

CONCLUDING REPORT

Roadmap toward Effective Flood Hazard Mapping in the Philippines

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A. The Role of flood hazard maps to mitigate flood damages in the Philippines.

- ❖ Heavy rains over the Philippines especially in Legazpi City is always visited by typhoon every year. Although Legaspi City is not directly hit by typhoon these past years, other parts of the country have experienced severe flooding. [The National Disaster Coordinating Council \(NDCC\)](#) chaired by the [Secretary of Dept. of National Defense \(DND\)](#) is very active in the implementation of [Disaster Preparedness Programs](#) of the government. The members are various government agencies and local government units. It is through the NDCC member-agencies that disaster preparedness, prevention, mitigation and response carry out its corresponding tasks and responsibilities under the NDCC system. Many Local Government units are preparing now their own Flood Hazard Maps.

Table VI 2.8 Disaster Caused by Typhoon and Often Heavy Rainfall

Year	Month	Type of Disaster	Number Affected		Affected Area (Province/City/Municipality)	Affected Area (Barangay around Mayon)
			Families	Persons		
1992		Typhoon "Ditang"	78,754	399,456		
1992		Bulsan, Sorsogon Conflagration	643	-		
1993	February 2	Mayon Volcano Eruption	12,139	65,928	Legazpi, Albay	
1993	December 5	Typhoon "Monang"	233,115	1,145,985	Legazpi, Albay	
1993	December 10	Typhoon "Naning"	50,316	245,775	Legazpi, Albay	
1993	December	Landslide	-	-	Tiwi, Albay	
1994	January 6	Typhoon "Akang"	7,497	38,509	Manito, Albay, Legazpi and Camalig	Legazpi(Padang) and Camalig(Miti)
1994		Typhoon "Garding"	1,491	6,223		
1995		Typhoon "Mameng"	4,235	17,916		
1995		Flash Flood/Landslide	1,494	8,824	Camarines Sur, Camarines Norte and Sorsogon	
1995		Typhoon "Sendang"	735	4,055		
1995		Flash Flood/Landslide	3,704	19,286	Albay and Sorsogon	
1995		Typhoon "Trining"	25	150		
1995	November 2	Typhoon "Rosing"	450,299	2,316,872	Daraga, Jovellar, Libon, Ligao, Malilipot, Malinao, Polaangui, Tabaco, Tiwi, Legazpi	Daraga(Budiao), Ligao(Tinago, Abolla), Malilipot(Canaway), Malinao(Ogob), Tabaco(Buang), Legazpi(Imalnod, Baybay, Buyuan, Sabang, Padang)
1996		Landslide	192	1,014	Pandan, Bagamanoc and Catanduanes	
1996		Legazpi City Conflagration	529	2,486		
1997		Pilar, Sorsogon Conflagration	301	862		
1997	November	Typhoon "Pining"	-	-	Libon, Oas, Pioduran, Polangui and Liga	Ligao(Cavasi, Bubunsuran, Mahaba)
1997-1998		El Nino Phenomenon	900	5,400	Gainza, Camarines Sur, Panganiban, Camarines Norte	
1998		Typhoon "Eliang"	2,351	12,321	Camarines Sur, Camarines Norte, Sorsogon and Naga City	
1998	October 21	Typhoon "Loleng"	398,233	2,018,795	Province Wide	

∴ Unknown

Source: Disaster Report, PDM, ALBAY and DSWD Region V

Note ; Typhoon this past few years damaged some parts of the country.

- ❖ The country has conducted several consultation meetings and seminars especially **Department of Public Works and Highways (DPWH)**, **local government unit officials**, and other government lead agencies. This is to improve actions on disaster prevention The participation of media especially broadcast media helps a lot in disseminating forecast and other information before, during and after the occurrence.

