



# Municipal Disaster Risk Reduction Management Council

## MIDRRM PLAN



# DISASTER RISK REDUCTION MANAGEMENT PLAN

## MUNICIPALITY OF JAGNA

2011

### CONTENTS

Introduction  
Situation Overview  
Findings and Recommendations  
The Disaster Risk Reduction Management Plan  
    Vision  
    Elements of Jagna DRRMP  
    Strategy Map  
    SWOT  
    Balance Scorecard  
Annexes

## Introduction

Recognizing the high disaster risk of the municipality of Jagna, the members of the Municipal Disaster Risk Reduction Management Council (MDRRMC) have initiated the development of a Disaster Risk Reduction Management Plan (DRRMP) to guide the integration of a risk reduction agenda into ongoing governance and ensuring sustainable development and poverty reduction in aligning the vision of the municipality to become a progressive center of development and economic services in Southeastern Bohol.

## Situation Overview

Jagna has a total population of 32,034 and is considered as one of the environmentally constrained areas prone to natural hazards like flooding, earthquake, rain-induced landslide, tsunami and liquefaction based on the rapid and community assessment conducted by PHIVOLCs and OCD under the READY project in February 2007, the municipality of Jagna is susceptible to some disaster and hazard risks. Among them are rain-induced landslide, storm surges, tsunami, liquefaction, flooding and ground shaking hazards. This assessment maybe one of the reason that LGU Jagna is one of the chosen pilot area in mainstreaming disaster risk reduction management and climate change adaptation nationwide.

Mines and Geosciences Bureau – Region VII also conducted a field geo-hazard assessment of landslide and flood prone barangays in Jagna and the result of the MGB Rapid Field Assessment is as follows:

- There are five (5) barangays with high landslide susceptibility (Barangays Mayana, Malbog, Calabacita, Tubod Monte and Boctol).
- There are seven (7) barangays with moderate landslide susceptibility (Barangays Balili, Buyog, Cantuyoc, Odiong, Alejawan, Canjulao and Kinagbaan).
- There are twenty-one (21) barangays with low landslide susceptibility (Barangays Bunga Mar, Lonoy, Cambugason, Can-ipol , Cabungaan, Laca, Bunga Ilaya, Naatang, Tubod Mar, Larapan, nausok, Pangdan, Tejero, Poblacion, Looc, Pagina, Can-upao, Cantagay, Ipil, Faraon and Can-uba).

- There are nine (9) barangays that are susceptible to flooding (Barangays Bunga Mar, Poblacion, Tejero, Looc, Pangdan, Kinagbaan, Cambugason, Lonoy and Alejawan).

The 33 barangays of Jagna, Bohol were found to be located on and/or near slopes and have the potential for landslide occurrence. These barangays were also presented with a *Landslide Threat Advisory* (see Annex A Results of Assessments of the Thirty-Three (33) Barangays). The Advisory informs the barangays of their susceptibility to landslides and have the corresponding recommendations particular to the barangay.

### Findings and Recommendations

One of the causes of landslide particularly in Mayana is the periodic lowering (caused by shrinkage and compaction) and increase in ground level (buoyant effect on rocks) which affected stability of the formation. The rest of the landslide incidence like the one happen in Brgy Tubod Monte, Odiong and Cantuyoc recently is the instabilities in slopes from a very steep cut results from the widening of roads. It is highly recommended that there will be a regular monitoring of the advance of the landslide debris and coordinate with the disaster response team for immediate assessment, action and recommendations.

One of the mitigations identified to address the phenomena is by having trained LGU personnel who can make an analysis of the rainfall gauge particularly in the upland barangays like Mayana, Calabacita, Boctol, Balili, Odiong and Lonoy and make recommendations for corrective measures. Encourage everyone to participate a tree growing program as preventive measures to the flood prone areas. Flood control and river dikes are also monitored by the municipal engineer ensuring safety and preventive measures for the flood prone barangays. Residents should be vigilant during the rainy period and be watchful of the possible landslide prone area.

