

## CDRRM PLAN (2013 – 2017)

### EXECUTIVE SUMMARY

As a country, Philippines is part of a global commitment to build the resiliency of nations and communities to disasters and reducing vulnerabilities and risks to hazards by being one of the signatories, among 168 countries to the United Nations Hyogo Framework for Action held in Kobe, Japan in 2005. All member countries agreed that they commit to make Disaster Risk Reduction (DRR) a priority of the national and local government. With this, member countries should have strong institutional basis for implementation; identify, assess, and monitor disaster risks and early warning; use knowledge, innovation and education to build a culture of safety and resilience at all levels; and reduce underlying risks and factors and strengthen disaster preparedness for effective response among all levels.

The Republic Act 10121, known as the “**Philippine Disaster Risk Reduction and Management Act of 2010**” paves way for strengthening the government’s management and response to the emerging trends and impacts of climate change in the Philippines. The law outlines concrete measures to ensure that Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) be integrated and mainstreamed in the policy formulations and developmental processes of every regional, provincial and local government unit.

Tropical Storm Sendong (international name ‘Washi’) that hit Cagayan de Oro city on December 16, 2011 left thousands of people dead and missing in Northern Mindanao, billions of properties, agriculture, fisheries and natural landscapes destroyed. This dramatically changed the mind-sets of the many Filipinos. The tangible experience had left us to think of ways and measures for us to be equipped and better prepared Kagay-anons before, during and after any human-induced and natural calamities. The institutionalization of CCA and DRR in Cagayan de Oro city is one historic measure of the local government. It amplifies paradigm shift that this is the ‘**new normal**’ as DENR puts it. And with the climate changes come acceptance and resilience of the citizenry.

The comprehensive Disaster Risk Assessment (DRA) study of Cagayan de Oro after the onslaught of TS Sendong presented **hazard characterization, consequence analysis, risk estimation and evaluation**. These four (4) major stages follow the methodology of the Housing and Land Regulatory Board (HLURB) in the mainstreaming of DRR and CCA framework provided by the Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) with NEDA and UNDP. In hazard characterization, it was revealed that typhoons, rain induced floods, earthquakes, landslides, storm surge, coastal flooding and subsidence are common phenomenon or hazards that have occurred in the city these past few years. Through consequence analysis, it was explained how these dangerous conditions affects the environment and the people economically, socially, psychologically and mentally. Further, risk estimation revealed the potential hazards in identified barangays high risked to flooding and landslide, coastal barangays susceptible to storm/coastal surge, among others.

These hazards have extensively affected the existing lifeline facilities such as water, power, transportation, communication, infrastructure, housing, hospitals, agriculture and fisheries, and education. With the risk evaluation, the city planning core team with the technical assistance from Housing and Land Use Regulatory Board (HLURB) and Regional Development Council (RDC), Region X have prioritized measures to be implemented immediately by the local government. The immediate

priority is to come up with a Disaster Reduction Management (DRRM) Plan to provide comprehensive direction for CCA and DRR strategic options and priorities.

Through the technical support of UNDP in its project, “Enabling Recovery and Resilience for TS Sendong-Affected Areas in Northern Mindanao”, the formulation of a comprehensive City Disaster Risk Reduction and Management plans has materialized. Members from the different offices of the city government converged for three days last December 11-13, 2012 to brainstorm on appropriate goals and activities of the four priority areas namely, **Disaster Prevention and Mitigation, Disaster Preparedness, Disaster Response and Disaster Recovery and Rehabilitation**. The plan outlines the activities of the four areas that will be executed by the government agencies and other stakeholders alike. To ensure the effectiveness and efficiency of the said plans, a collaborative, inclusive and proactive approach among the government, CSOs, private sectors, NGOs, INGOs, International Humanitarian Agencies, church, and academe are needed to reach the optimum goal of the National DRRM framework which is a **“Safer, adaptive and disaster resilient Filipino communities towards sustainable development.”** country. These concrete plans present short, medium and long-term goals that would hopefully set the direction for the City Disaster Risk Reduction and Management Council (CDRRM) of Cagayan de Oro. This document will be a living testimony that together, we can look forward and face the many climate change challenges ahead of us armed with the needed knowledge, skills and technology. Co-operation, synergy, and complementation of resources are keys for achieving sustainable development.

Below is the table of the National DRRMP Plan priority areas, long-term goals and objectives adopted by the City DRRM Plan as a guide for contextualizing the 20 outcomes, 50 outputs and 153 activities identified by the various departments of the city government for the year 2013 to 2017.

Priority Areas	Long Term Goals	Objectives
<b>Prevention and Mitigation</b>	Avoid hazards and mitigate their potential impacts by reducing vulnerabilities and exposure and enhancing capacities of communities	<ol style="list-style-type: none"> <li>1. Reduce vulnerability and exposure of communities to all hazards</li> <li>2. Enhance capacities of communities to reduce their own risks and cope with the impacts of all hazards</li> </ol>
<b>Disaster Preparedness</b>	Establish and strengthen capacities of communities to anticipate, cope and recover from the negative impacts of emergency occurrences and disasters	<ol style="list-style-type: none"> <li>1. Increase the level of awareness of the community to the threats and impacts of all hazards, risks and vulnerabilities</li> <li>2. Equip the community with the necessary skills to cope with the negative impacts of a disaster</li> <li>3. Increase the capacity of institutions</li> <li>4. Develop and implement comprehensive national and local disaster preparedness policies, plans and systems</li> </ol>

<b>Disaster Response</b>	Provide life preservation and meet the basic subsistence needs of affected population based on acceptable standards during or immediately after a disaster	<ol style="list-style-type: none"> <li>1. To decrease the number of preventable deaths and injuries</li> <li>2. To provide basic subsistence needs of affected population</li> <li>3. To immediately restore basic social services</li> </ol>
<b>Disaster Recovery and Rehabilitation</b>	Restore and improve facilities, livelihood and living conditions and organizational capacities of affected communities, and reduced disaster risks in accordance with the “building back better” principle	<ol style="list-style-type: none"> <li>1. To restore people’s means of livelihood and continuity of economic activities and business</li> <li>2. To restore shelter and other buildings/installation</li> <li>3. To reconstruct infrastructure and other public utilities;</li> <li>4. To assist in the physical and psychological rehabilitation of persons who suffered from the effects of disaster</li> </ol>

## Brief Profile of Cagayan de Oro City

Cagayan de Oro City is the regional capital and the gateway to Northern Mindanao. It is a highly urbanized first class city, geographically nestled between the central coastline of Macajalar Bay to the north and the mountains of Bukidnon and Lanao del Norte to the South, municipality of Opol to the West and municipality of Tagoloan to the East. The city lies between the latitude 8°-14'-00" to 8°-31'-5" North and longitude 124°-27'-00" and 129°-49'-00" East. **(See CdeO Base Map)**

From the 2000 Census of Population and Housing, Cagayan de Oro had a total population of 461,877 with 93,525 households with an average household size of 4.91. By 2007, Cagayan de Oro population grew by 19.9% placing its population at 553,966 as shown by the results of the 2007 Population Census. Majority of the Kagay-anons are Roman Catholics; Cebuano or Bisaya is the main conversational language of the city.

Dubbed as the 'City of Golden Friendship', it has a total land area of 56,966.6228 hectares spread over the 80 barangays of the city. Republic Act No. 9371 divides it into two districts. The First District comprises 24 barangays which are Baikingon, Balulang, Bayabas, Bayanga, Besigan, Bonbon, Bulua, Canitoan, Carmen, Dansolihon, Iponan, Kauswagan, Lumbia, Mambuaya, Pagalungan, Pagatpat, Patag, Pigsag-an, San Simon, Taglimao, Tagpangi, Tignapoloan, Tuburan and Tumpagon. The Second District are barangays Agusan, Balubal, Bugo, Camaman-an, Consolacion, Cugman, F.S. Catanico, Gusa, Indahag, Lapasan, Macabalan, Macasandig, Nazareth, Puerto, Puntod, Tablon, and Poblacion barangays 1-40.

The city's land use can be classified into two: Agricultural and non-agricultural (residential, commercial, industrial, special class, other properties, exempt properties and open spaces). 35.8% is for agricultural land and 64.2 for non-agricultural uses. For land classification, 48% are Alienable and Disposable land (A&D) while 52% or 4,257 hectares are forestlands located in Sitio Malasag, Cugman, Sitio Macahambus, Lumbia and barangays Tagpangi, Taglimao, Tuburan, Pigsag-an, Tumpagon and Dansolihon.

Twelve (12) coastal areas are in barangays Puerto, Bugo, Agusan, Tablon, Gusa, Cugman, Lapasan, Macabalan, Kauswagan, Bonbon, Bayabas and Bulua. The encroachment of people has affected the marine life as mangroves are disappearing which are breeding grounds for fish and marine species and coral cover in Lapasan, Cugman and Gusa are in poor condition

Climate and rainfall data from PAGASA shows that the average yearly total rainfall is 1,806 millimetres. The average wind that ran in the city was registered at 002 meter per second in January to September and 001 meter per second for the month of August, October to December 2010. The coldest temperature recorded was 18° Celsius on February and hottest recorded temperature was 36.3°Celsius on May 2010.

Cagayan de Oro also has 'golden' offers for tourism. Famous tourist destinations in the city are the White Water Rafting, Macahambus Adventure Park, Gardens of Malasag Eco-Tourism Village and Mapawa Nature Park. To reach these destinations, the city is accessible by land, sea, and air. It is a major transport and transshipment hub in Mindanao that has long established trade and cultural linkages with Visayas and Mindanao. It also has the Cagayan de Oro Airport as a gateway towards major cities in the country.

## **Risk Assessment Profile of Cagayan de Oro City**

The Cagayan de Oro Disaster Risk Assessment (DRA) report revealed that there are five (5) identified hazards that occurred in the city these past few years. These hazards are typhoon or rain-induced flood, landslides, earthquakes, coastal surge and subsidence. **(See *Geo-hazard Map of CdeO*)**

### ***A. Typhoon and Rain-induced Floods***

It is cited in the DRA report that flooding occurs when heavy or continuous rainfall results to the overflowing of rivers, creeks and other waterways inundating land or areas that are usually dry; natural channels of water are altered by human activity; and poor drainage systems. It came out in the study that flood is the most common phenomenon since the city is built on a delta or flood plain caused by gradual accretion of sediments. Hence, floods are part of its natural cycle. Also, the Iponan and Cagayan de Oro Rivers have formed an extensive flood plain that coalesced North of Cagayan de Oro-Iligan City highway. Such areas may be subject to brief flooding during extraordinary rainfall events according to CPDO data in 2007.

