THE PHILIPPINE DISASTER MANAGEMENT STORY: ISSUES AND CHALLENGES

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Abbreviations and Acronyms

AFP	Armed Forces of the Philippines
ASNIC	Asian Studies Network Information Center
BDCC	Barangay district coordinating council
BDOC	Barangay disaster operations center
BFP	Bureau of Fire Protection
CDCC	City disaster coordinating councils
CDOC	City disaster operations center
CEA	Civilian Emergency Administration
COA	Commission on Audit, Philippines
CONPLAN TAAL	Contingency Plan Taal Volcano
CPS	Civilian Protection Service
DILG	Department of Interior and Local Government
DOH	Department of Health
DPP	Disaster preparedness program
DPWH	Department of Public Works and Highways
EMIP	Emergency Management Institute of the Philippines
IDNDR	United Nations International Decade for Natural Disaster Reduction
LDCC	Local disaster coordinating councils
LGU	Local government unit
MDCC	Municipal disaster coordinating councils
MDOC	Municipal disaster operations center
MMDA	Metro Manila Development Authority
MMDCC	Metro Manila Disaster Coordinating Council
NCDA	National Civil Defence Administrator
NCDC	National Civil Defence Council
NCDPP	National Calamities and Disaster Preparedness Plan
NCF	National Calamity Fund
NDMC	National Disaster Management Center
NEC	National Emergency Commission
NEDA	National Economic and Development Authority
NGA	National government agency
OCD	Office of Civil Defence

PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PDCC	Provincial disaster coordinating councils
PDOC	Provincial disaster operations center
PHIVOLCS	The Philippine Institute of Volcanology and Seismology
DRTF	Disaster Response Task Force
PNP	Philippine National Police
PNRC	Philippine National Red Cross
PNRI	Philippine Nuclear Research Institute
RDCC	Regional disaster coordinating councils
RDOC	Regional disaster operations center
SND	Secretary of National Defense

1 INTRODUCTION

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 northernmost island, Itbayat Island of Batanes, is only 240 kilometers from the southern tip of Taiwan. The southernmost island, Sibutu of the Sulu archipelago, lies 450 kilometers north of the equator and 24 kilometers from the east coast of Borneo. Balabac Island near the southern tip of Palawan is the westernmost island. Beyond the easternmost point, Pusan Point in Caraga, Davao Oriental are the Philippine Sea and the Pacific Ocean with other islands of the Marianas and South Sea Island Group.

Here, at the western rim of the Pacific Ocean runs the western segment of the Pacific Ring of Fire. The Ring is the most seismically active part of the earth, characterized by an ocean-encircling belt of active volcanoes and earthquake generators. 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. Though most are weak and imperceptible, earthquakes occur at a daily rate of four to five per day. In addition, there are about 220 volcanoes, of which 22 are known to be currently active.

Lying along a wide open stretch of ocean up to 21° North latitude, the Philippines is also vulnerable to typhoons and to the occurrence of tsunamis. This expanse is one of the world's major typhoon belts. Approximately 19 typhoons hit the country every year. Northern Luzon has the highest frequency of typhoons while Southern Mindanao remains relatively free of them. Along with typhoons, the archipelagic nature of the Philippine coastal areas increases susceptibility to storm surges, tsunamis, and sea level changes (Punongbayan and Tayag, 1999).

This report chronicles how the people of the Philippines have managed disasters from pre-colonial times to the present. It also describes the different legal frameworks that have shaped disaster management through time, the various disaster challenges that the country has had to cope with, and the concomitant responses that have been made in the legal, institutional, educational and training domains.

2 DISASTER MANAGEMENT IN HISTORICAL PERSPECTIVE

2.1 The pre-colonial period to 1521

Since earliest times, the people of the archipelago have had to deal with natural hazards and disasters. However, describing the manner and practices people have adopted to cope with these various disasters is made difficult because of a dearth of documents on the subject. To gain an understanding of early disaster management practices, it is necessary to look into social customs and practices of the early inhabitants of the islands now known as the Philippines. In the absence of written evidence, archeologists such as Dr. F. Landa Jocano and Prof. H. Otley Beyer have provided impressions of what pre-colonial community in the Philippines might have been like.

2.1.1 Early settlements

Settlement patterns of the Filipino ancestors depended largely on topography and rainfall distributions. Pursuing a nomadic existence, there came a time when they favored settlement sites that were close to water in their search for security and for food through the gathering and hunting season (Punongbayan and Tayag, 1999).

Typhoons blowing from the Pacific Ocean first encounter the mountain ranges. This produces an east-west differentiation of rainfall. Thus, economic activities and population densities were found more frequently on the western side of the mountain ranges, and wherever the presence of another island protects a community from the Pacific typhoons (ibid). The climatic conditions of places where ancient men lived exerted tremendous influence over the kind of adaptation they had to make in order to survive (Jocano, 1998).

Accounts of native life in the Spanish chronicles support the existence of a complex social organization called the *barangay* (ibid). Each barangay existed as an independent sociopolitical unit, with well-defined territorial rights over its domain.

In this political set-up, it was noted that the concept of utilization of the environment already existed, and that this was done primarily through communal ownership. All lands and water, including non-arable lands, hills or forests, were available for use by all households in the barangay (ibid). Agriculture was the focus of a barangay's economic activity. Their agricultural systems, however, show a lack of knowledge in disaster management, as the basic agricultural pattern was slash-and-burn, or *kaingin* (ibid), which indicates early inhabitants' focus on immediate survival rather than preparedness for future emergencies. Records show that pre-colonial Filipino culture was family-centered and rooted in the soil and the sea (Fox, 1958).

2.1.2 Leadership

An account by the Franciscan friar Plasencia noted the existence of barangay in Luzon, and described the settlement's governance of the early community thus:

> This people had chiefs, called by them *datu*, who governed them, and were captains in their wars…. And so even at present day, it is ascertained that this barangay in its origin was a family of parents and children, relations and slaves. There were many of these barangays… they were not however subject to one another except in friendship and relationship (Corpuz, 1989: 7)

The power of the chief was always taken into account in all matters affecting the community. In return, the chief was obliged to watch over the best interests of his people. Among the duties to his people are protection from aggression, preservation of harmony, equitable sentencing of suits, and their general well-being. The datu had at his disposal the services of *timaguas*, or freemen, to carry out these duties (Blair and Robertson, 1903).

2.1.3 Early beliefs and practices of disaster management

Notions about natural phenomena and disasters can be linked to Filipino ancestors' religious beliefs. The early inhabitants worshipped myriad spirits. Among them, there was one superior being called Bathala. Celestial bodies such as the sun, the moon and the stars, as well as the clouds and the wind were also objects of worship. These spirits were believed to participate directly in the economic lives of the people. If properly appeased, the spirits of the clouds brought rain, and the spirit of the sun brought the

sunshine that allowed for a prosperous harvest. The spirits of the moon and stars were believed to regulate seasonal changes. If not properly appeased, these spirits would bring havoc to the entire community. The spirit of the wind would cause storms and typhoons, the spirit of the sun would bring drought, the spirit of the clouds would refuse to bring rain, and the moon and the stars would refuse to regulate the seasons (Jocano, 1998). Ritual practices engaged those deities who had specific and independent functions such as control over the weather. Daily life also involved continual interaction with the soul-spirits of the dead as deities to be called upon (Fox, 1958).

In the pre-colonial barangay system, elders developed their predictive skills regarding natural hazards. There are records attesting to the accuracy of their weather forecasts. By judging from cloud formations and the color of the skies, sun, and moon, they would, from three days to a week in advance, predict storms, their severity, and the flooding that would follow.

Dark clouds meant a squally storm while leaden skies meant a real typhoon. The new moon of the last quarter of the year was considered the most likely time for a typhoon. Consequently, typhoons were said to be rare during the waning of the same moon. These elders believed, too, that unless a typhoon ended with winds from the south, it was sure to be followed by another one. The elders could also predict whether the coming year would be wet or dry by observing the position of stars and constellations.

Reportedly, long before the time of Columbus and Magellan, the Filipino ancestors were already expert navigators. Although they had no compass or nautical devices, they made long voyages, steering their sailboats by the position of the stars at night and by the direction of the sea winds by day (Reyes and Perez, 2001).

These early sailors set their courses through sighting landmarks and knowing the waters. Through their seamanship, the people gained an intimate knowledge of depths and types of sea bottoms, the configuration of reefs and rocks, as well as the colors and surface appearance of the waters themselves. Their familiarity with the strong currents typical of both the Pacific coasts and narrow inter-island channels is also noteworthy. When the compass was introduced in the 17th century, the old men of this society made surprisingly little use of it because it told them nothing they did not already know (Scott, 1994).

Early disaster preparedness capabilities can also be inferred from the artifacts of the early inhabitants of the Philippines. As early as 2000 BCE there were many warring peoples in the Philippines. Remnants of stone walls have been found in the province of Ifugao. Based on dating techniques, the tools and artifacts found in the area of these walls date from the period around 2000 BCE. It is theorized that these stone wall outlines are the traces of an ancient fortress that can also be surmised to have provided protection from natural disasters.

Thus, long before the coming of the Spanish, the Igorots had built stone walls, dams, and canals that now mystify present-day engineers. Interestingly, these hydraulic works were created from stones greater in bulk than those of the Great Wall of China (Wilson, 1967).

Further accounts of Igorot practices in disaster management include their early warning system. During the pre-colonial period, the authority to issue warnings of upcoming natural hazards was vested in the assembly of barangay elders. Records show that in the

early people's traditions and customs, once an earthquake or some other 'bad thing' was predicted by the old men, work usually stopped (Robertson, 1914).

Historical accounts also show that the Igorots moved out of an affected area in response to a disaster. For example, during those times if it were to rain while a house was under construction, the house would be moved to another place. Sinking and falling away of the ground was another reason that prompted people to move out of an area (ibid).

2.2 The Spanish colonial period: 1521–1898

The initial contacts between the Filipinos and the Spaniards took place in Cebu, which became the Spaniards' base. In 1521, the establishment of the Spanish base in Manila effectively completed the conquest of the archipelago. Conquest began with the formal act of taking possession. However, force was not needed in some areas. Some groups of people accepted submission without fighting because they were in awe of the invaders' firearms (ibid).

After the possession and the submission were completed, then, the *entrada* or raid of the conquered land followed. The people who submitted were brought to an assigned place to form part of a larger barangay. The merged barangay constituted a pueblo for civil administration.

In this social set-up, the most important individual in the pueblo was the friar or curate. He was the only Spaniard allowed by law to reside in the native villages (ibid). Thus, the friars' accounts have become the basis for most studies of town activities during the Spanish period.

During the first two and a half centuries, 1565-1828, Spain ruled the country through Mexico. The viceroy of Mexico governed the country in the name of the Spanish king. During this period the famous Manila–Acapulco trade thrived and many Mexicans (including colonial officials, missionaries, soldiers, and traders) came to the Philippines. They introduced plants and animals, industries, songs and dances, customs and traditions into the country (ASNIC, 2001).

2.2.1 Early disaster management practices

Manila became the capital of the Spanish Empire, which comprised Luzon, Visayas and parts of Mindanao. The new Spanish settlement that was established turned out to be very different from the native barangay (ibid).

As noted above, experience of disaster events before the coming of the Spaniards had enabled early inhabitants of the island to develop capabilities necessary to respond to and adjust to such events. The Spaniards, though, would be the ones observed making necessary adaptations as they experienced various hazards during their nearly 400 years of colonial rule in the Philippines.

The houses of the people of Manila at this time provide the first signs of knowledge and awareness of disaster mitigation. The houses were constructed of bamboo, covered with palm leaves. They were erected on pillars of wood, at a height of eight to ten feet from the ground, and were reached by a small ladder that was drawn up every night. The objective of this custom of raising houses to this elevation was for protection from the humidity of the soil. The ladders were drawn up at night for protection from ferocious animals (Sonnerat, 1782).

The Spanish friars had identified the many volcanoes on the island of Luzon as the cause of the frequent earthquakes. In response, Manila's Spaniards constructed their houses accordingly, i.e. the whole was of wood, and raised on wooden pillars. For safe shelter during earthquakes, they built a small apartment of bamboo in the courtyard or garden in which the whole family could sleep (ibid).

Observations and records indicated that the earthquakes occurred more frequently at the end of the year and most commonly at night time. A Spaniard witnessing two such events in the month of December 1770 described the event as follows:

> The first was violent, and threw down many houses; it was announced at nine o'clock at night by a strong southerly wind, which considerably agitated the sea. The atmosphere became charged with a reddish vapor, and in two hours time can be felt three successive shocks, which can produce a kind of sea sickness. The vessels in the road were sensible of the motion, and thought they had struck. The Spaniards employed themselves in chanting the rosary (ibid).

The Spaniards also built galleys and light boats with oars with which they could bring the cargoes to the heavier vessels. This was a measure they adopted to avoid water disasters. The large ships simply came to such ports, loaded their cargoes and returned (Blair and Robertson, 1903)

One of the most important developments in the field of disaster management during the Spanish colonial period took place in 1865 when Francisco Colina, a young Jesuit scholastic and professor of mathematics and physics at the Ateneo Municipal de Manila, started a systematic observation of the weather. Later, in 1869, upon the insistence of businessmen, merchants and mariners from Manila to the Jesuit superior, Fr. Juan Vidal, regular observation was initiated to forewarn the public of approaching typhoons (PAGASA, 2001).