## The Disaster Risk Reduction Management Plan

### Vision

A highly responsive and proactive community working towards a safe environment and progressive society.

In order to flesh out the vision and ensure a proper and effective mechanism for disaster mitigation and preparedness in the Municipality of Jagna, the DRRMP elements are the following:

- Outline the strategic direction to guide the development of disaster management.
- Align the strategic direction for disaster risk reduction with the town vision.

### Mission

Ensure efficient and effective emergency response and disaster preparedness with active participation of the community.

## S W O T

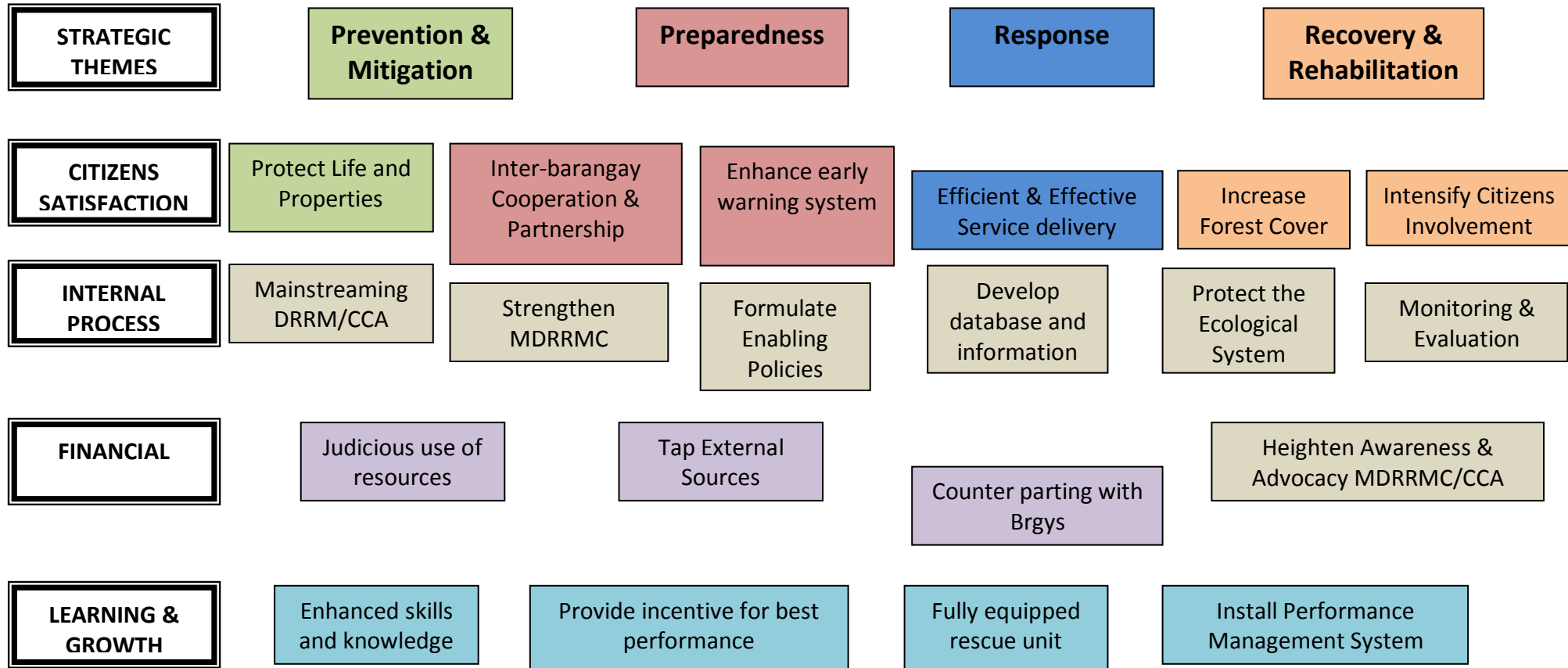
MAJOR STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Establishment of Jagna Emergency Medical Rescue Unit (JEMRU)	Lack of trainings for emergency preparedness	Fire marshal station with fire fighting equipment available	Disaster Risk area prone to landslide, flooding, typhoon, earthquake, tsunami.
Supportive LCE & SB	Multi-tasking	Presence of Marine and Watershed Protected Area	Increasing volume of garbage
Establishment of MDRRMC Office and Operation Center	No MENRO or structure to respond concern on the protection of ecological environment	Linkage to NGOs, NGAs. e.g. EcoGov, BIDEF, BEMO, BFAR, DENR	No sewerage/ proper drainage system
Active MDRRMC members and Action Officer	Controlled open dump site	Adequate Number of Personnel's and volunteers	Increases in sea level rise
Available emergency equipments	Lack of Rescue and medical equipments	Community involvement and cooperation on disaster initiative	Excessive siltation
Presence of community radio	Slow reaction in emergency response	Support from LGU, NGO, NGA and private individuals and institutions	Long rainfall season
Available Budget	No signal or low signal in upper barangay's	Emergency response team in every barangay	Landslide flood
Available Local Natural Resources	No reforestation program		Pilipino Mentality
Pilot LGU in Mainstreaming MDRRMC/CCA	No front desk officer on forest Rehab. & reforestation		Shortage in Fire hydrants
	No implementation about solid waste management act.		Urbanization increase in population, high rise infrastructures and traffic congestion
	Need additional vehicle to answer emergency		Lack of common understanding on disaster preparedness
	Practice of burning plastic /cellophane		Tree planting to Prevent Landslide and Flooding
	No discipline in throwing plastic/cellophane into streets and river		Promotion of social responsibility to influence the public to accept

