

**Title "Action Plan toward Effective Flood
Hazard Mapping in My Country"**

JICA region focused training course on flood hazard mapping

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A) “The role of flood hazard maps to mitigate flood damages in my country”

A-1) The Flood status in my country.

Vietnam is a country prone to water-related disasters including floods, landslides, and typhoons. The country stretches long from north to south. River and stream often have high slope leading to fast flood, in addition rainy season coincides with storm ones so we always confront natural disasters flood and storms. Flood has become an important factor adversary affect our economic development and social stability. The South Region frequently suffers from water disasters centering around the Mekong Delta. The Middle Region often has water disasters along short and rapid rivers similar to those in Japan. The North Region experiences frequent floods in the Hong Delta. As part of its water disaster reduction efforts, Vietnam started to construct dykes along the River Hong more than 1000 years ago. Today, the dykes extend more than 3,000 km along the river. The flood can detect in 3 regional: The Northern delta and mid land, central coastal provinces, Me Cong river Delta.

1. Northern delta and midland

In the recently year, flash flood and flood usually happen rather suddenly with extremely with high peak in the North of Viet Nam Flood is the most significant natural disaster in the North in terms of frequency, area extent, population affected bad damage.

2. Central coastal provinces

Because the region is separated and has a sloping topography, floods in the region are often severe and occur quite suddenly and seriously due to steep topography but with lower frequency compared to those in the north in consecutive times throughout the year. Each year, the region is subjected to huge losses in human lives and properties which require much time and effort to be overcome.

The entire central region was affected by flooding, especially the flood event between 1st and 7th November that inundated almost all central provinces and the Central Highlands.

3. Mekong Delta provinces

In the last 20 years, Mekong provinces were enduring consecutive big floods, with flood return frequencies being the highest ever recorded and characterized by widespread, uncontrolled and prolonged. Floods in the Mekong delta have low discharge capacity; however, cause prolonged deep inundation, river bank erosion, and transportation failure. (Central part)

Extremely devastating floods were seen in year 1994, 1995, 1996, 2000, 2001, and 2002. Particularly, flooding in 2000 caused the highest damage to provinces frequently vulnerable to inundation in the Mekong delta.

- Floods in 1994: 407 people killed; damage estimated at 2,284 billion *dong*

- Floods in 1995: 199 people killed; damage estimated at 700 billion *dong*

A-2) The outline of the present countermeasures for mitigating flood damages in my country.

1. The construction measurement

-Measures of strengthening dyke system

- Diverging flood courses and slowing down of flood speed

- Improving safety standard of disaster mitigation works.

-Management and mitigation measures include construction of upstream reservoirs, of dyke systems.

- Dredging of river channels for quick flood water drainage.

- Improvement of dyke management and rescue.
- Strategy of disaster mitigation for the Mekong River Delta is “living with flood and flood control” with specific solutions such as planning of residential clusters, construction of irrigation systems for supplying clean water and preventing salt invasion, construction of low embankment system for preventing salt invasion.

2. The non-construction measurement.

- Provide equipment and training to improve technical expertise and the effectiveness and quality of disaster forecast and warning activities. Local agencies are being skilled with the capacity to make forecasts and to issue warnings for small and medium size river basins from general weather forecasts. Communication systems and warning transmission systems have been improved to allow every individual of the community could be assess to the disaster information.
- Training and education to improve community awareness is being carried out. Basic knowledge about floods and storms and their effective mitigation measures propagated broadly to villages, families, and individuals.
- Forest plantation in upstream watersheds and along coastal areas,
- Giving policies and water resources law, land law.
- FHM

A-3) Do you think flood hazard maps will be useful in my country?

In Vietnam, along with drought and forest fire, flood is considered as the most serious disaster occurred throughout the country. We had a long history against with flood, and until now it seem to be a big problem of the country.

