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ECONOMIC AND POLICY IMPLICATIONS OF DISASTERS - THE PHILIPPINE EXPERIENCE

Jerome F. Sison
Associate Professor, Agricultural Economics Department, University of the Philippines at Los Baños, College Laguna.

ABSTRACT

The Philippines, due to its geographical location and physical environment, is prone to various kinds of natural calamities. Efforts in disaster preparedness and mitigation have been initiated by the government for minimizing their negative impact on the country's overall economic development. However, several issues have to be addressed for effective and efficient implementation of the Government's Calamities and Disaster Preparedness Plan. Recommendations for improving government capability in disaster management include: strengthening the National Disaster Coordinating Council's capability; design and implementation of an economic restoration program for the disaster-affected areas; and understanding the dimensions of overall community life in relocating communities.

Introduction

Natural calamities frequently occur in the Asia-Pacific Region, where the Philippines is located, and have had a considerable impact on the pace and degree of its overall development, About 60 percent of the major calamities observed and recorded around the world have occurred in this region and have caused susbtantial destruction, with subsequent serious impact, on the physical, social, economic and psychological welfare of the populace. In some cases, the destruction has likewise contributed to the destabilization of the affected countries' administrative capability, resulting in severe economic setbacks. The mangitude of destruction and the government's inability to administrate (and implement) disaster mitigation measures have seriously delayed economic recovery and overall economic development in general (12). Aggravating the vulnerability of the countries in the Asia-Pacific Region is their increasing population density, a great proportion of which belong to the lowest income stratum of the economy.

The Philippines, in particular, due to its geographical location and physical environment is prone to various kinds of natural calamities, such as typhoons, storm surges, floods, drought, earthquakes, tsunamis, volcanic eruptions and land-

slides. A summary of the types of natural calamities, as well as their relative intensity, experienced by the Philippines and other countries in the Asia-Pacific region is presented in Table 1 and their pattern of frequency in Figure 2. Their damages to life and property are often of such enormous magnitude that it has become necessary for the Philippine Government, in cooperation with the private sector, to initiate concerted efforts in disaster preparedness and mitigation.

Table 1. Relative Intensity of Hazards Fared by Selected Countries in Asia and the Pacific

Country	Floods	Earthquakes	Droughts	Volcano	Cyclone	Landslides	Tsunami	Fire	Epidemic	Deforestation	Civil Strife	Frost	Accidents
Australia	S	L			S			S					
Bangladesh	S	L	S		S	L	L	L	M	M	M		L
China	S	S	S		M	L		M	L				L
Cook Islands	L	L	S		M	L	M						L
Fiji	S	M	M		S	S	S			M			
Hongkong	L				M	M		M		M	L		L
India	S	M	S		M	L		M	M	M	M		M
Indonesia	M	S	M	M	L	L	L	M	L				L
Laos	M		L										
Malaysia	M					L		L		M			
Myanmar	M	S	M		M			S					
Nepal	M	M	M			M		M	M				
Pakistan	S	S	M		L	L		L	L		L	L	L
PNG	S	S	M	S	L	S	S	L	L	M	L	L	L
Philippines	S	S	M	M	S	M	L	S	L	L	M		L
Solomon Is	S	S	L	S	S	S	S	L	L				
Sri Lanka	M		M		M	S		L	L	L	S		
Thailand	S	L	S		M	L		L		S			M
Tonga	M	S	M	S	S	L	S						
Vanuatu	S	S	L	S	S	S	S	L	L				M
Vietnam	S	L	L		S	L		L	L	L			
Western Samoa	S	M	L	L	M	S	S						

Legend: S-Severe; M-Moderate; L-Low
Source: Asian Disaster Preparedness Center, Compiled by S.P. Gupta

Obtained from Ian Davis and Satyendra P. Gupta, 1990 Technical Background Paper. In: Disaster Mitigation in Asia and the Pacific. Asian Development Bank.