Tropical Storm Sendong, international name 'Washi' that hit Cagayan de Oro city last 16 to 17 December 2011 resulted to loss of human lives, of which 501 were dead and 438 are still missing. Damage to properties amounted to PhP 2,074,316,473.00, damage to the natural landscape of the flora and fauna and habitat, displacement of people, loss of economic activities, and destruction of critical facilities. This is one historical occurrence of a flash flood ever recorded. Low-lying areas located in Bayabas, Bonbon, Kauswagan, Carmen, Consolacion, Puntod and Macabalan and those living near the riverbanks of CdeO and Iponan rivers: Sitio Tibasak and Biasong in Macasandig and Isla de Oro were hardest hit.

For Typhoon Pablo that hit CdeO last December 2012, there was no casualty but damaged properties amounted to PhP 12,838,145.00 and agricultural damages amounted to PhP 6,000,000.00 according to City Social Welfare and Development (CSWD), Agricultural Productivity Office (APO) and City Engineers' Office (CCEO). **(See *Map on CdeO Flood Prone Areas*)**

### ***B. Landslides***

Further, landslide susceptibility conducted by MGB Geo-hazard assessment between April and May 2012 revealed that two (2) upland barangays – Baikingon particularly Zone 2 along barangay road and Zone 3 barangay center and Lumbia, in particular is the Sitio Kabula have the highest ratings of vulnerability. While two (2) barangays namely Camaman-an and Pagalungan are highly susceptible to this hazard. Rain – induced landslide may be experienced by barangays Balubal, Gusa, Indahag, and Lapasan, where slope failures along road cuts and quarrying activities occur. **(See *Geo-hazard Map*)**

### ***C. Earthquakes***

In addition to the abovementioned hydro-meteorological hazards is the geologic hazard such as earthquake, storm/coastal surge and subsidence that have also occurred in the city. Cited in the DRA report, low intensity earthquakes are experienced in the city because of the movement of the Philippine Fault and the Philippine Trench and other earthquake generators as described by PHILVOCS. Liquefaction is also identified as one of the hazards if the city is triggered by a Magnitude 6 earthquake. Barangays prone to this process that transforms the behaviour of a body of sediment from that of a solid to liquid are Lapasan, Macabalan, Puntod, Poblacion, Consolacion, Nazareth, and parts of

Camaman-an, Bonbon and Macasandig. Earthquake-induced landslides can also happen when slope materials can no longer able to resist the force of gravity. Vulnerable barangays include Agusan, Balubal, Besigan, Cugman, Dansolihon, F.S. Catanico, Indahag, Mambuaya, Pigsag-an, Puerto, San Simon, Tablon, Tignapoloan, Tuburan and Tumpagon.

#### ***D. Storm and Coastal Surge***

Storm surge was experienced in November 27, 2007 when Typhoons Mina and Lando (international names Mitag and Hagibis respectively) hit parts of Misamis Oriental, Lanao del Norte and Camiguin Island. This is caused by high winds pushing on the ocean's surface.

#### ***E. Subsidence***

Subsidence is a ground deformation resulting from downward adjustment of surface materials to the voids. Vulnerable areas are those living in the river mouths, river deltas of the CdeO River, swamps, and coastal sites with fine sediments and soft grounds.

With all of the hazards having negative impacts to the society and the severity of its physical effects, exposure to these makes Kagaya-anons vulnerable to them. Hence, vulnerability and resilience must be addressed. Institutionalizing Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) to all levels would be a milestone for the city – a paradigm shift of the Kagaya-anons from addressing and responding to calamities to a holistic approach of behaviour and attitude transformation. It also means building knowledge on disasters, disaster management, the roles and responsibilities of key players on DRRM as mandated in RA 10121, a legal, policy and planning framework that makes disaster risk reduction a mandatory requirement to all levels and a sound, comprehensive strategy of action.

Disasters, most especially the natural occurrences know no boundaries and people. But a well prepared, knowledgeable and equipped public is the greatest weapon against environmental hazards.

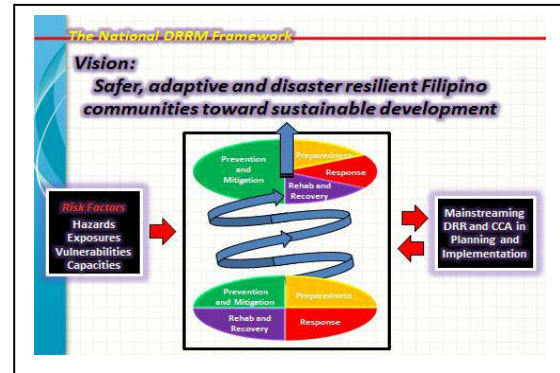
## The National DRRM Framework (NDRRMF)

On June 16, 2011, the National Disaster Risk Reduction and Management Framework (NDRRMF) was approved by the executive committee of the National Disaster Risk Reduction and Management Council (NDRRMC). The framework is in conformity with and captures the essence and priorities of Republic Act 10121- The Philippine Risk Reduction and Management Act.

The Framework envisions a country, which has **“Safer, adaptive and disaster-resilient Filipino communities toward sustainable development.”**

The goal is to have a paradigm shift from reactive to proactive DRRM wherein men and women have increased their awareness, understanding on DRRM with the end in view of increasing people’s resilience and decreasing their vulnerabilities. The aim is to empower leaders and communities and to develop the “right” mind set and positive behavioural

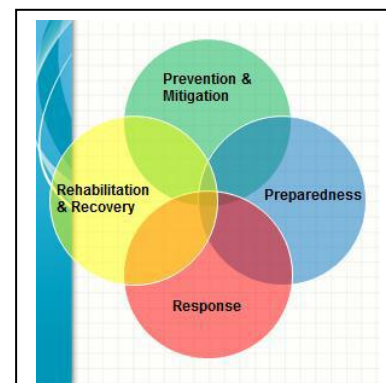
changes towards reducing and managing risks and lessening the effects of disasters. This term is about building back better or building on from our learning, good practices, research and experiences, helping us address the underlying causes of our vulnerability and increasing our ability to adjust to the situation before us. By being adaptive, we learn to innovate and go to the next level.



Disaster-resilient communities are achieved when the risk reduction efforts have been successful and have made the people stronger (in a positive way and not just in terms of their coping mechanism), increasing their ability to bounce back after a disaster. It is important to instil the culture of safety by increasing people’s capacity to bounce back and decrease disaster losses and impact. In the end, DRRM is all about addressing the underlying causes of people’s vulnerability; building their individual, collective and institutional capacities and building back better wherein people’s lives become sustainably better.

## The City DRRM Plan

The Cagayan de Oro City DRRM Plan is in accordance with the NDRRMF, through the NDRRMP, in its vision on having **“Safer, adaptive and disaster resilient Filipino communities towards sustainable development.”** This will be achieved through the four distinct yet mutually reinforcing priority areas, namely, (a) Disaster Prevention and Mitigation; (b) Disaster Preparedness; (c) Disaster Response; and (d) Disaster Recovery and Rehabilitation. Each priority area has its own long term goal, which when put together will lead to the attainment of the Philippine’s goal and vision in DRRM.



These priority areas are not autonomous from the other nor do they have clear start and end points. The 4 priority areas are NOT seen as a mere cycle which starts in prevention and mitigation and ends in rehabilitation and recovery. They...

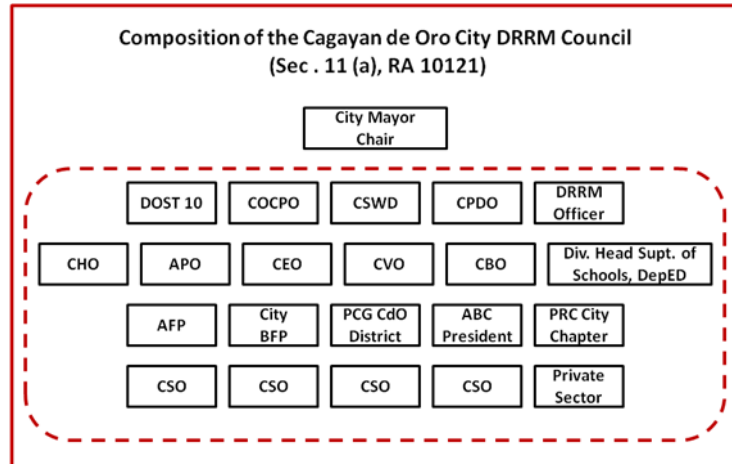
- a. Mutually reinforce each other and are interoperable. This means that whatever we do in one aspect will have a direct or indirect effect on the activities identified under the other aspects. Furthermore, the assumption remains that the level of preparedness and intensity of response activities we conduct are lessened because proper prevention and mitigation activities have been done already.
- b. DO NOT, SHOULD NOT and CANNOT stand alone. Because they are inter-linked, one cannot just focus on one aspect without considering the others.
- c. Have neither clear starting nor ending points between each of the aspects and overlaps are to be expected. There are some areas, which are divided very thinly by grey areas. These are activities, which need to be smoothly integrated into two aspects. However, for purposes of this document, the overlapping activities were put into the specific aspect, which could better capture its essence using the lens of that specific DRRM area and to correspond to the given parameters within which these aspects focus on.



## Agency Leads and Implementing Partners

In each of the activities under CdeO DRRM Plan, agency leads and implementing partner agencies and/or groups were identified.

Following RA 10121, the overall lead or focal agency for each of the four priority areas are the vice-chairpersons of the City DRRM Council.



The Vice-Chairpersons of the CdeO DRRM Council:

Vice-Chairperson for Disaster Prevention and Mitigation	– Director, DOST X
Vice-Chairperson for Disaster Preparedness	– City Director, DILG
Vice-Chairperson for Disaster Response	– Head, CSWD
Vice-Chairperson for Rehabilitation and Recovery	– Head, CPDO

The City DRRMO Council shall:

- a. 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;
- b. Ensure the integration of the disaster risk reduction and climate change adaptation into local development plans, programs and budgets, as a strategy in sustainable development and poverty reduction;
- c. Recommend the implementation of forced or pre-emptive evacuation of local residents if necessary and;
- d. Convene the council as provided by the Act and IRR.

The City DRRMO as the lead office in DRRM shall:

- a. Design, program and coordinate DRRM activities consistent with the City DRRM Plan.
- b. Develop the City DRRM Plan.
- c. Take the lead in implementing the City DRRM Plan.