Federico Faura was designated to head the newly established observatory and he issued a typhoon warning for the first time on July 7, 1879. The issuance of typhoon warnings was helped by the acquisition of an instrument at the Vatican Observatory in Rome called the Universal Meteorograph (ibid). These first meteorological or weather observations were followed almost immediately by the first seismic or earthquake observations. In 1890, the seismology section was officially established (ibid).

2.2.2 Some disaster events during the Spanish colonial period

Water Disasters

In 1694, the *San Jose* galleon sank. It was noted that many such galleons were endangered through overloading of undervalued shipments and through the appointment of relatives or favorites of the influential as admirals and officers of the great ships, though these appointees often lacked experience or qualifications. The Spaniards' version of the loss of the galleons and other disasters, which they tried to impress upon the Filipinos, was the striking hand of God punishing the Filipinos for their sins (Corpuz, 1989).

Volcanic Eruptions

A number of noted disasters during the Spanish colonial period resulted from volcanic eruptions. Some of the fiercest eruptions were those of the Taal and Mayon volcanoes.

One of Taal's most violent outbursts on record began on August 11, 1749. This was described by Fr. Buencuchillo, who at that time was parish priest at Sala:

> During the night of that day the top of the mountain burst with tremendous force from the same crater which since ancient times used to emit fire and rocks. The course of the events was this: At about 11 o'clock of the night I had noticed a rather extensive glare over the top of the island; but entirely unaware of what it might portend, I paid no special attention to it and retired to rest. Around 3 o'clock in the morning of the 12th, I heard something like heavy artillery fire and began to count the reports, taking it for granted that they came from the ship which was expected to arrive from New Spain (Mexico), and which, according to ancient custom, on entering Balayan Bay saluted Our Lady of Cayaysay. I thought it strange, however, when I found that the number of detonations already exceeded one hundred and still they did not cease. This caused me to rise with some anxiety as to what could be the matter; but my doubts were quickly dispelled, as at this moment there appeared four excited natives who shouted: "Father, let us leave this place! The volcano has burst out, and all this noise and racket comes from it!" (quoted in Maso, 1999)

In 1754, the greatest eruption recorded in the history of Taal occurred. Again, Fr. Buencochillo, who was stationed at Taal, described the eruption:

> On May 15, 1754, at about 9 or 10 o'clock in the night, the volcano quite unexpectedly commenced to roar and emit, sky-high, formidable flames intermixed with glowing rocks, which, falling back upon the island and rolling down the slopes of the mountain, created the impression of a large river of fire. During the following days, there appeared in the lake a large quantity of pumice stone, which had been ejected by the volcano. Part of these ejecta had also reached the hamlet of Bayuyungan, and completely destroyed it.
>
> The activity of the volcano continued thus until June 2, during the night of which the eruption reached such proportions that the falling ejecta made the entire island appeared to be on fire, and it was even feared that the catastrophe might involve the shores of the lake. From the said 2nd of June until September 25, the volcano never ceased to eject fire and mud of such bad character that the best ink does not cause so black a stain (ibid).

Between 1572 and 1904, 12 eruptions of Taal were recorded (ibid). After the destructive eruption in 1754, and even in the previous violent eruption, people, after considering the damage, slowly reestablished their communities in the same place. It was only during an eruption that inhabitants evacuated the area affected.

Another volcano for which early colonial records exist is Mayon volcano. An eruption between February 19 and 23, 1616 was recorded, accompanied by rivers of fire, thick smoke and ash, accompanied by violent earthquakes. Its most violent eruption was recorded on February 1, 1814, which severely damaged four towns. Torrential rains generated within the eruption cloud resulted in lahar that buried three villages to a depth of 10–12 meters, and it was estimated that 1,200 people were killed. A third notable eruption occurred in 1897, when 350 people in three nearby barangays were killed (del Mundo et al., 1997).

Earthquakes

On November 30, 1645, Manila experienced the most destructive earthquake in its history. A number of stone buildings were ruined, and an estimated 3,000 lives lost.

This earthquake was noted to compare in magnitude with the greatest recorded in world history (Arnold, 1985).

Numerous other earthquakes occurred in 1743, causing large scale destruction in the Philippines. On January 12, in the province of Tayabas, Quezon, the church and a monastery made of stone were devastated by an earthquake and accompanying landslides. The records show that inhabitants had never previously seen such destruction, with the town rendered uninhabitable and its people forced to move to another place to build a new town (ibid).

At the end of 1743, on the island of Leyte, a great earthquake ruined many towns. The event was also noted to have sunk a 600-foot tall mountain (ibid).

Floods

Flooding was recorded to have taken place in Pampanga City in Northern Luzon. In 1869, flooding in the area caused destruction of many animals and livestock. In 1882, it was reported that rain fell for forty days, causing extensive flooding (Corpuz and Rosero, 1994).

Epidemics

In 1818, the first recorded occurrence of cholera was in the Central Luzon area. It claimed a considerable number of lives as medicine was not yet available in the Philippines. In 1882, the first occurrence of beriberi was recorded. In 1887-1888, cholera and pestilence caused destruction of livestock, and this in turn caused the beef and *carabao* (water buffalo) prices to double.

Locusts

In 1687, a severe locust plague was noted to have struck many provinces and islands. An account of the infestation by a friar describes its severity:

> The locusts were so many that in dense and opaque clouds they darkened the sun and covered the ground on which they settled. These insects ravaged the grain fields and left the meadows scorched, and even the trees and canebrakes were stripped of the green leaves. These locusts were so voracious that they not only laid waste every kind of herbage and verdure, but they entered the houses and gnawed and pierced with holes every kind of cloth and those who flapped sheets and coverlets at the locusts to drive them away…. Thereupon, the people began to feel the loss that ensued from this calamity, in the great scarcity and want of provisions… (ibid)

2.2.3 How was disaster managed?

Disaster management during the Spanish period was an area given importance by the colonial rulers. In practice, the frequency of disaster events in the country experienced by them and the urgency of their drive to maximize gain from the colony, however, stood in the way of their establishing disaster management in the Philippines.

The first notable step toward disaster management taken by the Spanish rulers was to establish an accounting of disaster events as they occurred. Their accounts of calamities and disaster events between 1521 and 1898 are considered one of the bases for the development of the present day early warning system for disaster management of typhoons, volcanic eruptions and earthquakes. The Spaniards' records from the

observatory they established in Manila provided the first technology for early warning of typhoons and seismic activities.

Early understandings of preparedness and mitigation measures can also be traced to the Spanish period. Churches were made of large bricks of stones that could withstand powerful storms and earthquakes. Spanish houses were made of stones on the first floor but mostly of wood on the second floor, which prevented the houses from crumbling during earthquakes while keeping them strong against powerful storms.

A response system was also in evidence during the latter period of the Spanish conquest, when Filipinos started to revolt against the Spaniards and to fight for their independence. Filipinos who suffered in these uprisings were treated with first aid by Filipino women who were family members or members of the revolutionary group. The most famous of these was Melchora Aquino, mother of the Kataastaasan, Kagalang-galangang, Katipunan ng mga Anak ng Bayan, a revolutionary group fighting for independence.

2.3 The American colonial period: 1899–1946

The coming of the Americans led to changes in approaches to disaster management. As the period was characterized conflicts and wars, the scope of disaster management was significantly widened. From the focus on natural disaster events, government plans also started to consider man-made disasters. When benevolent assimilation was proclaimed, and the Philippines came under the leadership of the United States of America, the new government started to introduce laws and institutions on disaster management (Agoncillo, 1974).

2.3.1 Some disaster events during the American colonial period

Earthquakes

From 1899 to 1946, the country experienced 115 earthquakes, ranging in intensity from V to IX. Most of these were in the Luzon and the Mindanao regions. Of the 115, more than 50 were considered catastrophic. Arnold (1985) has identified some of the more devastating earthquakes that hit the country between 1899 and 1946.

On August 21, 1902, an earthquake was detected in Laguna de Lanao that had a magnitude of intensity of VI. The earthquake resulted in the collapse and destruction of houses, with fissures opening in the ground. Five days later, another earthquake struck Iloilo and Panay Islands with a recorded magnitude of intensity VI. Maasin Town suffered most from the earthquake, with the church greatly damaged, part of the front wall collapsed and the tower destabilized.

On December 28, 1903, an earthquake of intensity VI was recorded in Southern Mindanao. The bell at the church tower swung at a 45 degree angle, and all the statues in the church were damaged. The walls cracked, especially those lying in the direction of the principal seismic waves. However, no casualties were reported.

On April 19, 1907, intensity VI was recorded simultaneously in the Manila and the Bicol regions. The earthquakes were felt in the greater part of Luzon and Visayas, throughout an area more than 800 km. in diameter. Manila was shaken by a series of quakes for a period of three hours. The Customs House in Manila was badly damaged. Its stairway landing was pulled loose by about eight inches from its original place,

pillars cracked, and support columns leaned, one of them by about six inches out of plumb.

On November 19, 1915, an earthquake of intensity VI damaged most of the infrastructures in Laoag City like the provincial building, constabulary quarters and offices, and the provincial governor's residence. Big waves were also observed during the earthquake.

On January 04, 1916, a very strong earthquake with an intensity VIII magnitude hit the town of Maasin.

On January 31, 1917, the town of Glan in Southern Mindanao and its nearest suburbs were hit by an intensity VIII earthquake, killing at least seven people. A tidal wave of about four feet occurred after the earthquake.

Eruption of Taal in 1911

In the 1911 eruption of Taal, 1,335 lives were lost and the island was devastated. The horror of its impact was recorded by eyewitnesses:

> All was a scene of horrible desolation…half burned bodies, partly exposed, intermingled with the ruins, made up the revolting mass in that region of death… (survivors)… crawled half burned to their little boats and tried to get away were doomed to death in another form (tsunami). The terrible convulsion of nature heaped the waters of Lake Taal in one huge hogback that curved outward and inward, mountain high, dashing little bancas to fragments against the shores.
>
> No one can tell the height of this wave, but it has washed barrios 2,500 feet from the lake… The poisonous blast spread its delay fumes over the west shore of the lake and from 800 to 1000 were added to the list of victims. Five barrios were almost entirely wiped out. Natives died in their beds.
>
> Others were swept away in the flood that followed… by special design… the force of the eruption directed against the west shore so efficiently were the inhabitants wiped out (Juan, 1997).

Given the ferocity of the eruption, the relatively low number of casualties can be attributed to the limited number of people exposed to the hazard. The density of the population on the island and in the nearby lakeshore area was still sparse. After the 1911 eruption, the government under the American Occupation prohibited any form of resettlement on the island.

2.3.2 The Commonwealth Period and the Japanese occupation

During the Commonwealth period, two important executive orders were signed to safeguard civilians in grave emergencies.

In preparation for war, President Manuel Quezon, the first President during the Commonwealth period, created the Civilian Emergency Administration by Executive Order 335 of 1941 in order to prepare the people for war in the Pacific. Air raid drills were conducted in Manila and in other cities. Military training for young people was intensified. First aid courses were given in all schools and social clubs (Tanikalang, 2001).

Executive Order 335 was primarily intended to protect the civilian population in extraordinary and emergency conditions. It was also concerned with the adoption of measures to control and coordinate civilian participation in meeting grave emergencies.

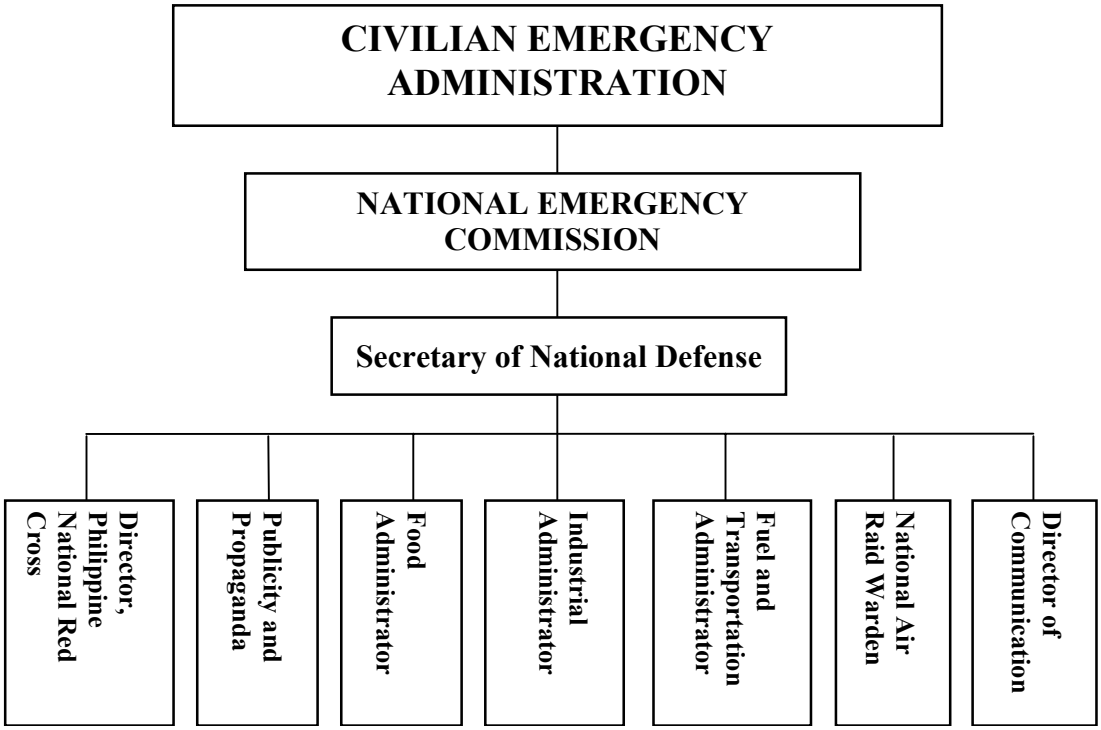


Figure 1. Organizational Chart of the Civilian Emergency Administration

An important body under this structure is the National Emergency Commission, composed of the Secretary of National Defense as Chairman and a representative from each Executive Department as members (see Figure 1). The National Emergency Commission (NEC) formulates and executes policies and plans aimed at the protection of the welfare of the entire population through the following key actors:

- Manager, Philippine National Red Cross (PNRC)
- Director, Publicity and Propaganda
- Food Administrator
- Industrial Administrator
- Fuel and Transportation Director
- National Air Raid Warden
- Director, Communications.

