

End of Course Project

Name: Inenila Roberto

Group: Sapphire

Philippine Disaster Management System: Case of the Oriental Mindoro December 2005 Floods

1.0 Background Information

Basic Data and Statistics on the Philippines

The Philippines is an archipelago of approximately 7,100 islands situated at the western rim of the Pacific Ocean. The archipelago stretches some 1850 kilometers from north to south and 970 kilometers from east to west.

The country has over a hundred ethnic groups and a mixture of foreign influences, and is the third largest English-speaking country in the world. It is divided into three geographical areas: Luzon, Visayas, and Mindanao. It has 17 regions, 79 provinces, 115 cities, 1,495 municipalities, and 41,956 barangays (villages).

Lying 5-15° north of the equator, the climate is hot and humid all year round. All the islands have two seasons during the year, a dry season from January to June, and a wet season from July to December. The nationality of the Philippines is Filipino and is ethnically comprised of 91.5% Christian Malays, 4% Muslim Malays and 1.5% Chinese. Filipino (Tagalog) and English are the two official languages, while eight other major dialects are spoken throughout the country. The estimated population is 82 million and a Gross Domestic Product (GDP) of US\$ 79.3 B (2003). The urban population was reported to comprise 48.1% of the total population.

The increase in rural poor families is almost commensurate with the large decrease in urban poor families. This trend illustrates the dynamism of poverty in the country: people move in and out of poverty over time, depending on their circumstances and the assets they can access to protect against shocks.

In addition to the urban-rural dichotomy, very different pictures emerge when the regional data is examined. The least poor region in the Philippines has consistently been the National Capital Region (NCR), or Metro Manila. Poverty incidence here has been very low indeed, falling from 13.2% of families in 1991 to 6.4% in 1997 before rising to 8.7% in 2000. On the other end of the spectrum, a very stark contrast is found in the poverty incidence of families in the Autonomous Region in Muslim Mindanao (ARMM): 50.7% of families in 1991, rising to 66% of families in 2000. Bicol (Region V) and two regions of Mindanao—ARMM and Region XII—have consistently been the three poorest regions since 1994. These regions are also the three most populous, accounting for nearly 40% of the total population of the Philippines. Therefore, while the poverty incidence is lower in these regions, the absolute number of poor people in the Philippines is indeed large.

The Philippine economy is highly dependent on agriculture. Two thirds (65%) of its current population of approximately 82 million people, and three fourths of the poor depend on agriculture for their livelihood. While only a fifth of all the goods and services the country produces and a third of its exports come from the sector, it employs about half of the total workforce. Agriculture and fisheries registered contribution to the national economy are as follows: crops (2.58 per cent), livestock (2.87 per cent), poultry (7.80 per cent), and fisheries (6.05 per cent). Of the crops, the major contributors were rice (4.56 per cent), coconut (1.69 per cent), and banana (2.66 per cent). In terms of area, about a third of country's 30 million hectares is agricultural.

Philippine Vulnerabilities to Natural Disasters

The Philippine Archipelago lies at the junction of two large converging tectonic plates — the Philippine Sea Pacific Plates to the east and the Eurasian Plate to the west. This tectonic setting makes the archipelago highly vulnerable to volcanic eruptions and devastating earthquakes including their secondary and tertiary hazards.

This expanse is one of the world's major typhoon belts. Approximately 20 typhoons hit the Philippines every year. Northern Luzon has the highest frequency of typhoons while Southern Mindanao remains relatively free (of typhoon). Along with typhoons, the archipelagic nature of the Philippine coastal areas increases susceptibility to storm surges, tsunamis, and sea level changes.

The Philippines tops the list as the world's most disaster prone country from 1900 – 1991 with a total of 701 incidents or almost 8 disasters a year (as recorded by the Center for Research and Epidemiology of Disasters

(CRED) in Belgium. The National Disaster Coordinating Council recorded 523 disasters for the period 1987 to 2000 with total cost of damage of approximately \$ 2.1 Billion, or some 37 disasters on the average annually. Coastal and extended swamp areas are prone to floods and storm surges during typhoons. In recent year, even heavy rains associated with other climactic conditions such as monsoons, thunderstorms, inter-tropical convergence zone also cause floods in low-lying areas.

Rapid environmental degradation and resources depletion aggravates the country's vulnerability to natural disasters. The country now finds itself experiencing a cycle of flooding, drought and red tide. Deforestation has resulted in flooding, soil erosion, landslides and siltation. The destruction of mangroves and coral reefs has resulted in the decline in fisheries production and the loss of natural protection of coastal communities from storm surges and beach erosion.