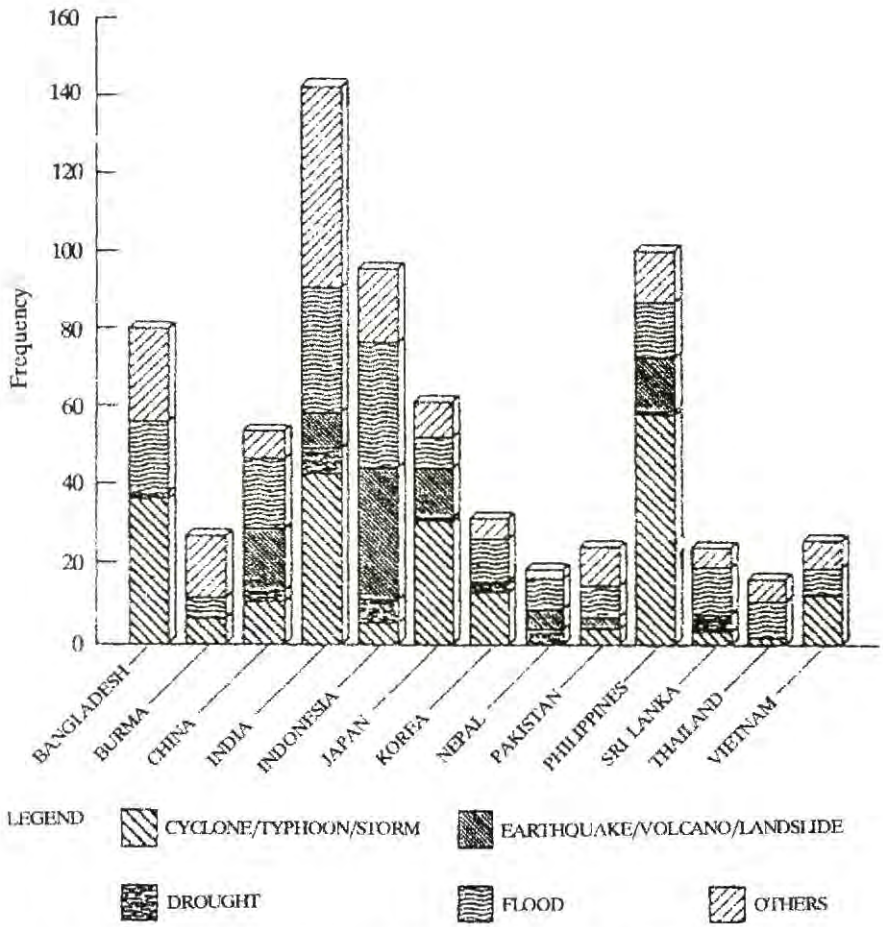

Figure 1. Frequency of Disasters in Asian Countries (1964-1986).

Source: Compiled from statistical data published by USAID Office of Foreign Disaster Assistance

Obtained from Ian Davis and Satyendra P. Gupta. 1990. Technical Background Paper. In: Disaster Mitigation in Asia and the Pacific. Asian Development Bank.

OBJECTIVES OF THE PAPER

The primary objective of this paper is to present some major economic and policy implications of disasters resulting from natural phenomena. The specific objectives are:

1. To identify the various types of natural calamities which have occurred in the Philippines over the past years;

2. To present the economic impacts of some of the major disasters which have occurred during the last decade; and

3. To provide some recommendations for the mitigation of problems resulting from the occurrence of natural calamities.

TYPES OF DISASTERS WHICH OCCURRED DURING THE PAST YEARS AND THEIR IMMEDIATE EFFECTS

The information presented in this section was mostly obtained from the paper of Nicholas Brown et al (6) which was presented at the Regional Disaster Mitigation Seminar, 10-12 October 1990.

Typhoons. Typhoons are weather systems with strong winds that circulate counterclockwise around a low-pressure area in the northern hemisphere and clockwise in the southern hemisphere. The diameter of a typhoon may cover up to 500-600 kilometers with its central portion, called the eye, extending to about 20-150 kilometers in diameter (8). High winds, storm surges, landslides and floods which usually accompany typhoons have caused more damage in the Philippines than any other natural phenomena. Their effects have covered wide areas of the country and severely distrupted agricultural, fishing and forest production activities – economic activities in which about 60 percent of the country's population are engaged. As the majority of Filipinos in the rural areas are engaged in these activities, with a high percentage of families living below the poverty line, it may be said that natural disasters have considerably contributed to the perpetuation of poverty in the Philippines (6).

An average of nine typhoons directly affect the Philippines every year with nine of the country's regions (i.e., Regions I, II, III, IV, V, VIII, X, CAR and NCR) severely hit over the period of July to November. Average annual damage due to typhoons over a ten-year period (1980-1989) was estimated by the Office of Civil Defense to be approximately P3.2 billion (current pesos), of which 40 percent accrues to agriculture and the balance of 60 percent equally accounted for by public and private properties. Total lives lost per year was estimated at about 528 persons (6).

Typhoon-related hazards.

Storm surges. The Philippines, due to the numerous typhoons entering its area of responsibility and its irregular coastline, is highly susceptible to storm surges. The majority of the casualties and fatalities of typhoons may be attributed to storm surges which have been exacerbated by high tides. The major causes of severe storm surges are: (1) a restricting concave coastline which prevents the rising water from moving laterally; (2) a fast-moving storm which does not allow time for the water to spread; (3) shallow coastal waters; and (4) extreme environmental degradation which includes destruction of mangroves, coral reefs and

other forms of natural breakwater, siltation of river deltas, bays and gulfs and shoreline reclamation (6).