			<b>practices on disaster preparedness</b>
	Handheld radio not returned		Likayan ang pag sunog sa lasang ug mountain
	Limited specialization training		
	Brgys officials did not trained on disaster risk reduction mitigation		
	Majority of the constituents lack proper		

# MDRRMC STRATEGY MAP

A highly responsive and proactive community working towards a safe environment and progressive society

Ensure the efficient and effective emergency response and disaster preparedness with active participation of the community.





Perspective	Objectives	Measures	Baseline Data	Targets	Initiatives	Budgetary Requirements	Timeframe	Person/Office Responsible
Citizens Satisfaction	<b>PREVENTION &amp; MITIGATION</b>							
	<b>Enhancing Safety of Life and Properties</b>							
	1. Mainstreaming DRRM/CCA	DRRM/CCA Integration		all development plans	Integrating DRRM/CCA into Local Planning System * CLUP/CDP/ELA/AIP			
					Use of GIS thematic maps in the analysis			
	2. Develop database and information related to disaster occurrence	data and information available		updated data and information available in the MDRRMC Office	Purchase of Desktop Computer set and Printer * Installation of REDAS Software * e-copy of hazard maps	45,000.00	Apr-11	MDRRMC Personnel
	3. Heighten Awareness & Advocacy on Climate Change Adaptation	radio program/ flyers		regular radio program and reproduce reams of flyers	* Establish radio program on climate change adaptation * Reproduction of IEC Materials	5,000.00	May-11	MDRRMC Action Officer/ Ad Hoc Committee
	4. Establish proper monitoring and evaluation of programs and targets of activities	Monitoring & Evaluation mechanism		Updated Monitoring and Evaluation Data per year	Establish filing system of disaster related documentation and data of assessment reports and others	10,000.00	Mar-11	MDRRMC Personnel
5. Strengthening MDRRMC	Functional Council		Office & Staff establish	Creation of Office and designation of DRRMO & Staff	200,000.00	Jun-11		