The Executive Order also provided for the creation of a **Provincial Emergency Committee** in each province. Membership was composed of the provincial governor as chairman with the provincial treasurer, the provincial fiscal, district engineer, division superintendent of schools, the provincial inspector of the constabulary, district health officer, and the provincial agricultural supervisor The committee had general control over the **Municipal Emergency Committees** and the **City Emergency Committee**, with replicated tasks.

Executive Order No. 337 stipulated the rules and regulations for the organization and training of volunteer guards. It empowered the volunteer guards to assist in the maintenance of peace and order in the locality to prevent injury to persons and property. The mayor of each chartered city, municipality or municipal district was made responsible for organizing the members of Volunteer Guards Units, who were trained under the supervision of the Chief of the Philippine Constabulary. Volunteer Guards had the authority to:

- Assist in the suppression of espionage and sabotage
- Assist in the maintenance of peace and order in emergencies
- Safeguard public utilities, bridges and manufacturing plants engaged in essential industries, and
- Aid and assist the populace in emergencies caused by fire, flood, earthquake, typhoon, epidemics, air raids or other forms of local or national disaster in order that injury to individuals and property may be prevented.

Volunteer Guards units were assigned specific tasks:

- *The Police, Traffic Control and Guard Duty Unit* was responsible for assisting the local police force and constabulary or its representative, in maintaining law and order and controlling traffic during emergency.
- *The First Aid Unit* was composed of one first aid squad comprising eight health attendants and two vehicles equipped to serve a population segment of 3,000 people.

- *The Rescue Units* were responsible for the rescue of persons trapped in fallen buildings and in the debris from such buildings. This unit was trained and supervised by the District or City Engineers and organized into squads with a leader and a right man. One squad was organized for each 5,000 population with the local authorities providing equipment for the squad.
- *The Fire-Fighting Unit* was to assist the existing fire-fighting forces in controlling and extinguishing fires, particularly those caused by incendiary bombs. These units were trained and supervised by the Chief of the Fire Department, or any retired firemen or by civilians who had received special instruction in fire-fighting methods. The squads were centered strategically near military objectives such as railway stations, docks, factories and public buildings.
- *The Demolition and Repair Unit* was composed solely of men skilled in construction work, the handling and use of explosives, street and highway repair, general utility repair, and maintenance work.
- *The Decontamination Unit* had the sole purpose of decontaminating areas in which poisoned gas was released. Each squad consisted of a leader and six men for each 5,000 population.

The Volunteer Guard was composed of actual volunteers from the community. Thus, Executive Order 337 restricted its membership. The following officers and professionals were not allowed to become members of the Guard:

- Officers, warrant officers and enlisted men of the Philippine scouts
- Officers, warrant officers and enlisted men of the regular force and of the reserve force
- Members of all regularly organized fire departments in cities and municipalities
- Members of all regularly organized police forces in provinces, cities and Municipalities
- Employees of the Bureau of Posts and field employees of the Weather Bureau
- Personnel of the Coast Guard
- Physicians, nurses and regular hospital attendants, and
- Employees of public utilities.

Mayors of cities and municipalities were authorized to appoint leaders and assistant leaders from among the members of the Volunteer Guard upon the recommendation of the senior leaders. They could only be called into active duty by the Provincial Governor, and only by the mayor in chartered cities. However, in times of imminent emergency caused by disaster events such as war, sabotage, fire, floods, and earthquakes, mayors could act immediately without the approval of the Governor.

During the Japanese occupation, the puppet government set up under President Jose P. Laurel issued Executive Order No. 36, paving the way for the creation of the Civilian Protection Service (CPS). This organization was responsible for the formulation and execution of plans and policies for the protection of the civilian population during air raids and other national emergencies. The CPS worked with the Civilian Protection Administration as its executive body composed of three members, namely the Civilian

Protection Administrator, the Chief of the Air Warden and the Chief of the Medical and First Aid Service. The order also provided for the establishment of provincial, city and municipal protection committees, with governors, and municipal mayors as respective heads (OCD–NDCC, n.d.).

2.3.3 How was disaster managed?

In the period 1899 to 1946, disaster management improved in the country. Even before the inception of formal structures and institutions for disaster management, the people of the period had already devised their own means of managing disasters.

The years 1899 to 1908 saw the emergence and development of weather forecasting. In 1901, the Observatorio founded by Francisco Colina was changed to the Weather Bureau by Act. No. 31 of the Philippine Commission (PAGASA, 2001). By 1908, the Bureau had introduced the Far East's first weather map. With the accurate forecasts published by the Bureau, shipping and seafaring in the Far East came to rely mainly on the Bureau for safety. With the advent of weather forecasting, mitigation developed scientifically and helped not only the people on the high seas but also the people in the low land areas across the whole region. By publishing bulletins to towns in coastal areas, the Bureau helped people become aware of any imminent flooding in their area caused by typhoon, thus prompted their evacuation and resettlement in higher places (PAGASA, 2001).

At the outbreak of the Second World War, the value of this early warning system proved to be significant to the American forces in the liberation of the Philippines from the Japanese. Weather forecasters went underground to be able to feed valuable information about enemy-occupied territory to the Americans. These forecasters were greatly honored by General Douglas MacArthur (PAGASA, 2001). During this war, thousands of American and Filipino soldiers and civilians perished or were wounded. 800,000 to 900,000 individuals were fed and cared for by the Philippine National Red Cross (PNRC). At the same time, the organization undertook general relief operation involving daily distribution of food to thousands of starving families and soldiers, and created a medical service department, which installed emergency hospitals treating civilians injured during air raids (Ong, 1997).

3 PHILIPPINE DISASTER MANAGEMENT: 1947–PRESENT

The particular vulnerability of the Philippines to natural and man-made hazards, as witnessed by Filipinos since pre-colonial times, has required the establishment and implementation of formal and effective disaster management systems and structures. Legislative initiatives immediately after the World War II period continued to focus on measures and strategies of response during war or other national emergencies of equally grave character. Each subsequent decade has seen increasingly comprehensive plans developed with increasing involvement of Filipinos from the highest levels of government down to the barangays.

3.1 Civil Defense Act of 1954 (Republic Act 1190)

The promulgation of Republic Act 1190, otherwise known as the Civil Defense Act of 1954, addressed the need for the protection and safeguarding of the population. This Act

provided for the establishment of a National Civil Defense Administration (NCDA), under the Office of the President, mandated to provide protection and welfare to the civilian population during war or other national emergencies. RA 1190 also provided for the establishment of civil defense councils at the national level, known as the National Civil Defense Council (NCDC), and at local levels in the forms of provincial, city and municipal civil defense councils. The NCDC was composed of the following:

- NCDC Administrator (Chairman)
- Chairman, Committee on National Defense and Security of both Houses of Congress
- Chief, Philippine Constabulary
- Commissioner of Social Welfare
- Manager, Philippine National Red Cross
- Manager, National Development Company
- Manager, Price Stabilization Corporation

To carry out programs through local councils, the provincial governors, and city and municipal mayors were designated Provincial, City and Municipal Civil Defense Directors respectively. The cities and municipalities were the main basic operating units for the purpose. To effectively facilitate the implementation of the programs, the units of each of the civil defense operating services were established in the national defense organization, and in each defense organization at provincial, city and municipal levels. The operating services of the national and civil defense organizations are the following:

- Warden Service
- Police Service
- Fire Service
- Health Service
- Rescue and Engineering Service
- Emergency Welfare Service
- Transportation Service
- Communication Service
- Evacuation Service
- Air-raid Warning Service, and
- Auxiliary Service.

Cognizant of the destruction brought about by fires, the Committee on Fire Control and Promulgating General Procedure on its Functions and Operation was created by Executive Order No. 74 on July 13, 1967. The committee was headed by the National Civil Defense Administrator. Likewise, in recognition of the dangerous effects of radioactive fallout and the need to protect the greatest number of people, Executive Order No. 116, dated January 26, 1968, required the creation of an Advisory Committee on the design and construction of fallout shelters. The committee was headed by the Director of the Bureau of Public Works as Chairman. All reports were to be submitted to the President of the Philippines through the Civil Defense Administrator.

Moreover, Executive Order No. 159, dated November 26, 1968, required the establishment of a disaster control organization by all government offices including departments, bureaus, offices, agencies, instrumentalities and political subdivisions of the government, including corporations owned or controlled by the government, the armed forces, government hospitals, and public educational institutions. The NCDA was designated as the national coordinator to oversee and implement this order and to report the degree of preparedness of all government offices to the Office of the President. it has been observed (Doctor and Duque, 1987) that the NCDA, as a planning body under the Office of the President, has been constrained in carrying out its functions effectively by budgetary constraints, and apathy and indifference by the public and the government to the NCDA's disaster preparedness and prevention programs.

In 1968, a powerful earthquake hit Manila. In response, the National Committee on Disaster Operation (NCDO) was created by Administrative Order No. 151, issued on December 2, 1968. The National Committee was to ensure effective coordination of operations of the different agencies during disasters caused by typhoons, floods, fires, earthquakes, and other similar calamities. The committee was composed of:

- Executive Secretary (Chairman)
- Secretary of Social Welfare (Vice-Chairman)
- Secretary of National Defense
- Secretary of Health
- Secretary of Public Works and Communications
- Secretary of Agriculture and Natural Resources
- Secretary of Commerce and Industry
- Secretary of Education
- Commissioner of the Budget
- Secretary of Community Development, and
- Secretary-General, Philippine National Red Cross The National Civil Defense Administrator.

The committee was also authorized to create committees at the provincial, city and municipal levels to serve as sub-committees. To support the functions of the Committee effectively, a Standard Operating Procedure (SOP) was issued. This SOP prescribed the organizational setup and responsibilities of agencies involved, standardized procedures for the conduct of disaster operations, and guided agencies concerned in the preparation of their respective SOPs.

3.2 Formulation of the Disaster and Calamities Plan (1970)

In the aftermath of Typhoon Sening, which ravaged the Bicol Region on October 19, 1970, and the flooding of Metro Manila, President Ferdinand E. Marcos approved a Disaster and Calamities Plan prepared by an Inter-Departmental Planning Group on Disasters and Calamities. Under the Plan, a National Disaster Control Center that was created, and composed of:

- Secretary of National Defence (Chairman)

- Overall Coordinator (Executive Secretary)
- Secretary of Health
- Secretary of Public Works and Communications
- Secretary of Agriculture and Natural Resources
- Secretary of Commerce and Industry
- Secretary of Education, and
- Secretary of Community Development.

3.3 Office of Civil Defense

The Integrated Re-organization Plan, prepared in 1972, created the Office of Civil Defense (OCD), which assumed the functions of the NCDA. The OCD was entrusted to ensure the protection and public welfare during disasters or emergencies. Under Letter of Implementation No. 19, Series of 1972, the mission of the OCD is:

> Coordinate, on the national level, the activities and functions of the various agencies and instrumentalities of the national government and private institutions and civic organizations devoted to public welfare so that the facilities and resources of the entire nation may be utilized to the maximum extent for the protection and preservation of people's life and property during time of war and other national emergencies of equally grave character.

The functions of the Office of Civil Defence, as defined by LOI No. 19, are:

- To establish and administer a comprehensive national civil defense and civil assistance program
- To formulate plans and policies for the protection and welfare of the civilian populace in time of war directly involving the Philippines, or other national emergencies of equally grave character
- To estimate the total material, manpower and fiscal requirements for carrying out the national civil defense and civil assistance program, and allocate to the provinces, cities, municipalities and barangays such aid in facilities, materials and funds as may be available from the national government
- To develop and coordinate program for informing, educating and training the general public and volunteer workers on civil defense and civil assistance measures and activities
- To furnish guidance to the various provinces, cities, municipalities and barangays in the planning, organization and operations of their civil defense organization
- To advise the Secretary of National Defense on matters concerning civil defense and make recommendations from time to time as maybe deemed appropriate or as the Secretary may require, and
- To perform such other duties as may be directed by higher authority or provided by law.

