

Proposal Report  
on  
"Flood Hazard Mapping Project  
in  
City of San Fernando (P)

Prepared By  
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**FLOOD HAZARD MAPPING TRAINING COURSE**

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# Background of the proposal

## I. Introduction

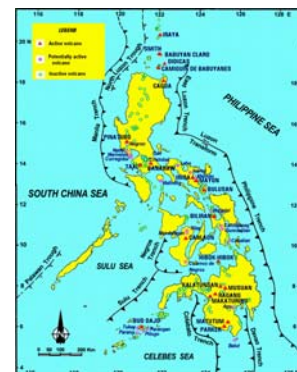
This report pertains to the application of the training program conducted in Japan entitled “Flood Hazard Mapping for Asian Countries” from October 26, 2008 to November 29, 2008 to the City of San Fernando, Pampanga, Philippines.

The training program was sponsored by Japan International Cooperation Agency (JICA) as part of the Official Development Assistance of the Government of Japan based on bilateral agreement to the Government of the Philippines.

The main objective of this course is to acquire knowledge, technology and experience on how to make, disseminate, and utilize the Flood Hazard Map in Japan and formulate an action plan by applying the knowledge and ideas acquired and discussed in Japan among the officials and engineers who engage in the flood and river management in the City of San Fernando, Pampanga.

## II. Rationale

Due to the geographical location of the Philippines, the City of San Fernando (P) is also vulnerable to natural hazards like typhoons, flooding, earthquake and volcanic eruption. The Philippines is experiencing 20 typhoons a year of which 5 are destructive, and much human life and property are lost by flood, and it is predicted that population in urban area will rapidly increase in the near future and vulnerability to flood also increase.



Flooding in the City of San Fernando (P) is aggravated by the sediments deposited by Mount Pinatubo in our streams and high intensity of rainfall brought about by strong typhoons. In order to reduce the damage caused by flood and vulnerability, structural countermeasures like embankment with slope protection and retarding basin are very effective. On the other hand, non-structural countermeasures like “Flood Hazard Maps (FHM)”, which can offer the information including the past inundation record, anticipated inundation area, evacuation route, evacuation place, etc. to residents, are also important. Especially in local government units with undeveloped structural countermeasures, it is



helpful to take non-structural countermeasures immediately like making flood hazard maps, implementing proper waste disposal, regulating informal settlers among others. Related to this, I am proposing the application of Flood Hazard Maps in the City of San Fernando (P).

### **III. Project Proposal**

#### **A. Project Title**

**Flood Hazard Mapping in the City of San Fernando, Pampanga**

#### **B. Project Description**

**The project will have three (3) phases**

##### **1. Phase I: Cascading**

###### **a. Action Plan**

The knowledge, technology and experiences acquired in Japan in making, disseminating and utilizing FHM will be cascaded among the officials and engineers in the city government who engage in the flood and river management.

###### **b. Description**

There are very few in my country having adequate knowledge about the Flood Hazard Map. Hence, first of all, I would introduce the FHM in my organization. The technology, knowledge and experience in Japan in making, disseminating and utilizing FHM will be



be cascaded among the officials and engineers in the city government who engage in the flood and river management by conducting meetings or joining other meetings of various offices as guest speaker to introduce

the importance of FHM. In that way we can save time and resources in introducing the FHM.

c. Duration

One (1) year from January 2009 to December 2009

d. Participants

City Officials and attached Agencies

e. Objective

To cascade the technology, knowledge and experience acquired in Japan and shared among the City Officials and attached Agencies who engage in the flood and river management.

f. Scope

Summary of the training program Flood Hazard Mapping for Asian Countries in Japan

g. Budget

12months X 50persons X P500 = P 300,000.00

## 2. Phase II: Production

a. Action Plan

Prepare a project proposal for approval.

b. Description

Formalize the production of FHM by seeking approval from the Local Chief Executive and secure a legal basis in producing, distributing and utilizing the FHM by requesting the City Council to sponsor and enact a law (city resolution or an ordinance) for the production, dissemination and utilization of FHM in the city. The project cost will then be incorporated in the Annual Investment Plan (AIP) for the next year in order to comply with the Government Procurement Law. A good example of good production of FHM is in Tokyo City wherein the FHM



is a product of the collaboration of the concern authorities and stakeholders.

