

2012-
2016



**Municipal Disaster Risk
Reduction Management Council**



COMPREHENSIVE DISASTER RISK REDUCTION AND MANAGEMENT PLAN

MUNICIPALITY OF JAGNA, BOHOL

The 5-Year Municipal Disaster Risk Reduction and Management (MDRRM) Plan is developed by the Municipal Government of Jagna, Bohol and its constituents, with technical assistance provided by Antonio Balang Environmental Consultants (ABEC) Inc. THROUGH Bohol Integrated Development Foundation (BIDF) Inc.



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- Municipal Disaster Risk Reduction and Management Council

LIST OF ACRONYMS

| | |
|-----------|---|
| ABEC Inc. | Antonio Balang Environmental Consultants Incorporated |
| ACDV | Accredited Community Disaster Volunteer |
| BDRRMC | Barangay Disaster Risk Reduction and Management Council |
| BIDEF | Bohol Integrated Development Program |
| BFP | Bureau of Fire Protection |
| CCA | Climate Change Adaptation |
| CP | Contingency Plan |
| DENR- | Department of Environment and Natural Resource- Mines and |
| MGB | Geosciences Bureau |
| DRR | Disaster Risk Reduction |
| JEMRU | Jagna Emergency Management and Rescue Unit |
| HFA | Hyogo Framework of Action |
| LDRRMC | Local Disaster Risk Reduction and Management Council |
| LDRRMF | Local Disaster Risk Reduction and Management Fund |
| LDRRMO | Local Disaster Risk Reduction and Management Office |
| LGU | Local Government Unit |
| MAO | Municipal Agriculture office |
| MDRRMC | Municipal Disaster Risk Reduction and Management Council |
| MDRRMO | Municipal Disaster Risk Reduction and Management Office |
| MDRRMP | Municipal Disaster Risk Reduction and Management Plan |
| MENRO | Municipal Environment and Natural Resources office |
| MSWDO | Municipal Social Welfare and Development Office |
| NGO | Non-Government Organization |
| PDRRMF | Provincial Disaster Risk Reduction and Management Fund |
| PO | People's Organization |
| RA | Republic Act |
| UNISDR | United Nation International Strategy for Disaster Reduction |

EXECUTIVE SUMMARY

The municipality is located within the three (3) major rivers in Bohol: 1) Alejawan River is 69.28 square kilometers or 39% of the total length of the river basin, The Alejawan River is the longest river in Jagna which has headwaters in the inland mountainous portion and flows to the eastern part and drain directly to Mindanao Sea; 2) Manaba River is 12.52 square kilometers or 13% of the total length of the river basin and; 3) Inabanga River is 11.77 square kilometers or 1.89% of the total river basin. The river network system is moderately developed in the coastal area and well developed in the central portion of the town. But, in the northern inland mountainous range, the river network system is poorly developed which indicates that in the northern upland part of the municipality, most of the runoff can infiltrate into underground and form aquifers while in the central and coastal portion the water upstream is drained into the rivers and transported into the sea. The surface water runoff in the 3 major river basin in Alejawan, Manaba and Inabanga is (estimated to 792mm/yr/sq.m; 906mm/yr/sq.m; and 728mm/yr/sq.m respectively) within the municipal area is estimated to 204,854 cubic meter per day on the average which is sufficient to cover the projected water demand of 9,925 cum/day for the irrigation.

The Municipal Government of Jagna is also conserving and protecting the abundant water resources of the municipality. This prompted the LGU to enact the following: the Environment Code, the Coastal Resource Management Code, the Local Fishery Code and the Marine Protected Area Plans. Fish wardens and Bantay Dagat Task Forces have been organized and deputized for the enforcement of these codes. Certainly, enactment and implementation of these codes attributed to the garnering of Jagna of the award as Best LGU on SWM Enforcement and Implementation and it becoming an appropriate learning site on SWM implementation in the province.

Table 1: Existing Surface Water of Municipality of Jagna

| SURFACE WATER | LOCATION | CLASSIFICATION |
|----------------|-----------------------------|----------------|
| Alejawan River | Boundary of Jagna and Duero | Public Water |
| Balili Spring | Balili | Public Water |
| Kinahugan | Cabungaan | Public Water |
| Lonoy Spring | Lonoy | Public Water |
| Odiong | Odiong | Public Water |
| Lonoy Creek | Lonoy | Public Water |

Source: Municipal Engineer's Office LGU Jagna 2007

Surface water in Lonoy is one of the major water sources of the town proper. The Tinubdan Spring in Lonoy is the main source of potable water drawn by gravity down to the water reservoirs located in Barangay Canukso, Cambugason and in Tejero. Other use of surface water is for the irrigation of the rice fields and farms in the barangay. The municipality may experience water scarcity especially during summer time or in season where there were only few rains. During this time there is a schedule of water service delivery in some areas like Canjulao and Can-upao. The water system

uses chlorine to purify water in the absence of filtration process to make it potable. Due to population and economic growth there is a need to protect and conserve the water resources.

Coastal Resources. The Municipality of Jagna has a total of thirteen (13) coastal barangays with a coastline of 14 kilometers stretching from Barangay Can-uba to barangay Alejawan with rich coastal resources, mangroves, sea grasses, corals and beaches. It has a population of 10,628 or roughly 33% of the total population in the town living in the coastal zone as shown in Table Table 4. Among the known beaches of Jagna are Can-uba Beach, Bunga Mar Beach, Pangdan's Paseo del Mar, Delilah's Rock Resort, Batong-buhay Can-upao Beach and Alejawan Beach. Record shows that the municipality has 146 fish species belonging to 27 families, of which 2.83% are target fish species while 96.78% are non-target species. The target fishes are those mostly favored by fishers either for food of their own or for the market. The non-target fishes are those which are not targeted for food because of its small size, but sometimes targeted for aquarium fish trade for export due to colourful appearance. Damselfishes of family *Pomacentridae* and anthias of Anthiinae are the non-target species abundant in the area. Sea urchins (*tujom*) and sea stars, different species of oysters, crown of fish sea star, sea cucumbers and giant clams are among the invertebrates thriving in the area.

Marine Protected Areas. The municipality had established nine (9) marine protected sanctuaries in coastal barangays of Can-uba, Ipil, Cantagay, Bunga Mar, Pangdan, Nausok, Tubod-Mar, Larapan and Naatang. The Coastal Law Enforcement Council is now operational in the protection and management of the coastal resources in the municipality. Bantay Dagat Task Force and Fish Wardens are now operating in the coastal areas of the town, to apprehend illegal practices of the fisherfolks. They are supported with the units seaborne patrol facilities.

Climate and Weather Pattern. Jagna falls under Type II climate classification described as having no pronounced dry season but with a very pronounced maximum rain period. Maximum rainfall is observed to occur on the months of August, September and October, even extending until December. Located along or very near the eastern coast, as characterized by areas under Type II classification, Jagna is prone to the northeast monsoon (*amihan*). Based on the results of the Coastal Resource Management (CRM) survey in March 2002, the northeast monsoon season is from October to May while the southeast monsoon (*habagat*) starts in June and ends in September.

While the two most significant typhoons that visited the Municipality of Jagna are Typhoon Nitang in September 01, 1984 and Typhoon Ruping (Tropical Storm Mike) on November 30, 1990. These two super typhoons devastated the agriculture and fishery resources of the municipality as well as the houses and other infrastructure and lifeline services of the municipality. Aside from the direct effect of strong winds of the typhoon and big waves of the monsoon winds, it produces also ample amount of rainfalls to sea waters that causes floods and landslide to low lying areas of the municipality. Intensity 7 earthquake hits the Municipality of Jagna twenty two years ago, this was resulted to the injury of an estimated 13 persons and the collapsed of church bell tower of the municipality.

The continued occurrences of these natural hazards increases the vulnerabilities of the communities that put them into an endless poverty situation due to damages of properties and devastation to their livelihoods, and sometime leads to loss of life. Taking the opportunity that Disaster Risk Reduction is nowadays a global concerns particularly to the vulnerably municipalities like Jagna, the municipality started the process of conducting barangay based community risk assessment, barangay DRRM planning and budgeting workshops and series of community awareness seminars on disaster risk reduction and climate change adaptation to generate support and encouragement among village officials and communities to formulate and implement the 5-Year Comprehensive Municipal Disaster Risk Reduction and Management Plan.

The Jagna Municipal Disaster Risk Reduction and Management Plan will serve as a guide in the implementation a proactive Disaster risk reduction programs that emphasize the five pillars called: 1) Governance by making disaster risk reduction a priority agenda for sustainable development; 2) Risk Assessment by improving risk information and early warning; 3) Knowledge and Education through building culture of safety and resiliency among vulnerable communities; 4) Vulnerability Reduction by reducing the risks of Key sectors; and 5) Disaster Preparedness and Response for timely and effective response mechanism.

THE COMPREHENSIVE MUNICIPAL DISASTER RISK REDUCTION AND MANAGEMENT PLAN OF JAGNA, BOHOL

I. INTRODUCTION:

A. RATIONALE

Jagna is situated along the southeastern coast of Bohol facing Mindanao Sea. It is located 63.2 kilometers from the capital city of Tagbilaran, bounded on the north by the municipality of Sierra Bullones, blue waters of Jagna Bay on the south, and the towns of Duero and Garcia Hernandez on the east and west respectively. It has 33 barangays with a total land area of 12,063 hectares.

As a result of the process undertaken through the Barangay Development Planning through Participatory Rural Appraisal, the Municipality of Jagna is subdivided into three major categories.



Figure 1: Map of Bohol

The urban area of Jagna, appropriately called the Metro Jagna cluster is composed of the barangays of Bunga Mar, Can-upao, Looc, Pagina, Canjulao, Poblacion, Tejero and Pangdan. It covers a total land area of 316.05 hectares equivalent to 2.62% of the total area of the municipality.

The Coastal Jagna cluster is composed of barangays located along the coast fronting the Jagna Bay, other than those already classified as part of the Metro Jagna. It covers a total land area of 747.04 hectares or 6.19% and include Alejawan, Cantagay, Can-uba, Ipil, Larapan, Naatang, Nausok, , Tubod Mar.

Ninety one percent (91%) of the total land area of Jagna is considered to comprise the Upland Jagna cluster. With a total land area of 10, 999.91 hectares, it covers the barangays of Balili, Boctol, Bunga Ilaya, Buyog, Cabungaan, Calabacita, Cambugason, Can-ipol, Cantuyoc, Faraon, Kinagbaan, Laca, Lonoy, Malbog, Mayana, Odiong and Tubod Monte.

The municipality is predominantly comprised of steep hills and mountains. The coastal areas are normally flat, but less than a kilometer away from the shoreline, the slope changes from gently sloping to steep hills and mountains. 14.13% of the total land area is classified as level or nearly level. 28.62% on the other hand, is gently sloping to moderately sloping. While the rest of the area comprising the remainder of the 57.25% is classified as hills to steep mountains. Based on the slope classification, those areas identified as moderately sloping to mountains are classified as public or forestland areas. And for those level or gently sloping areas, they are classified as Alienable and Disposable lands. Forestlands using this classification will cover 59.42% of the total land area of the municipality.

Last May 27, 2010 Former President Gloria Macapagal Arroyo sign into law the Disaster Risk Reduction and Management Act of 2010 to amend the three decade Presidential Decree 1566 the old disaster management law of the Philippines. The RA 10121 institutionalizes the disaster risk reduction and management system not only in the National Government but also to all local government units in the country. One of the important features of this new law is the comprehensive utilization of 5% calamity fund and now the disaster risk reduction and management fund (DRRMF). It is very clear to us to all government units that 5% calamity fund before can only be used if there is a declaration of one area under the state of calamity. Based on the Section 21 of RA 10121, the 70% of LDRRM Fund can be used for pre disaster activities that can make the LGU's more proactive in Disaster risk reduction.

In order for the LGU to be efficient and effective in the Utilization of the LDRRM Fund the law requires them to formulate a comprehensive DRRM Plan as basis for the disbursement of the fund (Par. 1 of Sec. 21 of RA 10121).

B. PLANNING PROCESS

The primary goal of the MDRRM Plan is to improve the existing practices of the LGU on the disaster risk reduction and management through better partnership and working relationships among the departments within the local government unit, civil society organization private sectors and community disaster volunteers (CDV's).