Flooding. Floods occur as a result of excessive accumulations or flows of water after heavy rainfall, high tides and other causes, such as structural failure of water-impounding structures. Most floods occurring in the Philippines have been caused by heavy rainfall brought about by typhoons. According to PAGASA, about 47 percent of the average rainfall is due to typhoons, 7 percent to the southwest monsoon occurring during the months of July to September), 7 percent to the northeast monsoon occurring over the period February to May and 39 percent to other weather systems (6).

Typhoon "Yoling", which occurred in 1972, brought about a record rainfall for the month of July, resulting in one of the worst floods ever experienced by the country. Severely affected by flood was Central Luzon (Region III) where low-lying areas in Pampanga and Bulacan were submerged under two meters of floodwater. Region IV was likewise affected as Laguna de Bay overflowed and inundated the towns along its shoreline. Metro Manila, in turn, was flooded with most of the streets under water. The natural disaster claimed the lives of about 600 persons; damaged a considerable number of houses, making approximately 370,650 people homeless; and destroyed 250,000 hectares of crop land. In August 1974 Central Luzon was flooded as a result of heavy and prolonged monsoon rains; in October 1978 heavy rains brought about by a typhoon caused excess water to overflow from Angat Dam, killing hundreds of people; and in January 1981 continuous rains resulted in a flood in Mindanao, killing more than 200 persons and damaging about 200,000 hectares of agricultural land (6).

Landslides. A landslide is the mass movement of soil and debris down a steep slope usually at a fast speed (8). It is usually brought about by excessive rainfall and earthquakes. Often affected by this type of natural hazard are the hilly and mountainous areas of Benguet, Mt. Province, Nueva Vizcaya and some parts of Davao del Norte. The recent earthquake in 16 July 1990, aggravated by the heavy rains brought about by typhoon "Heling", caused landslides in the ravaged areas of Nueva Vizcaya, Baguio and along the major highway between the provinces of Nueva Ecija and Nueva Vizcaya, resulting in the death of 85 persons and the destruction of hundreds of houses in three villages. In 1985, as heavy and continuous rains poured over southern Mindanao, landslides buried about 400 persons, mostly prospectors and their families, in the gold mining area of Davao del Norte. During the same year, excessive rains turned lava deposits (which were deposited along the slopes of Mt. Mayon volcano after an eruption in 1984) into mudflows, causing considerable loss of lives, damage to property and substantial losses to agriculture (6).

Tsunamis. Earthquakes originating under the ocean floor generate waves which travel at high velocity in the ocean. As these waves approach land, their velocity decelerates while their height increases.These large destructive waves generated by an earthquake are called tsunamis (8). Tsunamis, or seismic sea

waves, generally affect the coastal areas of the country and can reach up to 4 to 5 meters above sea level. The most vulnerable are the coastal areas to Mindanao facing the Celebes Sea where 3,000 persons were killed by five-meter-high waves which were generated by an earthquake in the Moro Gulf in 16 August 1976. The catastrophe likewise injured 8,000 persons and left 12,000 families homeless (6).

Earthquakes. "An earthquake is a sudden ground motion, or series of motions, originating in a limited region inside the earth and spreading from this point in all directions. The sudden release of accumulated energy or stresses inside the earth's surface (tectonic plates) causes tremors, commonly called earthquakes" (8). Over the period 1589 to 1983, the Philippines experienced approximately 63 destructive earthquakes (6). Their frequency and considerable impact have been attributed to the fact that the country lies between two of the world's major tectonic plates, the Pacific and Eurasian plates. Furthermore, it has been determined that there are eight major and several minor earthquake 'generators' distributed across the archipelago which cause an average of five earthquakes daily, ranging from imperceptible to perceptible. The areas which have been identified as seismically active are Regions I (Ilocos Region), II (Cagayan Valley), III (Central Luzon), IV (Southern Tagalog), VIII (Samar and Leyte) and X (Eastern Mindanao). The most recent and destructive earthquake occurred in the central and northern parts of Luzon in 16 July 1990. This earthquake, with a magnitude of 7.7, claimed more than 1,600 lives, injured about 3,600 persons, caused considerable damage to property valued at about P11 billion and destroyed agricultural crop production worth almost P1.2 billion.