In order to effective flood control, the role of flood hazard maps to mitigate flood damages in Viet Nam is an important issue. Only on basic, we can have proper and reasonable access to flood control in each region, river catchments and the way to collect necessary information for following, accurate and timely forecasting the situation, ensuring the implementation of the flood control measure effectively. On the other hand, FHM can reduce loss of people and property damage due to flood occurrence and the local resident will be enhanced awareness due to the importance of flood disaster preparedness as well as notifying the resident of potential flood damage.

Finally, FHM give an early warning information due to flood to local resident before their area inundated.

B) “The allocation of roles in making flood hazard maps in my country”

B-1) Which organization should hold the main responsibility for making a fundamental map such as an anticipated inundation area map?

- Department for Dike Management and Flood Control of Ministry of Agriculture and Rural Development.

B-2) Which organization should hold the main responsibility for making and disseminating flood hazard maps?

- Locals government.

C) “The Action Plan of making flood hazard maps in my country”

C-1) Which area do you choose for the target river basin area? Why?

Huong river basin is one of the target basin area in Thua Thien Hue province where I consider because it is usually affected by serious flood in the central coastal province in Viet Nam.

Huong river basin has 2380 km², occupy 56% square area of total Thua Thien Hue province. It play important about water and situation flood role in the province. More than 80% square area of watershed lie on 200-1078 m elevation. The topographic is decreased from North to South West.

The characteristic of Huong watershed.

River	Branch	Long of River (km)	Square areas of watershed (km ²)	Average elevation (m)	Average slope (%)	Slope of bed river(‰)	Average wide of watershed (km)	In density river (km/km ²)	Coefficient of winding
Huong	Main	104	2830	330	28.5	4.8	44.6	0.6	1.65
Khe Hai Nut	I	15	75.3		4.6	10.6			11.3
Carum BaRan	I	29	219.3	458	36.4	62.3		0.58	1.45
Khe Co Moc	I	18	88.3						1.30
Huu Trach	I	51	729	326	29.0	3.7	14.6	0.64	1.51
Bo	I	94	938	348	27.4	9.5	12.7	0.64	1.85
Dai Giang	Chi Luu	27							

The situation in Huong river basin.

Along the Huong river has not dyke system to protect the city and the agriculture land so the downstream watershed's Huong river usually inundate from 3 to 7 times per years. The flood occurred in October in 1999 had damage serious this watershed. The water level was 5.90m. This is the biggest flood from 1953. The rainfall is in 24h on 1999/11/2 was 1.422mm. The number of people loss was 373 and the number of houses has gone down by flood were 25,000. Total damage was approximate 160 million USD(Standing office of Center Committee for Flood and Storm control) .

C-2) What do you think is necessary to make flood hazard maps in the chosen area? Do you have data, maps, or budgets necessary for making flood hazard maps?

Flood hazard Mapping is necessary to make in this area to mitigate the damage of the facilities and the people loss and also in a part of flood control management plan.

The inundation map is a visual tool that permits of mastering inundation possibility when it is able to forecast any water level change in a representative location in the inundation zone. This is very necessary not only for the leader when they decide treating an urgent situation, but also for the local residents can safe their life by themselves by information.

Now I have some data:

- Rainfall data (date)
- Topographic map (1: 50000, 1/:10000 scale).
- Landuse map

- Remote sensing data: Radasat 1999/11/06 warp, 1999/11/10 warp, 1999/11/15 warp
- Ground control points

C-3) Propose your own” Action plan” within the next five years

Year	Action Plan
1	Review Inundation Map that developed before done Get an opinion and idea form the local resident’ perspective of Inundation Map Join and having some meeting of FHM between the related organizations. To propose making FHM.
2	Recheck accuracy of the map combine with up to date data and contribution of the local residents. Education people and enhancing their awareness due to flood disaster preparedness.
3	Complete of the FHM(including evacuation routes, shelters)
4	Evaluate the effectiveness of FHM and disseminate for community
5	Apply this model to make the FHM for all flood area. To conduct survey via questionnaire to the target groups with the view to improve the usefulness of the FHM