			TNA conducted	Conduct Training Needs Assessment (TNA)	20,000.00	Jul-11	Ad Hoc Committee
			Database & Information installed	Develop database and information	10,000.00	Jun-11	MDRRMC Personnel
			studies and researcher employed	Continuing Studies and Research	50,000.00	Jul-11	MDRRMC Personnel
			Activities of MDRRMC documented	Conduct monitoring and evaluation	5,000.00	Whole year round	MDRRMC Personnel
			Skills trainings and capacity building activities conducted	Capacity Building of First Aid Team( JEMRU), Response Team, Rehabilitation and Recovery & Relief Operation Team	150,000.00	Aug-11	JEMRU/Ad Hoc Committee
			<b>PREPAREDNESS</b>				
<b>Forging Partnership and Inter-barangay Cooperation</b>							
<b>Citizens Satisfaction</b>	1. Building alliance and spirit of cooperation in adjacent barangays	participation and cooperation among the barangays	within the calendar year	River & Creeks clean-up * Laca-Kinagbaan * Bunga Ilaya-Can-upao-Bunga Mar * Pangdan-Tejero * Tejero-Poblacion * Cantuyoc-Canjulao-Pagina * Malbog-Tubod Monte-Pagina	12,000.00	Jul-11	Brgy Council /MDRRMC/ Action Officer/ Municipal Engineer

	river & estuaries cleared		passable rivers and estuaries	Dredging and declogging of rivers and estuaries * Bunga Mar * Ipil * Canuba * Alejawan * Kinagbaan * Calabacita * Naatang * Pagina * Looc	100,000.00	Nov-11	Action Officer/ Municipal Engineer
2. Enhancing pre-disaster drills	pre-disaster activities conducted		conducted in LGU, schools & Public Market	Conduct of Earthquake Drill (LGU, schools, public market)	20000	Jul-11	MDRRMC Staff /Action Officer
				Conduct of Fire Drill (Municipal Bldg.)	15000	Jul-11	MDRRMC Staff
3. Formulate enabling policies	Ordinance enacted		enacted within the year 2011	Enact Ordinance creating MENRO Office and staff.	5,000.00		7th Sangguniang Bayan
	Ordinance enacted		enacted within the year 2011	Enact Ordinance to require graduating student to plant trees as early as June as a requirement for graduation			7th Sangguniang Bayan
	Ordinance enacted		enacted within the year 2011	Enact ordinance requesting barangays to install fire hydrant terminal chargeable to portion of their 5% Calamity Fund			7th Sangguniang Bayan

**Citizens Satisfaction**

	Ordinance enacted		enacted within the year 2011	Enact Ordinance prohibiting building construction along river creeks and landslide prone areas.			7th Sangguniang Bayan
<b>Enhance early warning system</b>							
1. Develop a functional an Early Warning System	early warning device installed		motor siren, rain gauge stations, high sea level indicator and flood marker installed and functional	Installation of Early Warning System * motor siren in metro Jagna & Mayana * rain gauge stations * high sea level indicator * flood marker for monitoring	120,000.00	Jun-11	MDRRMC
2. Reduce the risk of environmental hazards.	Flood Control rehabilitated		flood control rehabilitated within the year	Construction of flood control near lowland areas at BIT, Tejero	60,000.00	Oct-11	Municipal Engineer
	compliance of Zoning, fire code and Building Code prior to Construction of Buildings		all proposed building constructions secure the zoning, building and fire code clearance	Strict enforcement of Zoning Ordinance, Fire Code and Building Code		Whole year round	MPDC/Zoning Administrator/Building Official/Municipal Fire Marshall
	ready and operational heavy equipment		available heavy equipment ready to response during landslide incidence	Ready and functional heavy equipments for landslide emergency clearing and safety of the people	50,000.00	Whole year round	Engineering Personnel

