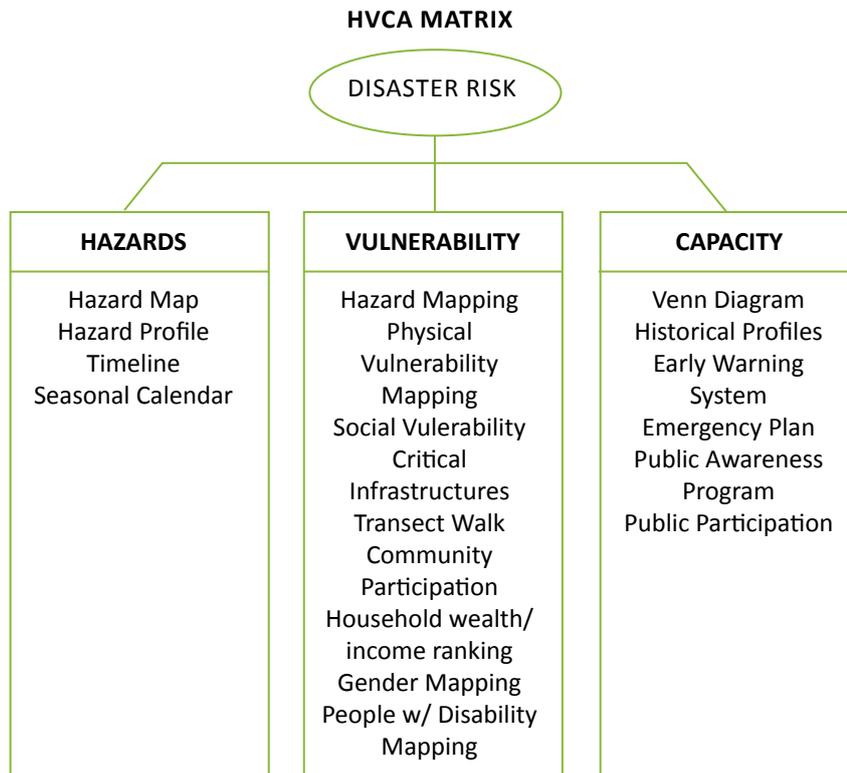
Objectives:

The objectives of the step are:

- Develop an action plan for activities that can reduce vulnerabilities in the community and enhance safety.
- Prioritize the activities to reduce vulnerabilities in order of practicality from the available resources within the community.
- Identify strategies to mobilize resources that can support activities that are beyond the community's capacity.
- Identify existing mechanism that can monitor and evaluate the implementation of the action plan.

KEY AREAS FOR CONSIDERATIONS IN DISASTER RISK REDUCTION MEASURES:

Risk reduction measures can be either structural or non-structural. DRR Plans should contain these elements:

Structural measures:

- Construction or retrofitting building school, centers, hospitals.
- Transportation: roads, bridges.
- Lifelines; water, power, communications, sewer.
- Communication; early warning systems.
- Protective measures; sea walls; mangrove planting.

Plates 8: Structural

Non-Structural:

- Health and Sanitation Programs.
- Capacity building.
- Livelihoods.
- Response plans.
- Preparedness; public disaster education and awareness programs.

Plates 8: Non-Structural

RECOMMENDED ACTIVITIES FOR DRR:

These measures are examples of DRR activities and should be identified and presented in stages during community workshop(s). Through this process the community can expand to include actual measures in the hamlet:

- Before a disaster.
- During a disaster.
- After a disaster.