To do this, the office shall:

1. Facilitate and support risk assessments and contingency planning activities at the local level;
2. Consolidate local disaster risk information that includes natural hazards, vulnerabilities and climate change risks and maintain a local risk map;
3. Formulate and implement a comprehensive and integrated City DRRM Plan in accordance with the national, regional and provincial framework and policies on DRR in close coordination with the Iligan City DRRM Council;
4. Prepare and submit to the City Council through the City DRRM Council and the City Development Council the annual City DRRMO Plan and budget, the proposed programming of the Local DRRM Fund, other dedicated DRRM resources and other regular funding source/s and budgetary support of the CDRRMO/BDRRMC;
5. Conduct continuous disaster monitoring;
6. Identify, assess and manage the hazards, vulnerabilities and risks that may occur in the locality;
7. Disseminate information and raise public awareness;
8. Identify and implement cost-effective risk reduction measures/strategies ;
9. Maintain a database of human resource, equipment, directories and local of critical infrastructures and their capacities such as hospitals and evacuation centers ;
10. Develop, strengthen and operationalize mechanisms for partnership or networking with the private sector, CSOs, and volunteer groups.

Agency Lead/s shall:

- a. Takes the lead in initiating the implementation of the activities.
- b. Coordinate and collaborate with the different implementing partners to ensure that the activities are operationalized.
- c. Monitor the progress of the activities.
- d. Evaluate the implementation development and program efficiency.
- e. Consolidate reports from the implementing partners and submit to the respective vice chairperson of the DRRM priority area.

Implementing Partners shall:

- a. Perform the activities to achieve the specific outcomes.
- b. Work with other implementing partners within the context of coordination, collaboration and partnership.
- c. Submit report to the Lead Agencies

## The Four DRRM Priority Areas

### 1. Disaster Prevention and Mitigation

Under Section 3 of Republic Act 10121, disaster prevention and disaster mitigation are defined as:

**Disaster Prevention** – the outright avoidance of adverse impacts of hazards and related disasters. It expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance such as construction of dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high-risk zones and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake.

**Disaster Mitigation** – the lessening or limitation of the adverse impacts of hazards and related disasters. Mitigation measures encompass engineering techniques and hazard-resilient construction as well as improved environmental policies and public awareness.

The Prevention and Mitigation (P&M) provides key strategic actions that give importance to activities revolving around hazards evaluation and mitigation, vulnerability analyses, identification of hazard-prone areas and mainstreaming DRRM into development plans. It is based on sound and scientific analysis of the different underlying factors which contribute to the vulnerability of the people and eventually, their risks and exposure to hazards and disasters.

<b>Long Term Goal</b>	<b>Avoid hazards and mitigate their potential impacts by reducing vulnerabilities and exposure and enhancing capacities of communities.</b>
<b>Objectives</b>	1. Reduce vulnerability and exposure of communities to all hazards. 2. Enhance capacities of communities to reduce their own risks and cope with the impacts of all hazards.

To achieve these objectives, the Cagayan de Oro DRRM Plan identified the following outcomes:

#### 1. Institutionalized Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) into the city's and barangays' plans and policies.

Disaster reduction and resiliency should be integrated into the local government's developmental processes such as policy formulation, budgeting, land-use, socio-economic, infrastructure, housing and urban planning as a strategy for sustainable development and poverty reduction.

Key Activities:

- Mainstreaming CCA/DRR in CLUP and CDP and approved CLUP by HLURB, Barangay Development Plans (BDPs), DRR influenced/oriented barangay's Annual Investment Plan (AIP);
- Lobbying for the 'Green Building' Technology;
- Enforcement of legislations and ordinances on the identified 'No Build Zones' areas;
- Relocation of residents living in high risk and 'No Build Zones' areas;

- Public information and awareness campaigns on CCA/DRR oriented legislations, programs and activities;
- Lobbying for the passage of DRR oriented legislations

The city government has been strictly enforcing the ‘No Build Zones’ ordinance after the onslaught of TS Sendong. A map of the proposed 12 resettlement sites for families in high risk areas in CdeO has been identified. This amounts to PhP 12.0B. IDPs from TS Sendong were relocated to the following sites:

**Table 1 Information on Relocation Sites (See Map on Permanent shelters)**

Relocation Sites	# of sites	# of accommodated families (5 individuals/family)
Sitio Calaanan, Barangay Canitoan	5	5,000
Barangay Indahag	2	600
Berjaya – GK Village, Brgy. Camaman-an	1	250
Macapaya, Brgy. Camaman-an	1	400
Pagatpat (land area of 16 hectares)	1	1,742
Tibasak, Brgy. Macasandig	1	100
Xavier Ecoville, Brgy. Lumbia	1	518
<b>TOTAL</b>	<b>12</b>	<b>8610</b>

An estimated 5,000 families have already transferred to permanent sites/housing units starting from April 2012, three months after TS Sendong hit the city. The permanent sites were in Calaanan, Berjaya, Camaman-an and Xavier Ecoville, Indahag. This is a continuing process of relocating IDPs to permanent sites depending on the availability of housing units constructed.

Further, promoting the ‘Green Building’ technology would require builders, developers and contractors to construct environmentally sound infrastructure. Studies show that these buildings are resource efficient in terms of using water, energy and other resources and reduce waste and pollution.

**2. Prioritized sustainable and disaster resilient infrastructures, ensuring its safety, functionality and survival (i.e. flood/earthquake management structures)**

To enhance the disaster mitigation and preparedness strategies for infrastructure systems, advocacy is needed for the implementation of the building code and use of green building technology according to the National DRMM plan. Consequently, infrastructure programs/projects should be supported with hydro-meteorological hazard clearance from MGB and other government agencies.

**Key Activities**

- Construction of disaster mitigated structures and facilities in hazard-prone areas i.e. dredging of the Cagayan de Oro and Iponan Rivers to reduce siltation and prevent water spills, construction of flood control structures such as dikes, drainage systems and retaining

- walls on landslide prone areas to reduce mountain landslide and installation of Reinforced Concrete Pipe Culvert (RCPC) for lateral and cross drainage system to all strategic locations.
- Implementation of guidelines in redesigning, retrofitting and modifications of infrastructure.
- Assessment and inventory of critical facilities and structures vis a vis vulnerability and risks Development of guidelines for the redesigning, retrofitting, and modification of infrastructure.
- Demolition of critical facilities i.e. located in hazard-prone areas.

A study on Community Environmental Assessment of the Rehabilitation, Conservation and Protection of the Cagayan de Oro River by Rosalina S. Huerbana, DM revealed that the residents in barangays along the Cagayan de Oro River assessed the impact of dredging as very satisfactory. The City Government, which issues permit to jobless residents for their livelihood, allows the manual dredging. Dredging helps lessen the problem of siltation caused by soil erosion along the riverbank.

Information from ReliefWeb shared that JICA has committed to provide PhP 5 Billion for the river control project at the Cagayan de Oro River. Further, data from CLENRO revealed that there are no flood control structures along the rivers except the now destroyed dikes along barangays Carmen, 1, and the whole of Puntod and Macabalan. The dike along part of Kauswagan has been repaired. Existence of “Riprap” is only in Lumbia and Upper Carmen; other landslide prone areas do not have protective structures.

There are existing environmentally-friendly/green buildings in the city such as the Limketkai (LKK) Center in Lapasan, ABS-CBN Sagip Kapamilya Center at Macapagal Drive, Bulua, and XU-Center for Integrated Technology (CIT).

### 3. **Managed and protected CdeO’s natural and marine resources with strict adherence to existing laws**

Environmental stability requires that we understand the interrelation between human activities towards the environment and how environment compensates humankind by the ecological services it provides. It is no surprise that there is rampant destruction of the environment whether human-induced or through natural calamities happening in the city. Hence, different identified measures were discussed to mitigate the effects of disasters.

#### Key Activities

- Application of appropriate agricultural technologies to farmers such as adaptation of the Sloping Agricultural Land Technology (SALT) and installation of the water impounding system ‘
- Development of the CdeO Community-Based Rainforest and Eco-Tourism Forest Park (**See Base Map for Eco-Tourism Park**).
- Rehabilitation of riverbanks.
- Enforcement of the Responsible Mining Act.
- Establishment of urban greening/urban forestry belt.
- Expanded habitat for hatching/breeding ground of marine life.
- Provided food security i.e. promotion of organic farming.

- Establishment of the Cagayan de Oro Integrated Organic Agriculture Demonstration Training Center.

Due to landslides in upland areas, the Sloping Agricultural Land Technology (SALT) also known as multi-cropping system is identified as one appropriate measure for slope protection and stabilization. This would give the farmer a low-cost method of farming as he can plant crops familiar to him while also securing agricultural soils from erosion and landslides. Equally relevant is a water impounding system that would store rain water for farming in upland areas. Currently, there is one (1) pilot project in barangay Lumbia.

In addition, the project on community-based forest and eco-tourism forest park would not only regenerate the flora and fauna but also uplift the socio-economic conditions of the communities within the barangays of Taglimao, Tuburan, Pigsag-an, Tumpagon and Sitio Balongkot, Dansolihon by providing livelihood opportunities for the locals in seedling production. Massive reforestation in slope terrain areas will be planted with suitable species such as rattan, nito, rubber, abaca, coffee, tiger and vetiver grasses, ipil-ipil and fruit trees in timberland areas.

Managing the rivers and the watersheds require a collaborative effort between the government and the public. While there are existing laws and ordinances that govern the protection of the river, there are still illegal activities going on. Hence, regulation of river activities such as quarrying and strict monitoring of illegal mining activities is needed in rehabilitating the riverbanks.

A Memorandum of Agreement between the DENR and other government agencies including the city to put an end to the unabated illegal mining operations is now underway. This will protect the Iponan watershed from illegal extractive activities. In addition, the planting of giant bamboos according to the study of Huerbana had a very satisfactory rating. Giant bamboos are highly visible along the riverbank of Cagayan de Oro. They are planted to prevent soil erosion that has been a problem in the city. ***(See Map for Erosion)***

Depleting marine resources also affects the ecosystem and the economic conditions of the fisher folks living in coastal barangays of the city. To counter this, planting of mangrove propagules would bring back the abundance of the marine habitat. Mangroves serve as a buffer for big waves, as well as coral reefs and facilities for fish sanctuaries as cited in the Disaster Risk Assessment Report of the city. Currently, there are six (6) barangays that have established expanded mangrove plantations according to CLENRO.