	Contingency Plan		Contingency Plan Formulated	Formulate a Contingency Plan * Landslide Prone (Mayana) * Flood Prone ( Tejero)	30,000.00	Sep-11	MPDC/MDR RMC
<b>3. Reduce pollution</b> (Sea, Land , Water and Air)	Increase # of HH's and establishments practice proper waste segregation	1,500 from 5,000 HH's and 600 establishments practices waste segregation	90% of the HH and establishments practice proper waste segregation	Expand coverage of waste collection aside from Metro Jagna			ISWM-TWG
				Established/operationalize Barangay MRF/Transfer Station			SWM-TWG
				Start 1st Phase of Proposed SLF			ME/ISWM/MO
				Information and Education Campaign to reduce pollution			IEC Support Staff
				Strict implementation of pollution related ordinances.			ISWM-TWG
				Improve water threatment on the water supply			JWS Management
<b>RESPONSE</b>							
<b>Efficient and effective Service Delivery</b>							
<b>Citizens Satisfaction</b>	<b>1. Improve response and monitoring team during emergency disaster event</b>			Training for MDRRMC Team Task Force, Brgys Disaster Task Force, Volunteers	40,000.00	Nov-11	Various stakeholders
		motor vehicle		available mobile motor unit for	Purchase of mobile motor for MDRRMO	65,000.00	Aug-11

		mobilization use				
cash assistance extended		amount of financial emergency assistance extended to the victims	Financial Aid to Disaster Victims	150,000.00	Whole year round	MDRRMC Action Officer/ Ad Hoc Committee
communication & coordination well facilitated		acquire two-way handheld radio for emergency use	Purchase of two-way handheld radio	60,000.00	Jul-11	MDRRMC Personnel
emergency lights available		readily available standby generator for emergency lights	Purchase of portable generator for emergency lights use	45,000.00	Aug-11	MDRRMC Personnel
easy access of hotline		functional and efficient 3 digit hotline nos.	Activation of 3-digit HOTLINE No.s	20,000.00	May-11	MDRRMC Personnel
117 hotline functional		register 117 hotline no.s as local emergency hotline no.	Dissemination of emergency hotline nos. to all barangays constituents	10,000.00	May-11	BFP
no.of flyers/posters distributed to the brgys		print flyers for emergency contact no.s	Produce flyers for emergency contact no.s	30,000.00	Sep-11	MDRRMC Personnel

	no. of volunteers		organize and capacitate volunteers	Organize volunteers in times of Disaster Occurrence and Relief of Goods	30,000.00	Apr-11	MDRRMC Management
	communication efficiency		acquire base and additional handheld radio	Purchase of base and additional handheld radio	72,000.00	Apr-11	MDRRMC Personnel
	availability of medical, equipments, tools and emergency paraphernalias		Acquisition of medical and rescue equipments, tools and emergency paraphernalias	Medical Supplies and Rescue Equipments, Tools and Paraphernalias	80,000.00	May-11	MDRRMC Personnel
	high strength of cellular phone signal		resolve weak strength of cellular signal within the year	Dialogue with Telecommunication Provider to augment cellular signals of Brgy Faraon, Canuba, Ipil, Canipol, Odiong, etc.		Feb-11	MPDC/Brgy Captain concern
	ready warning signages for emergency use		fabricate and lettering caution/warning signs for emergency use	Prepare and install proper warning signages, caution signs, traffic signs	50,000.00	Jul-11	MDRRMC Personnel