3.4 Formal Establishment of the NDCC, RDCC and Local DCCs

On June 11, 1978, Presidential Decree No. 1566 (PD1566) was issued to strengthen the Philippine disaster control capability and to establish a national program for community disaster preparedness. PD1566 provided for the National Disaster Coordinating Council as the highest policy-making body on matters of disasters in the country. Disaster coordination was established from the lowest governmental units, the barangays, to the broad regional units. In its policy declaration, the following state policies on self-reliance among local officials and their constituents in responding to disasters or emergencies were stipulated:

- Each political and administrative subdivision of the country shall utilize all available resources in the area before asking for assistance from neighboring entities or a higher authority
- The primary responsibility rests on the government agencies in the affected areas in coordination with the people themselves
- It shall be the responsibility of all government departments, bureaus, agencies and instrumentalities to have documented plans of their emergency functions and activities
- Planning and operation shall also be done on the barangay level on an inter-agency, multi-sector basis to optimize the utilization of resources
- In the absence of a duly constituted regional government, national government offices at the regional level shall be led and operationally controlled by the Regional Commissioner or by the official so designated by the President
- Responsibility for leadership rests on the Provincial Governor, City Mayors, and Municipal Mayors, and Barangay Chairman, each according to his area of responsibility
- When an emergency affects an area covering several towns and cities, the city mayors and their personnel and facilities shall be placed under the operational control of the provincial governor for the duration of the emergency
- The national government exists to support the local governments. In time of emergencies, and according to their level of assignment, all national government offices in the field shall support the operations of the local government, and
- To ensure that operational activities become automatic and second nature to all concerned, exercises and periodic drills shall be conducted at all levels, principally in the barangays.

The most salient provisions of PD1566 (OCD–NDCC, n.d.) are:

- Organization of disaster coordinating councils from the national down to the municipal level
- Statement of duties and responsibilities of the National Disaster Coordinating Council (NDCC), RDCCs and local disaster coordinating councils (LDCCs)
- Preparation of the National Calamities and Disaster Preparedness Plan (NCDPP) by OCD and implementing plans by NDCC member-agencies

- Conduct of periodic drills and exercises, and
- Authority for government units to program their funds for disaster preparedness activities in addition to the 2 percent calamity fund as provided for in PD 474 (amended by RA 8185).

3.5 Calamities and Disaster Preparedness Plan 1988

With reference to PD1566, the Calamities and Disaster Preparedness Plan was prepared by the OCD-NDCC in 1988 to save lives, to prevent needless suffering, to protect property and to minimize damages during disasters and calamities. Based on this plan, the composition and respective functions of all key member agencies and the different disaster coordinating councils have been described and are reviewed in subsections below.

3.6 National Disaster Coordinating Council

The NDCC 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 members of the Council are:

- Secretary of National Defense (Chairman)
- Secretary of Public Works and Highways
- Secretary of Transportation and Communications
- Secretary of Science and Technology
- Secretary of Social Welfare and Development
- Secretary of Agriculture
- Secretary of Education, Culture and Sports
- Secretary of Finance
- Secretary of Labor and Employment
- Secretary of Trade and Industry
- Secretary of Interior and Local Government
- Secretary of Health
- Secretary of Environment and Natural Resources
- Secretary of Tourism
- Secretary of Budget and Management
- Secretary of Justice
- Director, Philippine Information Agency
- Secretary-General, Philippine National Red Cross
- National Housing Authority

- Chief of Staff, Armed Forces of the Philippines
- Director-General, National Economic Development Authority (NEDA)
- Presidential Executive Secretary, and
- Administrator, Office of Civil Defense (Member and Executive Officer).

At the national level, the NDCC advises the President on efforts in disaster management undertaken by the government and the private sector, thereby serving as the highest policy-making body on disaster management. The OCD serves as its operating arm, supporting discharge of its functions. The NDCC is replicated at the regional and local levels, and these bodies function substantially like the NDCC, operating and utilizing resources at their respective levels.

3.7 Tasks of NDCC Chairman and Member-Agencies

The Chairman convenes the Council as often as necessary and calls on all other government agencies and the private sector for assistance when the need arises.

- The *Administrator of the Office of Civil Defense* coordinates the activities, functions of the various agencies and instrumentalities of the government, private institutions and civic organizations to implement the policies and programs of the NDCC. The OCD Administrator prepares and disseminates materials on disaster management and advises the Chairman on matters concerning disaster management.
- The *Secretary of Public Works and Highways* restores destroyed public structure such as flood control, waterworks, roads, bridges and other vertical and horizontal facilities/structures and provides heavy and light equipment for relief, rescue and recovery operations.
- The *Secretary of Transportation and Communications* restores destroyed communication and transportation facilities such as railroads and vertical structures and organizes emergency transport services from the national to the barangay level.
- Under *the Secretary of Science and Technology*, the administrative functions of several bodies are coordinated:
    - *The Philippine Atmospheric, Geophysical and Astronomical Services Administration* (PAGASA) keeps a continuing watch over the environmental conditions within the country to prepare daily weather forecasts, typhoon warnings and flood outlook. It provides assistance to various sectors on meteorological and climatological matters.
    - *The Philippine Institute of Volcanology and Seismology* (PHIVOLCS) issues advisories on earthquakes, volcanic activities and tsunamis to concerned agencies and the general public. It identifies appropriate evacuation sites in coordination with concerned agencies as well as organizes Disaster Control Group and Reaction Teams in the commission proper and in its field stations.
    - *The Philippine Nuclear Research Institute* (PNRI) issues advisories on radioactive fallout, contamination and radiation incidents to the

general public. It supervises the organization and training of disaster control teams in nuclear installations and related facilities.

- The *Secretary of Social Welfare and Development* extends relief assistance and social services to the victims as necessary and provides assistance in the rehabilitation of victims.
- The *Secretary of Agriculture* undertakes surveys in disaster-prone areas and actual disaster areas to determine the extent of damage to agricultural crops, livestock and fisheries, and provides technical assistance to disaster victims whose crops or livestock have been destroyed.
- The *Secretary of Education, Culture and Sports* provides assistance in the public education and campaign regarding disaster preparedness, prevention and mitigation through the integration in the school curricula of relevant subjects. The Secretary also makes available school buildings as evacuation centers and organizes and trains disaster control groups and reaction teams in all schools and institutions of learning.
- The *Secretary of Finance* issues rules and regulations, in collaboration with the relevant agencies concerned, on funding to local governments of the requirements of their disaster coordinating councils. The Secretary also issues rules and regulations jointly with the Department of Budget and Management on the preparation of the Local Government Budget and the utilization of the 2 percent reserves for disaster operations.
- The *Secretary of Labor and Employment* organizes and trains Disaster Control Groups in all factories and industrial complexes, provides emergency employment opportunities to disaster victims, and implements the industrial civil defense programs and measures.
- The *Secretary of Trade and Industry* maintains normal levels of commodity prices during emergencies, and organizes disaster control groups and reaction teams in large buildings used for commercial and recreational purposes.
- The *Secretary of Interior and Local Government* oversees the organization of local disaster councils, the establishment of Disaster Operations Centers of all local governments, and the training of DCC members in coordination with OCD, DSWD, Philippine National Red Cross (PNRC), and other appropriate agencies.
- The *Secretary of Health* provides health services during emergencies as necessary, and organizes reaction teams in hospitals, clinics, and sanitary and other health institutions. The Secretary also issues appropriate warnings to the public on the occurrence of health hazards.
- The *Secretary of Environment and Natural Resources* is responsible for reforestation and control of areas that tend to cause flooding, landslides, mudflow and ground subsidence. Additional responsibilities are to provide technical assistance on mines and forests and lands, to formulate rules and regulations for the control of water and land pollution, and to issue advice on environmental pollution.

- The *Secretary of Tourism* organizes and trains disaster control groups and reaction teams in hotels, pension houses, restaurants and other tourist-oriented facilities.
- The *Secretary of Budget and Management* releases funds required by the departments for disaster operations.
- The *Director of the Philippine Information Agency* provides public information services through dissemination of disaster mitigation measures and disaster preparedness.
- The *Secretary-General of the PNRC* conducts disaster leadership training courses, assists in the training of DCCs at all levels, and help in providing emergency relief assistance to disaster victims.
- The *National Housing Authority* is responsible for the assessment of housing requirements of displaced persons. It is also concerned with the provision of temporary housing and the rebuilding of destroyed areas.
- The *Chief of Staff of the AFP* is responsible for the provision of security in disaster area and assistance in the reconstruction of roads, bridges and other structures. The Chief also provides transportation facilities for rapid movement of relief supplies and personnel and for the evacuation of disaster victims.
- The *Director-General of NEDA* is responsible for the determination and analysis of the effects of disasters and calamities on the socioeconomic plans and programs of the country, and development of damage assessment scheme.

3.8 Regional Disaster Coordinating Councils

Regional disaster coordinating councils (RDCCs) coordinates at the regional level the activities of all national government agencies assigned to a particular administrative region. The National Chairman assigns the Chairman of a RDCC to the post by presidential designation, although under the present arrangement, the Philippine National Police (PNP) Regional Directors are designated as chairmen. In autonomous regions, the Chief Executives automatically become chairmen of disaster coordinating councils. In Metro Manila, the Chairman of the Metro Manila Development Authority is also the Chairman of the Metro Manila Disaster Coordinating Council (MMDCC).

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 expected to perform the following functions:

- Establish a physical facility known as the Regional Disaster Operations Center (RDOC)
- Coordinate disaster operations activities in the regions
- 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.

3.9 Local Disaster Coordinating Councils

At the local level, the chief executives are, by law, the Chairmen of their respective LDCCs. Thus, 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 primary functions of the local disaster councils as detailed in the NDCC's document, *Calamities and Disaster Preparedness Plan*, are given below.

3.9.1 Provincial Disaster Coordinating Council

- Establishes a physical facility to be known as the Provincial Disaster Operations Center (PDOC)
- Coordinates, from the PDOC, the disaster operations activities of the municipalities within the province
- Implements within the province the guidelines set by the RDCC
- Advises the City and Municipal and Barangay Disaster Coordinating Councils regarding disaster management
- Submits recommendations to the RDCC as necessary, and
- Places CDCCs and MDCCs and its tasked units under the operational control of the provincial disaster coordinating councils (PDCCs) during an emergency that affects the towns/cities.

3.9.2 City/Municipal Disaster Coordinating Council

- Establishes a physical facility, to be known as the City/Municipal Disaster Operations Center (C/MDOC)
- Coordinates from the C/MDOC the disaster operations activities
- Implements within the city/municipality the guidelines set by the PDCC
- Advises the Barangay Disaster Coordinating Councils regarding disaster management, and
- Submits recommendation to the PDCC, as necessary.

3.9.3 Barangay **Disaster Coordinating Council**

- Establishes the Barangay Disaster Operations Center (BDOC)
- Coordinates from the BDOC the disaster operations activities of its tasked units
- Implements within the barangay the guidelines set by the C/MDCC, and
- Advises the members of the BDCC on disaster management.

Local disaster councils are significant because of their close proximity to the population. An actual emergency, including the various aspects of emergency management, is most felt at this level. Similarly, it is at this level that damages are assessed and requirements are identified so that necessary actions and response can be taken. This local responsibility has been reinforced with the passage of the Local Government Code of

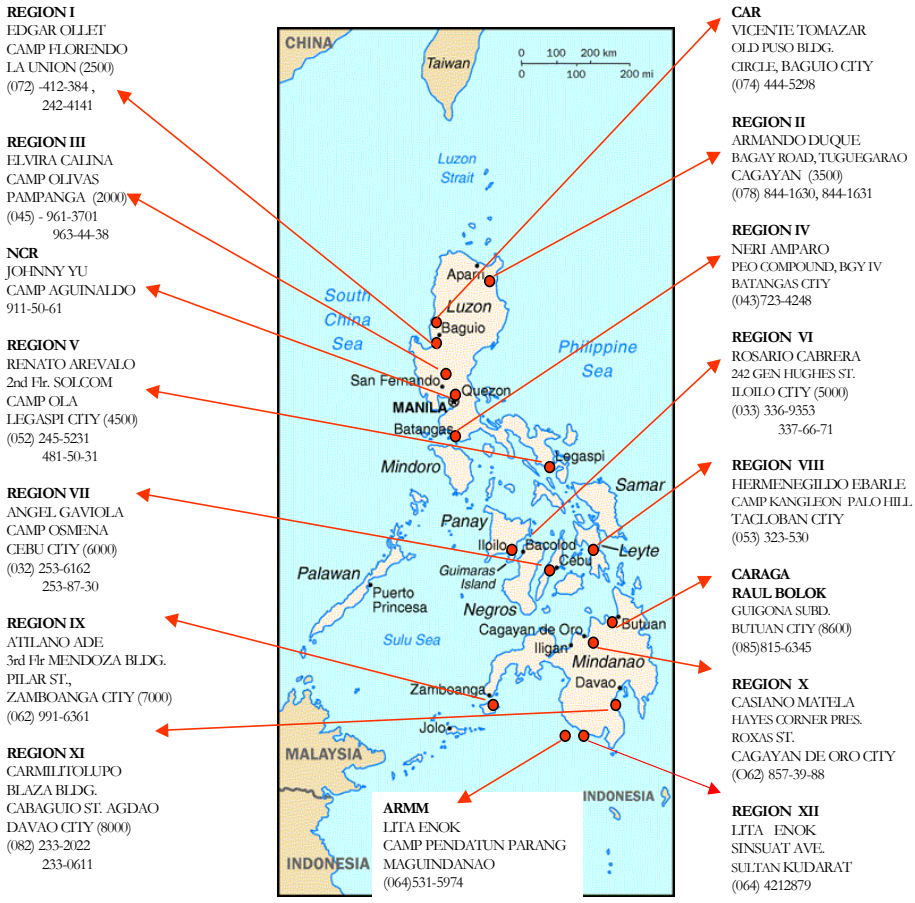
1991 (RA 7160), which provides for the devolution of basic services and functions to LGUs and allocation of a 5 percent calamity fund for emergency operations.