c. Duration

One (1) year from January 2010 to December 2010

d. Participants

The city government, stakeholders, experts and media.

e. Objective

To produce flood hazard maps through proper channel by following certain rules and regulations of the government for a smooth production and implementation of the proposed project.

f. Scope

Data collection, expert consultation, inundation analysis, public consultation, evaluation, finalization and printing

g. Budget

(P3, 000,000.00)

### 3. Phase III: Utilization

a. Action Plan

Request the assistance of the Multi Sectoral Governance Council (MSGC) in educating, distribution, dissemination and utilization of the FHM in the city.

b. Description

The MSGC or Multi Sectoral Governance Council is an organization that represents various sectors in the society: academe, religious, transport, business, medical etc. The MSGC can help in distributing, educating, disseminating and utilizing FHM. To make the people aware of their responsibility as good citizen of the society we need to respect mother nature, learned how to co-exist with environment and acknowledge the importance of sustainable development.



- c. Duration  
One (1) year from January 2011 to December 2011
- d. Participants  
The entire population of the City and Consultants
- e. Objective  
To educate and utilize FHM in the city, to learned from the flooding experiences in the past, to be aware of the city present hazard situation and be prepared in any eventuality in the future.
- f. Scope  
Education, dissemination, distribution and utilization of FHM
- g. Budget  
(P3, 000,000.00)

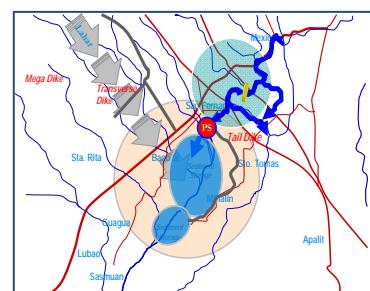
## Outline of the target river basin/town/area

### I. Location

The City of San Fernando is located in Central Luzon around 67 kilometers north of Manila, 16 kilometers south of Clark Air Base Special Economic Zone, and 50 kilometers east of Subic Naval Base Special Economic Zone. The city is strategically positioned at the crossroads of Central Luzon. Travelers and commuters coming from and going to Clark, Subic, Metro Manila, Cabanatuan City and Baguio City passes through it. It is the home of renowned giant lanterns and the provincial capital and the seat of regional government offices in Central Luzon.



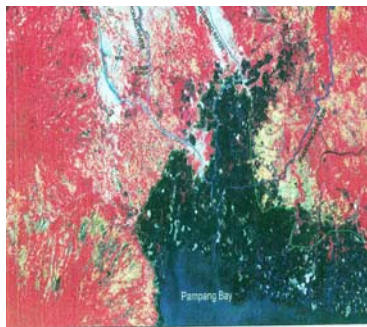
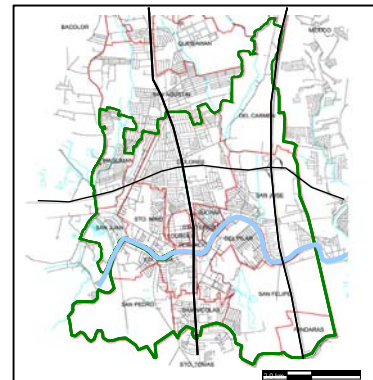
### II. Area/Population



The City covers 124.7 sq. km. that includes the 16 barangays (village) which are under the flood prone area. It has a population of 221,857 of which 167,286 (75%) people are living inside the flood prone areas, that is, vulnerable to flood from the San Fernando River and its tributaries traversing the city proper.

### III. Flood and Inundation

Though countermeasures for flood control and storm drainage improvement have been conducted in the city of San Fernando for the last 10 years, frequency of flooding and inundation are still high. The flooding and inundation problem experienced in the city proper of San Fernando can be attributed primarily to the inadequate capacity of river, creeks and drainage system to accommodate the excess run-off from Angeles area and Mexico area.