RECOVERY AND REHABILITATION								
Citizens Satisfaction	<b>1. Rehabilitate forest cover and bio-diversity protection.</b>	hectares planted with trees/ type of trees/degree of biodiversity	20 hectares	Increased by 5% forest cover in 2011	Conduct of Tree Growing Activities in Tubod Monte, Pangdan, Naatang, Buyog & Canupao (Land Prep, seedling transport, tree planting, safeguarding, cultivating, monitoring,etc.)	500,000.00	Jul-11	MDRRMC/ Jagna Employees and Officials
		MOA with BISU		Research Output and recommendations presented	Partnership with BISU on Forest Assessment & Biodiversity Protection & Awareness	10,000.00	Aug-11	MDRRMC
		issues and environmental problems address for actions		stakeholders and brgys captains invited in the forum	Conduct environmental forum with DENR,BEMO,BFAR personnel	10,000.00	Oct-11	MDRRMC
	<b>2. Intensify Citizens Involvement</b>	citizens information and reports of illegal extraction of sand and gravel		coordination to report to DENR on the illegal extraction of sand and gravel	Strict enforcement of Ordinance Re: Illegal extraction of sand and gravel		Nov-11	MDRRMC



Republic of the Philippines  
Province of Bohol

Municipality of JAGNA

**Proposed 5% Calamity Fund Utilization Program 2011**

Budget Year : **2011**

Estimated Total LGU Budget : **Php 56,640,000.00**

5% Calamity Fund : **Php 2,832,000.00**

Account Codes	Program/Projects/Activity Description	MOOE	Capital Outlay	Total Amount
	<b>Pre-disaster Preparedness Program (70%)</b>			<b>1,982,400.00</b>
	<i>Breakdown as Follows:</i>			
753	Training and Seminars Expenses	150,000.00		
751	Travelling Expenses	80,000.00		
261	Reforestation - Upland ( Tree Growing Program)	250,000.00	40,000.00	
856	Repair and Maintenance - Flood Control		75,000.00	
257	Waterways, Aqueducts, Seawalls, River Walls and Others		90,000.00	
855	Repair and Maintenance - Canals and Laterals		100,000.00	
784	Transportation Expenses	35,000.00		
762	Agriculture Supplies Expenses- seedlings	60,000.00		

765	Other Supplies Expenses		67,000.00	
707	Salaries and Wages - Emergency	20,000.00		
	Early Warning Device – Motor Siren		100,000.00	
755	Office Supplies Expenses	30,000.00		
761	Gasoline, Oil & Lubricant Expenses	30,000.00		
884	Miscellaneous Expenses		25,000.00	
782	Rent Expenses	20,000.00		
831	Repair and Maintenance - Firefighting Equipment & Accessories	60,000.00		
830	Repair and Maintenance - Heavy Equipment	100,000.00		
893	Insurance Expenses	35,000.00		
	Aid to Disaster Victims	260,000.00		
795	General Services	20,000.00		
773	Telephone Expenses – Mobile	14,400.00		
	JEMRU Operating Expenses	50,000.00		
223	IT Equipment & Software		45,000.00	

765	Warning signages, caution signs & traffic signs	20,000.00		
781	Printing and Binding Expenses	23,000.00		
241	Motor Vehicles		67,000.00	
775	Cable, Satellite, Telegraph and Radio Expenses		36,000.00	
893	Insurance Expenses	60,000.00		
759	Drugs and Medicines Expenses	20,000.00		
	<b>Quick Response Fund for Relief and Recovery Programs (30%)</b>			<b>849,600.00</b>
758	Food Supplies Expenses	350,000.00		
884	Miscellaneous Expenses	300,000.00		
765	Other Supplies Expenses	199,600.00		
	<b>TOTAL AMOUNT</b>	<b>1,987,000.00</b>	<b>845,000.00</b>	<b>2,832,000.00</b>

Prepared by:

**ENGR. GERRY V. ARANETA**  
MDRRM Officer

Approved by:

**ATTY. FORTUNATO R. ABRENILLA**  
Municipal Mayor

## Priority Areas for Action

### **1. Development of institutional framework and structures capable of preventing, preparing for and responding to disasters.**

Interventions in this area will aim at creating institutional environment for addressing disaster and risk reductions. This will involve the establishment of a MDRRMC Office with technical committees at municipal level and strengthening of capacities of all actors: government, civil society, organized private sector and development partners.