DRR Measures	Before a disaster	During a disaster	After a disaster
Upgrade infrastructures; houses, public structures etc..	Disaster proofing buildings, sea walls	Activate emergency response plans, evacuation, health, food, water, sanitation	Recovery support after disaster to ensure basic services for communities.
Communication system	Develop early warning system	Activate early warning to public	Review warning procedures for effectiveness
Policy development	Building codes, zoning codes etc.		
Training and awareness programs			

Table 7: DRR Measures
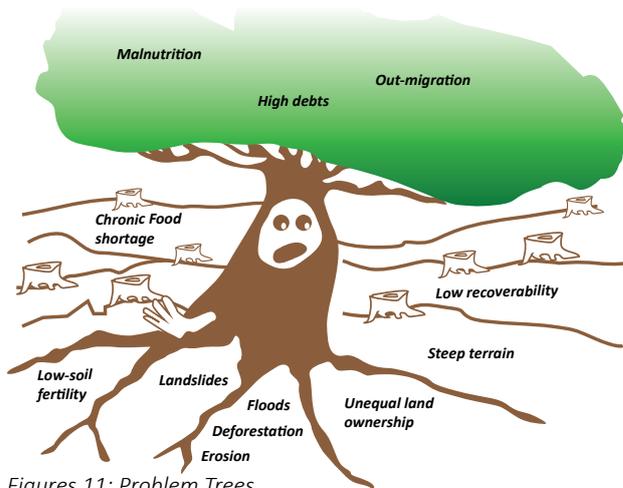
Figures 11: Problem Trees

OBJECTIVE TREE

Purpose:
The goal is a direct outcome of the desired attributes and behaviors that the community wants to see in the project/activity.

Objectives:
- Turns negative problem statement into positive ones.
- Define project activities inputs and outputs.

How to do it?
Given the problems identified in the problem analysis, including the root causes and effects of the problems which are identified as negative statements, the group will discuss and brainstorm positive solutions to the root causes of the problems thereby resulting in a positive effects. For example:

PROBLEM TREE ANALYSIS

Problem: Typhoons caused extensive damage to homes.
Root Cause: Homes are built with no or substandard construction practices.
Effect: Families are challenged with rebuilding cost of new homes.

OBJECTIVE TREE ANALYSIS

Root Cause Remedy: Building codes are developed and enforced.
New homes follow the building code.
Existing homes are retrofitted to standard.
Effect: Homes withstand typhoon force wind during typhoons.
Problem: Solved.

EXAMPLE OF AN OBJECTIVE TREE

OBJECTIVE TREE

ENDS

Improved health condition of rural population

Cash inccome

Sufficient food available

Marketable surplus

Increased farm productivity

Clear extensions messages

Increased labour productivity

Post-harvest losses reduced

Soil fertility increased

MEANS

.....
.....

Improved cultivation techniques

ENDS

MEANS
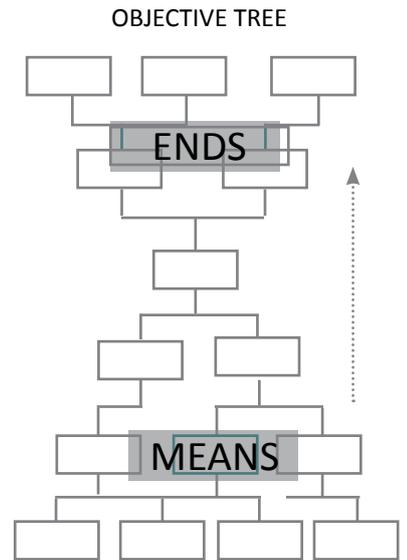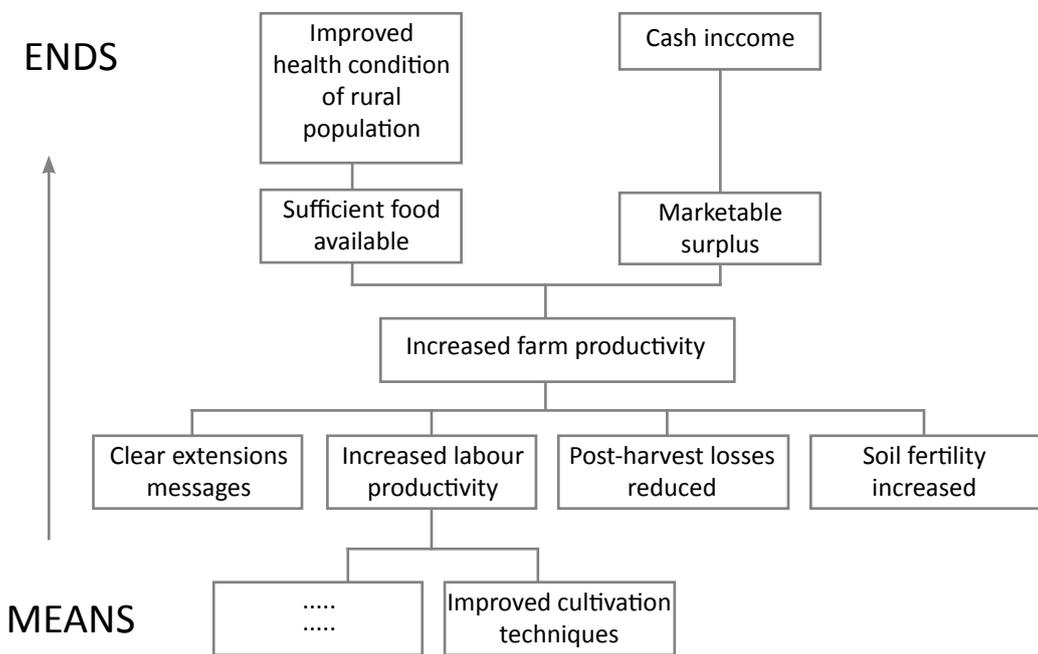
Figures 12. Objective Trees