Gender Responsive Municipality:

The integration of gender and explicit consideration of development (social, economic, physical, cultural and political forces), determines how differently women and men participate in benefit from and control resources and activities. The combined gender-responsive and participatory approach in the entire planning and decision-making process from plan formulation/updating, plan implementation and monitoring and evaluation is a manifestation of good governance that will bring us closer to our goal of having men and women equally contributing to and benefiting from development. The utilization of gender-responsive planning approach ensures or provides a mechanism for integrating sustainable indicators in planning.

In the formulation of 5 Year MDRRM plan, there are four specific objectives that were agreed upon by the participants in order to attain a quality results and better guidelines in the formulation of the plan. And these are as follows:

1. To Consolidate the BDRRM plans of the BLGU as integral component of Comprehensive Municipal DRRM Plan
2. To conduct Participatory Capacity and Vulnerability Assessment (PCVA) to be more objectives in the budget prioritization for the 70% of Local Disaster Risk Reduction and Management Fund.
3. To consolidate the programs and project of the every department of the LGU related to DRR and allocate funds from LDRRM Fund.

4. To formulate the comprehensive DRRM Plan of the Municipality

The 3-day MDRRM Planning and workshop is also a product of various strategies, activities and processes that have been undertaken by the LGU through its Municipal Disaster Risk Reduction and Management Council (MDRRMC).

Below are the governance-driven strategies and evolutionary planning processes and activities, to wit:

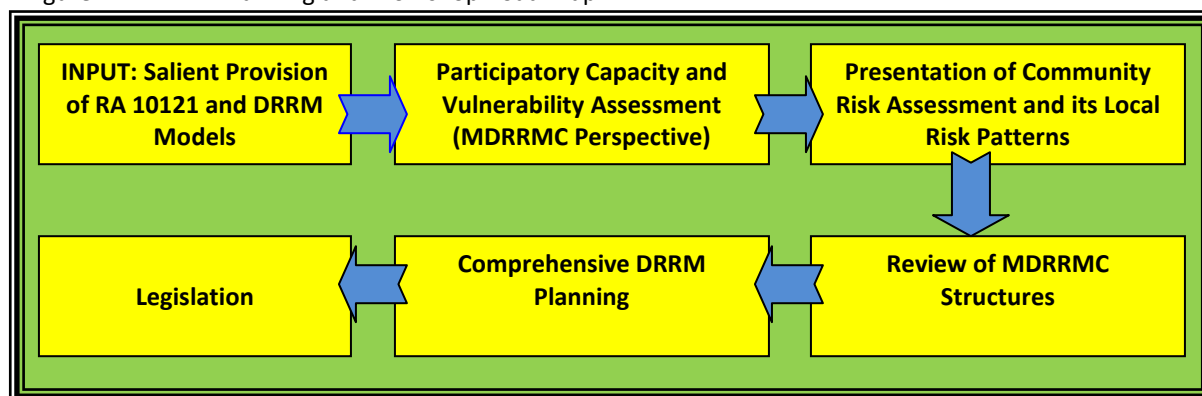
Barangay level:

1. Through the Governance, Infrastructure, Food and Tourism (GIFT) Project of Bohol Integrated Development Foundation (BIDEF) Incorporated, they have provided technical assistance to the fifteen high risks Barangays of Jagna in the formulation of Barangay DRRM Plan and the restructuring of their Barangay Disaster Risk Reduction and Management Committee (previously known as Barangay Disaster Coordinating Council). As of October 2011, all fifteen high risks barangays was already completed their BDRRM plans and restructuring/ re-organizing of BDRRM.
2. Community Emergency Drill has been planned to be conducted to the fifteen high risks communities using the guidelines that have been written in their BDRRM plans.

Municipal Level:

A three-day planning process was agreed upon by the MDRRM Council to draft the municipal disaster risk reduction and management plan. On the first day, the discussion on the salient provisions of RA 10121 and the Basic Concept of DRR was provided, followed by the presentation of the results of community risk assessments made by the barangays who underwent BDRRM planning and budgeting workshop with BIDEF. Consolidation of Municipal wide Risk Assessment and finalization of MDRRM structure, review of financial capability of the LGU to fund MDRRM plan and the 5 year MDRRM planning process on the second day. For the third day, was a continuation of the planning process and final financial projection for five year budgetary requirements was carried out to ensure the feasibility and efficiency that the plan is implementable by the LGU. (See Figure 4: MDRRM Planning and Workshop Road Map)

Figure 2: MDRRM Planning and Workshop Road Map



C. SCOPE AND DURATION

The 5-year MDRRM Plan (2012 – 2016) focuses on the 5 core program namely; 1) Disaster Prevention Program which focuses on the physical and structural component of disaster risk reduction, 2) Disaster Mitigation Program which discuss the knowledge management, social protection, public health, agriculture resiliency, early warning system, barangay digitized hazard mapping, networking and linking and the monitoring and evaluation of DRR plan and its implementation. And 3) the Disaster Preparedness and Response Program – the highlights of



Figure 3: Jagna Municipal Hall

this program is the organizing and accreditation of community disaster volunteers, relief stockpiling, emergency drills, and purchase of emergency response related equipments.

The members of the MDRRMC shall be strengthened organizationally and technically to ensure their effectiveness in overseeing the MDRMM Plan of the municipality.

For the meantime that LGU don't have the financial capacity to appoint a regular MDRRM officer, the Municipal Planning and Development Coordinator (MPDC) will be designated as the DRRM Officer. He shall be organizationally and technically strengthened to handle with all priority activities envisioned by the 5-year municipal DRRM Plan. A review of MPDC cum MDRRMO tasks, functions and responsibilities related to the implementation of DRRM plan shall be immediately made to iron out its effectiveness and efficiency in carrying out the tasks as disaster risk reduction manager and to attain the "Zero Casualty" goal of the municipality.

The Accredited Community Disaster Volunteers (ACDV's) shall be properly organized and eventually institutionalized through the close monitoring of Barangay Disaster Risk Reduction and Management Committee (BDRRMC) with the technical assistance of MDRRMO.

II. DISASTERS AND HAZARD PROFILE:

A. Description of Municipality of Jagna Bohol

Jagna is a 4th class municipality in the province of Bohol, Philippines. According to the 2000 census, it has a population of 30,643 people in 5,957 households.

Jagna is a busy little town on the southern coast of Bohol, so busy, everyday is market day. Of interest to travellers is the church with its ceiling frescoes and the bats that sleep by the altar in the daytime; arguably the best cockpit on the island; the waterfall, a setting so lovely and accessible that photographers from Manila use it on occasion; and the double reef just off the shore.

The double reef is a protected zone and marked off by buoys so fishermen can't even go there. A retired ex-prosecutor, who has the power to arrest, has the welfare of the reef as his hobby so don't even think about dynamite fishing near Jagna.

Jagna has a new market; the last one burned down in 1998 and the market has occupied the plaza ever since. Now that the new market is up, the plaza can finally be reclaimed, but that will take a bit of time since some of the merchants occupying the plaza don't have the money to move into the new market.

Like Tagbilaran, Jagna is a port town. Ferries run daily to and from other islands but currently ferry transportation to Mindanao is only available to Butuan. The gorgeous island of Camiguin is visible from Jagna but only accessible by pumpboat.

For places to stay, there are a few: some rooms by the port, the Garden cafe, but the pension house in Pangdan is the nicest.

The municipality of Jagna has a total of 33 barangays that has been clustered into three; 1) Metro Jagna – covering 8 urban/coastal barangays 2) Coastal Jagna – which covers 14 coastal barangays and 3) Upland Jagna – comprises of 17 upland barangays. The total number of households reached 5,957 and the average household size was 4.4 persons. In the year 2007, the total population of the municipality reaches to 32,034 (NSO 2007) covering the 0.61% growth rate.

Biological Resources:

Mangroves. Naturally grown mangroves of 400 stands of Bakhaw (*Rhizophora* sp.) and 30 trunks of Pagatpat (*Sonneratia alba*) exist only along the coastline of Barangay Can-upao. Assessment results show that majority (70%) of the Bakhaw species are classified matured while the pagatpat species has more or less equal percentage of young and mature trees.

Seagrass. Participatory coastal resource assessment results conducted by BEMO and CRMP TWG in April 2002 show that there are six (6) species of seagrasses in the coast of Jagna. Barangays Can-uba and Naatang have substantial seagrass cover as well as Barangay Ipil, Can-upao and Pangdan. These seagrasses grow mostly on rocks and rocky surfaces.

Estuaries. The municipality has five major estuaries. These are located in Barangays Alejawan, Pangdan, in barangay-boundaries of Pagina-Looc and Pagina-Poblacion, and in barangay Can-upao. Secondary small estuaries also exist in Barangays Poblacion, Larapan, Looc, Can-uba, Can-upao and Naatang.

Mineral Resources. The municipality of Jagna has rich potential sources in limestone deposit, a very important component for cement production, all of these areas are outside the timberland or forestland area. The most part of the municipality is covered by Sierra Bullones bedrock formation, which is capped by massive limestone strongly correlating with the barili formation of South

Central Cebu. In fact in previous years Barangay Malbog used to engage in quarrying of limestone for hollow block component production but due to the existing provincial law that prohibits any form of quarrying, the said practice has been stopped. Quarry of limestone in the area of Malbog and Laca generates income for the locality from the permit issued from the provincial government, as mandated by the Local Government Code there will be share of 30% for the municipality and 40% for the barangay. The lot owners and the local people had benefited from this activity e.g. employment and among others. Another quarry site is located in barangay Bockol where serpentine mineral is extracted and mainly used by the Department of Public Works and Highway for the maintenance of roads.

B. Type of hazards that frequently visited

Monsoon Winds/Storm Surges:

There are two types' monsoon winds in the Philippines, the southwest monsoon (May-October) or known as the "**Habagat**" and the dry winds of the northeast monsoon (November-April) as the "**Amihan**". The Habagat season is characterized by cold and hot humid weather, frequent heavy rainfall and typhoons, and a prevailing wind from the west. The Amihan season is characterized by hot temperatures, little or no rainfall, and a prevailing wind from the east. These monsoon winds produce big waves that affects the livelihood of the fisherflok every yearspecially to those communities facing the sea like the Municipality of Jagna. According to the Community Risk Assessment (CRA) result of the Jagna, there are 13 coastal barangays in the municipality dependent to fishing as their major source of livelihood that severely affected during the occurrences of this hazard every year.

Typhoon:

Like many coastal municipalities in the Philippines, the Municipality of Jagna is frequently visited by typhoons. The two strongest typhoons that hit the municipality are the Typhoon Nitang in 1984 and Typhoon Ruping in 1990; these typhoons paralyzed the business operations and livelihood of the majority of the residents of Jagna for a week. 50-80 percent of the total houses of the 13 coastal barangays were totally damaged and other infrastructures were partially damaged. The agricultural production was devastated that put the farmers into a miserable condition.

Flooding/Flash Floods:

Most flooding in the municipality of Jagna occurs on floodplains. These are natural water storage areas containing rivers or creeks that flow continuously or intermittently. Historically, the easy access to water the easy access to water and the rich diversity and fertility of the flood plains have always attracted by human settlements. Hence, with the ever-increasing human intervention in the upstream catchments, the downstream consequences and risks increase. It is observed that the flood prone areas with state height of floods that range from 0.4 meters to 1.2 meters high during heavy rains, more so during high tides, are in the barangays of Looc (0.4m), Tejero (0.5m), Pagina (1m), Pondol, Poblacion (1m) and Bunga Mar (1.2m) see Table 8. Since flooding is a natural hazard

and it is affected annually by intensive tropical weather patterns which resulted to a very significant financial cost and personal hardship within the affected areas in the municipality. It is also often exacerbated by ignorant and negligent human intervention in the environment. Based on this information the LGU of Jagna can make better choices about residential environment and business investment. Therefore land use planning is recognized as being the best means of avoiding or minimizing future flooding problems that stress risk to life and property damage. Strict and uncompromising enforcement of strategies and controls to counter flooding is very vital.