Drought. PAGASA is the government agency responsible for monitoring of rainfall in the Philippines. It issues drought warnings when it observes less than 40 percent of normal rainfall over a period of three successive months. Then the supply of water is considered inadequate to satisfy the minimum requirements for crop and livestock production as well as those of industry and the human population in general. Brown et al. made an account of the immediate impact of drought which occurred during the past five years:

> " In 1987, a total of 183,600 hectares planted with rice and corn were affected by drought, of which 41,900 hectares were totally ruined. This was a result of meager rainfall during the six-month period from December 1986 to June 1987. Forty-four areas covering all of Luzon and Visayas and Western Mindanao (Region IX) were declared calamity areas . . . The most recent drought occurred in 1989 and resulted in damage to rice crops of about P326 million covering 31,587 hectares of rainfed and irrigated lands. Most severely hit were Iloilo and Guimaras in Region VI. Other provinces affected were Ilocos (Region I), Cagayan Valley (Region II), Northern and Southern Mindanao (Regions IX, X, XI and XII)."

Volcanic eruptions. Volcanic eruptions occur when molten rock is extruded as lava or ejected as ash or coarser debris, sometimes accompanied by steam and hot gases, through vents on the earth's crust (8). A total of more than 200 volcanoes are distributed along five volcanic belts within the Philippines. Considered extremely active and most destructive are: Mt. Mayon in the province of Albay (Region V), Taal in Batangas province (Region IV), Mt Hibokhibok (Region X), Mt. Bulusan in Sorsogon (Region V), Mt. Canlaon along the boundary of Negros Occidental and Negros Oriental provinces (Regions VI and VII) and Mt. Pinatubo (Region III) (6). The most recent volcanic eruption was in June 1991 when Mt. Pinatubo unleashed the largest and most destructive volcanic activity of the century. The ashfall and the lahar flows affected the Central Luzon Region (Region III) especially the provinces of Zambales, Pampanga and Tarlac. Hundreds of lives were lost, most of them unaccounted for until the present time, and approximately 1.2 million people, or one fifth of the total population of Central Luzon, have been severely affected – these were injured, rendered homeless, lost their means of livelihood, etc. About 800,000 persons were rendered homeless and were either sheltered in evacuation centers or provided with government assistance outside these centers.[3]

About 1,300 school buildings, five major hospitals, 98 health centers, 15 public markets, 17 municipal and 22 rural water supply systems and six major bridges were damaged or totally destroyed. The total cost to public infrastructure has been estimated at about P8.3 billion.[4] In the agriculture sector, the loss included approximately 80,000 hectares of standing crops, 326,000 hectares of forests, 16,000 hectares of fishpond, 17,000 head of livestock and 700,000 head of poultry. Five national, 163 communal and 14 smaller irrigation systems were partly or fully damaged. The total cost of damage suffered by the agriculture sector (including forestry) was estimated at about P10.7 billion distributed as follows: (1) P5.8 billion – estimated damage during the current production season, (2) P4.5 billion — loss due to foregone revenue from production over the next production year, (3) P0.4 billion – damage to agriculture infrastructure, i.e., buildings and irrigation facilities. In view of the substantial permanent and irreparable damage suffered by the agriculture sector, the total agricultural production loss over a five-year period (1991-1996) has been estimated at about P22.2 billion.[5] The total damage to industry, including agri-based industries, was estimated at about P0.8 billion.[6]

It should be noted that these estimates of damage are by no means precise since they were based on assessments undertaken immediately after the eruption – implying that these may have changed since then and will further change with more occurrence of mudflows during the current rainy season and with further

[3]Data obtained from National Disaster Coordinating Council.

[4]Data obtained from the Department of Public Works and Highways.

[5]Data obtained from the Dept. of Agriculture.

[6]Data obtained from the Dept. of Trade and Industry.

eruptions of Mt. Pinatubo. As a consequence, the rehabilitation and restoration of the various sectors (agriculture and non-agriculture sectors) will be substantial and will require considerable internal and external assistance.

The conclusion that may be derived from the above information is: natural calamities cause extensive damage to the physical (infrastructure, public and private property, industry, livestock, forest resources, agricultural crop and crop land, etc.), social (family life, social structure, etc.), economic (productive capabilities of economic resources, employment opportunities, markets, etc.) and the psychological (uncertainty of one's future, prolonged mourning of the loss of relatives, loss of motivation to work, demoralization, etc.) aspects of the affected community. The rehabilitation and reconstruction of damaged property and the productive capacity of the affected economic sectors require substantial assistance from internal (i.e., government and private sectors) as well as from external sources.

OVERALL IMPACT OF NATURAL DISASTERS ON THE ECONOMY

Given the immediate effects of natural disasters, it is important to know how their occurrence has affected the various sectors of the economy and subsequently its overall performance. For this purpose, a short summary of the performance of the economy over the past decade, as it has been affected by internal calamities (and to some extent by the occurrence of external man-made disasters, as for example the Gulf crisis) is presented in this section.