El Nino occurrences induce drought in many parts of the Philippines, regularly posing a serious problem in agricultural production and potable water supply. In 1998, about a million families suffered from food scarcity in the highlands of Mindanao and other parts of the country.

Major natural hazards that occurred in the Philippines proved to be severely damaging. Typhoon "Milenyo" caused the worst destruction in the most recent recorded incidence. Its destruction cost Php. 6.54 Billion to properties and infrastructure affecting 2 million people, and a total of 1,295 barangays across the country. The island of Luzon suffered island-wide power blackout.

Floods and landslides caused by typhoon "Winnie" in 29 Nov 2004 caused the death of 1,200 people and 695 were missing in Infanta-Real and General Nakar in North-Central Philippines. On 9 Nov 2001 typhoon "Nanang" caused a flashflood that buried 350 residents in Mahinog, in the island province of Camiguin. The worst earthquake that happened in the country was in 16 July 1990. It registered 7.7 in the Richter scale and killed 1,700 people, injured about 3,000 individual (as registered) and displaced 148,000 more in Luzon. Next to this was the worst tidal wave or tsunami that killed 8,000 residents in the shoreline areas of Mindanao. This happened in 17 August 1976.

By far, the worst volcanic eruption occurred in June 1991, Mount Pinatubo in Zambales province unleashed about 15 million tons of sulfur dioxide into the earth's atmosphere that resulted in slight cooling of the earth's temperature. Thousand of people were believed killed and missing because of the succeeding lahar flows, and buried several villages in the province of Pampanga, Tarlac and Zambales

2.0 The Oriental Mindoro December 2005 Floods

Oriental Mindoro has a total land area of 436,472 hectares. It is subdivided into 14 municipalities and one city (Calapan City), with 426 barangays. It has a total population of 681,818 in 2000 census. The average number of persons per square kilometer of land area or population density is estimated at about 154 person per square kilometer. Agriculture and fisheries are its most important resources. It was ranked third in fishpond area and aquaculture commodities in 2000, and considered a food producer or basket of the Southern Tagalog Region.

Three flashfloods struck Oriental Mindoro particularly Calapan City, Baco, Naujan, Victoria, Pola, Socorro, Puerto Galera, San Teodoro, Roxas and Pinamalayan. This was brought about by the three-day rainfall reaching a total of 194 millimeters and 77 millimeters on 6 December 2005 and 17 December 2006, respectively (as reported by PAG-ASA). Heavy rainfall resulted to large discharges in both Mag-asawang Tubig and Bucayao Rivers.

Water from Aglubang and Ibulo rivers, including discharges from smaller tributaries upstream merged at the foot of the mountain between Villa Cerveza, Victoria, and San Andres Putik, Naujan. The confluence of Aglubang and Ibulo rivers formed the Mag-asawang Tubig River in the area at the transition from the mountainous terrain to sprawling floodplains of Naujan, Calapan and parts of Victoria and Baco. During high water discharge, considerable water volume of flow from Mag-asawang Tubig River was diverted to Bucayao River.

The diversion of water occurred in two locations at the western bank of Mag-asawang Tubig River.

- a. just above the point of confluence of Aglubang and Ibulo Rivers due to greater flow contribution, hence, greater momentum and flow of water from Aglubang River, and
- b. opposite Muyod in Villa Cerveza, Victoria as the flow was deflected by the solid high ground. flows diverted from Mag-asawang Tubig merged further downstream and eventually joined the flow in Bucayao River.

This resulted to exceptionally high water level in Bucayao River beyond its capacity and breached the dike due to scouring at the curved section of the river in Sitio Buhuan of Barangay Comunal in the City of Calapan. As a result, the large volume and uncontrollable flow of water spilled over the areas of Calapan City, Naujan and some parts of Victoria and Baco, causing flooding in above-mentioned areas.

On 6 December 2005, due to heavy rains there were seven affected municipalities namely: Calapan City, Naujan, Victoria, Socorro, Pola, Pinamalayan and Baco, covering 163 barangays. Family victims totaled 30,420 or 155,274 persons. Two casualties in Calapan City and Pinamalayan were reported due to drowning.

And again, Typhoon "Quedan" and continuous heavy rains on 17 December 2005 contributed to the overflow of some major rivers and its tributaries. There was occurrence of flooding in the municipalities of Baco, Naujan, Victoria, some areas in Calapan, Pinamalayan, Bansud, Bongabong, Roxas, Mansalay and Bulalacao.