Table 2: Frequency and Occurrence of Flooding in the Municipality of Jagna

| Barangay | Frequency | | | | Remarks (state height of floods and other relevant information) |
|-----------|-----------|---------------|----------------|-----------------|---|
| | Annually | Every 5 years | Every 10 years | Every 100 years | |
| Alejawan | ✓ | ✓ | | | 0.60 m |
| Bunga Mar | ✓ | ✓ | | | 0.25 m |
| Cabungaan | ✓ | ✓ | | | 0.50 m |
| Can-upao | ✓ | ✓ | | | 0.50 m |
| Looc | ✓ | ✓ | | | 0.40 m |
| Naatang | ✓ | ✓ | | | 0.60 m |
| Pagina | ✓ | ✓ | | | 0.50 m |
| Poblacion | ✓ | ✓ | | | 0.50 m |
| Tejero | ✓ | ✓ | | | 0.25 m |
| | | | | | |

Source: MPDC LGU Jagna 2007

Results of MGB Assessment to Flooding

Based on result of the field geo-hazard survey conducted by the Mines and Geosciences Bureau (MGB-Region VII) in October 2-13, 2006, the Municipality of Jagna is vulnerable to flooding as shown in Table 9. There are eight (8) barangays that are susceptible to flooding which describes as to the type and the cause of the hazard.

Table 3: Results of assessment of the ten (10) Barangays Susceptible to Flooding

| Barangay | Type of Flooding | Cause of Flooding/Remarks | Recommendations |
|-----------|--------------------------------------|--|---|
| Bunga Mar | Sheet flooding and riverine flooding | Poor drainage, water, coming from Bgys. Bunga Ilaya 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 | Provide adequate and appropriate drainage facilities, regulate/control development of upstream/catchment area |

| Barangay | Type of Flooding | Cause of Flooding/Remarks | Recommendations |
|------------|-----------------------------|--|---|
| | | system. | |
| 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. |

Source: MBG-7 Geo-hazard Assessment 2007

Landslide:

The Mines and Geosciences Bureau (MGB-Region VII) had conducted a rapid field geo-hazard assessment in the forty-eight (48) municipalities in the Province of Bohol Island. In October 2-13,

2006, the rapid field assessment in the municipality of Jagna was conducted which focused on barangays that are located on foot slopes, mid slopes and mountain ridges. Each barangay was rated on the following scale: a) low, b) moderate and c) high landslide susceptibility as describe on Table 10.

Table 4: Results of Assessments of the Thirty-Three (33) Barangays in the Municipality of Jagna

| 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 |

| Barangay | Landslide Susceptibility Rating | Recommendations |
|-------------|---------------------------------|--|
| | | 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. |
| Cambugas on | 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 |

| Barangay | Landslide Susceptibility Rating | Recommendations |
|-----------|---------------------------------|---|
| | | (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) |

Source: MBG-7 Geo-hazard Assessment 2007

Earthquake and Tsunami:

Minor and major fault lines are evident on the island as shown by terraced encarpments occurring in its southern and central parts. Earthquakes have been felt in the municipality but only an average of one perceptible shock is reported each year. As expected thirteen (13) barangays located in coastal zone are exposed to tsunami. These are located in Can-uba, Ipil, Cantagay, Bunga Mar, Bunga Ilaya, Can-upao, Looc, Poblacion (Pondol), Tejero, Pangdan, Alejawan and Naatang.

C. Community Risk Assessments results

Below are the results of Community Risk Assessments made during the conduct of the Comprehensive DRR Planning workshop. The data and information below are based on the recall of memory on the gravity of hazard that they have experienced for the past 20-30 years. This is also their way of describing the risks and vulnerability of the municipality when and if disaster strikes to its 33 barangays.

TIMELINE:

This tool has been used in community risk assessment to recall the severity of impact of every disaster that happens in the municipality for the past 20-30 years. This is very important for the community to undergo such activity to establish the worst case scenarios based on their actual experience in the past, so that they can now foresee its possible damages and the important things they need to do. Below are the results of timeline for the municipality of Jagna.

Table 5: Timeline of Disasters happened in the Municipality of Jagna

| <i>Klase sa Katalagman</i> | Typhoon “Nitang” | Jagna Earthquake | Typhoon “Ruping” | Storm Surge along coastal Brgys | Sunog sa Mercado | Mayana Landslide | Heavy Rainfall that causes flashfloods | Flashfloods in Looc-Pagina (overflow) | Flooding in Brgy Can-upao | Believe that it is a “buhawe” waterspout in Mayana |
|--|--|---|-----------------------------------|---|---|--|---|---|--|---|
| <i>Unsang Tuiga</i> | September 1, 1984 | February 8,1990 | November 30, 1990 | Habagat Seasons (1980-90s) | May 17, 1999 | July 11, 2005 | March 16, 2011 | August 30, 2011 | September 2, 2011 | October 11, 2011 |
| <i>Gikusgon (Impact and Strength)</i> | Signal No. 3 Super typhoon | Intensity 7 | Signal No.3 Super typhoon | High rise of sea level | General alarm | 245 cubic meter per second | Flow speed approximately 0.1 to 5 ft per second | Flow speed approximately 0.5 to 6 ft per second | Flow speed approximately 0.5 to 6 ft per second | Flow speed approximately 0.5 to 20 ft per second |
| <i>Nakalas nga Kinabuhi o naangol</i> | Est. 7 person injured/3 dead | Est. 13 person injured | Est. 5 person injured | None | wala | none | wala | wala | wala | 1 person missing |
| <i>Nangaguba o nadaut mga propredad</i> | BOHECO Office (now BFP), transformers, coco trees, fruit trees, | Partial damage Alejawan Bridge and cracks of buildings, pipes | Fishing boats, coco trees, farms | National roads, public building like Sanctuary Outpost, Tanod Outpost | Jagna Public Market, DQ Lodge, DQ Hardware, (12) Residences, dump truck | National road unpassable, 69 households | Irrigation Canal | Brgy Pagina 22 HHs affected home appliances , personal belongings | 50 HHs Home appliances damage, backyard garden wash out | Agricultural crops |
| <i>Naapektuhan nga infrastruktura sa gobyerno ug pribado</i> | seawall of Pagina | Collapse of Church Bell Tower/belfray, diversion of water sources | Unpassable roads/electric posts | Coastal roads | Jagna Public Market, Waterworks pipes, | National roads, bridge, basketball court, BOHECO Post | Irrigation facility/ irrigation canal | Brgy Pagina Bailey type Quezon bridge, sea walls | Partial Damage Flood control at Can-upao-Bunga-Mar Bridge/rippap | Mini impounding dam, 3 HHs Damaged |
| <i>Kadaut sa Agrikultura</i> | 33 barangays Kahumayan, kasagingan ug kaumahan, kahayupan, kalubihan | 50% of Rice paddies, agricultural farms | Kakahoyan, kasagingan, farm lands | Minor damaged | wala | 122 Farm owners kabasakan, kasagingan, kaumahan, Kalubihan | Sitio Siling, Balili Kabasakan, vegetable gardens | wala | wala | Agricultural lands near the creeks |

| <i>Kadaut sa Kalikupan</i> | Pagkatumba-lukat sa mga kahoy | Destruction of heritage buildings, roads & cemetery | Fallen trees | During high tides water reaches to inland | Bush fire, air pollution | Mass earth movement | Diversion of waterways | Damage backyard gardens | Damage to plants and vegetable garden | Destroyed creeks, disturb flora and fauna |
|---|-------------------------------|---|--------------|---|--------------------------|---------------------|------------------------|-------------------------|---------------------------------------|---|
| <i>Bana-bana nga kantidad sa kadaut (gawas sa nakalas nga kinabuhi)</i> | 1,500,000 | 3,550,000 | 1,500,000 | 300,000 | 15,000,000 | 70,600,000 | 1,450,000 | 250,000 | 150,000 | 350,000 |

RISK RANKING:

This is the matrix table that describes the effects of the hazards in the municipality based on the underlying factors that are present in the community. According to the MDRRMC the top four hazards that put the municipality in the high risk condition in terms of disasters are 1) Monsoon Winds 2) Typhoons 3) El Nino and 4) Water Contamination.

Table 6: Risk Assessment/Ranking

| TYPE OF HAZARDS | RISKS | | | UNDERLYING FACTORS |
|------------------------------------|-------|----------|----------|--|
| | LOW | MEDIUM | HIGH | |
| Flooding | | | X | <ul style="list-style-type: none"> Poor drainage systems Siltation in the river system that resulted to overflowing of river during rainy season There are barangays resides in the low lying areas (Pangdan, Bunga Mar, Tejero, Pagina, Looc, Can-upao), during high tide the sea water is already encroaching water ways There are houses built in the mouth of the river |
| Landslide | | | x | <ul style="list-style-type: none"> There are barangays high risk to rain induced landslide Prone to landslide due to the karst characteristic of soil There are grass fires, quarrying and slash and burn activities in the upland areas Presence of fault line |
| Earthquake and Tsunami | | | X | <ul style="list-style-type: none"> Presence of fault line in the municipality High possibility of Tsunami 13 barangays are located in the coastal areas |
| Fire | | | X | <ul style="list-style-type: none"> Congested houses are significant in Barangays of Pagina, Bunga Mar, Can-upao, Looc, Poblacion, Canjulao and Tejero Fire truck are not in good conditions Absence of Road Right of Way Lack of water supply Lack of Fire hydrants Fire station are lack of communication facilities and fire fighting equipments Most of the houses are made of light materials Most of the community are lack of awareness on fire safety |
| Storm Surges/ Monsoon Winds | | X | | <ul style="list-style-type: none"> 13 coastal barangays are vulnerable to storm surges or monsoon winds The 8 kilometer national highway is vulnerable to damage due to strong waves during the occurrence of storm surges Lack of awareness and information among the communities about the ill effect of storm surges and monsoon winds Lack of sea walls that will prevent communities from strong waves Presence of damaged seawall in Barangay Pagina Lack of mangrove forest that will serve as barrier of strong waves. |
| Typhoon | | X | | <ul style="list-style-type: none"> Most of the houses are made of light materials The Municipality of Jagna is facing Mindanao Sea Lack of mangrove forest that will protect the communities from strong winds Fishing and farming are the major sources of livelihood of the community which are affected during the occurrences of typhoons |

VULNERABILITY AND CAPACITY ANALYSIS:

The table below describes the vulnerability of the community against the hazards that frequently visited the municipality and the capacity of the LGU and Community to resist the possible disasters that may happen. The Vulnerability and Capacity Analysis is examining the three parameter 1) Physical and Material Aspect; 2) The Social and organizational Aspects and lastly 3) the Attitudinal and Motivational Aspects.