Overview of the past ten years. Following the crisis period of 1983-1986, resulting from the assassination of Ninoy Aquino and the subsquent political turmoil which emanated therefrom, the process of economic recovery started to accelerate during 1987-1988. The growth of the economy slowed down, however, in 1989 as: (1) rates of growth of investment and exports decelerated, and (2) increasing infrastructural and capacity limitations constrained industrial growth. Compounding the situation was the occurrence of a drought in late 1989 which continued until the first half of 1990, seriously impairing the growth of the agriculture sector. In July 1990, a major earthquake struck northern Luzon resulting in widespread destruction of infrastructure and disrupting economic activities in all productive sectors, i.e., agriculture, industry, commerce, services, etc. The Gulf crisis added to the country's economic difficulties as a wide deficit emerged in the balance of payments in the wake of: (1) oil supply shortages and sharp increase in oil prices in the world market, and (2) declining inward remittances from the country's overseas contract workers in the Middle East. In addition, a series of disasters in 1991, including two destructive typhoons, "Uring" and "Trining", killed hundreds of people and caused damage to property and agriculture as well as other sectors of the economy(5).

Overshadowing these calamities was the eruption of Mt. Pinatubo in 1991 – the impact of which has been very pervasive and has severely affected the per-

formance of all of the productive sectors of the provinces affected with consequential negative impact on the nation's economy.

The overall impact of these natural calamities was the significant deceleration of the growth of the economy during the past five years – mainly attributable to the disruption of economic activities in the major production sectors. The details are discussed below.

Overall economic impact of the natural calamities. The impact of the drought was the virtual stagnation of the agriculture sector as reflected by the fact that the agricultural value added for the first semester of 1990 was not significantly different from that of the same period in 1989. The drought caused a loss of about 425,000 metric tons of rice (valued at P1.9 billion) and 172,000 metric tons of corn (valued at P600 million). Vegetables and commercial crops were likewise adversely affected. As the drought affected almost the entire country, considerable shortfall in agricultural crop production was experienced throughout the archipelago – with subsequent shortages in food supply and increases in food prices in 1990. As a result, inflation in food prices averaged about 11.4 percent(5).

The economic impact of the July 1990 earthquake was mainly limited to northern Luzon. However, in view of the dominant share of Luzon in the national economy (contributing approximately 62 precent of gross domestic product), the impact of the earthquake on the national economy was quite considerable. The total cost of rehabilitating and/or reconstructing damaged infrastructure was estimated at about P9.0 billion while total production loss due to the earthquake was estimated at about P6.8 billion (about P1 billion accruing to agriculture). These production losses further aggravated the prevailing food shortages created by the drought and contributed further to the food deficit(5).

The Gulf crisis, from the second semester of 1990 until the first semester of 1991, aggravated the country's difficulties in managing its balance of payments. The deficits in the balance of payments in 1990 amounted to P4.6 billion, as a consequence of the decline of inward remittances of Filipino overseas workers in the crisis-affected countries in the Middle East and the increase in oil prices in the world market. As the international prices of oil rose sharply after the onset of the Gulf crisis in August 1990, the Government increased domestic oil prices to avoid a further increase in the deficit of the Oil Price Stabilization Fund. Inevitably, the inflation rate accelerated from a projected 12.2 to 13.4 percent during the year. Furthermore, the cost-push created by the domestic oil price increase triggered demands for higher wages within the labor sector(5).

As a consequence of the drought in 1989, the earthquake and the Gulf crisis in 1990, the country's gross national product (GNP) grew at an average of 3.7 percent in 1990 which was substantially lower than the projected rate of 6.5 percent in the Medium-Term Philippine Development Plan (1989-1992) for the same year.

It is difficult at this point to give a precise estimate of the extent of the overall impact of the calamity caused by the eruption of Mt. Pinatubo since the

condition within the areas affected by volcanic activities has not yet stabilized. This may worsen as further eruptions occur and as mudflows are triggered by the rains brought about by the southwest monsoon and typhoons during the current rainy season. However, the impact of the eruption on the economy may be gauged by the contribution of Central Luzon, the region most affected, to the national economy. Prior to the eruption, the region contributed about 8 percent of the national GDP. After the eruption, its contribution to national GDP for 1991 decreased substantially, resulting in a decline in the national GDP by about 0.3 percentage points. This may be mainly attributed to the displacement of about 678,000 workers from their jobs – constituting about 28 percent of the employment level in Central Luzon and 2.5 percent of the national labor force. The unemployment rate of 21 percent in the region prior to the eruption, was expected to double as a consequence of the disaster – further increasing the country's unemployment rate of 9 percent prior to the eruption to 11 percent after the eruption(11). Futhermore, considering the substantial financial requirements associated with the rehabilitation and reconstruction activities of the Government in the affected region, together with the high cost of providing food and shelter to victims, severe budgetary constraints will certainly be experienced in the next few years.