PRIORITIZATION MATRIX

To list activities or projects in their priority ranking of implementation.

How to do it?
Using the results of the objective tree, list activities or projects in the Prioritization Matrix below. One (1) being the most urgent and four (4) may be delayed.

PRIORITAZATION MATRIX				
Description of Activity	**1**	**2**	**3**	**4**
Activity 1				
Activity 2				
Activity 3				
Activity 4				

Table 8: Prioritization Matrix

ACTION PLAN

Purpose:
To identify in the community, priority areas that needs to be developed or improved. This is developed in a workshop setting for various members/leaders of the community. Priority areas should include effective early warning system, evacuation and shelters management, public education, medical first aid and emergency response. Based on the thematic areas, the community identifies main activities, responsible party, supporting group and ranking of priority status.DRR project activities should primarily utilize all the resources available within the community. However, for complex and costly projects the community may seek assistance externally.

How to do it?
Using the Prioritization Matrix, list activities in the format below.

Theme/Phase in Cycle 1:	Responsible	Support	Priority	Status
Activities:				
1.				
2.				
3.				
Theme 2/Phase in Cycle:				
Activities:				
1.				
2.				
3.				

Table 9: DRR Action Plans

STEP 6: IMPLEMENTATION OF COMMUNITY DISASTER RISK REDUCTION ACTIVITIES

Purpose:
The purpose of this step is to enable vulnerable communities to take leadership in reducing disaster risks faced by them. The community participates in implementing and monitoring activities with effective support and assistance from national and state government agencies and other stakeholders.

Objectives:
• Implement DRR activities in the action plan.
• Reduce Community vulnerability.

Assumptions:
• Disaster risk reduction plans are effectively implemented achieving good results.
• Community participation in implementing activities.
• Effective use of resources mobilized from internal and external sources.
• Risk reduction activities are implemented and monitored with good support and coordination from stakeholders.
• Implemented activities help to reduce community's vulnerability and enhance their capacity to cope with disaster risks, in contribution to poverty reduction, living conditions improvement and local development process.

Principles:
• Ensure good coordination and active participation of the community and related agencies.
• Ensure transparent and accountable implementation process to both communities and stakeholders.
• Use methods and tools that are acceptable to various sub-groups in the community, given their cultural context.

Main Outputs:
• From disaster risk reduction plan in the previous step, resources (human, finance, technical resources, etc.) will be allocated and coordinated to ensure the effective and timely implementation. Measures will be listed and prioritized.