Table 7: Vulnerability and Capacity Analysis

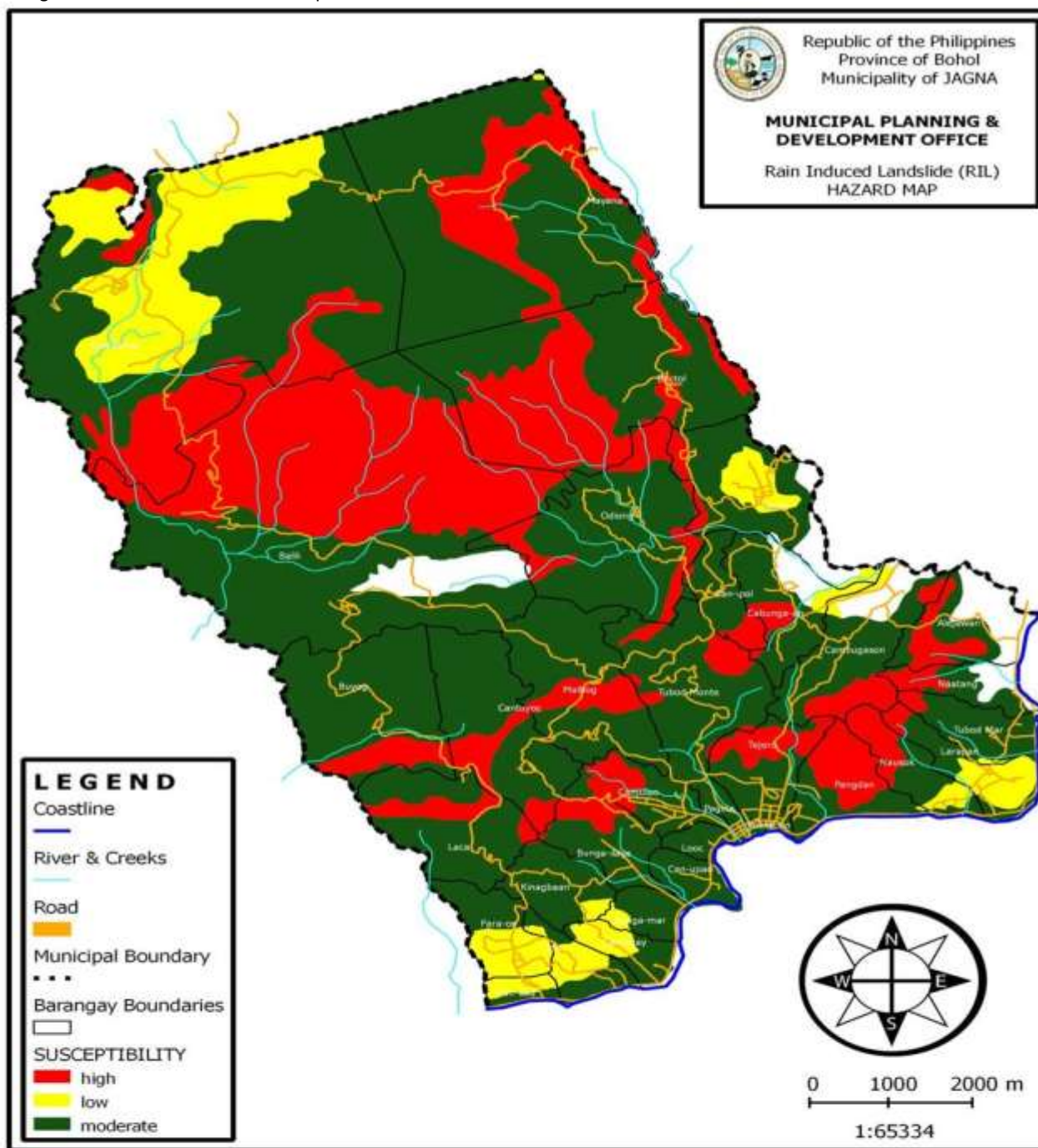
| HAZARD ASPECT | VULNERABILITY | CAPACITY |
|--------------------------|---|---|
| Physical/Material | | |
| Economic Activities: | | |
| Fishermen/Farmers | - Seasonal income; no alternative means of livelihood; easily affected by weather change | - 6 barangays with communal irrigation system (Datag Tejero, Lonoy, Alejawan, Cabungaan, Cambugason and Boctol) |
| Microenterprises | - Many microenterprises are dependent on lending | - Some women managed microenterprises are LGU assisted |
| Infrastructure Services | - Some inland barangays are not readily accessible due to poor road condition | - Provincial roads going to upland barangays are already paved; very accessible |
| | - 2 upland barangays do not have access to communication facilities | - 31 barangays are already connected |
| | - Persistence of infectious diseases and lifestyle related diseases | - Presence of 2 RHUs to cater to health needs of all barangays; All barangay health stations are fully functional |
| | - Low rating of Jagna pupils in national assessments; Lack of training of teachers in disaster preparedness | - 25 Public schools (elem and high school) and 4 private schools; schools as evacuation centers |
| | - Water is not potable; open water source prone to contamination, infiltration | - Presence of JEMRU |
| | - Unsealed toilets | |
| | - More trainings for JEMRU personnel and additional equipment; | |
| | - Houses especially in upland barangays are made of light materials; Houses located near rivers and waterways | |
| | - Drainage system in metro Jagna is lacking; floods | |
| Human Capital | - Existence of malnourished kids | - Supplemental feedings conducted; Philos Health's Manna Pack |
| Environmental Factors | - Barren mountains | - Identified hazard/risk areas |
| | - Lack of water source | - Very detailed GIS mapping |
| | - Karst type of soil prone to erosion, liquefaction | |
| | - Prone to earthquake; presence of fault line | |
| | - Typhoon, storm surge prone, | |

| | | |
|---|---|---|
| | <ul style="list-style-type: none"> - Many houses are built within the hazard /danger zones - Landslide prone | |
| Social/Organizational | | |
| Family Structure/Decision-making Leadership | <ul style="list-style-type: none"> - Conservative, gender biased in decision making - Imposition of decisions (lacking) - 5% appropriation is lacking to address vulnerabilities | <ul style="list-style-type: none"> - Strong family ties - Coordination between executive and legislative - Strong LCE support of DRRMC |
| Motivational/Attitudinal | | |
| | <ul style="list-style-type: none"> - Passivity (in the communities) - Lack of knowledge/awareness (in the communities) | <ul style="list-style-type: none"> - LGU and barangay officials are already knowledgeable in DRRM; Organized MDRRM, BDRRMC |

HAZARD MAPS:

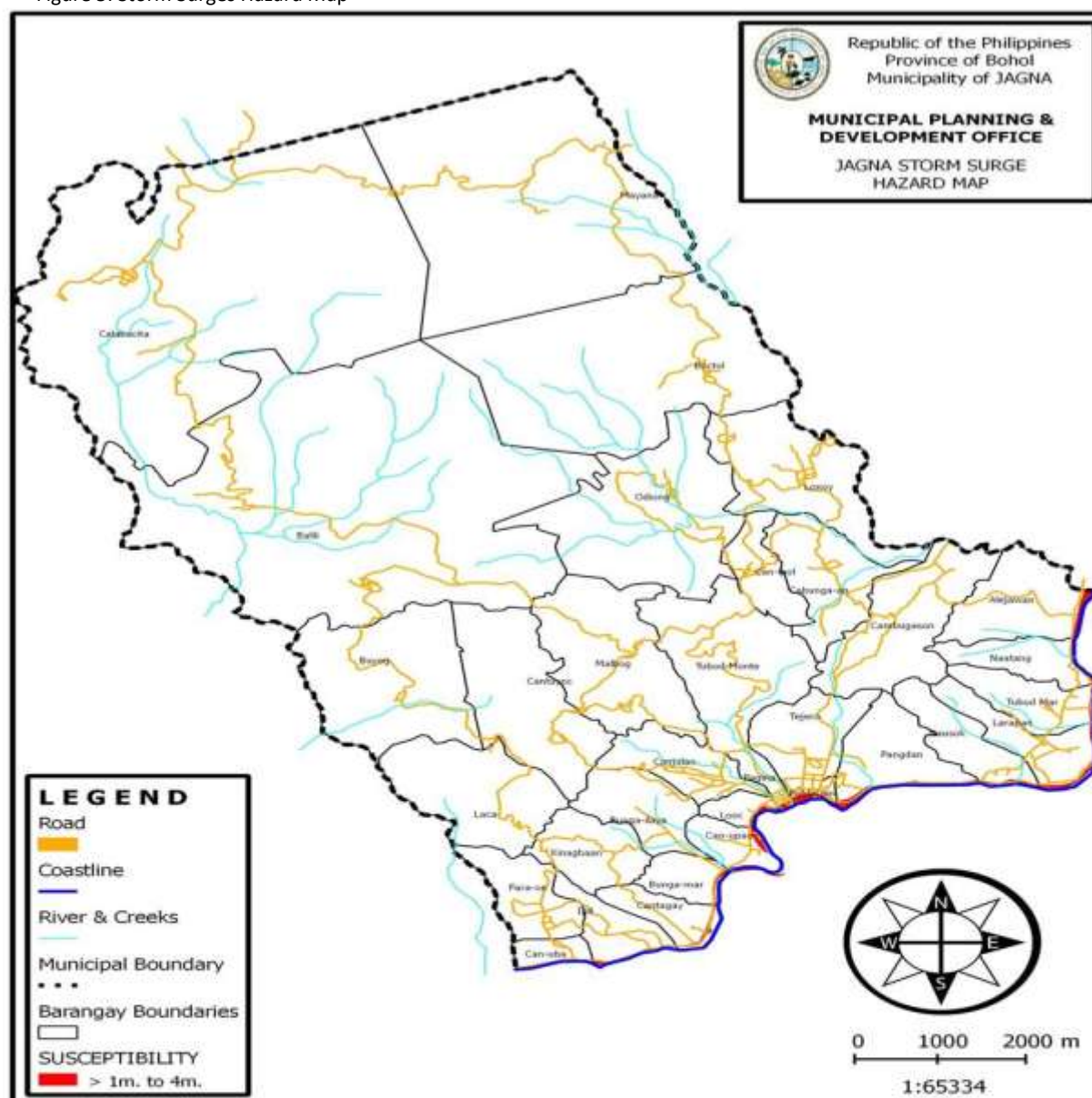
Before the actual conduct o 3- Day MDRR Planning and Budgeting Workshop of Jagna, the Municipality already conducted a GIS hazard mapping to all hazard prone areas in the municipality. Because of the technical capability of the Municipal Planning and Development Office of Jagna on GIS enabled mapping, all 33 barangays have been conducted a GPS survey to identify the specific hazard prone areas in the respective barangays. Below are the GIS Enabled hazard map of the Municipality

Figure 4: Rain Induced landslide Map



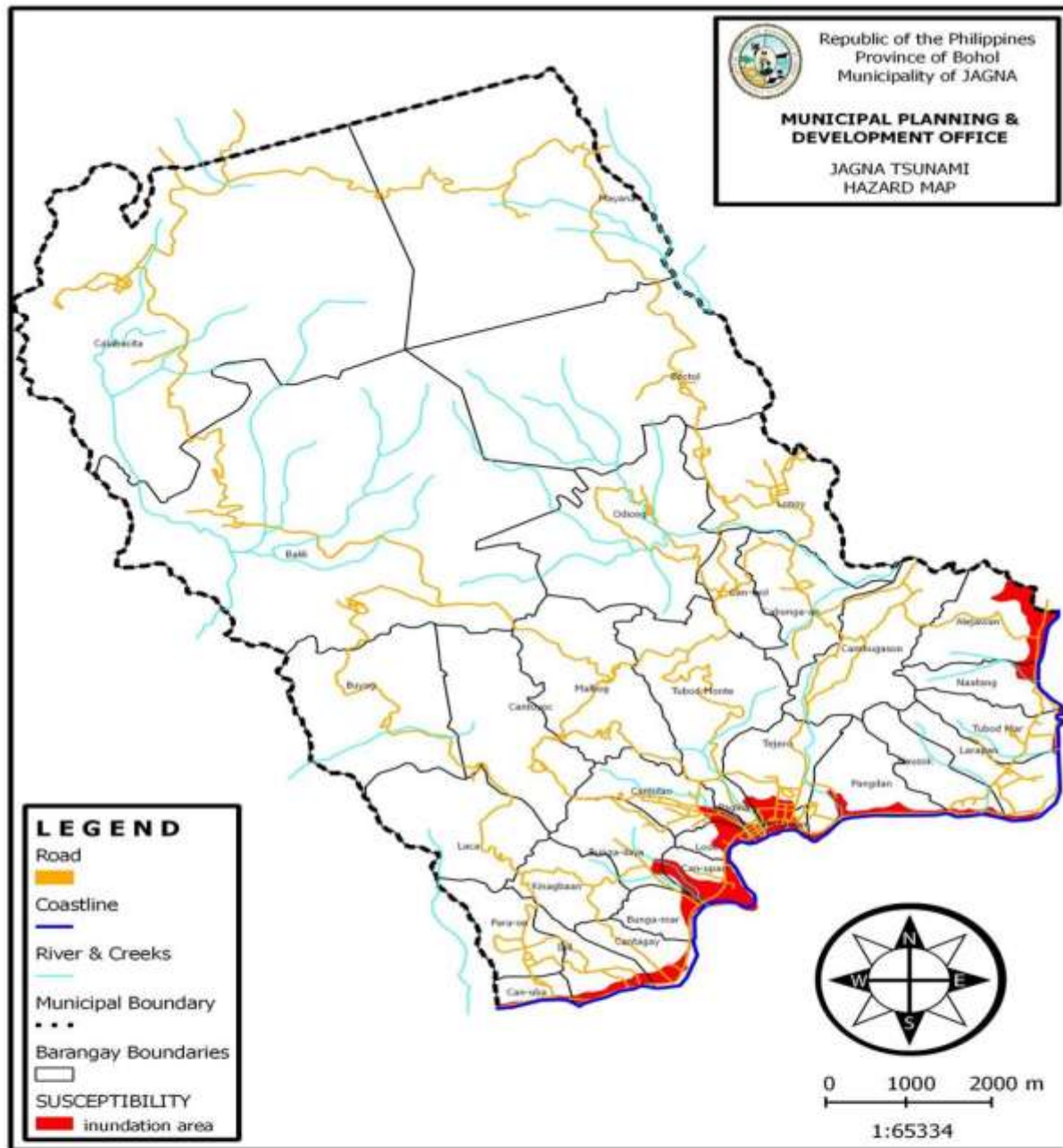
| Criteria Maps Overlayed | Decision Zones Identified | Explanations | Implications | Policy Option |
|-------------------------------|---|--|---|---|
| Rain Induced Landslide Hazard | An estimated area of 11,657 has. Of Jagna are prone to Rain Induced Landslide Hazard in all barangays of Jagna. | Rain-induced landslides are influence of infiltration under various rainfall, ground conditions on slope stability | Ground conditions on slope stability is still poorly understood and is one considered as major geotechnical hazard. | Investigate the different rainfall events, rainfall intensity and rainfall duration |