The severity of the destruction caused by Mt. Pinatubo on the major productive sectors of Central Luzon was reflected significantly in the overall decline in performance of the economy for 1991. From a growth rate in GNP of 3.7 percent in1990, the economy's growth decelerated to 1.5 percent in 1991 which was about 0.2 percentage points lower than what NEDA projected prior to the eruption of Mt. Pinatubo.

MITIGATION MEASURES CURRENTLY BEING UNDERTAKEN BY THE PHILIPPINE GOVERNMENT

Institutional framework.[7] An integral part of the Government s program for minimizing the negative effects of natural calamities is the institutionalization of the planning, implementation and allocation of resources for disaster management through the National Disaster Coordinating Council (NDCC) which undertakes mitigation measures, in coordination with the private sector, such as: (1) relief, (2) rehabilitation, (3) reconstruction and development and (4) information dissemination. The council was established by Presidential Decree No. 1566 in 1978 to strengthen the Government's disaster control capability and to establish its national program on community disaster preparedness. As provided in the Calamities and Disaster Preparedness Plan (CDPP) issued in 1988, the Secretary of

[7]Information obtained from Nicholas Brown, Leoncio A. Amadore and Emmanuel C. Torrente, Philippines Country Study, a paper presented at the Regional Round Table on "Disaster Mitigation Policies and Management", Asian Development Bank, Philippines, April 1991.

Defense convenes the Council whose members are representatives of the other departments of the Government, Office of the President, the National Economic and Development Authority, the National Housing Authority, the Philippine Information Agency, and the Philippine National Red Cross. The Administrator of the office of Civil Defense serves as the Executive Officer. (Appendix 1 presents a brief overview of the disaster preparedness plan and the specific functions of the various Government agencies involved.) The official mandate of the NDCC mainly concerns the following activities:

(a) preparation of a National Disaster and Calamities Preparedness Plan;

(b) organization of disaster coordinating councils (DCCs) at the regional, provincial, municipal, city and barangay levels; and

(c) development of self-reliance capability among local government units in disaster management.

In keeping with its mandate, the NDCC informs and advises the President on the status of and progress of activities being undertaken by both the Government and the private sector in relation to the (1) national disaster preparedness program, (2) disaster operations and (3) rehabilitation efforts in the event of calamities. The Office of Civil Defense, of the Department of National Defense, serves as the operations center and secretariat of the Council.

The Disaster Coordinating Councils (DCCs) serve as the core group for developing the self-reliance capability of individual local government units in disaster management and they provide services in three phases: pre-disaster; during the disaster; and post-disaster. The major services provided, in cooperation and coordination with the government agencies in the affected areas, are communications and warning, emergency transportation; evacuation, rescue and engineering; health; fire prevention/control; police; relief and rehabilitation; and public information.

Current relief efforts. Government efforts in the management of the disaster caused by Mt. Pinatubo required an estimated P23.7 billion (as of late 1991) for the implementation of a disaster management program for the areas damaged by lahar. The program calls for about P0.8 billion (3 percent) for relief, P1.5 billion (6 percent) for mitigation, P8.5 billion (36 percent) for rehabilitation and P12.9 billion (55 per cent) for reconstruction and development which includes resettlement activities.[8] As of this moment, the provinces of Pampanga, Zambales and Tarlac, have suffered additional damages from recent mudflows resulting from heavy rains brought about by typhoon "Isang" and several recent minor eruptions of the volcano. The recent calamity further destroyed agricultural production areas,

[8]Data obtained from National Disaster Coordinating Council, Department of Agriculture, Department of Agrarian Reform, Department of Public Works and Highways, and National Economic and Development Authority.

infrastructure, residential areas and industrial centers and halted activities in major economic sectors. An additional 125,000 families have been displaced while recent damage to infrastructure has reached P1 billion. The destruction has been so severe and extensive that President Fidel V. Ramos has declared a state of calamity in the three provinces affected, as well as promised additional financial support to pave the way for massive relief operations and rehabilitation (9).

The highest priority is the resettlement of the displaced population while the longer-term concerns (which include rehabilitation/reconstruction of bridges, roads, schools and other public buildings, rehabilitation/improvement of river systems and rehabilitation/development of agricultural facilities) will be undertaken on a full-scale basis only when the conditions in the affected areas have been declared stable by PHIVOLCS. To restore the socio-economic activities at the earliest possible time and to minimize the scope of further disruption from further lahar flows, the Government is currently proceeding with its resettlement program complemented by the (1) rehabilitation/construction of infrastructure (bridges, roads, schools and other public buildings), (2) provision of support services, and (3) restoration of social infrastructure and agricultural facilities in areas not expected to be affected by the lahar flows. Efforts in this regard, however, are proceeding very slowly and with great difficulty.