Lastly, food security has been a problem for resource-poor Kagay-anons. There are only nine (9) barangays practicing organic farming in the upland barangays of the city according to CLENRO. The use of organic/bio fertilizers should be expanded to other barangays to increase the production of organic goods plus establishing the Cagayan de Oro Integrated Organic Agriculture Demonstration Training Center in San Simon complete with laboratory facilities would encourage farmers to practice natural farming.

#### 4. **System development on waste management**

Developing a system for waste management would encourage residents to proper handling and disposal of garbage.

#### Key Activities

- Implementation of proper Solid Waste Management Program.
- Rehabilitation of the Carmen open dumpsite.
- Construction of the Sanitary Landfill (***See Map on Proposed Site***).
- Public information and awareness-raising campaigns on solid waste management

Data from CLENRO revealed that the city's wastes and garbage amount to 700 cubic/meters a day. With this figure, the city focuses on reducing volumes of solid waste by 80%; and only 20% will be disposed at the dumpsite area. Segregation of garbage at the household level entails that residents should adhere to the ordinance on solid waste and they be provided with classified receptacles. This is a continuing effort by CLENRO and Basura at Iba Pa (BAI), a private contractor that collects garbage to campaign on waste segregation. The campaigns are usually done at barangay halls attended by volunteers, zone and purok leaders. They also receive invitations from private institutions to speak in fora and events such as Homeowners', Chemical Engineers' and Landless associations and national agencies like National Housing Authority, PCUP and NSTP/ROTC programs in universities. The house-to-house campaign was done back in 2003 in barangays Gusa, Lapasan and Bugo.

The now Carmen open dumpsite will be rehabilitated by embanking the dumpsite through construction of fences to control waste slide and installation of pipes and other structures to all strategic locations to avoid direct smoke from the dumpsite. A proposed sanitary landfill will be located in barangay Pagatpat (***See Map on Proposed Sanitary Landfill***).

#### 5. **Developed community based and scientific DRR and CCA assessment, mapping and monitoring**

A participatory approach among communities is needed for the analysis, mapping and monitoring of threats and hazards associated with climate change. Since people on the ground know the risks and vulnerabilities inherent in their area, this will create greater appreciation and engagement if they are involved in the process. Hence, they will be able to manage their all-hazard-risks.

#### Key Activities

- Hazard mapping, assessment and monitoring.
- Conduct vulnerability assessment for DRRM plan.
- Dissemination of popularized information on disaster prevention through partnerships with media.

#### 6. **Developed and institutionalized early information sharing, early warning systems and established communication systems between communities & neighbouring LGUs**

The "Golden Hour" Principle means the time within which most lives could be saved and injuries minimized. Thus, a timely and rapid warning dissemination to vulnerable areas is necessary.

#### Key Activities

- Establishment of different monitoring and forecasting systems.

- Installation of community-based early warning systems.
- Establishment of MOA/MOU with neighbouring LGUs sharing the same watershed.
- Localizing Project NOAH

The Department of Science and Technology (DOST) was mandated by President Benigno Aquino III to put in place a response program for disaster prevention and mitigation. Project NOAH (National Operational Assessment of Hazards) was launched to provide resolution flood hazard maps and install automated rain gauges and water level recorders in major rivers of the country, and one of the identified pilot rivers is the Cagayan de Oro River. Cited in Inquirer dated 1 December 2012, the city government through the Oro Alert "...installed early warning devices in various areas of the city and in nearby Bukidnon. The early warning devices would measure rainfall volume and water levels in barangays Macasandig, Pigsag-an, San Simon, and in the towns of Libona, Talakag and Baungon in Bukidnon. The devices will send real-time data every 15 minutes to the NDRRMC operation center in the city. It will monitor the level of the rain and will emit warnings when (dangerous) conditions are reached."

These EWS allows the CDRRMO periodic data collection for real time monitoring of rainfall-runoff dynamics within the watershed. Currently, there are installed rain gauges and water level recorders mounted on the bridges of the city, one of which is in Bubunawan Bridge. The residents of the barangays where the devices are installed are proactive in securing these instruments from tampering, theft and vandalism.

Apart from this accomplishment from both the national and local agencies, the greater challenge remains - having the watershed as the basic unit for analysis. The watershed approach would entail integration of land and water management planning. It came out during the workshop that a Memorandum of Agreement/Understanding (MOA/MOU) should be established among neighbouring LGUs, emphasizing the need for watershed protection and management sharing.

## 7. **Developed new urban centers**

As mentioned in the Disaster Risk Assessment report, urbanization has enticed people from neighbouring towns to migrate to Cagayan de Oro in search for better employment. This in turn created population congestion in the city. It was seen that one of the mitigating measures to address this is developing urban centers uptown. Thereby creating access roads from lowland to highland areas as alternate routes especially during emergency evacuations.

### Key Activity

- Road opening from Nazareth to Indahag, from coastal barangays to Malasag, Agusan Hill, Upper Puerto, Balulang – Macanhan to SM.



## 2. Disaster Preparedness

Under Section 3 of Republic Act 10121, disaster preparedness is defined as:

***Disaster Preparedness** -- the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent or current hazard events or conditions. Preparedness action is carried out within the context of DRRM and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery. Preparedness is based on a sound analysis of DRR and good linkages with early warning systems and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information and associated training and field exercises. These must be supported by formal, institutional, legal and budgetary capacities.*

<b>Long Term Goal</b>	<b>Establish and strengthen capacities of communities to anticipate, cope and recover from the negative impacts of emergency occurrences and disasters.</b>
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. Increase the level of awareness of the community to the threats and impacts of all hazards, risks and vulnerabilities.</li> <li>2. Equip the community with the necessary skills to cope with the negative impacts of a disaster.</li> <li>3. Increase the capacity of institutions.</li> <li>4. Develop and implement comprehensive local disaster preparedness policies, plans and systems.</li> <li>5. Strengthen partnership among all key players and stakeholders.</li> </ol>

To achieve these objectives, the Cagayan de Oro DRRM Plan identified the following outcomes:

### 8. **Increased and strengthened capacities, knowledge and skills of the City DRRMO, councils and offices to manage impacts of any form of disaster**

Enhancing competencies and skills among CDRRMO personnel and among identified local government offices is fundamental for effective risk reduction and emergency response. Further, institutionalizing the CDRRMO as a lead agency on DRR would be a jumpstart to carrying out the mandated roles and responsibilities stated in RA 10121.

#### Key Activities

- Establishment of the Local DRRM office and Operations Center.
- Staff composition, duties and responsibilities.
- Formulation of the Manual of Operations for the Operations Center and CDRRMO.
- Provision of facilities and vehicles for mobilization and ambulance.
- Capacity-enhancement trainings/specialized trainings among CDRRMO personnel.
- Stockpiling of food and non-food items.
- Construction of warehouse.
- Provision of additional facilities for identified evacuation centers .

The City DRRMO was established through Executive Order 070-2012 on 28 of June 2012 under Hon. Mayor Vicente Y. Emano. As of February 2013, the ordinance on the creation of the CDRRMO is still pending in the City Council. Before the establishment of the CDRRMO, this was known as the Cagayan de Oro Assistance for Life and Emergency Team (Oro Alert) created on December 16, 1995 under then Mayor Pablo P. Magtajas in compliance with P.D 1566.



***Staff Composition of the City DRRM Office***

One year after its establishment, the CDRRMO has basic rescue gears available for their use. These are static rope, full body harness, carabineer (close and open), rescue eight, single and double pulley, ascender, descender, chest jammer, skid, helmet, industrial gloves, spine board, spider belt, rescue rope, life jackets, lifebuoy (ring), floating device (torpedo), interior tire (tube), rescue boats with and without motor, kayak, ambuman, kindrex, traction splint, wood splint, scope stretcher, bandages, flood lights, megaphone and portable chainsaw.

For office equipment, they have the following: computer (desktop) with printer, laptop, projector with screen, digital camera, handheld radios and photocopier. For mobilization operations, CDRRMO is managing two (2) vehicles, the ambulance and KIA van as emergency transport vehicle.

There were a number of specialized trainings and simulations conducted among CDRRMO personnel at different periods for emergency response. These are:

- a. Management of the dead and missing
- b. Evacuation Center and Camp management
- c. Water Search and Rescue (WASAR)
- d. Urban Search and Rescue (USAR)
- e. Mountain Search and Rescue (MOSAR)
- f. Collapsed Structure Search and Rescue (CSSR)
- g. High Angle Search and Rescue (HASR)
- h. Swift Water Search and Rescue (SWSR)
- i. Supplies operation and management
- j. First Aid Management

In addition, a number of drills conducted amongst them such as fire, flood, tsunami, landslide and bomb.

Further, the CSWD has a list of accredited suppliers for stocks of food supplies, such as noodles, sacks of rice, sardines and bottled water and non-food items such as blankets, pots, mats, mosquito nets, and clothes for emergency purposes readily available in times of disasters. Based

on the experience of the city government during TS Sendong, it was seen that there is a need to build a space for temporary storage of goods for safekeeping. For now, the food and non-food items are stored in one of the vacant rooms in the new building in City Hall and Tourism hall.

#### **9. Proactive and equipped communities and citizenry in handling and coping to any form of disaster**

A work-collaboration between the local government and the public should be recognized for us to seek our ways forward in these environmentally- challenging times. Knowledge, capacities and skills transfer are needed for equipped communities and public on the negative impacts of environmental disasters.

##### Key Activities

- Development of a Training Manual/Module on DRRM.
- Training of Trainers (ToT) on basic DRRM.
- Specialized trainings/simulations and drills conducted to identified agencies and sectors.
- Writeshop exemplars on DRRM integrated in school curricula.
- Workshop and orientation on warning and forecasting capabilities.
- Reproduction of DRRM primers and IEC materials.
- Resource mapping i.e. human and physical entities.
- Provision of hazard maps to all 80 barangays

First Aid, Earthquake drill, Disaster Management, Basic Rescue Operations trainings were conducted in barangays Nazareth, Consolacion, Macasandig, Bonbon, Camaman-an, Canitoan, Balulang, Bugo, Lumbia, Macabalan, Bayanga, Mambuaya, Kauswagan, Pagalungan, Lapasan, Bulua, Puerto, Puntod, Pagatpat, 8, 9, 11, 15, 24, 25, 26, 28, 29, 34, 37, and 38 since 2009 to 2013 according to CDRRMO and CSWD.