Figure 5: Storm Surges Hazard Map



| Criteria Maps Overlaid | Decision Zones Identified | Explanations | Implications | Policy Option |
|------------------------|--|---|---|---|
| Storm Surge Hazard | An estimated area of 66 has. Of Jagna are prone to Storm Surge Hazard in 14 coastal barangayss of Jagna. | Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. A storm surge can come from a typhoon or an extra-tropical cyclone. | When a tropical cyclone moves across or near the coast, it can cause sea levels to rise higher than the normal tide levels. | At all times, the warnings and instructions issued by the weather forecast/MDRRMC should be heeded. |

Figure 6: Tsunami Hazard Map



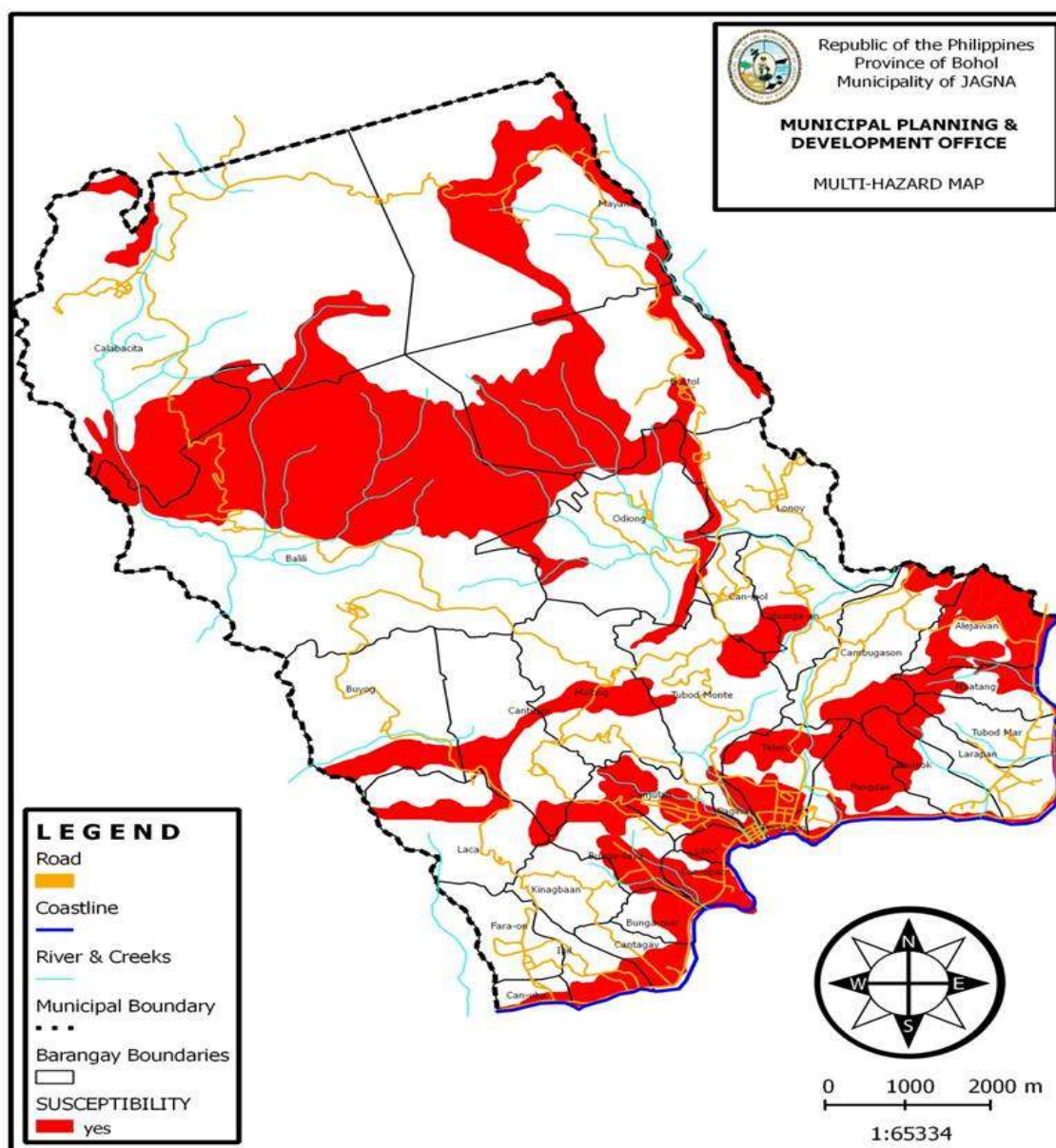
| Criteria Maps Overlaid | Decision Zones Identified | Explanations | Implications | Policy Option |
|------------------------|--|--|---|--|
| Tsunami Hazard | An estimated area of 256 has. Of Jagna are prone to Tsunami Hazard in 14 coastal barangays of Jagna. | Jagna coastal barangays is susceptible to tsunami hazard since it is fronting an open sea or even near the pacific ocean | Coastal residents and constituents should always be alert and monitor advisory especially when there is an earthquake or ground shaking that happen in the nearby faults. | Install tsunami alert or early warning system; tsunami preparedness drills |

Figure 7: Liquefaction Hazard Map



| Criteria Maps Overlaid | Decision Zones Identified | Explanations | Implications | Policy Option |
|------------------------|--|---|---|--|
| Liquefaction Hazard | An estimated area of 701 has. Of Jagna are prone to Liquefaction Hazard in the following barangays of Canuba, Ipil, Cantagay, Bunga-Mar, Bunga-Ilaya, Canupao, Looc, Canjulao, Pagina, Tejero, Poblacion, Pangdan, Nausok, Larapan, Tubod-Mar, Naatang, Alejawan and Cambugason. | Liquefaction may occur when water-saturated sandy soils are subjected to earthquake ground shaking. When soil liquefies, it loses strength and behaves as a viscous liquid (like quicksand) rather than as a solid. | This can cause buildings to sink into the ground or tilt, empty buried tanks to rise to the ground surface, slope failures, nearly level ground to shift laterally tens of feet (lateral spreading), surface subsidence, ground cracking, and sand blows. | The cost of site investigations and/or mitigation measures should be balanced with an acceptable risk. e.g. should be refer to geotechnical experts or from the Mines and Geosciences Bureau if the ground is susceptible to liquefaction. |

Figure 8: Multi Hazard Map



| Criteria Maps Overlaid | Decision Zones Identified | Explanations | Implications | Policy Option |
|------------------------|---|---|--|---|
| Multi-hazard | An estimated area of 3837 has. of Jagna prone to multi-hazard in all 33 barangays of Jagna. | Area that has a highest risk by far throughout all of the analyses. | multi-hazard risks give an indication of the overall risk posed to the community | Creation of planning team for safety and to analyze all of the vulnerability and risk; develop a hazard reduction technique |

III. THE MUNICIPAL DISASTER RISK REDUCTION PLAN CONTENT AND THE FIVE YEAR FINANCIAL PROJECTION

I. THE THREE MAJOR COMPONENT:

The five-year Comprehensive Disaster Risk Reduction and Management Plan of Jagna, Bohol consists of three major components namely; 1) Disaster Prevention and Mitigation Program 2) Disaster Risk Reduction and Climate Change Adaptation program, and 3) Disaster Preparedness and Response. These three major components describe the five year priority programs and project of the LGU for disaster risk reduction and management that will be funded by the 70% of the 5% Local Disaster Risk Reduction and Management Fund (LDRRMF).

This chapter will discuss how the three major components will address the vulnerability and exposure of community against the hazards that regularly hit the municipality. Below is the summary of content of the three major components;

Disaster Prevention and Mitigation Program

The Disaster Prevention and Mitigation Program touches the physical component of disaster risk reduction of the municipality the major project and activities for the next five years will be focused on following project:

- 1) *Physical Infrastructure and Engineering Support Project*- The priorities under the Physical infrastructure project are the Construction of flood control near lowland areas at BIT, Tejero and inventory of canals and water ways concentrated in Barangay Tejero, Poblacion and Can-upao for year 1 (2012) of implementation of this plan, Construction of flood control covered canal in Tejero, Municipal Building and Pondol Area in Can-upao on year 2011 to 2015, and the annual de clogging of drainage and waterways.
- 2) *Knowledge Management Project* – Under this project are the conduct of training needs assessment to capacitate communities and volunteers on Disaster Risk Reduction and Climate Change Adaptation, Continuous research and study on vulnerability reduction, Information and Education Campaign to reduce pollution, dissemination of emergency hotlines, production of flyers for emergency management and the establishment of radio program on DRR and climate change adaptations.
- 3) *GIS Enabled Mapping Project* - This project was designed to continue the effort of the municipality in the production of GIS enable map that will provide visual information to the general public on the hazards that exist in the municipality.
- 4) *Program Planning, Monitoring and Implementation* – PIME plays an important role in these 5 - year plan to track the development and progress of the municipality in the implementation of DRR and CCA Program.

- 5) *Policy Advocacy Agenda* – Policy and Advocacy Agenda of the municipality will determine the ability of the municipality to address the present vulnerabilities of the municipality in terms of direction setting and prioritization of its 5 year programs
- 6) *Planning Regime* – This project will focus on the creation of hazard specific contingency plans of the municipality to address loss of lives and damage to properties during disasters.

Disaster Risk Reduction and Climate Change Adaptation Program

The key elements of Disaster Risk Reduction and Climate Change Adaption Program Program focuses on the Structural non-structural component of disaster risk reduction and climate change adapation that will develop and enhance the resiliency of the community to disasters. It is composed of 5 sub program and project namely; Integrated Coastal Resource Management (ICRM) Sustainability, Environmental Protection, Social Protection, Public Health and Agriculture Resiliency.

Disaster Preparedness and Response:

The objective of this program is to systematize the preparedness and responses of the LGU during disaster emergency situation of avoid loss of life and damage of property, agriculture infrastructure and other lifeline support system. Another thing is to develop a proactive measure in terms of providing assistance and support to affected communities on the event of disaster emergency. The activities and project under the Disaster Preparedness and Response Program are; 1) Organizing and Accreditations of Community Disaster Volunteers (CDV's), 2) Capability Building of JEMRU, volunteers, responders and CDV's, 3) Community Emergency Drill 4) Pro-active Relief Stockpiling; 5) Purchase of Disaster Response Equipments and its maintenance 6) Early Warning System and 7) Maintenance of Emergency Equipments

II. THE MDRRM FUND UTILIZATION SCENARIOS

Based on the Proposed Annual Budget of Jagna, Bohol, the 5% LDRRMF of the Municipality is amounting to **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90). In order to come a realistic plan and conservative financial plan the MDRRMC established a three scenarios that will help them decide how much will be the cost- effective and efficient 5-year MDRRM Plan.

No Disaster for the Next Five Year Scenario:

The first scenario that they have formulated is the No Disaster Scenario for the Next Five Years. In this Scenario, it was projected that during the first year of implementation they have an amount of **Two Million, Forty Thousand, Ninety Four Pesos and Fifty Three Centavos** (₱ 2,040,094.53) as the

70% of **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90) as its DRR operation budget to implement their MDRRM Plan for the year 2011.