PROBLEMS/ISSUES THAT NEED TO BE ADDRESSED BY THE GOVERNMENT

The following important problems and/or issues need to be addressed by the Government if it is to implement effectively and efficiently the Calamities and Disaster Preparedness Plan in the event of natural disasters:

1. Strengthening the capability of NDCC. As the decree establishing NDCC does not provide budget appropriations for disaster management, funding for meetings and administrative expenses are sourced from the Office of the Secretary of the Department of National Defense while funds for expenditures accruing to actual disaster management are sourced from budget appropriations of coordinating Government agencies, the National Treasury and donors. Furthermore, as the Council's function is merely advisory in nature, it should be provided with greater authority so it can (1) effectively facilitate the coordination of the various agencies involve in disaster management as well as (2) exercise jurisprudence through the provision of executive powers.

2. Provisions and expeditious distribution of adequate food/medical supplies and temporary shelter. In the event of any disaster, relief efforts, (i.e., distribution of food/medical supplies and evacuation of the affected population), are generally the major and immediate activities that need to be undertaken efficiently and effectively to minimize further loss of lives and prevent the occurrence of an epidemic in the affected areas. To this end, food and medical supply lines from the surrounding unaffected areas have to be securely established in

the shortest possible time to sustain the dislocated population until they can resume a normal life and subsist on their own. It has been observed, however, that aside from inadequate food and medical supplies, their ineffective and delayed distribution, has frequently become major issues of concern of the Government and of cooperating non-government organizations. In addition, Government evacuation centers, in most cases lacking in facilities, are overcrowded-resulting in unsanitary conditions and causing the outbreak of contagious diseases among the evacuees. Due to these inadequacies, relief assistance has not effectively covered a great number of beneficiaries(5).

3. Lack of understanding of the economic, social and psychological aspects of resettling communities. The relocation and resettlement of large groups of people or communities require a greater understanding of the dimensions of overall community life. Current Government efforts in evacuating and resettling victims, especially the Aetas, of the Mt. Pinatubo eruption have been ineffective due to lack of understanding of the economic, social and psychological aspects of relocating communities.

4. Assistance in providing victims of disasters with alternative income-generating activities. The displacement of a substantial number of workers from agriculture and industry has always decelerated economic growth of the disaster-affected areas-requiring (1) the rehabilitation of agricultural production areas and industry and/or (2) the identification and provision of alternative income-generating activities. Alternative income-generating activities through self-employment opportunities should essentially be able to address the immediate subsistence needs of disaster victims. In this regard, emergency credit assistance will certainly be an important concern of the Government if normalcy in economic activities is expected to be restored in the shortest possible time in the affected areas.

5. Need to improve preparedness and coordination among Government agencies involved in disaster management. In a recent article of Jose Torres, Jr., published in the Manila Bulletin on September 6, 1992, representatives of non-government organizations, currently cooperating with the Government, have expressed disappointment on the lack of preparedness and coordination among Government agencies responsible for providing relief assistance to the Mt. Pinatubo victims. This lack of preparedness may be attributed to the Government's lack of planning. and foresight – as reflected by its inability to persuade people to evacuate their communities (previously identified by PHIVOLCS as high risk areas as they will certainly be affected by lahar and mudflows upon the onset of the current rainy season and the occurrence of further eruptions of Mt. Pinatubo) because the resettlement areas have not yet been developed and provided with the support infrastructure, facilities and services necessary for sustaining the overall growth and development of the resettled community.

POLICY RECOMMENDATIONS

In view of the deteriorating conditions prevailing in the areas affected by the Mt. Pinatubo eruption and in preparation for the occurrence of future disasters, in general, the following are some policy recommendations for improving the Government's capability in disaster management:

1. To improve the capability of the NDCC, it must be provided with its own annual budgetary appropriations as well as executive powers. The provision of financial resources and an expanded scope of authority will certainly strengthen the capability of the Council in coordinating efforts of the various Government and private agencies as well as in delegating duties and responsibilities related to the implementation of disaster mitigation measures.

2. If communities are to recover from the negative effects of a disaster, an economic restoration program must be designed and implemented within the context of their existing social and economic institutions and/or structures in order to attain normalcy in economic activities, and in overall community life, in the shortest possible time. To this end, the rehabilitation, restoration and development, wherever possible, of agricultural production areas and industry must be immediately undertaken. Simultaneously, alternative income-generating activities must be identified and initiated in the affected areas to address the immediate subsistence requirements of the disaster victims. An economic restoration program must provide technical assistance and emergency credit assistance to disaster-affected communities.