CDRRMO has already conducted earthquake drills to government, NGAs and CSOs like CLIMBS, CEPALCO First Aid team, 1&2, Globe Telecom, DILG-Tanods and PCU. These drills were conducted from July, September, October-December 2012 in private and public elementary and high schools in Iponan, Carmen, Balulang, Puntod, Camanan-an, Nazareth, City High school and STI last Sept-October 2012; Lapasan, Gusa, Cugman, Tablon, Agusan, Puerto, Bugo, and Macabalan Elem./H.S last February-March 2012. Flood and earthquake drills were also conducted to Persons with Disabilities (PWDs).

The DepEd and CHED are also mandated to integrate programs and activities in Public Information and Education Campaign (PIEC) specific for children concerning safety counter measures on emergency situations under its existing training modules and shall conduct PIEC regularly in high risk areas.

Resource mapping of human and physical entities is also salient as they can be utilized for the protection and preservation of life during emergencies. This will include number of hospitals, clinics, health centers, seaports/piers, airports, jails, malls/supermarkets, hotels, bus and jeepney terminals, birthing homes, churches, retreat houses and seminaries, oil depots, factories, water refilling stations, industrial centers, auto mechanic shops, orphanage homes, drug rehabilitation centers, gasoline stations and many others.

Moreover, provision of hazard maps to all 80 barangays will be enhanced and produced locally. From MGB large scale maps with resolution of 1:50,000 to small scale 1:10,000 to better reflect specific vulnerable areas of the barangays. This will also complement the community-based hazard maps.

#### **10. Strengthened partnerships among key DRRM players**

Synergy and complementation of resources and capacities are needed to reduce the risks to disasters.

##### Key Activities

- Establishment of database of response organizations.
- Rescue groups interlinked and accredited by the CDRRMO.
- Development of guidelines on coordination and response protocols.
- Orientation on CDRRMC plans and protocols to response groups.
- Creation of barangay quick response teams in adherence to RA 10121

An accurate and readily available organized database of response groups should be created to support the city government during response operations. With this, proper coordination mechanisms and protocols should be recognized for a smooth operation.

### 3. Disaster Response

Republic Act 10121 defines Response as:

***Disaster Response** – the provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected. Disaster response is predominantly focused on immediate and short-term needs and is sometimes called “disaster relief.”*

This aspect will likewise include Early Recovery which means, under IRR Rule 2 Section 1:

***Early Recovery** -- multidimensional process of recovery that begins in a humanitarian setting. It is guided by development principles that seek to build on humanitarian programmes and catalyze sustainable development opportunities. It aims to generate self-sustaining, nationally-owned, resilient processes for post crisis recovery. It encompasses the restoration of basic services, livelihoods, governance, security and rule of law, environment and social dimensions, including reintegration of displaced populations.*

<b>Long Term Goal</b>	<b>Provide life preservation and meet the basic subsistence needs of affected population based on acceptable standards during or immediately after a disaster.</b>
<b>Objectives</b>	<ol style="list-style-type: none"><li>1. To decrease the number of preventable deaths and injuries.</li><li>2. To provide basic subsistence needs of affected population.</li><li>3. To immediately restore basic social services .</li></ol>

To achieve these objectives, the Cagayan de Oro DRRM Plan identified the following outcomes:

#### 11. Well-established disaster response and operations

This is a very crucial phase as it entails effective and efficient coordination, communication and an integrated response management from the Chief Executive, Incident Command personnel down to the community based response teams. Accurate data and figures are supplied to the Operations Center (OpCen) and authorized representative from the local government will circulate this to the public. Government vehicles such as fire trucks, ambulance units, and PNP vehicles and response groups’ vehicles and rafts are deployed to all vulnerable areas. Warning signals are raised and pre-emptive and forced evacuations are ordered by the Chief Executive, followed through by the barangay chieftains, and followed by the residents.

In addition, a management system should be in place for relief supplies and distribution with strict observance to protocols. A mechanism should be in place for accepting cash and donations or in kind from private institutions and individuals, NGOs, and INGOs, where receipt acknowledgement is required.

#### Key Activities

- Observance of protocols in disaster response.
- Activation of Emergency Medical Services (EMS) and Incident Command Center.

- Activation of command center for relief distribution.
- Standard protocol followed for the procurement, packaging, transportation, storage and distribution of relief items.
- Deployment of government vehicles to vulnerable areas for transport services.
- Pre-emptive mechanisms in place for evacuation.
- Dissemination of warning signals to common people i.e. loud speaker/megaphones, roving of government vehicles to the different barangays, sirens, among others.
- Issuances of public advisories (easily understandable to a common i.e. local language).
- Submission of situation reports in a timely manner (by the hour, day, week).

## **12. Integrated and coordinated Search, Rescue and Retrieval operations (SRR)**

This calls for the 'Bayanihan' spirit of Kagay-anons, where unity and effort of the government and ordinary citizens triumphs. Accredited volunteers and response organizations are mobilized during these critical times.

The process of identification and handling the dead bodies to the next kin/relatives should follow. Religious and cultural beliefs of disposing the dead bodies should be paid with highest respect and honour.

### Key Activities

- Deployment of search and rescue teams.
- Deployment of medical and para-medical teams.
- Management of the dead to be turned over to respective families.

## **13. Adequate and prompt needs and damages assessment**

Information at this point is vital in diagnosing the effects of disaster. A speedy, accurate and time-bounded needs and damages analysis report would be the basis for the city government, NGOs, INGOs and private sectors' interventions. They make assessment based on ocular survey, spot visits, and information coming from primary and secondary sources. As UN puts it, the Damage Assessment and Needs Analysis (DANA) methodology would capture the closest approximation of damage and needs due to disaster events.

### Key Activities

- Deployment of the DANA team.
- Conduct rapid damage and needs assessment.

The roles of the team ably composed by different offices from CEO, OBO, CSWD and CID are stressed in the DepEd DRR Manual. The team a) evaluates crisis situations and determines courses of actions to be followed, and formulates guidelines in assessing the situation, b) assesses information and advises the Chairman of DRRMO on possible measures to be undertaken in order to lessen the impact of the crisis..'

#### **14. Installed adequate emergency temporary shelters**

Temporary shelters provide refuge for displaced survivors of both human induced and environmental disasters. These may be in the form of tents provided by international humanitarian agencies as seen and experienced during TS Sendong. To maintain the safety and security of those living in these spaces, Camp Coordination and Management should be efficient as it aims to improve the living conditions of IDPs so that basic needs and services are met and addressed and they can live with dignity.

##### Key Activities

- Provision of adequate shelters such as tents and bunkhouses equipped with facilities.
- Efficient Camp Coordination and Camp Management (CCCM).
- Provision of livelihood opportunities.
- Management of logistical needs.
- Intensification of policy visibility and security groups.
- Establishment of Help Desks.
- Ensured protection and safety of IDPs in evacuation centers.
- Profiling of evacuees/IDPs

During TS Sendong, there were a number of reported cases of harassment, conflict and theft among evacuees in temporary shelters. To ensure security, police visibility and intensification are needed to minimize conflict.

To uplift the socio-economic conditions of these refugees, income generating activities should also be provided such as cash or food for work program as reflected after TS Sendong.

#### **15. Provided basic physical, medical social, psychological and mental health services**

Physical, medical, social, psychological and mental health services are important to look into in the aftermath of disasters.

The local government should be ready and equipped to provide adequate relief assistance to the affected population i.e. illnesses and diseases checked and treated, safe food, drinking water, shelter, and clothing and stress debriefing sessions. Immediate care and attention is needed for these displaced persons so that they can regain their spirit, dignity and start the healing process.

According to UNICEF, increasing equitable access to the use of safe water, nutrition, basic sanitation services and improved hygiene practices will reduce child mortality, improve health and education outcomes, and contribute to reduced poverty and sustainable development as a whole.

##### Key Activities

- Provision of adequate and safe food to affected populace.

- Medical consultation and treatments and nutritional needs assessment i.e. malnutrition deficiency.
- Procurement and distribution of medicines.
- Deployment of mobile clinics, medical and para-medical personnel.
- Conduct Psychosocial and mental stress debriefings for men, women and children.
- Arrangement and provision of Water, Sanitation and Hygiene (WASH) services.

Human-induced and natural disasters can be overwhelming and shocking to survivors and often than not, this will cause trauma. Those who have survived may feel helpless, without roof over their heads, food, clothing and shelter. Hence, mental and psychological health is as equally important as food and shelter itself.

In relief operations, food and non-food items should be distributed in a responsive, transparent and equitable manner. Partner NGOs, INGOs, CSOs and private sectors should be involved in supplementing the needs of the local government.

According to UNICEF, increasing equitable access to the use of safe water, nutrition, basic sanitation services and improved hygiene practices will reduce child mortality, improve health and education outcomes, and contribute to reduced poverty and sustainable development as a whole.

#### **16. Ensured continuity of education**

Article XIV of the Philippine Constitution declares that, “The State shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make such education accessible to all.” In times of disasters, public schools provide immediate safety and shelter to those displaced by disasters. Temporary Learning Sites or Alternative Learning Venues are created to ensure that the right to education is not hampered and still enjoyed by children amidst disaster. This may be in the form of tents, makeshift classrooms, covered courts, gyms, barangay hall, social action centers and other safe spaces.

##### Key Activities

- Creation of spaces for Temporary Learning Sites (TLS).
- Conduct information sessions and values formations in evacuations centers.

#### **17. Immediate restoration of key infrastructure and lifeline facilities**

Restoring basic lifelines such as roads, bridges, telecommunication and transportation helps in accelerating the recovery of the affected populace. People will have access to basic services such as food, water and shelter if lifeline facilities are restored.

##### Key Activities

- Debris cleaning.
- Restoration of various infrastructural facilities i.e. electricity, drinking water, telecommunication, and major roads.
- Mobilization and utilization of volunteers, CSOs, public and private institutions.



- Deployment of heavy equipment and tools.

#### **18. Management of information and media**

At this point, dissemination of accurate, reliable and timely information is crucial. People heavily rely on radio, televisions, internet and print for news. Regular press briefings from the local government and authorized representative need to be conducted so source/information management can be achieved.

##### Key Activities

- Observance of protocol i.e. dissemination of information.
- Authorized representative lead the press briefing/s.
- Provided accurate reports/statements.