But, for the next two to five years, the DRR Operational budget of the MDRRMO will be increased to **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90). Because the 30% that are intended for Quick Response Fund (QRF) of 5% LDRRM Fund amounting to **Eight Hundred Seventy Five Thousand, One Hundred Eighty Three Pesos and Thirty Seven Centavos** (₱ 875,183.37) will be put as a Special Trust Fund of the LGU, and will be added to the MDRRMO 70% DRR Operational fund annually. With this scenario, the 5 Year Total DRR operational budgets are amounting to **Thirteen Million, Seven Hundred Nine Thousand, Two Hundred Five Pesos and Ninety Seven Centavos** (₱ 13,709,205.97) (See Table 8: Scenario 1- No disaster Happen for the Next Five Year of Implementation)

Table 8: Scenario 1-No Disaster Happen for the Next Five Years

| YEAR | 5% MDRRM Fund | 30% QRF | 70% DRR Operational Fund | Special Trust Fund | Total DRR Operational Fund |
|-----------------------------------|---------------|------------|--------------------------|--------------------|----------------------------|
| 2012 | 2,917,277.90 | | 2,040,094.53 | | 2,040,094.53 |
| 2013 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| 2014 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| 2015 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| 2016 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| Total DRR Operational Fund | | | | | 13,709,205.97 |

Disaster Happen Every other Year of MDRRM Plan Implementation Scenario

The second scenario that DRRM Council has formulated is the state of Disaster that happens every other year of MDRRM plan implementation. In this Scenario, it was projected that for the first year, third year and fifth year of implementation they have an amount of **Two Million, Forty Thousand, Ninety Four Pesos and Fifty Three Centavos** (₱ 2,040,094.53) as the 70% **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90), as its DRR operation budget to implement their MDRRM Plan for the year 2012, 2014 and 2016.

The **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90) annual budget for Year 2 (2013) and 2015 was computed since the 30% QRF for the Year 2 and 4 was assumed to be utilized during the occurrences of disaster in these particular year (Year 2 and 4). The **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos** (₱ 2,917,277.90) Annual budget for Year 2 and 4 is the accumulation of **Eight Hundred Seventy Five Thousand, One Hundred Eighty Three Pesos and Thirty Seven Centavos** (₱ 875,183.37) 30% QRF of Year 1 and Year 3 as what have been assumed into this particular scenario.

With this scenario, the 5 Year Total DRR operational budgets is amounting to **Eleven Million, Nine Hundred Fifty Four Thousand Eight Hundred Thirty Nine Pesos and Thirty Centavos (₱ 11,954,839.30)** (See Table 9: Scenario 2-Disaster Happen Every other Year of MDRRM Plan Implementation)

Table 9: Scenario 2-Disaster Happen Every Other Year of DRRM Plan Implementation

| YEAR | 5% MDRRM Fund | 30% QRF | 70% DRR Operational Fund | Special Trust Fund | Total DRR Operational Fund |
|-----------------------------------|---------------|------------|--------------------------|--------------------|----------------------------|
| 2012 | 2,917,277.90 | | 2,040,094.53 | | 2,040,094.53 |
| 2013 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| 2014 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| 2015 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | 875,183.37 | 2,917,277.90 |
| 2016 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| Total DRR Operational Fund | | | | | 11,954,839.30 |

Disaster Happen Every Year of MDRRM Plan Implementation

The third scenario that MDRRMC have formulated is Disaster Happens Every Year of MDRRM plan implementation. In this particular scenario, the MDRRM Plan shall only have an amount of **Two Million, Forty Thousand, Ninety Four Pesos and Fifty Three Centavos (₱ 2,040,094.53)** as the 70% of **Two Million, Nine Hundred Seventeen Thousand, Two Hundred Seventy Seven Pesos and Ninety Centavos (₱ 2,917,277.90)**, as its DRR operation budget to implement their MDRRM Plan for the year 2011 to 2015. It was also projected in this scenario that the 30% QRF amounting to **Eight Hundred Seventy Five Thousand, One Hundred Eighty Three Pesos and Thirty Seven Centavos (₱ 875,183.37)** shall be maximized on the occurrences of disasters every year.

With this scenario, the 5 Year Total DRR operational budgets is amounting to **Ten Million, Two Hundred Thousand, Four Hundred Seventy Two Pesos and Sixty Five Centavos (₱ 10,200,472.65)** (See Table 10: Scenario 3-Disaster Happen Every Year of MDRRM Plan Implementation)

Table 10: Scenario 3-Disaster Happen Every Year of DRRM Plan Implementation

| YEAR | 5% MDRRM Fund | 30% QRF | 70% DRR Operational Fund | Special Trust Fund | Total DRR Operational Fund |
|-----------------------------------|---------------|------------|--------------------------|--------------------|----------------------------|
| 2012 | 2,917,277.90 | | 2,040,094.53 | | 2,040,094.53 |
| 2013 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| 2014 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| 2015 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| 2016 | 2,917,277.90 | 875,183.37 | 2,040,094.53 | | 2,040,094.53 |
| Total DRR Operational Fund | | | | | 10,200,472.65 |

III. THE FIVE YEAR MDRRM PLAN FINANCIAL PROJECTION

The Scenario Building made during the MDRRM Planning and Workshop helps a lot to the MDRRMC in terms of project prioritization and the effective and efficient utilization of their limited financial resources provided by the 5% LDRRM Fund.

The 5-Year MDRRM Plan of the Municipality of Jagna, Bohol entails a total budget of **Ten Million, Two Hundred Ninety Six Thousand Pesos (₱ 10,296,0000.00)**. And all these funding requirements will be sourced out from the 5% Local Disaster Risk Reduction and Management Fund (*See Table 11: Five Year Summary of Financial resources Needed by MDRRM Plan*)

Table 11: Five Year Summary of Financial Resources Needed by MDRRM Plan

| Year | MDRRM Fund | 70% DRR Operational Fund | 30% Quick Response Fund | Scenario 1: No disaster Happen for the Next 5 Years | Prevention and Mitigation | Climate Change Adaptation | Preparedness and Response | TOTAL DRR Budget Needed |
|--------------|----------------------|--------------------------|-------------------------|---|---------------------------|---------------------------|---------------------------|-------------------------|
| 2012 | 2,917,277.90 | 2,040,094.53 | 875,183.37 | 2,040,094.53 | 280,000 | 632,000 | 902,000 | 1,814,000 |
| 2013 | 2,917,277.90 | 2,040,094.53 | 875,183.37 | 2,917,277.90 | 834,000 | 1,582,000 | 1,000,000 | 3,416,000 |
| 2014 | 2,917,277.90 | 2,040,094.53 | 875,183.37 | 2,917,277.90 | 800,000 | 1,582,000 | 1,000,000 | 3,382,000 |
| 2015 | 2,917,277.90 | 2,040,094.53 | 875,183.37 | 2,917,277.90 | 200,000 | 582,000 | 300,000 | 1,082,000 |
| 2016 | 2,917,277.90 | 2,040,094.53 | 875,183.37 | 2,917,277.90 | 0 | 542,000 | 60,000 | 602,000 |
| TOTAL | 14,586,389.50 | 10,200,472.65 | 4,375,916.85 | 13,709,206.13 | 2,114,000 | 4,920,000 | 3,262,000 | 10,296,000 |

This Financial Projection is very close to the Scenario One that has been computed by the MDRRMC above. This means that the 5-year MDRRM Plan of Jagna, Bohol is within the financial capability of the Municipality.

The Next chapter is the matrix plan of the 5-Year MDRRM Plan of Jagna that composed of three major components. Chapter IV will provide the details on what specific project and activities that will be undertaken by MDRRMO using the corresponding budgetary requirements elaborated in this chapter.