Project Description	Responsibility	Financial source	Timeline

Table 10: Implementation Plan

LOG FRAME

Purpose:
The purpose of a logframe is to manage disaster risk reduction projects or programs progress throughout until the goal is achieved. As the same time, monitor and evaluate the project for potential risks which may impede completion.

How to do it?
Using a log frame below, identify the goal, objective, or purpose of a project/program or activity. Within each goal, identify measurable indicator of the project, means of verifying the indicators and also identify other risks and assumptions that may affect the achievement of the goals. (See next page for sample).

Log Frame			
Objectives	Indicators	Means of verification	Risk and Assumptions
Goal			
Objectives			
Outputs: 1. 2.			
Activities: 1. 2.			

Table 11: Log Frame

STEP 7: COMMUNITY MONITORING AND EVALUATION OF DRR PROJECTS/ PROGRAMS

INTRODUCTION:

Project monitoring and evaluation (M&E) is to review the progress and support the decision-making and management system. Monitoring has the following purposes:
•   To know whether or not implemented activities achieve the planned objectives. What can be done to better achieve the planned objectives?
•   To measure the process of achieving objectives, performance, efficiency and impacts.
•   To develop feedback system that encourages regular learning and sharing among communities and stakeholders for better implementation in the future.

Objective:
To ensure DRR activities or projects are progressing according to plan and meets the expectations of the community. Any deviations or unexpected conflicts from the plan are corrected ahead of time.

Assumptions:
•   Disaster risk reduction measures are implemented effectively, and in a timely manner.
•   Accountability is applied and helps to improve the management and decision making system.
•   Up skilling of community members in planning, problem solving and decision- making processes.

Main Contents:
- **Monitoring:** is the systematic collection and analysis of information as a project progresses. It is a continuous to check how activities are progressing, whether the project is on tract or not, and if responsible persons are doing their tasks properly.
- Monitoring helps organizations track achievements by regular collection of information to assist timely decision making, ensure accountability, and provide the basis for evaluation and learning.
- **Evaluation:** The process of determining the effectiveness of DRR measures based upon the periodic activities (annually, mid-project, end of project, post project).
- M&E could use different methods depending on the quantitative (numbers and charts) and/or qualitative indicators (people's knowledge, attitude and behavior).
- The evaluation process needs to provide reliable and trustworthy information, offering provides inputs and lessons learned for the decision making process of the communities and associated agencies.

Recommended Steps:
- Develop M&E Plan.
- Collect data/information.
- Analyze data.
- Document, communicate and share findings.

Methods and tools used in M&E

GANTT CHART

Purpose:
Gantt Chart is a schedule of DRR programs/project/task already identified in the vulnerability assessment. This is a timeline oriented chart along with people who are responsible for the task and the resources required to complete the activity.

How to do it?
Following a group discussion, during a workshop or meeting, fill in the rest of the chart. Advantage of the chart include avoid confusion , keep partners on the same page, understand the relationships between tasks, effective resource allocation, and forward looking to ensure tasks are progressing as planned.

Gantt Chart				
Task	Responsibility	Begin	End	Resources
1.				
2.				
3.				
4.				
5.				

Table 12. Gantt Chart

- **Quantitative indicators:** can be measured using numbers.
- **Qualitative indicators:** cannot be measured by numbers but information is gathered through materials such as minutes of meetings, observation or group discussion and feedback. Examples of these are: direct observation, interview with key people, focus group discussions.
- **Log Frame:** will contain indicators for monitoring and evaluation.
- **Most significant changes (MSC):** another form of M&E in which many stakeholders are involved in deciding sort of changes to be recorded and in analysis data. Uses two simple questions to answer significant changes:

1. *"Looking back over the last period (month, quarter, etc.) what do you think was the most significant change in the (project or program)?"*

2. *"Among all the changes what is the most significant change?"*

PART 5: BUILDING/FORMING AND TRAINING A HAMLET EMERGENCY COMMITTEE

5.1 INTRODUCTION

Communities or hamlets, in a given State government, have an informal organization that oversees disaster risk management matters. The current practice is to wait for the National and State Government for direction in terms of early warning, evacuation, and disaster risk reduction measures. Public disaster education and awareness programs are conducted by national government agencies and NGOs, however, these are few and far between.

