

CONCLUDING REPORT
Regional-Focus Training on Flood Hazard Mapping

ROADMAP TOWARD EFFECTIVE FLOOD HAZARD MAPPING
IN JAKARTA CITY



By

SUBEJO

INDONESIA

I. PREFACE

Jakarta city information in Brief



National Monument

Jakarta is the capital city of Indonesia which located in the north of western part of Java island .

Total land area 661,52 square kilometers.

Lies between 6 ° - 8 ° South Latitude and 106 ° - 48 ° East Longitude.

13 rivers crossing through the city

Tropical in climate ; temperature between 23°C - 31°C. Relative humidity ranges between 70 and 90 percent., with monsoons in June through September and rainy season in December through March.

Population : 8.792.000 people (in 2004) ; Density : 13.290 people/sq. km ; multiracial or multiethnic, also religion and culture

Flood experiences ;

The floods in the capital city Jakarta had posed an annual problem since former governor Ali Sadikin took office in the 1970s.

Many areas in the capital were submerged by floodwater on January 2005. Flooding in the capital reached a critical level, killing two people and forcing over 20,000 others to take refuge on drier land.

The worst flood in recent years affected the capital in 2002 when 31 people were killed and 300,000 others displaced

In 2002 flood inundated almost part of Jakarta area

Flood inundated in Pluit, Penjaringan North Jakarta

II. THE ROLE OF FLOOD HAZARD MAPS TO MITIGATE FLOOD DAMAGES IN JAKARTA CITY

A. The flood status in Jakarta city

- Flash flood : flood that caused by heavy rainfall in the upstream and then flowing down to the downstream. Velocity of flood is very fast and quite dangerous.
- Urban flood: flood that caused by rainfall in such area and also caused by interruption of sea water when arises its level.

Inundation's duration in the down stream areas is more than a week due to inappropriate of pumping drainage system in the area. In that case, even though water level is not high (less than 1 m), some people worry about epidemic disease may occurred after or during flood, like skin problems, stomachache, breath-problem, and so on.

B. The outline of the present countermeasures for mitigating flood damages in Jakarta. (The Whole System)

	Type of Measures	Before	During	After
1	Non-structural Measures	<ul style="list-style-type: none"> • Flood proofing • Organizing flood & fire fighting volunteer/corps • Assign shelter and evacuation route • Observation and data collection • Flood forecasting and warning system • Organization of rescue team • Zoning flood prone area by making a simple flood prone area maps (based on previous flood experiences) 	<ul style="list-style-type: none"> ● Collection of flood information ● Disseminating of flood information ● Assign shelter and provide emergency foods ● Supply real-time flood information and warning ● Evacuation order and evacuation directives ● Rescue activities ● Patrol of levees and flood control facilities 	<ul style="list-style-type: none"> • Removal mud and garbage • Collecting and distributing relief funds • Draw and report lessons from disaster • Routine training and drill for emergency response (usually carry out in fire drill) • Inspection and study of the cause of damage • Epidemic prevention
2	Structural Measures	<ul style="list-style-type: none"> • Drainage pump • Ring levee • Building commitment among stakeholder of flood control project • Planning flood control project • River improvement works (dredging, widening channels & diversion channel) • Levee contraction and rising levee • Flood control dams and reservoirs 	Emergency flood control works	<ul style="list-style-type: none"> • Restoration of affected facilities • Rank up flood control plan • Elevated housing land

In Jakarta city, those kinds of flood countermeasure has been implemented

Law and Regulation Aspects (Enforcement part) :

Law :

- No. 23/1997 on Environment Management
- No. 19/2004 on Forestry
- No. 7/2004 on Water Resources
- No. 25/2000 on Planning of National Programs

Government Regulation :

- No. 82/2001 on Water Quality Control
- No. 27/1999 on Environment Impact Analysis
- No. 47/1997 on National Spatial Management

Presidential Decree :

- No. 6/2000 on Coordinating in National Spatial Management
- No. 114/1999 on Spatial Management in Bogor, Puncak & Cianjur areas
- No. 41/1996 on Industrial zone
- No. 52 on Reclamation in Northern part Jakarta seashore
- No. 32/1990 on Conservation Area Management

Gubernatorial Decree ;

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C. Do you think flood hazard maps will be useful in your country? Why ?