3.9.4 The Office of Civil Defense

Under PD1566, the OCD, plays a vital role in executing and monitoring the implementation of the policies and programs of the NDCC and in providing a secretariat support to the body. The office is headed by an Administrator, who is assisted by a Deputy Administrator, the Civil Defense Executive Officer, an Assistant Civil Defense Executive Officer I, five Divisions and 16 field offices. It operates and maintains the operating facility of the NDCC, which is the National Disaster Management Center (NDMC), located in Camp Aguinaldo, Quezon City.

There are 16 civil defense regional centers in the country (see Figure 2), including the National Capital Region, Cordillera Administrative Region and ARMM. These centers, headed by Civil Defense Officers V, are located in the following areas: NCR–Metro Manila; Region I — San Fernando, La Union; Region II — Tuguegarao, Cagayan; Region III — San Fernando, Pampanga; Region IV — Batangas City; Region V — Legaspi City; Region VI- Iloilo City; Region VII — Cebu City; Region VIII — Tacloban City; Region IX — Zamboanga City; Region X — Cagayan de Oro City; Region XI — Davao City; Region XII — Cotabato City; CAR — Baguio City; ARMM — Maguindanao and CARAGA — Butuan City.

The OCD field offices function on a 24-hour basis as the operating facilities of the Regional Disaster Coordinating Councils, which are called Regional Disaster Management Centers (RDMCs). Most of these are located in the PNP regional commands. The OCD structure has evolved to make it more responsive to the concerns of civil defense.



Source: Office of Civil Defense–National Disaster Coordinating Council

Figure 2. Office of Civil Defense Regional Centers

3.10 How does it work on the ground?

To better understand how these structures and mechanisms for disaster management are being carried out on the ground, Contingency Plan Taal Volcano or CONPLAN Taal is given as an example.

3.11 CONPLAN Taal

Contingency Plan Taal Volcano or CONPLAN TAAL is a notable response system of the Batangas Provincial Disaster Coordinating Council formed to establish guidelines and courses of action to be undertaken during an eruption, or an abnormal activity of the Taal Volcano. CONPLAN TAAL takes into account the resources, constraints and capabilities of the locality in laying down its primary objectives (Juan, 1997):

- To save lives
- To prevent needless suffering
- To protect property, crops and farm animals, and

- To at least minimize, if not avoid, the damages caused by an eruption.

By emphasizing the concept of self-help, CONPLAN outlines the responsibilities and functions of different agencies under PDCC and MDCC, and likewise recognizes the valuable involvement and contribution of other actors such as private agencies, NGOs, and the public. There are three phases in the evacuation plan, depending on the volcano's activity as well as the expected responses.

Phase I occurs when Taal Volcano manifests an abnormal condition and PHIVOLCS anticipates a major eruption, or the volcano suddenly exhibits a minor eruption without any precursory signs. When this happens, a seven-kilometer radius will be affected. There is a continuous flow of updated information from PHIVOLCS to the Batangas PDCC and the different MDCCs through the OCD on the alert level situation. The public is continuously informed by the PDCC on the volcano's behavior, with the PDCC coordinating with PHIVOLCS through the activation of the Provincial Disaster Operation Center. The Provincial Disaster Operating Council evacuates the residents of the volcano island to designated areas.

To facilitate the evacuation process, CONPLAN clearly specifies which communities are to be allocated to the different evacuation centers. Three sites are available at San Nicholas, Batangas: the old Municipal Building, Calangay Elementary School and Sinturisan Elementary School. Residents of Sitio Alas-as are assigned to Calangay, while those of Pulangbato are evacuated at Balete Elementary School. Aside from assigned evacuation centers, CONPLAN also outlines specific routes that should be taken by each barangay affected. For example, Taal volcano residents can exit across Taal Lake, which surrounds their island, while Barangay Aya residents can take the Tranca-Aya Provincial Road and those from Barangay Tumaway can exit through the Quiling-Mangahan Road.

Another crucial responsibility of PDCC is establishing and ensuring a warning system. Upon receiving a confirmation from OCD that an eruption is forthcoming, the PDCC relays the confirmation to the PNP Provincial Command which in turn contacts the station commanders of the municipalities affected to forewarn the residents. The MDCC — which includes the municipalities of Agoncillo, San Nicholas, Balete, Talisay, Laurel and Mataas na Kahoy — supports the PDCC by activating the Disaster Coordinating Council and Disaster Operations Council, monitoring the volcano's activity, and assisting in the evacuation operations of the PDCC.

Under Phase II or Phase III, eruption and evacuation scheme, the responsibilities of the different actors involved — PHIVOLCS, OCD, PDCC, MDCC and the public — essentially remain the same. The scale of the imminent or actual eruption distinguishes the phases of the evacuation, because of the expansion of the danger zone.

Under Phase II, a 10-kilometer radius is considered the danger zone with the imminent danger of eruption by the volcano, which is under Alert Level 4 or 5, as established by PHIVOLCS. In Phase III, the danger zone is expanded to include a 15-kilometer radius because the volcano is in an eruptive state, and an escalating violent eruption is further anticipated. To complete the evacuation effort, CONPLAN further outlines the respective responsibilities of concerned agencies for post-eruption assistance in terms of relief assistance, medical and health services and rehabilitation:

- The Provincial Social Welfare Office prepares case records of victims, receives donations and distributes relief goods as well as provides welfare services on an emergency basis
- PNRC contributes relief goods, assistance and provides first aid to injured victims
- Department of Interior and Local Government (DILG) Provincial Office mobilizes the Barangay Disaster Councils, provides direction and guidance to the locality and assists in monitoring the disaster situation
- The Provincial Health Office establishes emergency stations for first aid treatment of evacuees
- The DECS Division Office makes available the school buildings as evacuation centers, and
- The PNP Provincial Command undertakes all rescue and evacuation operations.

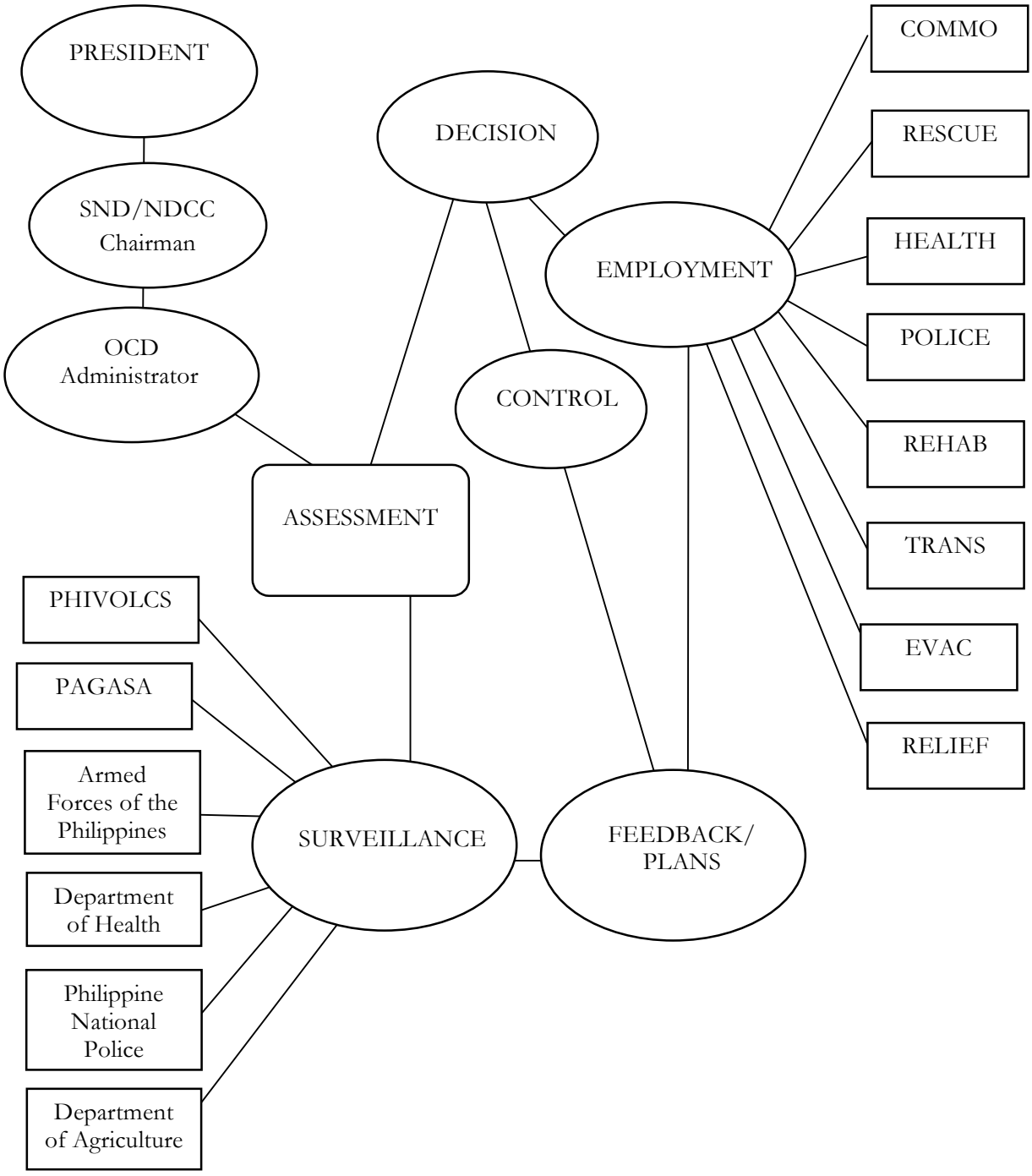
3.12 Mechanisms for Disaster Operations

Given these formal structures for managing disasters at all government levels, the essential mechanisms in disaster operations and the respective involvement of key disaster managers require elucidation. These mechanisms are the disaster operations flow, the state of calamity, national calamity fund, local calamity fund, and importation and donation of relief goods and equipment in calamity-stricken areas.

3.12.1 Disaster Operations Flow

Warning bulletins or information are simultaneously issued to the National Disaster Management Center (NDMC), to their respective regional/field offices concerned and to the general public through the broadcast media for widest dissemination. This applies to warnings of any impending disaster or emergency by any of the warning agencies — PAGASA for typhoons, floods, tsunami and other meteorological hazards; PHIVOLCS for volcanic eruptions, earthquake and other geological hazards; Philippine Nuclear Research Institute (PNRI) for radiological emergency; Department of Health (DOH) for epidemics, and the Armed Forces of the Philippines (AFP) and the PNP for civil unrest. The OCD-NDCC requires that the NDMC, upon receipt of the warning bulletin or disaster reports:

- Processes and evaluates the warning bulletin or disaster reports
- Disseminates the alert notice to the OCDRC/RDCC likely to be affected by the disaster, and to the cooperating agencies for possible activation of their implementing plans as members of the NDCC



Source: Office of Civil Defense-National Disaster Coordinating Council

Figure 3. Disaster Operations Flow

- Deploys rapid needs and damage assessment team, and establishes an Incident Command Post in the calamity area
- Activates the emergency broadcast system, if and when necessary
- Monitors and coordinates preparedness and actions taken by cooperating and implementing agencies, RDCCs and LDCCs to ensure that requirements in the affected areas are effectively addressed and acted upon
- Recommends to the President the possible need for a calamity area declaration and/or calamity fund releases
- Mobilizes the NDCC Response Teams to augment regional and local DCCs disaster operations activities, and
- Prepares and submits progress reports to the DND Secretary/Chairman, NDCC; President of the Philippines, NDCC Member-Agencies and other authorities concerned.

3.12.2 State of Calamity

The President of the Republic of the Philippines or the LGUs through the local Sanggunian, upon the recommendation of the local DCC, can declare a state of calamity. This would be done primarily to facilitate relief and rehabilitation efforts in calamity-affected areas, to control prices and prevent hoarding of basic commodities, and to carry out remedial measures in the affected areas, such as the release of funds from the national and local governments. The criteria for calamity area declaration include several conditions, two or more of which should be present in the affected areas and lasting for at least four days:

- 20 percent of the population has been affected and is in need of assistance, or 20 percent of dwellings have been destroyed
- A great number, or at least 40 percent, of the means of livelihood (e.g. bancas, fishing boats, vehicles) are destroyed
- Major roads and bridges have been destroyed and become impassable, thus disrupting the flow of transport and commerce
- Widespread destruction of fishponds, crops, poultry and livestock and other agricultural products
- Disruption of lifelines such as electricity, potable water system, transport system, communications, and other related systems, except for highly urbanized areas where restoration of the above lifelines cannot be made within 24 hours
- There is a ‘clustering’ of cases in a given area over a particular time.

In cases of epidemics or outbreaks of disease, an area may be declared under a state of calamity based on the following basis. There is an occurrence of an unusual (in other words, more than the previously expected) number of cases of a disaster in a given area or among a specific group of people over a particular period of time. To determine whether the number is more than the expected, the number should be compared with the number of cases during the past weeks or months or a comparable period during the last few years (at least five years).