It is in the best interest of the community to have such a committee within the community, to undertake the responsibility for disaster risk reduction measures and disaster management activities. The objective of hamlet committee to enable communities to become better prepared for impending disasters and to become disaster resilient in the long term.

Plates 9: Community workshop,

5.2 STEPS IN CREATING A HAMLET EMERGENCY COMMITTEES

Hamlet Emergency Committee (HEC)

The first step in creating a Hamlet Emergency Committee is to obtain acknowledgement and support of the traditional leaders. The Hamlet Emergency Committee is the command, control and coordinating body for disaster risk management activities at the hamlet level.

There has always existed in all the communities in Palau, a body consisting of traditional chiefs. The body is called Council of Hamlet Chiefs ("Rubekul a Beluu"). This body has the authority to create its local Hamlet Emergency Committee by traditional virtue of its responsibility for the safety and well-being of the whole community. Therefore, to effectively introduce the concept of CBDRR at the hamlet level, there has to be a fusion factor bringing the traditional and new concepts together.

Plates 10: Melekeok Community workshop

5.3 MEMBERSHIP OF HEC

Membership of the HEC may include the following: (Community leaders may add or delete).

Members of HEC:

- Four of the highest ranking chiefs;
  a. Chairperson is the highest ranking chief.
  b. Alternate chair is the second ranking chief or appointed.
  c. Third ranking chief.
  d. Fourth ranking chief.

Note: Each of the four chiefs may appoint their alternate member to represent them, if they are unable to participate.

- Member, President of the traditional men's group.
- Member, President of the traditional women's group.
- Member, President of the Youth group.
- Member, Elected representative of the community or hamlet to the State Legislature.
- Member, Faith Based Organization.
- Member, Red Cross Representative, if any.
- Member, Representative of PWDs, if any.

The Traditional leaders may appoint Community Coordinator and a Secretary of the HEC.

5.4 ROLES AND RESPONSIBILITIES OF HEC

The roles and responsibilities of the HEC can be divided into three categories according to the disaster risk management phases; before, during and after an event. These are:

1.   Preparedness functions:

- Share and acquaint community disaster risk management plan with all the community members.
- Mobilize community members to implement the planned disaster risk reduction measures. (Ureor el Beluu).
- Resources that the community cannot produce or access on its own. HEC will request the State Government for supplies and expertise as required.
- Conduct disaster preparedness training with the community members.
- Monitor disaster threats, warnings, conduct drills/exercises and draw lessons to improve the plan.

- Network and coordinate with other HEC and the State office.
- Engage in increasing visibility and promote work regarding disaster management and development-related issues to support local and community disaster risk management.
- Develop and maintain the Community Based Disaster Risk Management Plan which includes Emergency Response Plans and Disaster Risk Reduction Action Plan such as Early warning plans and evacuation plans, etc.

2. Emergency Functions of HEC:

- Receive and notify the community.
- Makes major decisions in terms of response.
- Manage evacuation to shelters or designated safe areas.
- Organize search and rescue with community participation.
- Provide first-aid and arrange subsequent medical assistance.
- Conduct initial damage assessment (IDA) and report to State government authorities.
- Request assistance from State government and/or national government.
- Immediately after an event coordinate, plan and implement relief delivery operations with responsible government agencies or aid agencies.

3. Recovery Functions of the HEC:

- Facilitate social, economic, and physical rehabilitation of community; e.g. livelihood, trauma counseling, reconstruction of houses and infrastructure.
- Conduct Initial Damage Assessment (IDA) and submit report to the Governor.
- Coordinate with government and aid agencies to receive assistance in rehabilitation.
- Ensure that risk reduction measures are integrated during the reconstruction and rehabilitation phases.
- Evaluate the performance in terms of HEC capacity and effectiveness to promote community safety and identify strategies for future recommendations.