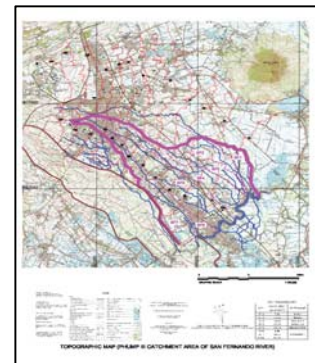


April 1993 LANDSAT Image of Pampanga Bay

to accommodate the excess run-off from Angeles area and Mexico area. Likewise, the change in land topography by the eruption and post-eruption events of Mount Pinatubo contributes to said problem. In addition, because of lahar and the construction of Tail Dike west of the city, the flow of water of San Fernando River was obstructed causing

floodwater to backflow that aggravates the condition and rapid urbanization that increased runoff coefficient.

The August 2004 flood event affecting Central Luzon particularly the City of San Fernando which can be attributed to heavy rains cause by Southwest Monsoon brings the economy to a major setback as it hampers activities in all sectors in the area.



In the identified flood prone area, 16 barangay experienced inundation depth ranging from 0.30 m. to 2.00m with corresponding inundation duration of around 1 week to 3 months.

### IV. Drainage System

The drainage system in the City of San Fernando consists of drainage channels and facilities, namely; creeks, outfalls,



open drainage, road gutters, and drainage pumping stations. In the target area, there are around 159 km in length of creeks and around 45 km length of open drainage made of concrete.

#### V. Profile of San Fernando River

San Fernando River (SFR) is located at the southern portion of the City of San Fernando, Pampanga with a total length of 5.84km and an average width of 30.00m. Being the lowest point in the city, the river absorbs surface water runoff and flood water coming from neighboring Angeles City and Mexico Municipality through feeder creeks. The main outlets of SFR are Mapalad Creek with a total length of 3.20km and average width of 20.00m and Matulid Creek with a total length of 3.92km and average width of 30.00m respectively.



#### Schedule of implementation

PHASE	ACTIVITY	SCHEDULE			REMARKS
		2009	2010	2011	
I	CASCADING				Subject to approval
II	PRODUCTION				Subject to approval
III	UTILIZATION				Subject to approval

#### Estimated budget



STAGE	ACTIVITY	AMOUNT	REMARKS
I	CASCADING	300,000.00	12 meetings
II	PRODUCTION	3,000,000.00	300,000 copies
III	UTILIZATION	3,000,000.00	300,000 pax
<b>TOTAL</b>		<b>6,300,000.00</b>	

### Expected effectiveness

The expected effectiveness of the Flood Hazard Mapping Project are the following:

1. **Learning** from the past experiences.

FHM will entice people to learn from past flooding experiences and they will be reminded of the good and bad things happened in times of disaster. These trials in life will encourage them to work hard to avoid such experiences again in life.



2. **Awareness** of the present situation.

FHM will enlighten people of their present situation in the area where they are residing. They will be aware of the necessary information for the safety of their family: the safe routes, danger zone, evacuation centers, important telephone nos. etc. In that way, they will more alert and entice to participate in drill exercise for disaster preparedness.



3. **Preparedness** for the future flooding scenario.

FHM will inspired people to pro-actively prepare themselves to any flooding scenario to avoid negative past experiences during disaster. In that way, the disaster risk management team life will be more easier for they may identify people who are capable of helping themselves (self help), the people who can help each other (mutual help) and people with special needs (public assistance) during disaster.



Through this project, the people will feel the concern of the government, that this project is for the welfare of the community thus they will feel the sense of belonging and safety in the city. Flood Hazard Map will remind us the most vulnerable area to protect with. If the weakest points are proactively mitigated, damage to lives and properties will be successfully avoided. New investment and economic activity will be more active in the area and people will live peacefully, happily and in harmony with the environment.

In summary, Flood Hazard Mapping Project in the City of San Fernando, Pampanga can be concluded to be economically viable considering the cited benefits acquired through this project. In addition, the propose project has more high positive impact than less negative impact. Thus, I am recommending for the approval, funding and implementation of this project.