### **2. Integration of disaster risk reduction into sustainable policies and plans.**

The interventions in this area will focus on mainstreaming disaster management and risk reduction into Municipal Plans and policies through the development of municipal platform for disaster management, sensitization, and awareness creation on disaster management, capacity building and introduction of disaster risk reduction into the school system. Establishing the necessary linkages and capacity building will be among the key activities. Interventions in this area will aim at building capacity at all levels and develop and implement an effective resource mobilization mechanism and necessary follow ups. Mechanisms will be developed for mainstreaming disaster issues in overall development plans and policies.

### **3. Develop an efficient response mechanism to disaster management and make available the necessary resources**

Interventions in this area will aim at building capacities; develop strategies for resource mobilization and for monitoring and evaluation.

## Expected Outcomes

- A well functioning Municipal Disaster Risk Reduction Management Council
- Formation of well functioning participatory structures e.g., committees at all stakeholders
- Strengthened Municipal capacities in disaster management and risk reduction strategies
- Availability of sufficient, reliable and timely data for informed decision-making on disaster and risk reduction matters
- Existence of a Municipal early warning system which is regularly updated.

- Existence of effective communication strategy and a well informed citizenry on disaster and risk reduction issues.

## LANDSLIDE SUSCEPTIBILITY RATING AND RECOMMENDATIONS OF MINES AND GEO-SCIENCES BUREAU REGION -7 ASSESSMENT

Barangay	Landslide Susceptibility Rating	Recommendations
Mayana	High	Monitor progress of mass movement (e.g landslide, tension cracks),develop an early warning device system, identify evacuation site, observe for rapid increase/decrease in Bangwalog/Alejawan river water levels,possibly accompanied by increased turbidity (soil content), observed saturated ground or seeps in areas that are not typically wet and constant communication and updates with nearby downslope barangays.
Mayana	High	Regular monitoring of progress of mass movement (landslide and tension cracks) especially during heavy and continuous rains at Bgy. Malbog proper, which have affected about 24 houses. Identify evacuation site if situation becomes serious.
Calabacita	High	Monitor progress of mass movement (e.g. landslide, tension cracks) at Sitio Katiwihan that has already affected 5 houses and at Sitios Ilawod and Napo. Residents are advised to vacate the affected areas during heavy and continuous rains.
Tubod Monte	High	Monitor progress of mass movement (e.g. landslide, tension cracks) at Sitio Kago-ko, Purok 2 and at Purok 1, develop an early warning device system and identify evacuation site.
Boctol	High	Monitor progress of mass movement (e.g. landslide, tension cracks)near the boundaries of Bgy. Boctol and Mayana, within the limestone cliffs and forest zone, develop an early warning device system.
Balili	Moderate	Observe for presence of mass movement (e.g. landslide, tension cracks), observe for saturated ground or seeps in areas that are not typically wet and constant communication and updates with nearby barangays.
Buyog	Moderate	Observe for presence of mass movement (e.g. landslide, tension cracks), observe for saturated ground or seeps in areas that are not typically wet and constant communication and updates with nearby barangays.
Cantuyoc	Moderate	Monitor progress of mass movement (e.g. landslide, tension cracks) at road cut at Sitio Taytay especially during heavy and continuous rains.