IV. THE FIVE- YEAR MUNICIPAL DISASTER RISK REDUCTION AND MANAGEMENT PLAN MATRIX:

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|---|----------------|---------|---------|------|------|-----------------------------|-------------------|---|-------------------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| DISASTER PREVENTION and MITIGATION PROGRAM | | | | | | | | | | |
| Physical Infrastructure and Engineering Supports | Construction of Flood Control near lowland areas at BIT, Tejero | 60,000 | | | | | 60,000 | MDRRM Fund | | MEO |
| | Inventory of canals and waterways concentrated in the barangays of Tejero, Poblacion, Can-upao | part of 60,000 | | | | | | | 1st Quarter of 2012 Partial of drainage starting Saksi going to BIT canal towards Pondol river (portion of BIT elementary will be covered); 2) partial construction of drainage system along side Capt. Goyo monument to Quezon St. going to Pagina-Calmayon Bridge | MPDC, MEO, Barangay Officials |
| | Continuous construction of Flood Control/covered canal near lowland areas at BIT, Tejero, Poblacion-Municipal Bldg. and Pondol area, Can-upao | | 400,000 | | | | 400,000 | | | |
| | Continuous construction of Flood Control/covered canal near lowland areas at Tejero, Poblacion-Municipal Bldg. and Pondol area, Can-upao | | | 600,000 | | | 600,000 | | 2014 - Continuation of 2013 projects; replacement of .30 RCCP to .60 portion at Villacastin; diversion of run off water from Villacastin going to Borja road | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|--|------------|---------|---------|---------|------|-----------------------------|-------------------|---|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| Physical Infrastructure and Engineering Supports | Continuous dredging, declogging of canals, waterways (annual) | | 400,000 | 200,000 | | | 600,000 | MDRRM Fund | 2013 - Declogging of national highway cross drainage from area of Tocles Abcede and expansion; widening of canal, uprooting of nipa @ Genes Abrea area; uprooting of nipa @ Renato Acera's portion (Can-upao); all canals and waterways | |
| | Continuous construction of Flood Control/covered canal near lowland areas at Tejero, Poblacion-Municipal Bldg. and Pondol area, Can-upao | | | | 200,000 | | 200,000 | MDRRM Fund | 2015 - construction of canal @ Central School; and other waterways | |
| Knowledge Management | Conduct Training Needs Assessment (TNA) | 20,000 | | | | | 20,000 | MDRRM Fund | Jul-12 | MDRRMO |
| | Continuing Studies and Research | 50,000 | | | | | 50,000 | MDRRM Fund | Jul-12 | MDRRMO |
| | Information and Education Campaign to reduce pollution thru schools, barangays | | | | | | | MDRRM Fund | | MDRRMO |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|---|--|------------|--------|------|------|------|-----------------------------|-------------------|-----------------|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| | Dissemination of emergency hotline nos. to all barangays constituents | 10,000.00 | | | | | 10,000 | MDRRM Fund | May-12 | BFP |
| | Continuous updating of numbers | | 2,000 | | | | 2,000 | | | |
| Knowledge Management | Produce flyers for emergency contact number | 30,000.00 | 2,000 | | | | 32,000 | MDRRM Fund | Sep-12 | MDRRMO |
| | Establish radio program on climate change adaptation | 5,000 | 5,000 | | | | 10,000 | MDRRM Fund | May-12 | MDRRMO |
| GIS Enabled Mapping | - enhance disaster risks maps using manifolds - Installation of REDAS Software - E-copy of hazard maps | 45,000.00 | 20,000 | | | | 65,000 | MDRRM Fund | Apr-12 | MDRRMO |
| | Develop database and information | 10,000 | 5,000 | | | | 15,000 | MDRRM Fund | Jun-12 | MDRRMO |
| Program Planning, Monitoring and Evaluation | Conduct monitoring and evaluation | 5,000 | | | | | 5,000 | MDRRM Fund | | MDRRMO |
| | Establish filing system of disaster related documentation and data of assessment reports and others | 10,000 | | | | | 10,000 | MDRRM Fund | Mar-12 | MDRRMO |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|--|------------|------|------|------|------|-----------------------------|-------------------|-----------------|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| Networking, Linkaging and DRR Support System | | x | | | | | | MDRRM Fund | | |
| Policy Advocacy Agenda | Enact Ordinance creating MENRO Office and staff. | x | | | | | | MDRRM Fund | | |
| | Enact Ordinance to require graduating student to plant trees as early as June as a requirement for graduation | | | | | | | | | |
| | Enact ordinance requesting barangays to install fire hydrant terminal chargeable to portion of their 5% LDRRM Fund | 5,000 | | | | | | | | MDRRMC |
| | Enact Ordinance prohibiting building construction along river creeks and landslide prone areas. | x | | | | | | MDRRM Fund | | MDRRMC |
| | Integrating DRRM/CCA into Local Planning System * CLUP/CDP/ELA/AIP | x | | | | | | | | MDRRMC |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|---------------------|--|----------------|----------------|----------------|----------------|----------|-----------------------------|-------------------|-----------------|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| | Use of GIS thematic maps in the analysis | x | | | | | | | | |
| | Strict implementation of pollution related ordinances. | x | | | | | | | | ISWM TWG |
| | Strict enforcement of Ordinance Re: Illegal extraction of sand and gravel | x | | | | | | | Nov-12 | MDRRMO |
| Planning Regimes | Formulate a Contingency Plan * Landslide Prone (Mayana)* Flood Prone (Tejero) | 30,000 | | | | | | MDRRM Fund | | MPDC/MDRRMO |
| TOTAL | | 280,000 | 834,000 | 800,000 | 200,000 | 0 | 2,114,000 | | | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|--|------------|---------|---------|---------|---------|-----------------------------|-------------------|--|---|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| RISK REDUCTION AND CLIMATE CHANGE ADAPTATION PROGRAM | | | | | | | | | | |
| ICRM Sustainability | MPA maintenance | | 30,000 | 30,000 | 30,000 | 30,000 | 120,000 | MDRRM Fund | Replacement of lost marker buoys | |
| | Construction of additional Guard House | | 40,000 | 40,000 | 40,000 | | 120,000 | | Additional Guard Houses constructed | |
| | Monitoring and assessment of MPAs | | 15,000 | 15,000 | 15,000 | 15,000 | 60,000 | | Updated CRM assessment database | |
| Environmental Protection | River and Creeks Clean Up - Laca- Kinagbaan/ Bunga- Ilaya-Can upao-Bunga Mar/ Pangdan-Tejero/ Cantuyoc-Canjulao- Pagina/ Malbog-Tubod Monte-Pagina | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 60,000 | MDRRM Fund | Rivers, creeks and waterways well maintained. | Barangay Council/ MDRRMC/O MEO |
| | Dregging and Declogging of Rivers and Estuaries: Bunga Mar/ Alejawan/ Naatang/ Ipil/Kinagbaan/ Pagina/ Canuba/ Calabacita/ Looc | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 500,000 | | | |
| | Coastal and Underwater Clean up | | 12,000 | 12,000 | 12,000 | 12,000 | 48,000 | | 15 Coastal Barangays and 8 MPAs | |
| | Expand coverage of waste collection aside from Metro Jagna (Cantagay, Ipil, Can-uba, Nausok, Tubod Mar, Naatang and Alejawan) | | 3,000 | 3,000 | 3,000 | 3,000 | 12,000 | MDRRM Fund | additional Coastal Barangays covered by waste collection. | ISWM/ TWG |
| | Established/operationalize Barangay MRF/Transfer Station | | | | | | | | MRF established in each Barangay covered by waste collection. | ISWM/ TWG |
| | | | | | | | | | | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|-----------------------------|---|----------------|------------------|------------------|----------------|----------------|-----------------------------|-------------------|---|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| Environmental Protection | Start 1st Phase of Proposed SLF | | 1,000,000 | 1,000,000 | | | 2,000,000 | | Sanitary Landfill completed and operational | ME/ISWM/ MO |
| | Improve water threatment on the water supply | | | | | | | | | JWS Management |
| | Conduct of Tree Growing Activities in Tubod Monte, Pangdan, Naatang, Buyog & Can-upao (Land Prep, seedling transport, tree planting, safeguarding, cultivating, monitoring, etc.) | 500,000 | 100,000 | 100,000 | 100,000 | 100,000 | 900,000 | MDRRM Fund | More areas planted to forest trees. | MDRRMO |
| | Partnership with BISU on Forest Assessment & Biodiversity Protection & Awareness | 10,000 | | | | | 10,000 | MDRRM Fund | Aug-12 | MDRRMO |
| | Conduct environmental forum with DENR,BEMO,BFAR personnel | 10,000 | | | | | 10,000 | MDRRM Fund | Oct-12 | MDDRMO |
| Public Health | Medical mission | | 150,000 | 150,000 | 150,000 | 150,000 | 600,000 | MDRRM Fund | Patients at the Barangays availed of medical services | |
| | Supplemental feeding | | 30,000 | 30,000 | 30,000 | 30,000 | 120,000 | | | |
| | Parents' class | | 10,000 | 10,000 | 10,000 | 10,000 | 40,000 | | | |
| Agriculture Resiliency | Community Seed Banking (prime commodities) | | 50,000 | 50,000 | 50,000 | 50,000 | 200,000 | MDRRM Fund | | |
| | Livestock Protection and Maintenance (Vaccin & Biologics) | | 30,000 | 30,000 | 30,000 | 30,000 | 120,000 | MDRRM Fund | | |
| TOTAL | | 632,000 | 1,582,000 | 1,582,000 | 582,000 | 542,000 | 4,920,000 | | | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME/BUDGET NEEDED | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|--|--------------------------|--------|---------|---------|------|-----------------------------|-------------------|---|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| DISASTER PREPAREDNESS AND RESPONSE PROGRAM | | | | | | | | | | |
| Accreditation of Community Disaster Volunteers | Organize volunteers in times of Disaster Occurrences and Relief of Goods | 30,000 | | | | | 30,000 | MDRRM Fund | Apr-12 | MDRRMO |
| | Expansion of volunteers to remaining 17 brgys. | | 50,000 | | | | 50,000 | | | |
| Capability Building | Capacity Building of First Aid Team(JEMRU), Response Team, Rehabilitation and Recovery & Relief Operation Team | 150,000 | | | | | 150,000 | MDRRM Fund | | JEMRU/ MDRRMO |
| | Training for MDRRMC Team Task Force, Brgys Disaster Task Force, Volunteers | 40,000 | 40,000 | 20,000 | | | 100,000 | MDRRM Fund | Nov-12 | MDRRMO/ JEMRU |
| | Enhancement of training for first aid and response team (JEMRU) | | 40,000 | 40,000 | | | 80,000 | | | |
| Community Emergency Drill | Conduct of Earthquake Drill (LGU/School/Public Market) | 20,000 | 20,000 | 20,000 | | | 60,000 | MDRRM Fund | Earthquake Drill Conduct in July 2012 | MDRRMO/ JEMRU |
| | Conduct Fire Drill and Tsunami Drill (Municipal Building/ Public Market | 15,000 | 15,000 | 15,000 | | | 45,000 | MDRRM Fund | Fire Drill Conduct in July 2012 | MDRRMO/ JEMRU |
| Relief (Food and Non- food) Stockpiling and Financial aid to Disaster Victims | Financial Aid to Disaster Victims | 150,000 | 70,000 | 70,000 | | | 290,000 | MDRRM Fund | | MDRRMO/MDRRMC |
| | Purchase of truck (elf) | | | 500,000 | | | 500,000 | | | |
| | Construction of Food Storage | | | | 200,000 | | 200,000 | | | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME/BUDGET NEEDED | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|---|---|--------------------------|---------|--------|--------|--------|-----------------------------|-------------------|--------------------|-----------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| Purchases of Disaster Emergency equipment, Supplies and logistics | Ready and functional heavy equipments for landslide emergency clearing and safety of the people | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 250,000 | MDRRM Fund | for rental | Municipal Engineering |
| | purchase of equipment van (Mini-van) | | 250,000 | | | | 250,000 | | | |
| | Purchase of waterpump | | 30,000 | | | | 30,000 | | | |
| | Purchase of two-way handheld radio | 60,000 | 40,000 | | | | 100,000 | MDRRM Fund | Jul-12 | MDRRMO |
| | Purchase of portable generator for emergency lights use | 45,000 | | | | | 45,000 | MDRRM Fund | Aug-12 | MDRRMO |
| | purchase of Search light | | 35,000 | 25,000 | 10,000 | 10,000 | 80,000 | | | |
| | Activation of 3-digit HOTLINE No.s | 20,000 | | | | | 20,000 | MDRRM Fund | May-12 | MDRRMO |
| | Purchase of base and additional base radio | 72,000 | | | | | 72,000 | MDRRM Fund | Apr-12 | MDRRMO |
| | Medical Supplies and Rescue Equipments, Tools and Paraphernalia's | 80,000 | 80,000 | 80,000 | | | 240,000 | MDRRM Fund | May-12 | MDRRMO |
| | Purchase of Jack Hammer | | | 90,000 | | | 90,000 | | | |
| | Purchase of Chain Block (2 tons) | | | | 40,000 | | 40,000 | | | |

| PROGRAM/ PROJECT | ACTIVITIES | TIME FRAME/BUDGET NEEDED | | | | | TOTAL BUDGET REQUIRED | BUDGET SOURCES | EXPECTED OUTPUT | RESPONSIBLE AGENCY |
|--|---|--------------------------|------------------|------------------|----------------|---------------|-----------------------------|-------------------|--------------------|-------------------------------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | | | |
| Early Warning System | Installation of Early Warning System * motor siren in metro Jagna * rain gauge stations * high sea level indicator * flood marker for monitoring | 120,000 | 100,000 | | | | 220,000 | MDRRM Fund | Jun-12 | MDRRMO |
| | Dialogue with Telecommunication Provider to augment cellular signals of Brgy Faraon, Canuba, Ipil, Can- ipol, Odiong, etc. | | 5,000 | | | | 5,000 | MDRRM Fund | Feb-12 | MDRRMC/ Barangay Officials |
| | Prepare and install proper warning signages, caution signs, traffic signs | 50,000 | | | | | 50,000 | MDRRM Fund | Jul-12 | MDRRMO |
| Maintenance of emergency equipments | Ambulance & MDRRMC motorcycle | | 75,000 | 20,000 | | | 95,000 | MDRRM Fund | | |
| | Gasoline & Poll Products | | 50,000 | 50,000 | | | 100,000 | | | |
| | Rapair and maintenance of Fire trucks | | 50,000 | 20,000 | | | 70,000 | | | |
| TOTAL | | 902,000 | 1,000,000 | 1,000,000 | 300,000 | 60,000 | 3,262,000 | | | |

OVER ALL SUMMARY OF BUDGET

Table 12: Five Year Summary of Financial Resources Needed by MDRRM Plan Per Program Basis

| | PROGRAMS | BUDGETARY REQUIREMENTS | | TOTAL BUDGET REQUIRED |
|---|--|------------------------|------------------|--------------------------|
| | | Internal Sources | External Sources | |
| 1. Disaster Prevention and Mitigation Program | | | | |
| | Physical Infrastructure and Engineering Supports | 1,860,000 | | 1,860,000 |
| | Knowledge Management | 124,000 | | 124,000 |
| | GIS Enabled Mapping | 80,000 | | 80,000 |
| | Program Planning, Monitoring and Evaluation | 15,000 | | 15,000 |
| | Networking, Linkaging and DRR Support System | 0 | | 0 |
| | Policy Advocacy Agenda | 5,000 | | 5,000 |
| | Planning Regimes | 30,000 | | 30,000 |
| | SUB-TOTAL | 2,114,000 | | |
| 2. Risk Reduction and Climate Change Adaptation Program | | | | |
| | ICRM Sustainability | 300,000 | | 300,000 |
| | Environmental Protection | 3,540,000 | | 3,540,000 |
| | Social Protection | 0 | | 0 |
| | Public Health | 760,000 | | 760,000 |
| | Agriculture Resiliency | 320,000 | | 320,000 |
| | SUB-TOTAL | 4,920,000 | | |
| 3. Disaster Preparedness and Response Program | | | | |
| | Accreditation of Community Disaster Volunteers | 80,000 | | 80,000 |
| | Capability Building | 330,000 | | 330,000 |
| | Community Emergency Drill | 105,000 | | 105,000 |
| | Relief (Food and Non-food) Stockpiling and Financial aid to Disaster Victims | 990,000 | | 990,000 |
| | Purchases of Disaster Emergency equipment, Supplies and logistics | 1,217,000 | | 1,217,000 |
| | Early Warning System | 275,000 | | 275,000 |
| | Maintenance of emergency equipments’ | 265,000 | | 265,000 |
| | SUB-TOTAL | 3,262,000 | | |
| | GRAND TOTAL | 10,296,000 | | 10,296,000 |