3.12.3 National Calamity Fund

The *Revised Policies and Procedures on Calamity Fund Management* issued by the NDCC in Memorandum Order No. 2 (1999) states:

> The National Calamity Fund (NCF) under the Annual General Appropriations Act (GAA) 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 activities in the following order of priority:
>
> *Priority I* — For urgent and emergency relief operations, health services, settlement and rehabilitation of affected populations as well as the emergency repair and rehabilitation of vital public infrastructures and lifelines.
>
> *Priority II* — For repair, rehabilitation and reconstruction of other damaged public infrastructures/facilities that are not emergency in nature but are necessary for disaster mitigation.
>
> *Priority III* — For pre-disaster activities out side the regular budgets of line agencies and proposed capital expenditures for pre-disaster operations

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. The percentage rates for the local counterpart funds shall be as follows:

1st class	50 percent of the total project cost
2nd class	40 percent of the total project cost
3rd class	35 percent of the total project cost
4th class	30 percent of the total project cost
5th and 6th class	Exempted, but not exceeding P3 million

The procedures and guidelines for requesting release of National Calamity Fund as laid out in the *Revised Policies and Procedures on Calamity Fund Management* issued by the NDCC in Memorandum Order No. 02 (1999) are:

1. All requests for funding from the National Calamity Fund by national government agencies (NGAs) and LGUs shall be endorsed respectively by the Department Secretary, Head of Agency or LDCC Chairman, to the NDCC for review and evaluation, together with the following information and documents.

    1.1 Priority I — for urgent and emergency aid and relief operations (NDCC Form I)

    - Calamity Impact Assessment Report
    - Indicative Relief Plan

- Status of Disaster Preparedness Program (DPP)
- Endorsement of Chairman, RDCC

1.2 Priority II — for emergency repair and rehabilitation of vital public infrastructures (lifelines) (NDCC Form 2)

- Calamity Impact Assessment Report
- Priority list of damaged vital infrastructures (lifelines)
- Status of DPP
- Detailed work program, duly approved by the District Engineer
- Endorsement of Chairman, RDCC

1.3 Priority III — for repair, rehabilitation and reconstruction of other public infrastructures/facilities and rehabilitation assistance for the agriculture sector (NDCC Form 3)

- Accomplishment Report on previous disaster operations, with damage assessment and pictorials
- NCF utilization report of previous fund releases, if any.
- Project proposal
- Work program approved by the district engineer
- Status of DPP
- Endorsement of Chairman, RDCC

1.4 Priority IV — for pre-disaster activities and proposed capital expenditures (NDCC Form 4)

- Project Proposal
- Work and financial plan
- NCF Utilization Report
- Status of DPP
- Endorsement of Chairman, RDCC

2. Processed NCF requests are recommended by the NDCC Chairman to the President of the Philippines, who may approve or disapprove the request.

3. Approved NDCC recommendations are sent directly to DBM for the issuance of the SARO and NCA/Funding checks, copy furnished NDCC-OCD.

4. NCF releases are made directly to NGAs or LGUs concerned, as follows:

4.1 For Priority I — 100 percent of the approved NCF shall be released immediately.

4.2 Priority II and III — fund releases are made in four tranches as follows:

- First tranch — 30 percent
- Second tranch — 30 percent upon liquidation of at least 50 percent of the initial release, together with accomplishment report of at least 25 percent of the work program.

- Third tranch — another 30 percent upon liquidation of 100 percent of the first tranch and at least 50 percent of the 2nd tranch, together with accomplishment report of at least 60 percent of the work program.
- Final Tranch — remaining balance of 10 percent of the total funds upon liquidation of 100 percent of the 2nd tranch and at least 50 percent of the 3rd tranch, together with accomplishment report of at least 90 percent of the work program.

NDCC monitor the use of the NCF, and its recipients submit a monthly utilization report to NDCC-OCD with the completion of the project by using NDCC forms, certified correct by the Head of the NGA or LGU, and verified correct by the Commission on Audit (COA) Resident Auditor.

5. RDCCs concerned submit a quarterly report on the status of project implementation based on the SARO and NCA/Notice of Funding Check provided by NDCC (NDCC Forms 6 and 7).
6. NDCC monitors the utilization of the NCF released to NGAs and LGUs concerned, and submits a consolidated report thereon to the OP, with a copy to the DBM.

3.12.4 Local Calamity Fund

The Local Calamity Fund under 324(d) of the Local Government Code of 1991 as amended by RA 8185, can be utilized for relief, reconstruction, rehabilitation an 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. Guidelines on the release of local calamity funds under Section 6 IRR of R.A 8185 are (ibid):

> In case of calamity, and upon the recommendation of the Local Chief Executive, based on the reports of the local DCCs, the local Sanggunian shall immediately convene within twenty-four (24) hours from the occurrence of the calamity and pass a resolution declaring state of calamity in the area/s of the LGU affected by the calamity and adopting measures to protect the lives and properties in the areas.
>
> The local budget officer shall release the allotment from the 5 percent Calamity Fund within twenty-four (24) hours from the occurrence of the calamity provided the following requirements are present: Approved disbursement Voucher, Sanggunian Resolution containing the calamity are declaration, and Local DCC reports on damages.
>
> Pending the passage of the Sanggunian resolution on the calamity, the Local Chief Executive may already draw cash advances from the local General Fund, subject to replacement after receipt of the above Sanggunian resolution.
>
> The Local Treasurer shall prepare and submit a report on the utilization/disbursement of the LCF, duly approved by the LCE to the local Sanggunian concerned, Commission on Audit and Local Development Council, copy furnished the LDCC (Sec. 5,(b.5), IRR of RA 8185).

3.12.5 Relief Goods and Equipment

PMO No. 36, s-1992 as amended by PMO No. 42, s-1997 called for the establishment of a special facility for the importation and donation of relief goods and equipment in calamity-stricken areas. The requirements for importation and donation of food, clothing, medicines and equipment under this special facility are that importation and donations be in accordance with Section 105 of the Tariff, and Customs Code, and pertinent provisions of the GAA on national internal revenue taxes and import duties of the national and local government agencies. Clearances must be obtained from the Office of the President.

3.13 Disaster Mitigation Initiatives

The United Nations General Assembly adopted Resolution 44/236 proclaiming the decade 1990-2000 as the International Decade for Natural Disaster Reduction (IDNDR) on December 22, 1989. The primary objective of the proclamation was to reduce, through concerted international action, especially in developing countries, the loss of life, property damage, and social and economic disruption caused by natural disasters (Leung et al., n.d.).

In the Philippines, the NDCC and the member agencies of the Council were identified as responsible for addressing the concerns of the IDNDR. 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. However, these committees had no fund sources apart from the regular funds of the member agencies, which meant that collective activities had to depend on pooled resources. As a result, the committees achieved little (Punongbayan and Tayag, 1996).

IDNDR highlighted the need for measures and strategies to reduce the impact of a natural or man-made disaster on a community. It 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 mitigation in achieving sustainable development, started integrating this component of disaster management into the Medium Term Philippine Development under the Development Sector

Administration. At the local government level, provinces, cities, municipalities and barangays are required to integrate their disaster management plans into their respective local development plans (Duque, 1999).

3.14 Local Government Code

The Local Government Code of 1991 contains provisions that significantly strengthen the objectives of disaster management and encourage measures for disaster mitigation. It outlined the basic services and facilities devolved to LGUs, especially with respect to health services, social welfare services and infrastructure facilities. It highlighted the powers, duties and functions of the Punong Barangay, municipal and city mayor, and the provincial governor, all of whom play vital roles in local disaster councils. A significant provision of the Code stipulated the increase of the budgetary requirements earmarked for disaster preparedness from two percent to five percent. The five percent of the estimated revenue from regular sources is set aside as annual lump sum appropriations for relief, rehabilitation, reconstruction and other works or services in connection with calamities occurring during the budget year. However the OCD-NDCC emphasized that such funds be used only in the area of the LGU, or other areas affected by a disaster or calamity, as determined and declared by the local Sanggunian concerned.

3.15 National Disaster Consciousness Month

To raise the consciousness of the Filipinos on disaster management, Proclamation No. 296 dated July 29, 1998 was disseminated, declaring the first week of July of every year as Natural Disaster Consciousness Week. With reference to this proclamation, E.O. No. 137, issued on August 10, 1999, declared the month of July of every year a National Disaster Consciousness Month. As a significant mitigation measure, it recognized the need to lengthen the period of the promotion of disaster consciousness to one month to provide concerned agencies more time to implement their campaign and programs. Another significant component of the Order was the institutionalization of the Civil Defense Deputization Program. These programs sought to promote the sustainability of the disaster management program of the government as well as to empower the capacity of disaster coordinating councils.

3.16 Vulnerability Reduction and Risk Management

New program thrusts were developed and pursued during the Presidency of Joseph Estrada in 1998 to address the emerging concerns and needs in emergency management. The program thrusts for disaster management by the OCD-NDCC under the Estrada Administration can be outlined following Duque (1999):

1. Emergency Preparedness and Response

- Reinforcement of NDCC system
- Civil Defense Deputization Program
- NDCC-OCD Facilities Enhancement Program
- Calamity Fund Management System
- Networking for disaster response: AFP, private sector

- Integration of Reservists and ROTC into the emergency management system
- Reactivation of the emergency broadcast system
- Enhancement of early warning and alert system
- Emergency management information system
- Rapid needs and damage assessment system
- Conduct of simulation exercises
- Policy review, research and development
- International Cooperation Liaison Unit.

2. Vulnerability Reduction and Risk Management
    - Review of public safety and risk management standards and policies
    - Community-based hazard identification and risk mapping
    - Formulation of disaster mitigation and risk reduction plan
    - Conduct of disaster research and special studies
    - Sustaining impact activities on mitigation and risk control.
3. Human Resource Development Program
    - Establishment of the Emergency Management Institute of the Philippines (EMIP)
    - Development of national training standards and accreditation system
    - Conduct of training for the media and student cadets
    - Conduct of skills training for DCC response teams.
4. Advocacy for Civil Protection
    - Civil defense alert plugs
    - Initiatives and social mobilization on disaster reduction.

A significant component relates to vulnerability reduction and risk management that can be associated with the following notable projects, taken from Capistrano (1998):

- *Brigada Kontra Baha* is a concerted multi-sector initiative to unclog critical *esteros*, waterways, drainage system and tributaries, and to mitigate their effects on the people and communities. In order to be sustained by the local residents through advocacy and community mobilization, this project was initially launched in key cities of Metro Manila, Cebu City and Davao City.
- *Oplan Bangun Mindanaw* is a coherent and integrated multi-sector rehabilitation program for El Niño-affected areas. It has five strategies: (1) generating livelihood and household income, (2) enhancing health and nutrition services, (3) protecting vulnerable communities from the anticipated impact of La Niña, (4) agricultural development and modernization, and (5) reinforcement of DCCs.
- With the anticipated impact of La Niña*, Laban La Niña* was formulated and simulated in pilot areas. The contingency plan was composed of four major components: (1) hazard and risk maps for flood/lahar, (2) communities and

lifelines at risk, (3) capacity and vulnerability assessment, and (4) strategic interventions.

- As embodied in Administrative Order No. 32, *Linis Bayan Program* is the institutionalization of a nationwide clean-up campaign in all government offices, schools, communities and homes to promote cleanliness in the environment.

3.17 Emergency Management Institute Of The Philippines

The Philippine government has taken a major step to improve education, training, and research in disaster and risk management in the country with the creation of the Emergency Management Institute of the Philippines (EMIP). EMIP is one of the institutes of the National Defense College of the Philippines created by Executive Order No. 85 and DND Department Order No. 125.

3.17.1 Vision

- To be the country's center of excellence for education, training and research on emergency management
- To be a recognized regional education, training and research institution on emergency management in the Asia-Pacific region.

3.17.2 Mission

- To produce national emergency management leaders and managers
- To take the lead in the education, training and research on emergency management in the country and in the region.

3.17.3 Activities

EMIP conducts various activities that provide input to education, training and research on emergency management. These activities include:

Research Projects

EMIP undertakes research activities on various areas of emergency management, including risk management, weapons of mass destruction and assessment of SAGIP 1999.

Training Module Development

EMIP is developing training modules focused on concepts and principles on emergency management.

Round Table Discussion, Lecture Series, Seminars/Workshops, Training

EMIP is conducting several activities that provide further relevant information and deeper understanding of emergency management events and concepts, such as weapons of mass destruction, the Primary Responders Enhancement Program, key actors in disaster management, EMERGO-Train System, the Payatas tragedy, and maritime disasters.

Foreign and Local Linkages

The creation of linkages with local and international institutions in the area of emergency management aims to share and improve local and regional capacities, expertise and facilities for efficient and effective emergency managers in the Philippines. EMIP has established local and international linkages with emergency management-institutions, including Emergency Management Australia, the Asian Disaster Preparedness Center, the Center of Excellence in Disaster Management and Humanitarian Assistance, and the Cranfield Disaster Management Centre.

Rapid Field Assessments

Rapid Field Assessments are conducted to survey emergency and disaster-affected areas, and to acquire first-hand information about the events. Some recently conducted rapid field assessments have been conducted on the Mayon eruption of 2001, Operation Tulong Kapatid in Mindanao, and the Payatas tragedy.

Monthly Situationer

There is continuous documentation and monitoring of local and international disaster activities for the 'Bantay Sakuna', a monthly situationer on emergency and disaster events.

Resource Center

EMIP maintains a collection of local and international journals, training modules, books and different conference proceedings on emergency management.