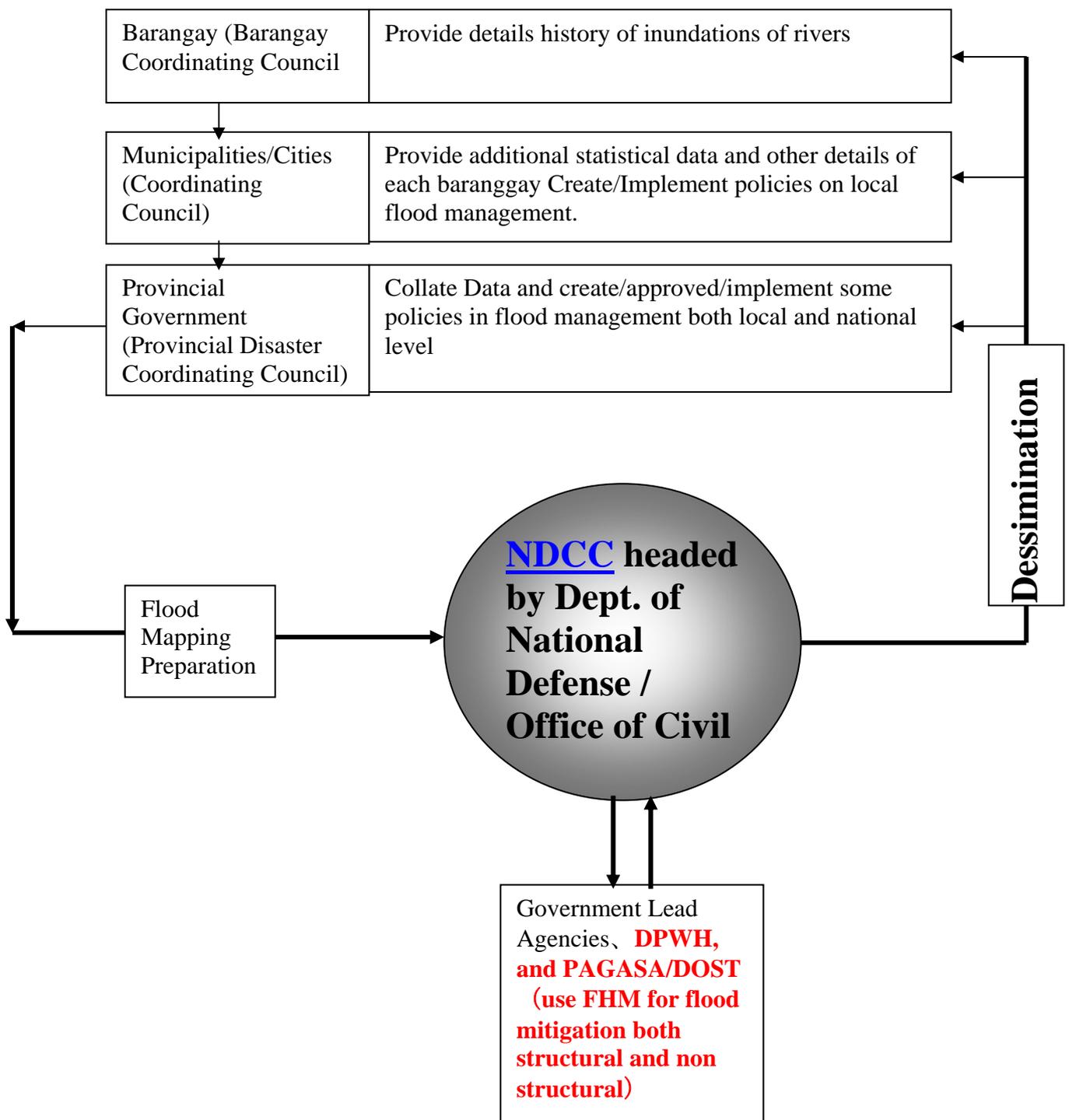
- ❖ These flood damages will be mitigated thru the following measures;
 - Non-structural
 - **Flood Hazard Maps** which will educate people for ;
 - Awareness on flood disaster (flood records)
 - Knowledge on areas of evacuation, location and routes, the dangerous spots on evacuation routes
 - Predicted inundation areas and depths and other useful information reflected in Flood Hazard Map

 - Establish additional permanent resettlement sites and evacuation centers
 - Programs on [Flood Precautionary measures](#) and [Flood Management Policies](#) (e.g.Land Zoning, Watershed Management Reforestation)
 - Flood Forecasting and Warning

 - Structural
 - Continuous seminars and trainings on the effective design, construction and maintenance and monitoring of present status of flood control structures

B) The allocation of roles in making flood hazard maps in the Philippines

- ❖ The **National Disaster Coordinating Council (NDCC)** headed by **Dept. Of National Defense** duly supported by the local government units, **Department of Public Works and Highways and PAG-ASA** of the **Dept. of Science and Technology (DOST)** and other lead agencies be given the role in making flood hazard maps.



C) Action Plan of making flood hazard maps in the Philippines

- ❖ Legazpi City and the covered barangays affected by Yawa, Tibu, and Macabalu rivers are my target area. The basin area (Legazpi City) is the commercial center in Albay province. Many residents of the neighboring barangays especially those nearby Yawa River mostly stay very near to the dikes. These rivers are being dredged to address the problem on sedimentations caused by volcanic debris. Funding is always the problem to support this kind of project of the government.