#### 4. Disaster Recovery and Rehabilitation

Under Section 3 of Republic Act 10121, rehabilitation and recovery are defined as:

**Rehabilitation** – measures that ensure the ability of affecting communities and/or areas to restore their normal level of functioning by rebuilding livelihood and damaged infrastructure and increasing the communities’ organizational capacity.

IRR Rule 2 Section 1

**Post Disaster Recovery** – the restoration and improvement where appropriate, of facilities, livelihood and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors, in accordance with the principles of “build back better”

The Rehabilitation and Recovery aspect of DRRM cover areas like employment and livelihoods, infrastructure and lifeline facilities, housing and resettlement, among others. These are recovery efforts done when people are already outside of the evacuation centers.

<b>Long Term Goal</b>	<b>Restore and improve facilities, livelihood and living conditions and organizational capacities of affected communities, and reduced disaster risks in accordance with the “building back better” principle.</b>
<b>Objectives</b>	<ol style="list-style-type: none"><li>1. To restore people’s means of livelihood and continuity of economic activities and business.</li><li>2. To restore shelter and other buildings/installation.</li><li>3. To reconstruct infrastructure and other public utilities.</li><li>4. To assist in the physical and psychological rehabilitation of persons who suffered from the effects of disaster.</li></ol>

To achieve these objectives, the Cagayan de Oro DRRM Plan identified the following outcomes:

##### 19. Systematized Post Disaster Needs and Damage Analysis

As mentioned previously, this methodology would capture closest approximation of damage and needs caused by disasters. Ideally, one (1) month after the onset of disaster, the PDNA should be ready. Preliminary data would be needed to enhance and enrich the PDNA report as this would lay the basis for interventions coming from partner NGOs, INGOs, private sectors and business and many others.

##### Key Activities

- Establishment of PDNA systems.
- Capacity enhancement trainings on DANA.
- Crafting of the guidelines, plans and protocols.
- Data gathering of relevant baseline data from different agencies/offices.

##### 20. Provided and restored sustainable economic activities

One of the key objectives of the ‘Building Back Better’ principle is the ability of the displaced survivors to continue their means of livelihood or explore other livelihood opportunities if the former is not possible after the disaster.

#### Key Activities

- Identification of qualified men and women beneficiaries for technical and/or financial support .
- Entrepreneurship and livelihood trainings.

Since 2012, the Community Improvement Division (CID) under the City Mayor’s Office (CMO) has supported an estimated 600 IDPs in terms of skills trainings for them to recover from their present situation. Trainings include commercial cooking, bread and pastry production, food processing, massage therapy, dressmaking, beauty care services, hogs and swine production, consumer electronics, automotive servicing course, electrical installation maintenance, shielded metal arc welding, and general sewing. These were conducted at barangay Patag and the different transitory sites such as the Tent City, Calaanan, barangay Canitoan, Habitat and Indahag on different periods last 2012.

### **21. Secured human settlements with modest facilities**

Human settlements go beyond just physical structures. This also means security of families so that they can continue to live in dignity amidst the disaster they have experienced. It is a home to many, and a fresh start to rebuild their spirit and self-esteem.

#### Key Activities

- Identification of secured permanent relocation sites.
- Purchase of viable lands, i.e. purchase technicalities.
- Provision of housing loans for housing repair or construction.
- Installation of lifeline facilities in the areas.
- Relocation of IDPs from high risk areas and ‘no build’ zones.
- Processing and awarding of identified beneficiaries.

Previously mentioned in the first chapter of the city’s DRRM plan, about 5,000 families were already relocated to safe and secured relocation sites since 2012. Three months after TS Sendong, the relocation of IDPs living in ‘high risk’ areas and ‘no build zones’ have been achieved because of the selfless efforts and partnership between the local government of Cagayan de Oro and the NGOs, INGOs and the local government.

### **22. Constructed disaster resilient facilities and infrastructure**

Forward-looking, construction of disaster resilient facilities and structures is the optimum goal of infrastructure rehabilitation. At this stage, developers, contractors and urban planners are more open to creating hazard-resilient designs to be friendlier and less harmful to the environment and the people.

## Key Activities

- Rehabilitation and repair of damaged facilities and infrastructure.
- Promotion of 'Green Building' technology.

## **Priority Projects for 2013-2017**

Below are the following priority projects of the Cagayan de Oro DRRM Plan for the following periods:

### **2013:**

#### ***A. Mainstreaming Disaster Risk Reduction***

1. Integration of the CCA/DRR in the City Land Use Plan (CLUP), City Development Plan (CDP), Barangay Development Plans(BDP) and in the Annual Investment Plans (AIP).
2. Lobby for the passage of CCA and DRR legislations.
3. Regular monitoring of 'No Build Zones' areas.

#### ***B. Strengthening institutional mechanisms***

1. Institutionalization of the CDRRM Office with equipped and competent staff.
  - a. Additional facilities and utility transport vehicles.
  - b. Capacity building and enhancement training programs on DRRM among staff.
2. Development of the Manual of Operations for CDRRMO and Operations Center.
3. Orientation on the management of the CDRRMO and the Operations Center.
4. Development of Standard Operating Protocols for:
  - a. Disaster response
  - b. Quick response teams/community-based disaster response
  - c. Flood early warning systems
5. Provision of supplies for emergency use on a yearly basis starting 2013

#### ***C. Empowering At Risk Communities***

1. Vulnerability assessment to all 80 barangays.
2. Progressive relocation and awarding of permanent housing units to IDPs.
3. Progressive conduct of livelihood trainings to IDPs.
4. Resource mapping of the city.
5. Training on basic DRRM to all sectors.

#### ***D. Empowering the general public through Mass Media***

1. Dissemination of Information, Education and Communication (IEC) materials on DRRM.

## **2014 to 2016:**

### ***A. Mainstreaming Disaster Risk Reduction***

1. Participatory appraisal and review on land-use and urban planning and annual investment plans.
2. Lobby for the passage of 'Green Building' Technology.
3. Creation of Quick Response Teams (QRT) in every barangay as per RA 10121 IRR.
4. Clearing of Informal settlers along creeks and drainage

### ***B. Strengthening Institutional Mechanisms***

1. Establish guidelines, mechanisms and protocols on:
  - a. Dissemination of information to media especially during response.
  - b. Procurement, packaging, transportation, storage and distribution of relief items.
  - c. Receiving donations whether cash or kind during response, recovery and rehabilitation
2. Development of standardized Training Manuals or modules on DRRM to all sectors: barangays, schools, universities, private institutions, CSOs and among others.
3. Development of Monitoring and Evaluation mechanism for programs and activities of the CDRRMO.
  - a. Capacity building programs on DRRM to all sectors.
  - b. Capacity enhancement programs on DRRM among CDRRMO staff i.e. Drills, simulation exercises, Specialized trainings.
4. Development of guidelines for:
  - a. Accreditation and protection of response groups and volunteers.
  - b. Redesigning, retrofitting and modifications of infrastructure systems to be disaster-resilient/green building.
5. Continued capacity enhancement trainings among CDRRMO personnel and expanded trainings to other offices.
6. Creation of directory of response and volunteer groups.
7. Assessment and inventory of critical facilities and structures.
8. Continue strict monitoring of illegal mining activities and regulating quarrying activities.
9. Accreditation of response and volunteer groups.
10. Continuous monitoring and evaluation of existing and expanded mangrove plantations.
11. Procurement of instrumentation devices for early warning.

### ***C. Developing and Strengthening Partnerships***

1. Partnership building with neighbouring LGUs.
2. Strengthening partnerships with media, CSOs, multi-sectoral groups, church, academe, among others.

***D. Building Resilient Facilities and Structures***

1. Construction of the Cagayan de Oro Integrated Organic Agriculture Demonstration Training Center.
2. Dredging of the Cagayan de Oro and Iponan Rivers.
3. Installation of RCPC pipes to strategic locations.
4. Establishment of the Sanitary Landfill at Barangay Pagatpat.
5. Embankment of the Carmen open dumpsite.
6. Continued development of secured relocation sites.
7. Construction of City Mortuary.
8. Construction of City warehouse for stock contingencies.

***E. Sustaining the management of the natural and marine resources***

1. Development of community-based rainforest and eco-tourism park development.
2. Development of Solid Waste Management Program.
3. Rehabilitation of inactive mining areas.
4. Identification and assessment of the rivers' safety measures.
5. Management of the watersheds through planting giant bamboos.
6. Continue establishing urban greening and forestry belt.
7. Expansion of marine habitat through planting of mangrove propagules.
8. Implementation of the Solid Waste Management Program.

***F. Empowering At Risk Communities***

1. Strengthening of livelihood activities to IDPs.
2. Strengthening of simulation exercises and drills.
3. Continued conduct of basic DRRM trainings.
4. Workshop and Orientation warning and forecasting capabilities.
5. Adaptation of the Sloping Agricultural Land Technology (SALT) to farmers.
6. Expansion of barangays practicing organic farming.
7. Installation of Early Warning Systems and Localizing Project NOAH.
8. Training on warning and forecasting capabilities.
9. Hazard mapping and assessment to 80 barangays.
10. Training of Trainers (ToT) on DRRM.
11. Conduct inventory of human resource (medical and paramedical personnel, etc.) in the barangay level.

***G. Empowering the public through Mass Media***

1. Public information and awareness-raising on CCA and DRR and Solid Waste Management and traffic rules and regulations.
2. Information awareness on CCA and DRR in radio programs and regular barangay people-to-people programs and visitations.

**2017:**

1. Construction of access roads.
2. Land data banking.
3. Establishment of the Memorandum of Agreement/Understanding to neighbouring LGUs on co-management and protection of watersheds.



## **Implementation Strategies and Mechanisms**

### ***Information, Education and Communication Campaigns (IEC)***

Climate Change Adaptation and Disaster Risk Reduction is a paradigm shift as described by the National DRRM Plan. With it comes behavioural and attitude transformation and acceptance of the public on the overwhelming patterns and trends of climate and weather changes: the risks it impose and how we can heighten our defences. Information, education and communication campaigns would enable the greater public to increase their awareness and engage them to be proactive in adapting CCA and DRR. This can be best channelled through interpersonal, mass media and one-way communication.

### ***Competency-based Capacity Building***

Mobilizing both the local government and the public to adapt CCA and DRR entails heightened capacities, knowledge and skills. Training, capacity building and enhancement development programs will make an equipped government and citizenry towards self-resilience and self-sufficiency. Understanding and identifying various types of vulnerabilities (human, social, economic, and environmental) as well as the nature of natural hazards are essential components of such efforts. Beyond just being aware, is the application of practical skills, knowledge and capacities in the different DRRM aspects.