Human Resource Development

EMIP trainers also undergo training courses on emergency management from local and foreign emergency management institutions. EMIP has participated in courses provided by the Emergency Management Australia, the Asian Disaster Preparedness Center, the Center Of Excellence for Humanitarian Assistance and Disaster Management, and the Cranfield Disaster Management Centre.

3.17.4 Kaalaman Sa Paghahanda Kabawasan Sa Pinsala (Preparedness Minimizes Destruction)

The observance of the National Disaster Consciousness Month for the year 2001 focused on the theme: Kaalaman sa Paghahanda Kabawasan sa Pinsala (Preparedness Minimizes Destruction). This year's celebration was highlighted by the conduct of fire and earthquake drills especially in schools and seminars on life-saving approaches during disasters. The OCD-NCR also distributed awareness materials on what to do during earthquakes, fires and other disasters.

3.17.5 Ninth NDCC Technical Working Group

During the last Technical Working Group of the National Disaster Coordinating Council on September 19, 2001, significant issues on disaster management measures and strategies were highlighted. The strengthening of NDCC Service Committees was emphasized with the involvement of relevant key government agencies:

- Relief and rehabilitation service committee — DSWD
- Health Service Committee — DOH

- Communication and Transportation Service Committee — DOTC
- Early Warning Service Committee — OCD
- Auxiliary Fire and Police Service Committee — DILG-BFP
- Public Information Service Committee — OPA-PIA
- Rescue Evacuation and Engineering Service Committee — DILG.

The Provincial Public Safety and Emergency Management Office (previously the Provincial Disaster Management Office) is also considered a significant structure in disaster management because it requires a plantilla position approved by Civil Service Commission.

The OCD Administrator suggested that it is important for EMIP to conduct an assessment of local disaster coordinating councils to further strengthen and empower local disaster management system.

The Technical Working Group also advocated the amendment of RA 8185, which amended Section 324(d) of the Local Government Code of 1991 (RA 7160). This initiative is concerned with the utilization of the five percent of the estimated revenue from regular sources as a local disaster management fund for preparedness, mitigation and prevention activities for potential disaster occurrences, as well as for other disaster management-related activities.

The OCD maintains 16 fully established regional centers, which function as key components of the disaster management structure in the country. These centers provide secretariat services to the 16 regional disaster coordinating councils, and technical services to 80 provincial disaster coordinating councils, 113 city disaster coordinating councils, 1,496 municipal disaster coordinating councils and ideally 41, 943 Barangay Disaster Coordinating Councils.

3.18 OCD Program Priorities for 2002

Efforts of the OCD are currently geared towards the following program priorities in 2002:

- *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 1990s: THE PHILIPPINES' DECADE OF DISASTERS

The United Nations proclaimed the 1990s the International Decade for Natural Disaster Reduction. In the Philippines, a more appropriate label might have been 'the decade of natural disasters' (Leung et al., n.d.). Some of the most significant disaster events were those listed below.

1. A strong earthquake hit Northern Luzon on July 16, 1990, affecting 23 provinces in six regions nationwide, and devastating 90 percent of Baguio City. The death toll reached an estimated 1,666 persons, with a further 1,495 people injured; most victims were trapped in collapsed buildings. Property damages were estimated at P12.2 billion.
2. Between November 10 and 14, 1990, Typhoon Ruping (International Codename Mike) devastated the Eastern Visayas with its 240-kph winds. Twenty-nine provinces declared a state of calamity; 588 deaths were reported, and 1,270 injured. Damages were estimated by the OCD at P 10.8 million.
3. In June 1991, Mt. Pinatubo, a long dormant volcano in Central Luzon, emerged from a 600-year slumber, exploding in what would later be recognized as the world's worst volcanic eruption of the century, burying Central Luzon in tons of volcanic ash. The initial eruption alone accounted for more than 800 deaths, with damage estimated at P10.6 billion. This figure does not even include the destruction from lahar (mudflows containing volcanic debris) expected to flow down the slopes of Pinatubo for many more years.
4. On November 5, 1991, Typhoon Uring brought heavy rains to Leyte and Samar, resulting in flashfloods that killed about 6,000 people in the city of Ormoc. It was later ascertained that massive deforestation of the surrounding watershed was the cause of the disaster.

Other major disasters included El Niño, the impact of which ravaged the Philippines in 1998, with approximately 985,000 families suffering from hunger due to severe lack of water. This condition also severely affected farmers, resulting in reduced income. In 1999, the effects of La Niña were more pronounced, with the occurrence of eight typhoons and intense rainfall causing flooding in various parts of the country.

The most tragic event was a landslide at the Cherry Hills Subdivision in Barangay San Luis, Antipolo City, on August 3, 1999. A cliff at the eastern side of the subdivision collapsed after three days of continuous rain. The descent of loosened earth and mud on the subdivision buried nearly half of the 440 houses on the estate. The landslide left at least 58 dead and 31 injured. More than 120 were affected, while some 379 houses were damaged (Duque, 1999).

5 NON-GOVERNMENT ORGANIZATIONS IN DISASTER MANAGEMENT: PHILIPPINE NATIONAL RED CROSS

The origins of the Philippine National Red Cross (PNRC) can be traced, according to Charlson Ong (1997) in his 50-year history of the organization, to the American Red Cross. When the Philippines chapter of the American Red Cross was established in

1917, disaster relief was a charter obligation. Hence, by 1920, the foundations of a national disaster relief program were already established. In 1929, a Legislative Act signed by Governor General Dwight Davis gave the Red Cross authority to assume leadership in relief operations — a function carried out by the Red Cross until the outbreak of World War II.

After the independent establishment of the PNRC in 1947, the PNRC sought to establish and maintain a system of disaster preparedness and relief that could be applied to meet emergency situations caused by typhoons, floods, fires, earthquakes, landslides and other natural hazards. The PNRC has further devised and carried out measures to minimize the effects of both natural and human-made disasters.

Although the primary mandate of the PNRC is to aid the government in providing relief assistance to victims in urgent need, it has in recent years gone further by providing rehabilitation that has become imperative following large-scale disasters.

In crisis situations, the PNRC, as a member of the National Disaster Coordinating Council, takes the initiative to help in the best manner and to the fullest extent possible. The kind of assistance it provides covers a wide range of disaster management aspects such as rescue, evacuation, relief, health shelter livelihood, and other emergency needs of the most distressed victims in coordination with the government and other NGOs.

6 CASE STUDIES

To provide insights on how the mechanism of disaster management works in the country, we present the following case studies.

6.1 Mayon Volcano Eruption in 2001

Background

Mayon Volcano rises 2,462 meters above sea level in the eastern part of Albay Province. It is surrounded by six municipalities and three cities. Albay is situated some 300 kilometers southeast of Manila. Mayon's base circumference is 62.8 kilometers, with the volcano covering an area of 250 square kilometers and an aggregate land area of 1,261 square kilometers. Sixty-two percent of Albay's total population reside within a 15-km radius of the crater.

The first major eruption of the volcano was recorded on February 19, 1616, by the Dutch navigator Jorge Spielberg. Since then, 47 eruptions have been documented, an average of one every eight or nine years. The most devastating eruption occurred on February 1, 1814, when 1,200 people perished as lava flows buried the Cagsawa church. Before June 2001, the most recent eruption had been on February 2, 1993, when it claimed the lives of 78 farmers working on the slopes of the volcano.

PHIVOLCS raised the alert status of Mayon from Alert Level 4 ('hazardous eruption possible within days') to Alert Level 5 ('hazardous eruption in progress') on June 24, 2001. Lahar flows signaled the start of explosive eruptions that put areas around the volcano in grave danger; consequently, the danger zone was extended to a radius of eight kilometers. On July 4, 2001, Alert Level 5 was downgraded to Alert Level 4 as hazardous eruptions had ceased. The danger zone was reduced to seven kilometers from the southeast.

Task Forces

The Regional Disaster Coordinating Council organized the following task forces:

- *Joint Task Force Mayon* is composed of the AFP contingents responsible for the evacuation of residents. It was also responsible for conducting rescue operations and assisting with rehabilitation.
- *Task Force Bulkan* is composed of PNP /DILG contingents, and is responsible for the conduct of rescue operations, provision of security forces and additional manpower during rehabilitation.
- *Task Force Tulong* is composed of the Civil Government contingent, and is responsible for conduct of preparatory activities, information dissemination, assistance in evacuation and rescue operations, provision of necessary services during and after evacuation and rescue operations, and rehabilitation activities**.**

The Joint Task Force Mayon is the umbrella organization responsible for assistance to the disaster coordinating councils and the local government agencies in the conduct of evacuation, rescue and relief operations in probable disaster stricken areas and danger zones in order to save lives and properties. The task force is composed of two task groups of personnel from the two tactical battalions of the 202nd infantry brigade. Each task group had a manpower nucleus comprising three rifle squads, or roughly 21 personnel. Furthermore, the mobility consists of 30 two and a half ton trucks.

Actions taken by the Task Forces

The following measures were taken by the different task forces when Alert Levels 3 to 5 were raised on the Mayon Volcano:

Alert Level 3

- The RDCC was convened, and preparation assessed, especially evacuation and rescue capability
- Meetings were held regularly to check on preparations of each member agency
- The situation was closely monitored
- The number of persons to be evacuated was determined, and pick-up points per barangay designated
- Evacuation plans were rehearsed in coordination with LGUs, and
- A six km PDZ was declared.

Alerts Level 4 and 5

- Local disaster councils were activated
- Rescue teams were put on alert
- Civilians within the six km PDZ were evacuated
- An eight km extended danger zone was declared, and residents were evacuated, and
- Additional military and LTO vehicles were dispatched for evacuation.

After the June 24, 2001 eruption of Mayon, the various task forces performed vital tasks. The Department of Health disseminated health advisories on health related issues

and concerns, and additional physicians were deployed in evacuation centers. The Bureau of Fire Protection (BFP) distributed water supplies to the evacuation centers. LGUs and social welfare offices prepared and distributed relief goods. one water purifier was delivered. Affected areas in Albay Province were declared to be in a state of calamity. Concerned officials ensured the provision of security to evacuation centers and in areas declared as danger zones to prevent re-entry by residents. There were continuous advisories to residents along the path of the lahar, and lahar watch teams were organized.

Issues and Challenges

The following significant issues and challenges were highlighted during a meeting between EMIP staff and officials of the RDCC and PDCC on July 6, 2001 at Camp Ola, Legazpi City.

- A primary area of concern is overcrowding in the evacuation centers, with the number of families needing shelter significantly exceeding capacity. Facilities in evacuation centers were also inadequate for the numbers involved. Overcrowding in evacuation centers led to other equally urgent issues, especially concerning health and sanitation. In response, an official from the DPWH emphasized that evacuation centers in some municipalities are now nearing completion, complete with facilities like comfort rooms. However, the problem remains that by the time these structures are completed, the alert level will already have been downgraded, and the evacuees will have started to return home.
- Sanitation and proper waste management are significant concerns at the evacuation centers. There was also an increasing demand for potable water. Incidence of acute respiratory infection and common illnesses also increased because of the overcrowded conditions in the evacuation center and the effects on the respiratory system of airborne particulate matter from the volcanic eruption.
- In regard to relief goods, particular food supplies, there were adequate amounts for the affected families because of donations and support both from the governmental and NGOs, such as PNRC. Officials were still faced with various concerns regarding this matter. Particular challenges are the proper storage of relief goods for future consumption, and the proper channeling of donations through responsible offices for accounting purposes. The adequacy of food supply is not the only significant concern; the equitable distribution of these goods among the different families in various evacuation centers is also an issue.
- A common issue for every eruption of Mayon is the urgent need for financial assistance from the government. Concerned agencies have problems in utilizing the calamity fund for pre-disaster activities. This limited the construction of a sanitary system and related facilities before the disaster, because funds can only be utilized during the disaster event. There is also a concern about the equitable distribution of the calamity fund among the different concerned agencies.
- A particular challenge is why evacuees return to their houses within the danger zones after the volcanic eruption, only to be evacuated again when the volcano

next shows signs of action. This has led to consideration of creating more schoolhouses, or setting up permanent evacuation centers. There are no concrete plans yet in this regard especially with respect to possible relocation sites, and the livelihood to be provided to the community to prevent them from going back to original sites.

Despite these issues and concerns, government and non-government agencies in the Bicol region, specifically in Albay Province, contributed their best efforts toward ensuring that risks were minimized, and that lives and properties were protected. The success of operations should also be attributed to the cooperation and participation of the community. But issues and concerns from previous eruptions re-emerged in the recent eruption, especially with respect to evacuation centers. All these issues need to be dealt with in the post-disaster assessment of the local disaster coordinating councils in order to prevent future occurrences. The experience highlights the advantages of disaster preparation and mitigation measures to counter the existing culture of response in the country.

What is needed are proactive measures and strategies to reduce the incidence and severity of disasters in the country. This success story should serve as a reference for other regional and provincial disaster coordinating councils to strengthen and encourage disaster preparation and mitigation measures and not just focus on disaster response. It is with great pride that the officials of the RDCC and PDCC set a record of zero injury and zero casualty in the Mayon eruption of 2001.

6.2 The Payatas Tragedy in 2000

Background

When 'Smokey Mountain', a garbage dumpsite located in a suburban area of Tondo Manila, was permanently closed in 1996, the bulk of Metro Manila's garbage was then sent to Payatas, another dumpsite located in Quezon City. Payatas had formerly been known as the 'Payatas Estate' and included five big barangays: Silangan, Payatas, Batasan Hills, Commonwealth and Holy Spirit. one of the largest urban poor enclaves in Metro Manila, Payatas covers 2,818 hectares with more than 311,502 residents, 80 percent of whom are classified as urban poor.