3. Resettlement should be focused not only on relocation and/or rehousing; but also on the understanding of the dimensions of overall community life. This includes understanding of the economic dimensions of the community, (present production activities, access to transportation, sourcing of production inputs, market outlets, etc.) and attention to its symbolic aspects (reasons of residents for wanting to remain in the damaged community site in spite of the risk and danger to life.) Moreover, a resettlement plan must include a strategy for establishing a symbiotic socioeconomic relationship among newly established communities and the already existing communities which is an important requirement for sustained economic development(5).

Conclusion

The Philippines still has a great deal to learn about disaster preparedness and mitigation. If the Government is to respond effectively to the needs of disaster victims and extend adequate necessary assistance, it must provide the NDCC sufficient amount of resources at its immediate disposal as well as greater authority through executive powers. Furthermore, it may be worthwhile to learn from the experiences of our neighbors within the Asia-Pacific Region on how to prepare for, respond to and mitigate the effects of disasters.

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Appendix 1

The Calamities and Disaster Preparedness Plan*

Originally drafted in 1970 and amended since then, the Plan's objective is "to save lives, to prevent needless suffering, to protect property and to minimize damages during disasters and calamities." Under the Plan, the National Disaster Coordinating Council (NDCC) exercises control, through the Office of Civil Defense (OCD), over all emergency operations, from the regional down to the barangay level. The plan also states the responsibilities of the government agencies and organizations involved in disaster mitigation, from the national level to

*The Information presented in this appendix was lifted from the "Philippine Country Study" by Nicholas Brown, Leoncio A. Amadore and Emmanuel C. Torrente which was presented in the Regional Round Table on "Disaster Mitigation Policies and Management" held at the Asian Development Bank, Manila, April 1991.

the regional, provincial/municipal and barangay level. All member agencies of the NDCC are required by the Plan to organize reaction teams in their main offices as well as in the bureau. Aside from this common function, each agency is assigned specific tasks:

Department of Agriculture (DA): to determine the extent of damage on agricultural crops, livestock and fisheries; and to assist disaster victims whose crops/livestock have been destroyed.

Department of Education, Culture and Sports (DECS): to assist in the public education campaign on disaster preparedness; and to make available school buildings as evacuation centers.

Department of Health (DOH): to provide health and medical services; and to organize disaster control groups in hospitals, clinics.

Department of Labor and Employment (DOLE): to organize Disaster Control Groups (DCGs) in factories; and to provide emergency employment to disaster victims.

Department of Local Government (DLG): to oversee the DCGs at various levels; and to conduct training of members of local DCGs.

Department of National Defense (DND) through the Armed Forces: to establish communication links and make these available for disaster operations; to assist in the reconstruction of damaged roads/bridges; and to assist in providing transportation for relief and evacuation.

Department of Public Works and Highways (DPWH): to restore destroyed public works i.e., flood control, water works, roads, bridges, etc; to provide equipment for rescue operations; and to assist in providing transportation for relief and disaster victims.

Department of Social Welfare and Development (DSWD): to train DCGs at all levels (in coordination with OCD and DLG); and to organize relief and rehabilitation services.

Department of Tourism (DOT): to organize DCGs in hotels, retaurants.

Department of Trade and Industry (DTI): to maintain normal level of prices of commodities during emergencies and assure their availability.

Department of Transportation and Communications (DTC): to coordinate the organization of emergency transport service and to make available transportation and communication facilities, to restore destroyed transportation and communication facilities; and through the Air Transportation Office, to undertake aerial search and rescue operation, to coordinate harnessing of private aircraft, and to repair damaged airports.

Department of Science and Technology (DOST): through PAGASA, to keep continuing watch over weather conditions and prepare daily forecast and typhoon warnings; and through PHIVOLCS, to issue advisories on earthquakes and identify evacuation sites.

National Economic and Development Authority (NEDA): to determine and analyze effects of disasters on socio-economic programs.

National Housing Authority (NHA): to provide emergency housing.

Philippine Information Agency (PIA): to provide a public information service and to disseminate disaster mitigation measures.

Philippine National Red Cross (PNRC): to conduct disaster leadership training courses and assist in the training of DCGs; and to assist in relief fund and to make blood available.

Department of Budget and Management (DBM): to release funds required for disaster operations.

Department of Finance (DOF): to issue rules with the Department of Budget and Management (DBM) on preparation and use of 2 per cent reserve funds for disaster operations.

Department of Environment and Natural Resources (DENR): to reforest areas which tend to cause floods, etc; and to provide seedlings.