### ***Education on CCA and DRRM for ALL***

Formal and informal education on CCA and DRR to all levels is pivotal in ensuring the public's resilience to disasters as it would target a larger population. While there is recognition that awareness – raising is one of the strategies to mobilize the public to be proactive, it is still not as effective as integrating CCA and DRR in schools' and universities' curricula, private institutions and various agencies in the local government. A systemized and standardized learning arrangement should be achieved to cover all DRRM features. We also take into consideration the local knowledge and traditional wisdom of Kagay-anons as an integral part in the protection of hazards.

### ***Advocacy, Institutionalization of CDRRMC and CDRRMO and Mainstreaming of DRR in ALL plans***

Institutionalizing CCA and DRR in the development plans and policy formulation of the city would influence political conditions as well as strengthen the LGU's capacity to lead the community in the adaptation of CCA and DRR. This would entail implementation of an advocacy strategy to incorporate disaster risk reduction within development policy and plans. Policy and planning documents should be reviewed and revised for inclusion of CCA and DRR.

The establishment of the City DRRM Office pursuant to Republic Act 10121 is aligned with the thrust of the city government to strengthen its organizational structure in addressing disaster risk reduction management specifically development, implementation and coordination. A physical structure, coupled with competent staff and facilities would pave the way for the execution of programs and activities relating to reducing disaster and climate risks and enhancing disaster preparedness and response.

### ***Research, Technology Development and Knowledge Management***

The discussion and application of CCA and DRR management requires technical and scientific research and analysis, coupled with ingenuity and technology innovations for development. The use of research, science and technology would a) develop appropriate livelihoods for citizens at risk b) promote risk awareness at all levels c) improve use of climate data for land and water management and improve accuracy of early warning information d) identify appropriate structural interventions and improve design of physical infrastructure and facilities i.e. 'Green Building technology' and disaster resilient infrastructures and e) improve environmental management and protection. Existing knowledge and information on climate change, hazards, vulnerabilities and risks and adaptive mechanisms should be strengthened and updated.

### ***Monitoring, Evaluation and Learning***

The City DRRM plan is a living document and is parallel to the changing times. Policies, development plans and strategies need to be checked and reviewed to measure effectiveness of the outcomes identified. This will set as baseline data for continuous study and improvement of the plans and policies on CCA and DRR, thereby, facilitating the identification of strengths and weaknesses and room for learning along the way.

### ***Networking and Partnership Building between and among stakeholders, media and tiers of government***

A collaborative and synergized approach among all stakeholders and DRRM players on the discussion and action of CCA and DRR accelerates in addressing common problems as well as celebrating the gains that we have achieved in the area of CCA and DRR. Partnership building is about tackling common challenges beyond the capacity of a single organization. Past experiences on dealing with calamities especially during TS Sendong in 2011 brought in institutional capacities, human skills and capacities and resource exchange and complementation coming from different organizations and humanitarian agencies.

## Resource Mobilization

The following sources can be tapped to fund the various DRRM programs and projects:

1. General Appropriations Act (GAA)- through the existing budgets of the national line and government agencies.
2. National Disaster Risk Reduction and Management Fund (NDRRMF).
3. Local Disaster Risk Reduction and Management Fund (LDRRMF).
4. Priority Development Assistance Fund (PDAF).
5. Donor Funds.
6. Adaptation and Risk Financing.
7. Disaster Management Assistance Fund (DMAF).

Other sources cited in the National DRRM Plan which can be cascaded to the local government for other non-monetary resources available that can help attain the targets in this plan, namely:

1. Community-based good practices for replication and scaling up.
2. Indigenous practices on DRRM.
3. Public-Private-Partnerships.
4. Networks of key stakeholders on DRR and CCA.

## Workshop Results: Outcomes, Outputs, and Activities

<b>Disaster Prevention and Mitigation</b>		
<b>Outcomes</b>	<b>Outputs</b>	<b>Activities</b>
<p>A. Institutionalized Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) in the city's and barangay's policy formulation, development plans, and budget appropriation.</p>	<p>a. Mainstreaming CCA/DRR in CLUP and CDP and approved CLUP by HLURB, BDPs and 'Green Building' Technology.</p>	<ol style="list-style-type: none"> <li>1. Participatory appraisal/review on land-use, urban planning and annual investment plans.</li> <li>2. Lobbying for the passage of CCA/DRR legislations.</li> <li>3. Lobbying for the passage of 'Green Building' technology as a requirement for planners, builders and contractors.</li> <li>4. Creation of barangay quick response teams.</li> </ol>
	<p>b. Enforcement of legislations and ordinances on the identified 'No Build Zones' .</p>	<ol style="list-style-type: none"> <li>5. Regular monitoring of 'No Build Zones' to ensure that no structures are built, and if need be the filing of cases against erring residents.</li> <li>6. Building of natural perimeter fence to show demarcation.</li> <li>7. Putting up of notices to inform the public of 'No Build Zones'.</li> <li>8. Clearing of informal settlers along creeks and drainage.</li> </ol>
	<p>c. Relocation of residents living in high risk and 'No Build Zones' areas.</p>	<ol style="list-style-type: none"> <li>9. Development of secured relocation sites.</li> <li>10. Social preparation for these residents to minimize conflict.</li> </ol>
	<p>d. Public information and awareness campaigns on CCA/DRR oriented legislations, programs and activities.</p>	<ol style="list-style-type: none"> <li>11. Developing IEC materials for dissemination.</li> <li>12. Promoting CCA/DRR in local government radio programs and regular barangay people-to-people programs and visitations.</li> </ol>
<p>B. Prioritized sustainable and disaster resilient infrastructures, ensuring its safety, functionality and survival (i.e. flood/earthquake management structures).</p>	<p>e. Construction of disaster mitigated structures and facilities in hazard-prone areas.</p>	<ol style="list-style-type: none"> <li>13. Dredging of the Cag de Oro and Iponan existing riverbeds.</li> <li>14. Constructing of flood control dikes and seawall structures.</li> <li>15. Installing of Reinforced Concrete Pipe Culvert (RCPC) for lateral and cross-drainage system to all strategic</li> </ol>

		locations.
	f. Implementation of guidelines in redesigning, retrofitting and modifications of infrastructure.	16. Crafting and development of guidelines to enhance disaster mitigation and preparedness strategies for infrastructure systems.
	g. Assessment and inventory of critical facilities and structures vis-a-vis vulnerability and risks.	17. Inspection of structures and facilities on a regular basis to ensure that safety measures are in place. 18. Require and enforce owners/proprietors of the identified critical infrastructure to adhere to the building code. 19. Demolition of critical facilities i.e. located in hazard-prone areas.
C. Managed and protected the city's natural and marine resources with strict adherence to existing laws.	h. Application of appropriate agricultural technologies to farmers.	20. Adapting of the Sloping Agricultural Land Technology (SALT). 21. Installing of water impounding system. 22. Expanding barangays practicing bio fertilizer and natural/organic farming. 23. Establishing the Cagayan de Oro Integrated Organic Agriculture Demonstration Training Center complete with laboratory facilities.
	i. Development of the CdeO Community-Based rainforest and Eco-Tourism Forest Park.	24. Community and Social preparation i.e. site survey, social investigation, resource inventory and mapping, community organization strengthening and capability dev't trainings. 25. Agro-Forestry intervention i.e. nursery establishment, rattan and bamboo plantation, orchard and botanical dev't, protection and production forest. 26. Livelihood provision to locals i.e livestock production,

		<p>handicrafts, gardening and seedling production.</p> <p>27. Eco-tourism site development i.e. nature site enhancement, resort facilities and amenities, zip line, helipad and view deck construction.</p> <p>28. Infrastructure support i.e. road network development and rehabilitation, multi-purpose building, and watch towers.</p>
	<p>j. Specific management and protection of the rivers and 5 creeks with strict adherence to the law.</p>	<p>29. Execution of the Responsible Mining Act.</p> <p>30. Strict monitoring and evaluation of illegal mining activities in upstream barangays of the city.</p> <p>31. Rehabilitating inactive mining areas.</p> <p>32. Apprehending of illegal small-scale miners.</p> <p>33. Identifying and assessing the rivers for safety measures.</p> <p>34. Regulating quarrying activities.</p> <p>35. Managing the Cugman, Agusan and East Iponan watersheds and CdeO riverbanks.</p> <p>36. Planting of giant bamboos along 7 major rivers and 5 creeks.</p>
	<p>k. Sequestration of 20 tons per year/tree of carbon dioxide.</p>	<p>37. Establishing urban greening and forestry belt in the city.</p>
	<p>l. Management and protection of marine resources.</p>	<p>38. Expanding habitat for hatching/breeding ground for marine life.</p> <p>39. Establishing expanded mangrove plantation along Macajalar Bay i.e. planting of mangrove propagules in coastal barangays/areas.</p> <p>40. Continuous monitoring and evaluation of existing and expanded mangrove plantations.</p>

D. System development on waste management (Education, Engineering, Enterprise and Enforcement).	m. Rehabilitation of the Carmen open dumpsite.	41. Embankment of the open dumpsite i.e. construction of fences and installation of pipes and structures.
	n. Establishment of the Sanitary landfill in Sitio Pamalihi, Barangay Pagatpat.	42. Preparing of technical requirements. 43. Proposal and design development.
	o. Implementation of proper Solid Waste Management Program.	44. Waste segregation scheme in the household levels, with classified receptacles. 45. Reward and punishment scheme i.e. penalties for those who disobey the SWM law and incentives/benefits for those who obey. 46. Systematized garbage collection and disposal i.e separate well-labelled garbage trucks for biodegradable and non-biodegradable and regular schedule for garbage collection. 47. Enterprise/livelihood development out of the garbage produced. 48. Setting-up of Materials Recovery Facility (MRF) per barangay or per cluster of barangays.
	p. Public information and awareness-raising campaigns on solid waste management.	49. Developing IEC materials for dissemination in 80 barangays, schools, universities, private and business institutions and establishments, and subdivisions. 50. House to house 'pulong-pulong' campaign. 51. Promoting SWM program in the regular barangay people to people visitations.
E. Developed community based and scientific DRR and CCA assessment, mapping and monitoring.	q. Develop hazard mapping assessment and monitoring to all 80 barangays.	52. Hazard mapping and assessment to all 80 barangays.