The Payatas dumpsite is located in the middle of Lupang Pangako. The area consists of 20 puroks each with at least 50 houses. The area in which the residents are now situated was the resettlement program of then Quezon City Mayor, Jun Simon. Hundreds of impoverished people live on the 12-hectare Payatas dumpsite, earning a living from scavenging for scrap to sell to junk shops. An estimated 700 tons of garbage from Quezon City alone are dumped in Payatas every day (Mendez, 2000).

The Tragedy

A major landslide and ensuing fire occurred early on the morning of July 10, 2000 at a major dumpsite located at Barangay Payatas B, Phase 2 Lupang Pangako, Quezon City (NDCC). The week-long heavy rains brought by Typhoon Ditang and Typhoon Edeng greatly contributed to the landslide. According to local newspapers, the eastern side of the 50-foot mountain of trash collapsed burying an estimated 300 squatter shanties in an area about the size of "four basketball courts" (Tubeza, 2000). The fire that broke out at the scene was possibly caused by stoves or a toppled power line that ignited the trash,

but the blaze was put out by firemen. More than 600 families were affected, while more than 3,000 persons suffered from the tragedy (Dayrit, 2000).

Rescue Operations

Various government agencies including members of the AFP and other civic organizations rushed to the site in an attempt to rescue survivors (Kabiling et al., 2000). The Task Force Payatas was organized and headed by Mayor Mel Mathay of Quezon City to coordinate search and rescue efforts. A command post was set-up at the Methodist Church near the disaster area. Some of the key players in the rescue and retrieval operations are the following (Metro Manila Development Authority, 2000):

- The AFP, through its Disaster Response Task Force (DRTF), assisted in the conduct of search and rescue, relief and rehabilitation operations. It also supplied heavy equipment machinery as well as communication equipment.
- The DOH provided psychosocial care to the survivors, and mobilized a poison and control team to detect hazards to the health of the responders and the population in the area. It also provided medical teams to assist in the triage and to give immediate medical assistance in the area.
- The DSWD provided critical incident stress debriefing to the survivors and relatives of the dead and missing. It likewise attended to evacuees' basic needs, such as food, mats and blankets.
- The PNP provided security forces and deployed auxiliary personnel to direct and control traffic flow.
- The OCD-NDCC deployed its affiliated volunteer rescue groups and helped mobilized the AFP.
- The Metro Manila Development Authority (MMDA) deployed metro rescue operatives in the conduct of search, rescue and retrieval operations.
- The PNRC provided relief assistance and personnel in the conduct of rescue and retrieval operations.

Issues and Challenges

Issues and challenges encountered during the Payatas Tragedy were considerable.

- There seemed to be a lack of appropriate safety devices to protect the rescuers from toxic fumes emitted by the garbage avalanche. Furthermore, proper mass casualty incident (MCI) management and coordination were not properly observed resulting in miscommunication, confusion, misinformation, and demoralization among rescuers and the survivors of the tragedy. Recovery and rescue efforts were greatly affected both by a lack of equipment, and by mud and intermittent rain, which made rescue work still more hazardous.
- Some hospitals were overloaded, and there were concerns with logistics in terms of communication and medical resources (Dayrit, 2000). There was also a problem in estimating the number of people missing. The lack of an official record of the number of people living in the dumpsite made it difficult for officials to estimate how many people were missing (Mendez, 2000).

- Local government officials and scavenger residents of the Payatas blamed each other for the disaster. Residents accused city officials of gross negligence for allowing the dump to grow too high. Mayor Mathay was blamed for failing to close down the dumpsite as scheduled for December 31, 1999 (Yamsuan and Trinidad, 2000). However, the mayor blamed the dump's thousands of residents for repeatedly refusing to leave the site, well known as a danger zone, and move to a relocation site. The complaint of the residents was that the relocation sites are too far from places where they could make a living (Bagares and Mendez, 2000).
- An NGO working with urban poor, the Kalipunan ng Damayang Mahihirap, prepared a class suit against Mathay and his son, Ismael Mathay III. The group alleged that the younger Mathay is the owner of REN Transport, which won the contract to operate the Payatas dump. Payatas residents claimed that the collapse was caused by a pit dug by REN Transport personnel at the top of the 100-foot mountain of garbage (Mendez, 2000).
- Coordination among officials was also a concern. The tragedy highlighted debates on guidelines and provisions of critical policies and initiatives such as the Environmental Impact Assessment Law and PD 1586, and the Urban Development and Housing Act of 1992. Zoning and other environmental safety regulations were not fully implemented.
- Open dumpsites are not an acceptable living space even for the poor. In an environment prone to typhoons and floods, it is unsafe for people to live in open garbage dumps. Such places, breeding grounds for disease and health hazards to everyone in the surroundings, should not be allowed. Our urban centers need more acceptable location for garbage and waste and should provide areas for waste treatment. A comprehensive survey of the Payatas area and residents should be conducted to come up with concrete policy recommendations on the housing conditions of the residents and alternative waste treatments. The tragedy highlighted the need for training of key personnel in handling hazardous materials and extrication techniques and equipment, and indeed for modern extrication rescue equipment.
- Legislative initiatives should explore alternative ways of waste management, including segregation, disposal and treatment, to minimize the dumping of garbage in streets and waterways and reduce the volume of garbage brought to dumpsites. Moreover, there should be a review of existing laws and policies to identify clearly the roles and responsibilities of key officials to avoid fingerpointing in future incidents.

The experience of both Payatas in Quezon City and before it, of Smokey Mountain in Tondo, Manila, makes it urgent for authorities to take a firmer stand against squatter families living on the brink of disaster, a disaster waiting to happen in a flood-prone and typhoon-prone areas. Waste and garbage treatment and disposal, together with sewage treatment, the provision of water and power, and housing must be made priorities for our metropolitan authorities.

7 ISSUES AND CHALLENGES FOR DISASTER MANAGEMENT IN THE PHILIPPINES

Given the formal structures and institutions of disaster management in the country, it is important to gather views and insights from selected emergency practitioners and managers on their actual experiences and concerns in disaster management. Several interviews was conducted with the key players of Philippine disaster management institutions. The following are the issues and challenges raised by these officials from various institutions related to disaster management.

7.1 Level of Coordination

The need for coordination among the various agencies involved in disaster response was raised by all respondents. Their responses suggest that proper coordination and leadership are crucial in preventing misunderstandings, duplication of work and waste of resources.

It was emphasized that there must be coordinated and unified efforts in disaster management, "*hindi kanya kanya*" (not each to his own). It was observed that there seems to be no unity of command. The common question asked is "who is the commander on the ground?" It was noted also that to avoid duplication and to maximize resources, the capacity and capabilities of LGUs should be integrated not fragmented and there must be a masterplan.

Similar concerns were raised about the need for incident command during emergency response and search and rescue operations. It was pointed out that agencies are used to working on their own so they do not know each other's capabilities.

A need was also identified for an over-all scene commander for effective coordination and to prevent the grandstanding of politicians. The need to strengthen the networking system of the health sector and to clearly define its role was also stressed. Such coordination among agencies is crucial, especially in the light of unnecessary political interventions. For example, it was noted that it should be clear that the DOH leads the health sector. It was also stressed that politics can affect the continuity and effectiveness of programs and services on disaster management.

7.2 Logistics and Resources

Concerns about logistics, communication and transportation were also raised. It was noted that lacks of necessary equipment and effective communication and transportation systems greatly affect and limit disaster management operations in the country.

It was recommended that every local government should have a standard inventory of equipment and personnel to hasten response during an actual disaster event. To illustrate an unfortunate condition of limited resources, it was pointed out that in a city like Manila there are several ambulances, but that there is not enough fuel.

It was observed also that there is no proper communication among agencies, and there is lack of equipment for emergency medical services. This in turn raises the issue of funding and reimbursement, as medical supplies used during disasters are most often not replenished or reimbursed.

7.3 Human Resource Development

The human resource component of disaster management needs significant consideration because the outcomes of disaster management actions greatly rely on the competencies and expertise of key emergency managers and actors. It was emphasized that there should be guidelines when describing who constitutes a rescue group. Concern was also articulated on the undesirable effects of sudden change of key personnel in disaster management. Training should be better organized because various uncoordinated training courses are being conducted. The idea of creating a plantilla position for emergency medical services was also noted. There is a need to standardize emergency medical service in the country through proper training and professional licensing and there is concern about the existence of so-called pseudo-emergency medical service practitioners.

It was stressed that there is the need for documentation to identify lessons learned in every disaster as future references in seeking alternative solutions. There is also a need for a manual on disasters that can be distributed to all concerned agencies as a guide in the event of a disaster.

Other observations made included:

- Disaster-managing organizations should have an adequate system for quick assessment and monitoring of the changing needs and problems.
- Optimum coordination, joint efforts and direct cooperation among all concerned sectors and agencies play a vital role in disaster management. Well-coordinated relief operations require effective local leadership.
- There is a need to strengthen disaster mitigation and preparedness especially at the local government level, especially with the implementation of the Local Government Code. However, there is an understandable apprehension on the part of disaster-responding agencies like the DSWD that high priority may not be given to disaster management at the local level.
- The capabilities of the national government to meet the needs of disaster management are not enough. There is also need to encourage and mobilize local governments to organize, train and equip their own disaster coordinating councils.
- There is a misconception that the national calamity fund can be used to rehabilitate structures damaged by disasters in previous years.
- The use of the five percent local calamity fund is an issue because, at present, it can only be used for response, not for proactive measures.
- In 1990, total damages caused by disasters were greater than the government's budgets for defense and general services. In 1991, however, the ratio of natural disaster damages to the economic and social services budget allocation stood at 26.5 percent and 23.4 percent respectively. The implication of these conditions was that resources were inevitably diverted to finance rehabilitation and reconstruction efforts instead of being utilized for the expansion of the economy and provision of social services.

7.4 Terrorism

With the terrorist attacks in New York and Washington, D.C. on September 11, 2001, the capability of the Philippines to respond to and cope with the consequences of a similar major terrorist attack was put into question. Serious flaws and gaps limit the Philippines' capability to respond to such incidents have been identified (Mogato, 2001):

- There are no existing institutionalized command and control systems recognized or known to all for responding to emergency and disaster mitigation situations. Consequently, there are no clearly defined roles in the occurrence of a major terrorist disaster.
- This raises a major concern over the lack of a universal communication network or frequency to which all responding teams automatically could switch during times of emergency.
- In terms of search and rescue operations, NDCC pointed out the lack or the complete absence of a minimum standard to guide various groups involved in such delicate operations.
- Fire fighting units, which play a crucial role in response, have inadequate equipment to suppress major fires. The Bureau of Fire Protection has admitted that it cannot handle fires caused by industrial, chemical and other hazardous materials, and that it severely lacks the capability to handle fires in high-rise buildings.
- The government also lacks facilities to take care of large numbers of people displaced by catastrophic incidents like a major terrorist attack.
- A molecular biologist emphasized the need to formulate an emergency plan against bioterrorism, which will consider critical aspects such as early detection and surveillance, case definitions, case scenarios, relevant laws and regulations, education and training, and inventory of vital resources such as hospitals (Rosales, 2001).

8 CONCLUSIONS

History has been a witness to the shifts and developments in the disaster management of the country from the informal strategies of the pre-colonial period to the institutionally established disaster management structures and mechanisms at present.

A notable distinction has been the shift of focus from disaster response to the recognition and strengthening of mitigation measures. A key factor for this development was the celebration of the International Decade for Natural Disaster Reduction during the 1990s, which highlighted the significance of mitigation measures and strategies aimed at the reduction of risk to people and property from hazards and their effects.

Formal structures for managing disasters have been established, but the Philippine disaster management system is still continuously being confronted with new challenges and concerns. So far critical issues that have been raised by key actors only indicate that in some disaster incidents what actually takes place on the ground may not be what the

relevant disaster management initiatives and laws would stipulate. This points to the commonly held misconception that disaster management is involved only with response, whereas, in fact, response constitutes only one phase of the whole disaster management continuum (Rosales, 2001). Rather than reactive ones, what is needed therefore are anticipatory measures and strategies that will further facilitate the Philippines' shift from a culture that concentrates on response during actual disasters to one that pays attention to equally significant considerations like preparedness, mitigation, recovery and rehabilitation.

Legislators and key officials should not wait for a disaster with widespread destruction to happen before taking legislative action. Legislative initiatives should focus more on programs and projects that can reduce the damage and destruction of a disaster event and consider the long-term risk to people and property.

Indeed, what we need are proactive measures and strategies that can help reduce or eliminate the incidence and severity of disasters. Relevant laws on disaster management, complemented by political will and effective leadership, are powerful instruments in preventing and minimizing loss of life and damage to property and the environment. Finally, we can identify critical areas for improvement to further strengthen disaster management in the country:

- Provide necessary measures for both preparedness and mitigation, since they both have the aim of minimizing human and economic losses.
- Conduct hazard assessments and develop hazard maps as important aids for mitigating disasters.
- Advocate that political will and advocacy campaign work hand in hand in promoting disaster mitigation and preparedness.
- Enhance the capability of local communities and emergency managers to monitor and forecast natural hazard vis-à-vis development of infrastructure and facilities.
- Develop fully the incident command system to maximize resources and to facilitate accomplishment of clear roles and responsibilities among key players.

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