The municipalities/city of Baco, Naujan, Victoria and Calapan were severely affected with 141 barangays stricken by the typhoon, leaving 23,364 families affected. Calamity victims reached 9,551 families or 39,006 persons. One death was registered in the municipality of Naujan.

Also on 27 December 2005, the municipalities/city of Baco, Naujan, San Teodoro, Puerto Galera and Calapan City were severely affected, with a total number of affected families of 29,050 or 133,190 persons. Calamity victims served reached 9,551 families or 39,006 persons.

Education Damage Report - Ten districts/municipalities were affected by the two flooding and one typhoon. Books, instructional materials, equipment and other public structures were damaged estimated at Php 7,975,022.00.

Agricultural Crops and Livestock - Agricultural crops damaged covered 5,085.25 hectares or 3,318.332 metric tons worth PhP57,348,067.00. Severely affected were rice fields accounting for 99.27 percent of the total crop areas of the seven municipalities. The municipality of Naujan incurred the highest agricultural loss in palay amounting to PhP39,676,527.00.

Also affected were 26 rice millers in Calapan City who incurred agricultural losses of Php52,403,600.00 worth of palay and rice stocks. Flood damage to fisheries/fishponds registered a total loss of Php 9,022,050.00 in operational cost and Php 43,770,000.00 in development cost. Calapan City incurred the most damage with Php 4.012 million. The total value of reported livestock damage was Php 2,930,350.00. Animal death were caused by drowning, respiratory disease, traumatic injury and starvation.

Environment and Natural Resources - A total of 30.2 hectare mangrove plantation in Baco, San Teodoro and Pola were slightly to heavily damaged with replanting of Bakawan propagules as the rehabilitation activity. The estimated cost for the restoration amounts to about Php 2.38 million which include reforestation and infrastructure repairs and rehabilitation..

Infrastructure Facilities and Utilities - The damages in Calapan North and South Roads included scouring of roads with damaged asphalt pavements, potholes, collapsed slope protection, road slips, landslides and washed out surface materials, damaged bridges, flood control projects amounting to Php 97 million. Four road sections in the Second District, one bridge, one spillway, five river control projects and four seawalls were damaged with an estimated restoration cost of Php 55,000,000.00.

3.0 The Philippine Disaster Management System

The policy, institutional and operational framework for the existing disaster management system in the Philippines is defined in Presidential Decree 1566 “Strengthening the Philippine Disaster Control and Capability & Establishing the National Program on Community Disaster Preparedness” issued on 11 June 1978. From this legal mandate, the National Calamities and Preparedness Plan (NCPD) approved in 1983 was revised and issued in August 1988 together with the Implementing Rules and Regulations to P.D. 1566. The updated NCPD had been formulated to be consistent with the devolution of the provision of basic services from the national government to the local governments mandated by the Local Government Code of 1991 and the present organization of the government bureaucracy.

Policy Framework

Section 1 of P.D. 1566, Declaration of Policy states that: Disaster management, specifically disaster preparedness and emergency operations is to be pursued with a heavy emphasis on “self- reliance”, “self-help” and “mutual assistance”;

- Maximum utilization of resources at every politico-administrative level is enjoined before assistance is sought from higher levels;
- Primary responsibility for Disaster Management is placed upon agencies of the government;
- The exercise of leadership responsibilities is expected from the local government executives (Governors, Mayors, Barangay Captains);
- The main role of national government is to provide support to the local government units;
- Both planning and actual operations are to be carried out “... in an inter- agency, multi-sectoral basis to optimize the utilization of resources”;
- Every agency of government is directed to prepare its disaster preparedness plan.

Institutional Framework

P.D. 1566 provides for an inter-agency, multi-sectoral body for planning, monitoring and coordinating the direct implementation of programs and projects relative to disaster management in the Philippines.

At the national level, the National Disaster Coordinating Council (NDCC) is the highest policymaking, coordinating & supervising body for disaster management. It performs the function of advising the President “on the status of the national disaster preparedness program, disaster operations and rehabilitation efforts undertaken by the government and the private sector”. The NDCC is the recommending body to the President on the declaration of state of emergency and release of calamity fund. It is chaired by the Secretary of National Defense and has for its members almost all the cabinet members and the Secretary-General of the Philippine National Red Cross. The member-agencies are responsible for carrying out their respective tasks and responsibilities in disaster management including preparedness, mitigation, response and rehabilitation. Unlike other departmental coordinating bodies, the NDCC does not have its own regular budget. It operates through the member-agencies and its local networks, which are the regional and local disaster coordinating councils.