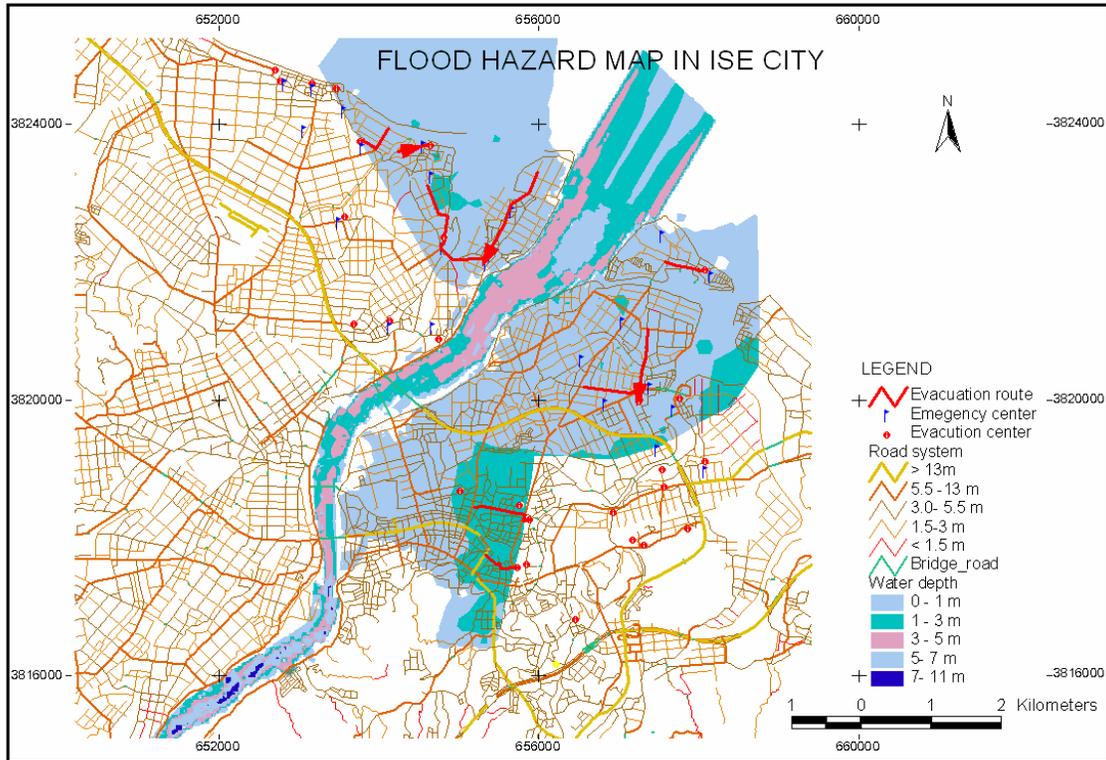
C-4) What seems a problem in making flood hazard maps in my country?

In my country, we are also having Inundation map for some local area but for whole the country. There are some problems such as :

- + Limited budgets
- + Insufficient data
- + Awareness of local residents is limited.
- + Many people are seemed not familiar with FHM.
- + The map had not contribution of the residents.
- + Take long time to make FHM

D) “My own Flood hazard map on Ise city”

In my opinion, though out the town watching in the Mye river and ISE city, I got many signification information about FHM. Now FHM has distributed to individual families so the residents local can understand the map and they can evacuate to the safe area depend on the route evacuation on the map. That is why, the number of people loss and the affected by flood in social and economic degrease very fast.



F) Conclusions

- This course is very comprehensive and allows the participants to understand everything that is involved in producing flood hazard maps.
- The organization of the course is very and equipped with training materials, facilities and very competent staffs.
- The lecturers are very knowledgeable and lectures are interesting.
- FHM course is very useful for all participants to have a hands-on training and in depth knowledge in producing flood hazard and help to hasten this endeavor