V. GENERAL IMPLEMENTING ARRANGEMENT:

A. MDRRM OFFICE ORGANIZATIONAL STRUCTURE:

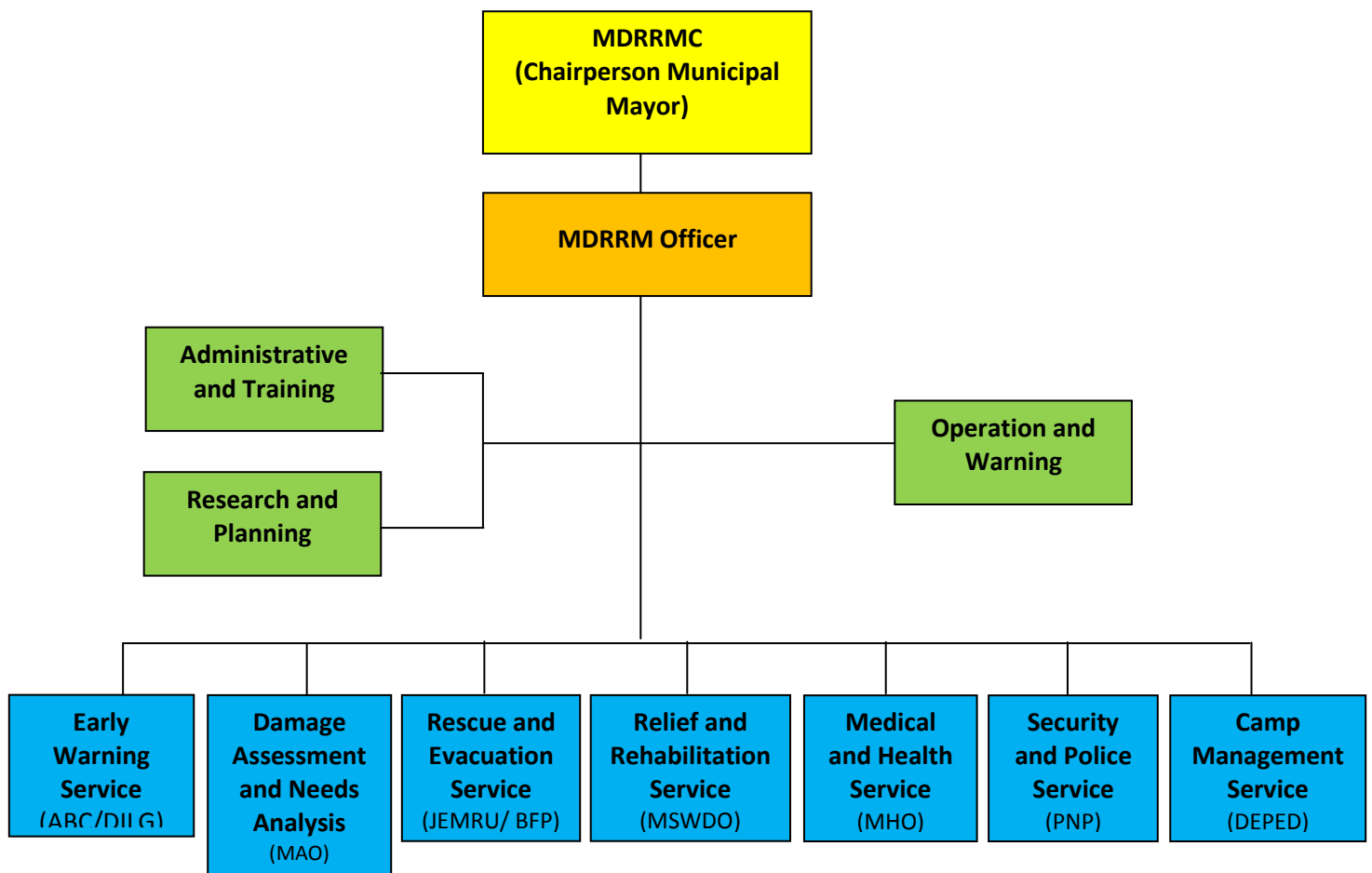


Figure 9: MDRRMO Organizational Structure

B. TASK, FUNCTION AND DEPARTMENTS INVOLVE:

- **MDRRMC:**

The composition of Jagna Municipal Disaster Risk Reduction and Management Council are the following

- Municipal Mayor as the Chairperson of the MDRRM Council
- The Disaster Risk Reduction and Management Officer, Member,
- The Local Planning and Development Officer, Member;
- The Municipal Social Welfare and Development officer, Member;
- The Municipal Health Officer, Member;
- The Municipal Agriculture Officer, Member;
- The Municipal Gender and Development Officer, Member;
- The Municipal Engineer, Member;
- The Municipal Budget Officer, Member;
- The Division Head/Superintendent of Schools/District Supervisor of the DepED, Member;
- Municipal Officer of the Department of Interior and Local Government, Member;
- Municipal Chief of the Philippine National Police (PNP), Member;
- Municipal Fire Marshall of the Bureau of Fire Protection (BFP), Member;
- The President of the Association of Barangay Captains (ABC), Member;
- Four (4) accredited CSOs (to be identified), Member; and
- One (1) private sector representative (to be identified), member.

The Jagna Municipal Disaster Risk Reduction and Management Council shall have the following tasks and function:

- Disaster Risk Reduction and Management policy recommendatory body to Sangguniang Bayan
- Approve, monitor and evaluate the implementation of the LDRRMPs and annually review, test and develop the plan consistent with other national and local planning programs;
- Ensure the integration of disaster risk reduction and climate change adaptation into local development plans, programs and budgets as a strategy in sustainable development and poverty reduction;
- Recommend the implementation of forced or pre-emptive evacuation of local residents, if necessary

- **MDRRM Office:**

The MDRRMO shall compose of MDRRM Officer, Staff service team that will compose the following staff; 1) Administrative and Training, 2) Research and Planning and 3) Operation and Warning.

Action Service Team will compose of the following:

- Early Warning Service Headed by the ABC President

- Damage Assessment and Needs Analysis Headed by the Municipal Agriculture Officer and his/her department
- Rescue and Evacuation Service Headed by JEMRU and Bureau of Fire Protection Chief
- Relief and Rehabilitation Service Headed by Municipal Social Welfare and Development officer and his/her department
- Medical and Health Service Headed by Municipal Health Officer and his/her department
- Security and Police Service Headed by the Local Chief of Police and the local PNP department, and
- Camp Management Service Headed by School Superintendent of the Local DepEd.

The Jagna MDRRM Office, in coordination with concerned national and local agencies and instrumentalities, shall perform the following functions with impartiality, given the emerging challenges brought by disasters of our times:

- Design, program, and coordinate disaster risk reduction and management activities consistent with the National Council's standards and guidelines;
- Facilitate and support risk assessments and contingency planning activities at the barangay level;
- Consolidate local disaster risk information which includes natural hazards, vulnerabilities, and climate change risks, and maintain a local risk map;
- Organize and conduct training, orientation, and knowledge management activities on disaster risk reduction and management at the Barangay level;
- Operate a multi-hazard early warning system, linked to disaster risk reduction to provide accurate and timely advice to national or local emergency response organizations and to the general public, through diverse mass media, particularly radio, landline communications, and technologies for communication within rural communities;
- Formulate and implement the Jagna comprehensive and integrated MDRRM Plan in accordance with the national, regional and provincial framework, and policies on disaster risk reduction in close coordination with the local development councils (LDCs);
- Prepare and submit to the local sanggunian through the LDRRMC and the LDC the annual LDRRMO Plan and budget, the proposed programming of the LDRRM Fund, other dedicated disaster risk reduction and management resources, and other regular funding source/s and budgetary support of the LDRRMO/BDRRMC;
- Conduct continuous disaster monitoring and mobilize instrumentalities and entities of the LGUs, CSOs, private groups and organized volunteers, to utilize their facilities and resources for the protection and preservation of life and properties during emergencies in accordance with existing policies and procedures;
- Identify, assess and manage the hazards vulnerabilities and risks that may occur in the 33 barangays of Jagna;
- Disseminate information and raise public awareness about those hazards, vulnerabilities and risks, their nature, effects, early warning signs and counter-measures;

- Identify and implement cost-effective risk reduction measures/strategies;
- Maintain a database of human resource, equipment, directories, and location of critical infrastructures and their capacities such as hospitals and evacuation centers;
- Develop, strengthen and operationalize mechanisms for partnership or networking with the private sector, CSOs, and volunteer groups;
- Take all necessary steps on a continuing basis to maintain, provide, or arrange the provision of or to otherwise make available, suitably-trained and competent personnel for effective civil defense and disaster risk reduction and management in the Municipality of San Francisco;
- Organize, train, equip and supervise the Jagna Emergency Management and Rescue Unit (JEMRU) and the ACDVs, ensuring that humanitarian aid workers are equipped with basic skills to assist mothers to breastfeed;
- Respond to and manage the adverse effects of emergencies and carry out recovery activities in the affected area, ensuring that there is an efficient mechanism for immediate delivery of food, shelter and medical supplies for women and children, endeavor to create a special place where internally-displaced mothers and children can find help with breastfeeding, feed and care for their babies and give support to each other;
- Within the territorial jurisdiction of Jagna, Bohol, promote and raise public awareness of and compliance RA 10121 and legislative provisions relevant to the purpose of RA 10121;
- Serve as the secretariat and executive arm of the MDRRMC;
- Coordinate other disaster risk reduction and management activities;
- Establish linkage/network with other LGUs for disaster risk reduction and emergency response purposes;
- Recommend through the MDRRMC the enactment of local ordinances consistent with the requirements of RA 10121;
- Implement policies, approved plans and programs of the LDRRMC consistent with the policies and guidelines laid down in RA10121;
- Establish the Jagna Municipal Disaster Risk Reduction and Management Operations Center;
- Prepare and submit, through the MDRRMC and the MDC, the report on the utilization of the LDRRM Fund and other dedicated disaster risk reduction and management resources to the local Commission on Audit (COA) for internal audit for municipal level, copy furnished the regional director of the OCD and the Local Government Operations Officer of the DILG; and
- Act on other matters that may be authorized by the MDRRMC.

C. INSTITUTIONAL WORKING ARRANGEMENT

- There shall be mutual cooperation among and between LDRRMO, other municipal department such MSWDO, MAO, Municipal Engineering Office, Municipal Health Office (MHO) MPDC, MENRO and among others, DepED, BDRRMC and Accredited Community Disaster Volunteers in the implementation of MDRRM Plan;
- Quarterly Plans and monthly progress of MDRRM activities shall likewise be reported to the Municipal Council and other funding partners for information, technical and management guidance;
- The MDRRMC shall actively participate in/support local policy proposals including discussions and decisions relative to formulation, amendment and/or modifications of local policies pertinent to local disaster risk reduction especially in three core programs namely; disaster prevention, mitigation and preparedness;

Accountability for the regular reporting systems to the public and concerned officials belongs to the MDRRMO.

D. GENERAL MONITORING AND EVALUATION FRAMEWORK

Monitoring and evaluation is the process of gathering, filing, accessing and analyzing information that will enable the Municipal Mayor as Disaster Risk Reduction and Management Council Head to determine the progress of the implementation of the MDRRM Plan, and make timely decisions to ensure that progress is maintained according to schedules and targets.

The public dissemination of the outputs of monitoring and evaluation activities enhances transparency in management.

The MDRRMO shall be primarily responsible in carrying out monitoring and evaluation activities but whose work shall be reviewed by the Municipal Disaster Risk reduction and Management as the overseeing body of the municipality for disaster risk reduction and management

The MDRRMO shall submit a monthly, quarterly and an annual report to the MDRRMC and to the Municipal Mayor informing them of the state of the implementation of the approved MDRRM program/projects for the period.

REFERENCE MATERIALS:

The 2012 Annual Budget of Jagna, Bohol. Municipal Budget Officer File

The 10 year Comprehensive Land-Use Plan of the Municipality of Jagna

RA 10121 Primer