Flood hazard maps will be useful in my country, especially in Jakarta capital city. Because FHM have significant roles in dealing with flood hazard, such as follow :

	Before	During	After
1	As tool for public awareness/preparedness and public education on flood hazard	As tool or guidance in conducting evacuation activities	As a tool for evaluation program by comparing predicted and real condition on flooding
2		As guidance in evacuee' shelter management system	

There are some aspects that should be considered because they have a significant influence in making and disseminating FHM in Indonesia (especially in Jakarta) ; and I also would like to make comparison with Japan :

No.	Items/aspects	Japan	Jakarta (Indonesia)
1	Society/community	Almost homogeny	Multicomplex (racial, religion, culture, etc.)
2	Socio-economic strata	Narrow gap	Rather big gap
3	Educational background	More educated people in average	Junior HS level in average
4	The level of potential disaster occurrence	High frequently occurrence/ prone disaster area	Low frequently occurrence
5	Availability of raw data inputs, budgets and man powers	appropriate	inappropriate

The differences of FHM in Japan and Indonesia (Jakarta), such below :

No	In Japan	In Indonesia (Jakarta)
1	Flood hazard maps in Japan are familiar known by most of society/people	Not been familiar known yet
2	Flood hazard maps has a significant role in giving information about flood disaster to people	Has no significant role yet, because the content of information is not available enough
3	The content of information is available enough correspond to the expectation of people	Only flood prone area is the content, so it is like a simple flood prone area map

III. THE ALLOCATION OF ROLES IN MAKING FLOOD HAZARD MAPS IN JAKARTA

- A. Which organization should hold the main responsibility for making a fundamental map such as an anticipated inundation area map ?

Organization which hold the main responsibility for making a fundamental map, such as an anticipated inundation area maps is the Agency for Land Measurements and Mappings. This agency is belong to Provincial Government (Governor).

- B. Which organization should hold the main responsibility for making and disseminating flood hazard maps ?

Organization which hold the main responsibility for making and disseminating Flood Hazard Maps (for the whole part of Jakarta area) is the Provincial Disaster Countermeasure Coordinating Agency which headed by Governor (ex officio). But in specific area, for example : each Municipality (Central ; North; West ; South ; and East Jakarta) is the Public Order and Resident Protection Agency from the Municipal Government.

IV. THE ACTION PLAN OF MAKING FLOOD HAZARD MAPS IN MY COUNTRY

- A. Which area do you choose for the target river basin area ?
Western Flood Canal/River

Why ?

- Considered as the main canal/river in Jakarta
- High densely populated along both side of the river
- In the Rainy Season with high rain-fall, huge amount volume of water flowing to downstream and almost reach the top level of the levee
- In case of levee break, inundated area will be spread broader

- B. What do you think is necessary to make flood hazard maps in the chosen area ?

Up to the present, there is no availability of flood hazard map in that area, so people who lives there will be in dangerous whenever flood occurred, because the do not know how depth and dangerous their surrounding during flood

Do you have data, maps, or budgets necessary for making flood hazard maps ?

We do have these items necessary for making flood hazard maps, even though in very limited portion. But at least we could produce flood hazard maps in a simple ones. We can propose some program/projects in making FHM and also establishing a team consisting some agencies, like: Coordinating Agency for Surveys and Mappings (BAKOSURTANAL), the Agency for Land Measurements and Mappings, and the Water Control Division of the Public Work Agency and other related agencies. These agencies have some data we need for making flood hazard maps.

C. Propose my own "Action Plan" within the next five years.

NO	1 ^{SD} YEAR 2006	2 ND YEAR 2007	3 RD YEAR 2008	4 TH YEAR 2009	5 TH YEAR 2010
1	Recommendation to Local Government about the urgency of preparing FHM and its significant roles in mitigating flood disaster	Conducting program in socialization and building commitment concerning FHM, like ; seminar and discussion	Conducting FHM training course for all member of Jakarta Fire Department	Producing FHM for one selected municipality (as a pilot project)	Producing FHM for each Municipality
2	Proposing program in socialization and building commitment concerning FHM, like ; seminar and discussion	Proposing FHM training course for member of Jakarta Fire Department	Project's proposal on making FHM for one selected Municipality (as a pilot project)	Project's proposal on making FHM for each municipality	Improving and developing FHM

D. What seems a problem in making flood hazard maps in Jakarta city ?

- Inappropriate and limited availability of Topographic maps
- Often change of land use due to rapid urban development

- Poor commitment of stakeholders concerning FHM
- Inaccuracy of raw data inputs
- Constrain of budgets and man powers

Solution's alternatives:

1. Make priority in making topographical data , especially for flood prone area ;
2. Improvement the stability of land use management in some flood prone areas ;
3. Building commitment to all stakeholder by conducting discussion, seminar, and workshop on FHM
4. Conducting FHM training course for any member of related agencies that dealing with disaster
5. Establishing the special team or ad-hoc team consisting any agencies involved in dealing with disaster to facilitate the process of preparing and making FHM

V. MY ADVICE/SUGGESTIONS FOR MAKING THIS TRAINING COURSE MORE MEANINGFUL

I have some advices/suggestions for making this training course more meaningful, such as follow :

1. More group discussions ;
2. More Q & A chance ;
3. Materials should be included in CD room (read only) ;
4. More practice in making/preparing FHM ;
5. 5.Inviting participants' alumni of FHM Training Course to present progressiveness of his/her own action plan and give guidance if any mistake or problem faced by participants.

V. OTHER (MAPS) FLOOD PRONE AREA