The Office of Civil Defense (OCD) plays a vital role in executing and monitoring the implementation of the policies and programs of the NDCC and in providing secretariat support to the body. The office is headed by an Administrator with executive-director functions. It operates and maintains the operating facility of the NDCC, which is the National Disaster Management Center (NDMC).

At the regional level, Regional Disaster Coordinating Councils (RDCCs) coordinates the activities of all national government agencies assigned to a particular administrative region. RDCCs, like the NDCC, have

no budget of their own and operate only through member agencies under the principles of coordination, complementation of resources and agency participation. The OCD Regional Director acts as the Executive Officer of the RDCC. The RDCC is tasked with the establishment of Regional Disaster Operations Center (RDOC); implement within the region the guidelines set by the NDCC; advise the local disaster coordinating councils on disaster management, and submit appropriate recommendations to the NDCC as necessary.

At the local level, the Local Disaster Coordinating Councils (LDCCs) cover all non-national disaster efforts and activities. The governors are chairmen of the provincial disaster coordinating councils (PDCCs), city mayors of the city disaster coordinating councils (CDCCs), and town mayors of the municipal disaster coordinating councils (MDCCs). Barangay Captains are the Chairmen of their Barangay Disaster Coordinating Councils (BDCCs). The LDCCs are tasked to establish a Disaster Operations Center (DOC); coordinate disaster operations activities; implement DCC guidelines; provide advise on disaster management; submit recommendations to the to the appropriate DCC as necessary.

Disaster Operational Framework

The flow of information and response for emergencies is defined by P.D. 1566 and the Calamities and Preparedness Plan. The National Disaster Management Center is the operations center of the NDCC. A warning bulletin or information is issued relative to an impending disaster or emergency by any of the warning agencies: Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) for meteorological hazards (typhoons, floods, droughts, etc); Philippine Institute of Volcanology (PHIVOLCs) for seismic and geological hazards (volcanic eruptions and earthquakes); Philippine Nuclear Research Institute (PNRI) for radioactive contamination, Department of Health (DOH) for epidemics; and the Armed Forces of the Philippines (AFP) and the Philippine National Police (PNP) for civil unrest. The bulletin or advisory is relayed to the National Disaster Management Center (NDMC), to concerned regional/field offices, and to the general public through the broadcast media for widest and quickest dissemination.

During the disaster event, NDCC member agencies provide assistance – Department of Social Welfare and Development for social services; Department of Health for medical services; Department of Trade and Industry for price control and regulation; Department of Public Works and Highways for Infrastructure and Utilities and national agencies. Other key players include non-government organizations (NGOs), private organizations (POs), members of civil society, private sector like corporate foundations e.g. Corporate Foundation for Disaster Response, the academe, church, and international aid donors.

Funding Sources and Budget

National Calamity Fund (NCF) under the Annual General Appropriations Act (GAA) represents 2 % of the budgetary reserve. It is intended to be used for aid, relief, rehabilitation, reconstruction and other works or services in connection with calamities which may occur during the budget year or those that occurred in the past two years from the budget year, including training of personnel and other pre-disaster activities and capital expenditures for pre-disaster operation, rehabilitation and other related. The NCF cannot be used for the repair or rehabilitation of government buildings damaged by fire, nor for specific calamities covered by special laws, except when the appropriations have been fully expended or utilized. Release of Quick Response Funds to agencies concerned, such as the Department of Public Works and Highways, Department of Social Welfare and Development, Department of Health, Department of Agriculture and Department of Education, Culture and Sports, is subject to the calamity fund provisions of the annual GAA.

Local Calamity Fund under 324(d) of the Local Government Code of 1991 as amended by RA 8185 is 5 % of the local government's revenues. It can be utilized for relief, reconstruction, rehabilitation and other works or services related to calamities which may occur during the budget year, provided that such fund are utilized only in the area or portion of the LGU or other areas declared under a state of calamity by the President or local Sanggunian.