5.5 HAMLET DISASTER RISK MANAGEMENT ARRANGEMENTS

The disaster risk management arrangements at the community level follows the arrangements illustrated in the National DRM Framework and the State DRM Plans. It is logical for the State and the Community level to adopt these arrangements for governing committees and operational centers.

NATIONAL EMERGENCY COMMITTEE (NEC)

State Emergency Committee (SEC)

Hamlet Emergency Committee (HEC)

Figure 13: Hierarchy of National Emergency Committees

National Emergency Operation Center (NEOC)

State Emergency Operation Center (SEOC)
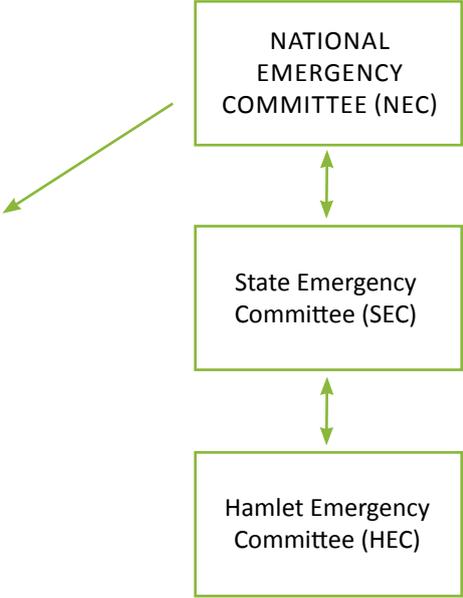
HAMLET INCIDENT COMMAND POST (HICP)

Figure 14: Hierarchy of Emergency Response Operations

5.6 MAJOR COMPONENTS OF THE COMMUNITY DISASTER RISK MANAGEMENT PLAN

Community members with the assistance of stakeholders will develop the CBDRM Plan and supporting emergency functions or procedures for the following. (See the following Table 13: Developing emergency functions).

5.6.1 DISASTER RISK REDUCTION ACTION PLAN

The result of the CBDRR Training Program will be incorporated into the DRR Action Plan.

The results of Step 5 in this Tool Kit are documented and prioritized using the DRR Prioritization Matrix indicating the activity, responsible party, priority and status. Step 6 will guide the community members implement the activities.

5.6.2 DISASTER MANAGEMENT PLAN

The components of this section of this CBDRM are as follows:

Table 13: Major Components

1	Early Warning System	The plan should indicate the source of the warning, person responsible for disseminating the warning to the community, and the tools required.
2.	Evacuation Plan	The plan should identify evacuation centers, person responsible, and specify main route and alternate evacuation routes.
3.	Shelter Management	The plan should identify typhoon shelters, person responsible, contact numbers, and necessary documentation.
4.	Medical First Aid	The community should have a medical first aid plan or procedures. PRCS and MOH can assist community with this planning and training.

Figures 15. Stakeholders and other Private and Public Agencies

PART 6: REFERENCE MATERIALS

Summary of methods and tools needed for Hazards, Vulnerability and Capacity Assessment

No.	Methods/Tools	Hazards	Vulnerability	Capacity
1.	Direct Observation	X	X	X
2.	Secondary data collection	X	X	X
3.	Group discussion	X	X	X
4.	Semi-structured interviews	X	X	X
5.	The Hazard Map	X	X	
6.	Transect Walk	X	X	X
7.	Historical profile	X	X	X
8.	Ranking	X	X	
9.	Hazard and seasonal calendar	X	X	X
10.	Venn Diagram (institutional and social network analysis			X
11.	Health and nutrition assessment		X	X
12.	Livelihood analysis		X	X
13.	Gender resources mapping			X
14.	Household wealth ranking		X	
15.	Problem trees method		X	

Table 14: Summary of methods and tools for risk assessments