Major flood damages occurred in the area happened in December 5, 1993

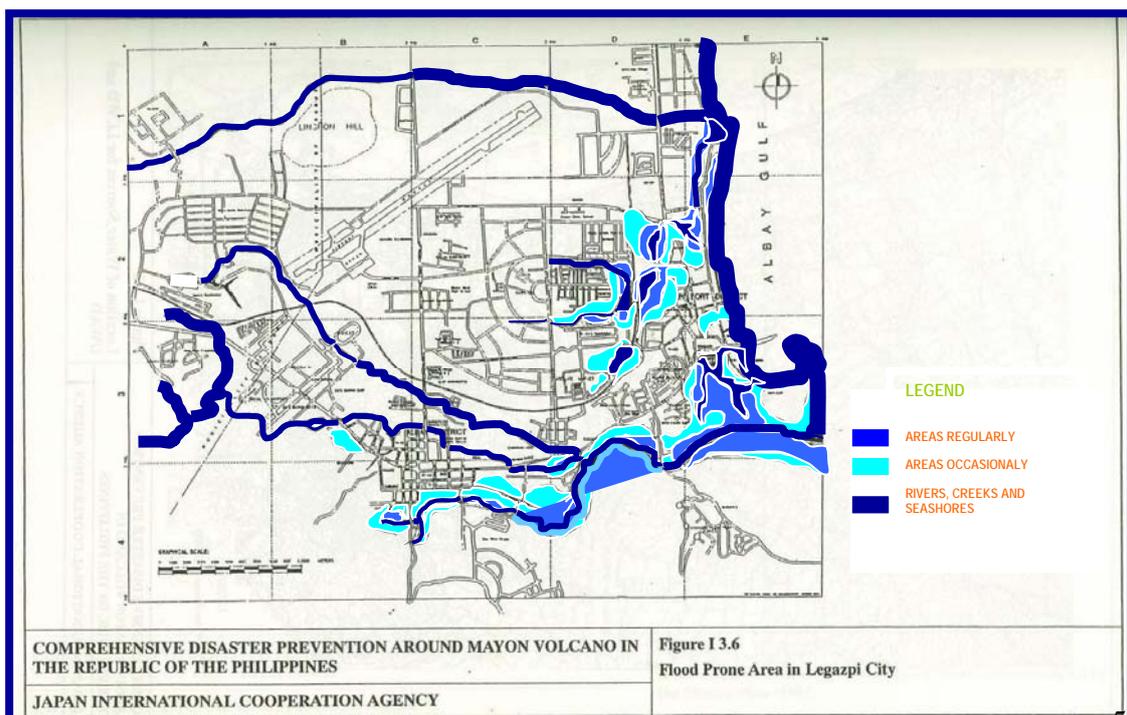
Number of families affected ; 233,115 families

Number of persons affected ; 1,150.000 persons

Major cause of damage during flood disasters;

Inundation of rivers within the area. Some residents did not notice the possible extent of flooding. Some loss their lives during evacuation or transfer to safer place.

FLOOD PRONE AREAS IN LEGASPI CITY



In this area the following are one of the priorities in preparing the **Flood Hazard Map** :

- Identify the highest inundation area/vulnerable areas
- Identify possible evacuation sites or centers
- Length and weaker points along the routes.
- Possible means of disseminations
- Initial information to residents regarding the importance of Hazard Maps
- Coordinate with NDCC regarding some programs (e.g. UPGRADING PAGASA & PHIVOLCS FORECASTING CAPABILITY,etc)

Thru Public information Campaign on Disaster Preparedness using **Flood Hazard Map**, disasters in the area will be lessen ;

- Less panic will happen, handicapped will be in safe place thru effective flood warning and forecast
 - Evacuation centers will be properly and ready for occupation of evacuees.(depending on the duration of floods)
 - Access roads with proper signs and signals will be fully utilized, traffic jams will be avoided
 - Eliminate water diseases due to proper information on flood precautionary measures
- ❖ Many previous studies conducted by various foreign and local firms are submitted to NEDA and DPWH. Data on these studies maybe used in the preparation of my Flood Hazard Map
- Some Previous studies :
- Comprehensive Disaster Prevention Around Mayon Volcano
 - Bicol River Basin Watershed Management Project
- ❖ Action Plan within five (5) years
- Make reports, conduct additional research and introduce the advantages of flood hazard maps to my office and other agencies. (6 mo. To 1 year)
 - Make Data gathering for the preparation of my pilot basin area. (1 year)

- Formulate training and expand the research for an effective Mapping (2 to 3 years)
- Coordinate with other agencies for possible inclusion/revision in their existing flood hazard maps.

❖ Problems on funding, instruments to be used on data gathering, continues training and lack of qualified personnels.

D) Study Tours/Town Watching made great contributions to create an idea in preparing flood hazard maps to participants. Both the Structural and non-structural measures were also given importance in flood hazard mapping during lectures. Topics on flood modeling must be given more time to familiarize the participants in using the latest software. It will be the basic tool to determine the depth and inundation areas (extent of flooding) aside from the data gathered from interviews and surveys.

THANK YOU !!!