Disaster Management Framework

The government's support in addressing the concerns of the United Nations International Decade for Natural Disaster Reduction 1990-2000 (IDNDR) marked the beginning of disaster mitigation initiatives in the Philippines. To support the UN's objectives, the NDCC created four significant committees: on Structural Measures, Non-Structural Measures, Disaster Research and Disaster Legislation. The committees were

essentially composed of members of the NDCC with OCD as Committee Chairman for Non-structural measures, the Department of Public Works and Highways (DPWH) for structural measures, the Department of Justice (DOJ) for disaster legislation, and the Department of Science and Technology (DOST) for disaster research. Through these IDNDR Committees, disaster mitigation initiatives were indeed given consideration. The government likewise promoted consciousness among concerned agencies on their roles and responsibilities in disaster mitigation. Non-structural disaster mitigation measures like hazard zoning and development policies are concerns of the National Economic Development Authority, the Housing and Land Use Regulatory Board, and Development Councils.

On the other hand, economic protection measures like insurance have been delegated to the private sector and non-government organizations. The concern for structural mitigation measures, such as building protection standards and codes, is the responsibility of the DPWH and other architectural and engineering organizations. Developments in some areas of disaster mitigation have found expression in the National Building Code or P.D. No. 1096, Structural Code, Rule 1040 of the Occupational Safety and Health Standards, as amended, and PD 1185, otherwise known as the Fire Code of the Philippines.

In 1991, the government realizing the significance of disaster management in achieving sustainable development, started to integrate the component of disaster management into the Medium Term Philippine Development under the Development Sector and into the respective local development plans. In this consideration, initiatives to include key elements of disaster risk management, namely, risk identification, mitigation, risk transfer, preparedness, emergency response and rehabilitation and reconstruction, have been incorporated into the sectoral plans and programs of national and local government agencies.

In 1998 under the Estrada Administration, vulnerability reduction and risk management programs were developed and pursued e.g. community-based hazard identification and risk mapping; enhancement of early warning and alert system; rapid needs and damage assessment system; development of national training standards and accreditation system and the establishment of the Emergency Management Institute of the Philippines (EMIP); and advocacy for civil protection.

Since 2001, efforts of the Office of Civil Defense- National Coordinating Council have been geared towards the following programs:

Emergency Preparedness and Response Program — This aims to enhance and strengthen the capabilities of national and local disaster coordinating councils through the implementation of such activities as organization and mobilization of local DCCs and Disaster Control groups in public and private establishments, and a civil defense deputization program.

Disaster Risk Reduction Program — This aims to identify areas and communities at risk through hazard mapping, and to develop public safety and disaster risk management standards and policies.

Advocacy on Civil Protection Program — This aims to increase people's awareness of the importance of disaster preparedness, surveillance and mitigation, through conduct of fora, symposia, dialogues, drills and exercises.

Human Resource Development Program — This aims to develop and harness resources that can be readily mobilized for disaster management activities through enhancement of training modules on emergency management, and conduct of first aid and basic life support.

4.0 Strengths and Weaknesses in the Philippine Disaster Management System as Experienced in the Oriental Mindoro December 2005 Floods

The Oriental Mindoro December 2005 floods may not have a national impact as compared to the floods caused by Typhoon Thelma which claimed 5,101 – 8,000 lives in Ormoc, Leyte, and that of Typhoon Winnie with 1,200 deaths in Infanta and Gen. Nakar, Quezon. However, at the local level, the incident left a devastating impact on the lives, livelihood and properties of affected families in Oriental Mindoro.

The presence of an existing disaster management system in the Philippines is acknowledged to contribute to the reduction of greater losses in the occurrence of natural disasters like the Oriental Mindoro floods. As expected, PAGASA provided relevant information on the heavy rainfall and the potential risk of flooding. The PDCC, CMDCCs and BDCCs were alerted, but the swollen rivers coupled with soil erosion, sedimentation and eventually, a breached dike led to devastating floods in Calapan City and the underlying towns of Baco, Naujan, Victoria, San Teodoro, Pola and Pinamalayan.

The Provincial Governor as Chairman of the Provincial Disaster Coordinating Council and the City/Municipal Mayors took the lead in responding to the needs of the situation. The leadership was present; national agencies i.e. DPWH, DSWD, DOH, DENR, international agencies i.e. UNICEF, and local NGOs, came to the rescue. Private individuals, businesses, church, schools, provided assistance in cash and in kind. Services, search and rescue operations were available. However, there was still lack of physical, human and financial resources to respond appropriately to the needs of the situation.

There was scarcity of people who had the capabilities on disaster management. Many DCCs are not functional and do not have the manpower to support disaster services. There was poor coordination of delivery of relief goods and other services. NGOs and other donee institutions did not know whom to coordinate with. There was a lack of trained health and social workers that could attend to sick and emotionally affected disaster victims. There was also lack of equipment, communication and transportation facilities which were most needed in the evacuation of people and in the transfer of agricultural produce and livestock to safer grounds.