Odiong	Moderate	Observe for presence of mass movement (e.g landslide, tension cracks), observe for saturated ground or seeps in areas that are not typically wet and constant communication and updated with nearby barangays. Constant declogging of debris of spillway to prevent flooding.
Alejawan	Moderate	Monitor progress of mass movement (e.g. landslide, tension cracks) at roadcut near boundary with Bgy. Cambugason. Observe for rapid increase/decrease in water levels of Alejawan River, possibly accompanied by increased turbidity (soil content). Constant communication and landslide updates with upland Barangay Mayana.
Canjulao	Moderate	Monitor progress of mass movement (e.g. landslide, tension cracks) of inactive landslide caused by quarry operation at Purok 3. Observe presence of mass movement (e.g. landslide, tension cracks)
Kinagbaan	Moderate	Monitor progress of inactive landslide along barangay road at Sitio Tinakbasan. Observe for presence of mass movement (e.g landslide, tension cracks)
Bunga Mar	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Lonoy	Low	Observe for presence of mass movements (e.g. landslide, tension cracks) Observe for rapid increase/decrease in water levels of Alejawan River, possibly accompanied by increased turbidity (soil content). Constant communication and landslide updates with upland Barangay Mayana.
Cambugason	Low	Observe for presence of mass movements (e.g. landslide, tension cracks) Observe for rapid increase/decrease in water levels of Alejawan River, possibly accompanied by increased turbidity (soil content). Constant communication and landslide updates with upland Barangay Mayana
Can-ipol	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Cabungaan	Low	Observe for presence of mass movements (e.g. landslide, tension cracks) Observe for rapid increase/decrease in water levels of Alejawan River, possibly accompanied by increased turbidity (soil content). Constant communication and landslide updates with upland Barangay Mayana.
Laca	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)

Bunga Ilaya	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Naatang	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Tubod Mar	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Larapan	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Nausok	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Pangdan	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Tejero	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Poblacion	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Looc	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Pagina	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Can-upao	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Cantagay	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Ipil	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Faraon	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)
Can-uba	Low	Observe for presence of mass movements (e.g. landslide, tension cracks)

However, Barangay Can-upao particularly at the 3<sup>rd</sup> District near Caltex station is observed to be high risk flood prone areas especially when there is a heavy rains that last 2-3 days. It was noted that along the areas should be given mitigating measures to prevent floods and safety of life and properties.



Table below shows the results of assessment of the ten (10) barangays susceptible to flooding.

<b>Barangay</b>	<b>Type of Flooding</b>	<b>Cause of Flooding/Remarks</b>	<b>Recommendations</b>
Bunga Mar	Sheet flooding and riverine flooding	Poor drainage, water, coming from Bgys. Bungallaya and Laca	Provide adequate and appropriate drainage facilities, regulate/control development of upstream/catchment area
Poblacion	Riverine Flooding	Flooding common during heavy rains aggravated during high tide when floodwaters are blocked by tidal waters, poor drainage system.	Provide adequate and appropriate drainage facilities, regulate/control development of upstream/catchment area
Tejero	Sheet and Riverine Flooding	Flooding common during heavy rains up to 0.5 meter depth, aggravated during high tide when floodwaters are blocked by tidal waters, poor drainage system.	Provide adequate and appropriate drainage facilities, regulate/control development of upstream/catchment area
Looc	Sheet Flooding	Local flooding coming from rice paddies	Provision of adequate drainage facilities
Pangdan	Sheet and Riverine Flooding	Local flooding at Purok 7, aggravated during high tide, poor drainage system	Provision of adequate drainage facilities
Kinagbaan	Sheet and Riverine Flooding	Flooding at creek bounding with Bgy. Bunga Ilaya due to debris clogging the small culvert.	Change to bigger concrete box culvert

Cambugason	Riverine Flooding	Flood prone area near banks of Alejawan river, 3 houses located near the river bank	Constant communication and landslide updates with upland Barangay Mayana. Evacuation of residents with houses near banks of Alejawan River during heavy and continuous rains
Lonoy	Riverine Flooding	Flood prone area near banks of Alejawan river, about 10 houses located near the river bank	Constant communication and landslide updates with upland Barangay Mayana. Evacuation of residents with houses near banks of Alejawan River during heavy and continuous rains
Alejawan	Riverine Flooding	Flood prone area near banks of Alejawan river. Flooding in the low-lying area near highway due to newly elevated highway with small existing circular culverts	Constant communication and landslide updates with upland Barangay Mayana. Evacuation of residents with houses near banks of Alejawan River during heavy and continuous rains. Change to bigger culverts near highway to prevent flooding.