	r. Develop vulnerability assessment to all 80 barangays.	53. Vulnerability assessment to all 80 barangays.
F. Developed community based and scientific DRR and CCA assessment, mapping and monitoring.	s. Establishment of various monitoring and forecasting systems i.e. early warning.	54. Procurement of instrumentation devices i.e. rain gauges, water level recorders, among others. 55. Installation of community based EWS. 56. Localizing Project National Operational Assessment of Hazards (NOAH).
	t. Partnership building with neighbouring LGU of the same watershed area.	57. Craft/Draft the MOA/MOU.
G. Developed new urban centers.	u. Road opening.	58. Construction of roads from Nazareth to Indahag, from coastal barangays to Malasag Agusan Hill, Upper Puerto, and Balulang-Macanhon to SM. 59. IEC on Traffic rules and regulation orientation among road users.
<b>Disaster Preparedness</b>		
<b>Outcomes</b>	<b>Outputs</b>	<b>Activities</b>
H. Increased and strengthened capacities, knowledge and skills of the City DRRMO and local government institutions to manage impacts of any form of disaster.	v. Strengthened DRRM institutions.	60. Establishment of the CDRRMO and Operations Center. 61. Competent and qualified CDRRMO personnel. 62. Formulation of the Manual of Operations for CDRRMO and Operations Center. 63. Orientation on the management of CDRRMO and Operations Center. 64. Provision of facilities and utility transport vehicles for mobilization and ambulance. 65. Establishment of a standardized Monitoring and Evaluation mechanism to measure effectiveness of trainings programs, activities, strategies, among others.
	w. Develop capacity	66. Formulation of Training



	<p>enhancement skills trainings among CDRRMO personnel to reach maximum effectiveness in life and property saving.</p>	<p>Manual/Module for Advanced Responders.  67. Organized specialized teams i.e management of the dead and missing team, evacuation center and camp management team, among others.  68. Conduct drills and simulation exercises among CDRRMO personnel on a regular basis i.e. fire, flood, landslide, bomb, among others.</p>
	<p>x. Stocking of food and non-food supplies for emergency purposes.</p>	<p>69. Purchasing of food and non-food items.  70. Pre-contract with suppliers of commodities i.e. MOA/MOU with pre-decided rates.  71. Construction of warehouse for stock contingencies.</p>
	<p>y. Construction and improvement of structures and facilities.</p>	<p>72. Installation of additional facilities i.e. toilets, bleachers, water tanks, electrification.  73. Construction of City Mortuary.</p>
<p>I. Proactive and equipped communities and citizenry in handling and coping to any form of disaster.</p>	<p>z. Capacity building and skills trainings on basic DRRM.</p>	<p>74. Development of a Training Manual/Module on DRRM.  75. Conduct Training of Trainers (ToT) and specialized trainings to barangays and multi-sectoral groups.  76. Conduct training on basic DRRM to public and private schools and universities.  77. Conduct simulation exercises and drills in barangays, schools and malls.  78. Workshop and orientation on warning and forecasting capabilities in the barangay level.</p>
	<p>aa. Integration of DRRM in school and university curricula and Sangguniang Kabataan (SK) Program.</p>	<p>79. Writeshop exemplars on DRRM.  80. Formulate DRRM curriculum.  81. Integrate DRRM in NSTP/ROTC.</p>
	<p>bb. Provision of maps to</p>	<p>82. Provided hazard maps to all</p>

	barangays, schools, universities and malls.	80 barangays, schools and universities. 83. Provided resource maps i.e. directories and location of critical infrastructures and their capacities such as hospitals and evacuation centers. 84. Provided Standard Operating Procedures (SOP) or protocol on disaster response and contingency plans. 85. Provided DRRM primer and IEC promotional materials i.e. newsletters, brochures, pamphlets and electronic copies.
J. Strengthened partnerships among key DRRM players.	cc. Establishment of database of response organizations.	86. Creation of accurate directory of response groups. 87. Conduct inventory of human resource i.e. profiling of capabilities of barangay residents (nurses, caregivers, doctors, among others).
	dd. Development of guidelines, accreditation and protection of volunteers and protocols on disaster response.	88. Formulation and crafting of Standard Operating Procedures and guidelines on disaster response. 89. Rescue groups and volunteers interlinked and accredited by the CDRRMO.
<b>Disaster Response</b>		
<b>Outcomes</b>	<b>Outputs</b>	<b>Activities</b>
K. Well-established disaster response and operations.	ee. Operational Incident Command System(ICS) and Incident Command Center (ICC).	90. Observance of protocols in disaster response. 91. Activation of Emergency Medical Services (EMS). 92. Activation of command center for relief distribution. 93. Pre-emptive mechanisms in place for evacuation. 94. Deployment of government vehicles to vulnerable areas for transport services. 95. Dissemination of warning signals to common people i.e.

		<p>loud speaker/megaphones, roving of government vehicles to the different barangays, sirens, among others.</p> <p>96. Issuances of public advisories (easily understandable to a common person i.e. local language).</p> <p>97. Submission of situation reports in a timely manner (by the hour, day, week).</p>
	ff. Integrated and coordinated Search, Rescue and Retrieval operations (SRR).	<p>98. Deployment of search and rescue teams.</p> <p>99. Deployment of medical and para-medical teams.</p> <p>100. Management of the dead to be turned over to respective families.</p>
	gg. Safe and timely evacuation of affected communities.	<p>101. Identification of evacuation sites nearest to affected population.</p> <p>102. Coordination with appropriate agencies.</p>
	hh. Establishment of relief operation centers ensuring transparency.	<p>103. Standard protocol followed for the procurement, packaging, transportation, storage and distribution of relief items.</p> <p>104. Setting-up of donations center.</p> <p>105. Developed mechanism for receiving donations in cash or kind and their distribution i.e. acknowledgement receipt.</p>
L. Adequate and prompt needs assessment and damages.	ii. Timely and appropriate and consolidated needs assessment reports.	<p>106. Deployment of the Damage Assessment and Needs Analysis (DANA) team.</p> <p>107. Using the latest DANA assessment tool, consolidate, analyze and disseminate data by the local and national DRRM Councils.</p>
	jj. Comprehensive data management system for information sharing.	108. Data entry to the database of affected families and areas.

M. Installed adequate emergency temporary shelters.	kk. Safe and adequate temporary shelters, evacuation centers and bunkhouses with modest facilities.	109. Provision of tents and bunkhouses. 110. Establishment of child-friendly spaces for children and lactating mothers.
	ll. Efficient Camp Coordination and Management.	111. Profiling of evacuees and IDPs. 112. Facilitate and coordinate IDPs' needs within EC. 113. Establishment of Help Desks. 114. Management of logistical needs i.e sound system, generator, relief distribution. 115. Intensification of policy visibility and security groups. 116. Provision of livelihood opportunities for IDPs. 117. Provision of spaces for livestock, poultry and pets in ECs. 118. <i>Management of community kitchen for mass feeding.</i>
	mm. Ensuring continuity of education for children.	119. Creation of spaces for Temporary Learning Sites (TLS) i.e. tents, makeshift classrooms, among others. 120. Conduct information sessions and values formations in evacuations centers.
N. Provide basic physical, medical, social, psychological and mental health services to IDPs.	nn. Accessible physical, medical, social and mental health services provided with equipped medical and para-medical personnel.	121. Conduct of medical consultations and nutritional assessment. 122. Procurement and distribution of medicines to IDPs. 123. Identification of high risk illnesses and diseases among IDPs and corresponding referrals to hospital and experts. 124. Food assistance distributed to IDPs. 125. Conduct of stress and trauma debriefings.
	oo. Arrangement for Water, Sanitation and Hygiene services.	126. Provision of Water, Sanitation and Hygiene (WASH) services i.e. portable

		<p>water, water tanks and bladders, hygiene kits and promotion.</p> <p>127. Assessment of water quality and quick damage repairs.</p>
O. Immediate restoration of key infrastructure and lifeline facilities.	pp. Restoration of various infrastructure and basic lifeline facilities.	<p>128. # of roads, bridges, telecommunication and transportation facilities reinstated.</p> <p>129. Deployment of heavy equipment and tools.</p> <p>130. Debris cleaning.</p>
	qq. Formed alliances with service and utility providers.	131. Identification of service/utility providers and their corresponding capabilities and resources.
P. Management of information and media.	rr. Regular press briefings from the local government.	<p>132. Observance of protocols in dissemination of information.</p> <p>133. Authorized representative/s lead the press briefings and can be channelled through televisions, radio, and internet.</p> <p>134. Provided accurate reports/statements.</p>
<b>Disaster Recovery and Rehabilitation</b>		
<b>Outcomes</b>	<b>Outputs</b>	<b>Activities</b>
Q. Systemized Post Disaster Needs and Damage Analysis.	ss. Establishment of Post Disaster Needs and Damage Analysis (PDNA).	<p>135. Development of assessment tools for the PDNA team.</p> <p>136. Deployment of PDNA team to affected population and areas.</p> <p>137. Data gathering of relevant baseline data from different offices/agencies.</p> <p>138. Formulation of Strategic Action Plans or possible measures for recovery and rehabilitation.</p>
R. Provided and restored sustainable economic activities.	tt. Identification of needed assistance and appropriate livelihood programs for IDPs.	<p>139. Identification of qualified men and women beneficiaries for technical and/or financial support.</p> <p>140. Conduct entrepreneurship or livelihood programs.</p>
	uu. Credit facilities for affected	141. Identification and

	sectors.	<p>mobilization of funding sources.</p> <p>142. Application of credit for beneficiaries.</p>
S. Secured human settlements with modest facilities.	vv. Identification of secured permanent relocation sites.	<p>143. Purchase of viable lands, i.e. purchase technicalities.</p> <p>144. Land clearing and development.</p> <p>145. Installation of lifeline facilities in the areas.</p> <p>146. Construction of secured, disaster resilient houses.</p> <p>147. Conduct social preparation of target beneficiaries.</p> <p>148. Relocation of IDPs from high risk areas and 'no build' zones.</p> <p>149. Process of awarding permanent housing units to beneficiaries.</p>
	ww. Tie-up with Home Development Mutual Fund.	150. Provision of housing loans or housing repair for construction.
T. Infrastructure-resilient facilities constructed and rehabilitated.	xx. Rehabilitation and repair of damaged facilities and infrastructure.	<p>151. Identification of damaged infrastructures and facilities necessary for rehabilitation.</p> <p>152. Design structures that promotes 'Green Building' technology.</p> <p>153. Identification of structures built in hazard prone areas with a possibility for demolition.</p>