After the second flooding on 17 December 2005, President Gloria Macapagal-Arroyo, declared Or. Mindoro under state of calamity. She promised to provide funds for the rehabilitation and reconstruction of the damaged dike, roads and other public infrastructures. More aid and donations poured into the province from local and international organizations to a point that conflict arose between and among agencies involved in the distribution of relief goods and materials. The presence of one person in command was sorely missed. The church through the Apostolic Vicariate of Calapan provided the necessary intervention in order to stop or prevent worsening of conflicts that had arisen.

The three incidents of flooding also showed the bayanihan and volunteerism spirit of the residents and communities as they put up sandbags to remedy the breached dike, but they also gave insights to the reluctance of households to heed to disaster warnings and their unpreparedness when the disaster eventually happened. Early warning systems were discussed e.g. use of cell phones and radios for warning, siren and bell tolls. Rapid assessment of disaster risks/hazards, losses and damages as well as rapid seminars on community preparedness were undertaken. Consultation meetings with local government units, national government agencies, private individuals, the business sector, non-government organizations, Philippine National Police, military, the church, academe, and media were held to strategize on measures to arrest or lessen further impacts of flooding particularly on lives, livelihood and properties. All these were done in December 2005, responses to a disaster event which were indeed reactive, a characteristic attributed to the existing PDMS.

The December 2005 floods were eye-openers for the Oriental Mindoro residents, the local government units and other stakeholders. The need to increase understanding of hazards and risks has been recognized. The need to strengthen the existing disaster management system in the province has been reinforced. The Provincial government has initiated efforts to improve the Disaster Coordinating Councils in the province. These realizations could only happen if the provincial government and sub provincial governments will have

the political will to implement programs and activities for disaster risk management. On the other hand, NGOs, the private sector, academe, local institutions, communities and other players need to support government initiatives and assist in implementing an effective DRM program.

5.0 Recommendations for Improvement

The paper's recommendations for improvement in the Philippine Disaster Management System is based mainly on the actual experiences and concerns in the disaster management of the Oriental Mindoro December 2005 flooding.

The following are some issues and areas for improvement:

1. There must be a unified and integrated coordination of disaster response among the various stakeholders in order to improve efficiency and effectivity of disaster activities.
2. Leadership and chain-of-command must be well defined and followed to avoid conflicts, avoid duplication of efforts and to maximize resources i.e. physical, human and financial.
3. Roles and responsibilities of key players – LGUs, national agencies – DSWD, DOH, DPWH, DENR, etc., non-government organization, private sector, the military, PNP and others, must be delineated to ensure smooth coordination.
4. Local Disaster Coordinating Councils must be institutionalized in every province, city and municipality, barangay unit as stipulated in PD 1566. Due to lack of financial resources, LDCCs, DCC personnel are only on detail to the DCCs. Not being permanent employees, the problem of sustainability of programs and the people's capabilities in disaster management arise.
5. Capabilities of both national government and the LGUs must be enhanced, and initiatives must be geared towards more pro-active measures and strategies not only focusing on response but to include the whole cycle of disaster management – preparedness, mitigation, recovery and rehabilitation. This is in line with the 2001 and current initiatives of OCD-NDCC to make disaster management in the Philippines focus on disaster risk reduction with preparedness, response and disaster development.
6. There is a need to review the existing national and local calamity funds in terms of access, use and its sufficiency to respond appropriately to the needs of the whole disaster management cycle. Use of calamity funds must not be limited to response but should also be opened for pro-active measures for both preparedness and mitigation to minimize human and economic losses.
7. In relation to financing disaster losses, the government in coordination with the private sector must explore viable financial mechanisms that could be accessible/affordable to people, communities and local government units.
8. Integration of disaster risk management in the development plans of national agencies and local governments must be made mandatory. This is to ensure that disaster programs and strategies, especially mitigation and prevention, are identified and allocated funds in the respective sectoral plans of governments. In this manner, funds for development of early warning systems, hazard assessment and hazard mapping, relevant disaster training programs will be ensured.
9. Involvement and capability building of local residents / communities for more responsive disaster management, disaster risk reduction and sustainable development must be encouraged.
10. Political will and advocacy campaign towards an effective and efficient Philippine Disaster Management System must be pursued and strengthened.

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National Disaster Coordinating Council. <http://www.ndcc.gov.ph>

PCARRD Philippine Council for Agriculture, Fisheries, Forestry and Natural Resources Research and Development
PDAP Philippine Development Assistance Programme

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