

Proposal Report
On
“ Flood Hazards Mapping Project
In
Xebangfai River “

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Primer Minister's Office

Lao P.D.R.

FLOOD HAZARDS MAPPING TRAINING COURSE

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1. Back ground of the proposal.

General back ground ,The geography Lao country is landlocked country , total of area has 236,800 sq.km. Lao has border with Myanmar 235 km., Cambodia 541 km., China 423 km., Thailand 1,754 km., and Vietnam 2,130 km., The Mekong River flow about 1,860 km., Lao population was 5,800,000 ps. (2007) .

Climate in Lao P.D.R.

Weather condition in Lao is the hot temperature zone. Rotating of climate is in the zone that North East monsoon and Southwest monsoon passing .It is factor to makes temperature condition and raining changed in Lao.

Revolving around of climate in Lao has divided 2 seasons as:

Dry season from north east monsoon. It is affected from the north east monsoon start from the middle of October to the middle of May .This season is high temperature in the atmosphere ,it is dry period ,mini-humid and lower temperature Therefore , this is a cause to make its dry and minimum raining .

Rainy season from south west monsoon. It is affected from the southwest monsoon, it start from the middle of the May to the middle of October .This season is a period that monsoon to carry hot temperature and humid from Bandkan gulf and Thai gulf pass in to Laos . So it is a cause to whole the country higher humid and plenty by raining.

Commonly, southwest monsoon starts on 15 May in every years, several years is starts in April ,means : the gust in to Laos before season .Particularly, there is Rainstorm in this season. Rainy season will not start and stop in the same time all parts in Laos.

Figure 1 : Map Lao P.D.R. has 5 border country.



Role and function of Department of Meteorology and Hydrology.

Rainfall station was build in 1954 ,and there were three meteorology station such as Louangprabang, Vientiane and Savannakhet stations .These stations were under administration and controlling of French army in Indochina peninsular.

- 1955-1975 Department of Meteorology and Hydrology (DMH) was under administration of Ministry of Communication, Post and Construction.
- 1955 Lao Meteorological Service to be a World Meteorology Organization membership.
- 1969 to be a Mekong River Committee membership.
- 1976 Department of Meteorology and Hydrology (DMH) was under administration of Ministry of Agriculture and Forestry.

- 1987 Department of Meteorology and Hydrology (DMH) to be an International Typhoon Organization membership.
- 23/07/2007 Department of Meteorology and Hydrology is moved from Ministry of Agriculture and Forestry to be a part of Water Resources and Environment Administration (WREA) , Primer Minister's Office (PMO)

Role and function of (DMH) is collected information about Meteorology and Hydrology to services for business sectors ,moreover, prepare and observe weather forecast ,climate, and hydrology .To protection and reduce damage from national disaster as flood, typhoon ,and wind speed..

Organization chart of Department of Meteorology and Hydrology ,there are

1. Administration Division
 2. Technical Division
 3. Weather forecast and Radar Division
 4. Hydrological Division
 5. Network and earthquake Division
 6. Climate Division
- Information Media and Disaster Warning System

Every day , people's lives are affected by weather and climate ,flood, drought and other extreme event threaten safety of life and destroy property of the people and of the nation .Consequently , we must provide warning , forecast and other inform action in timely .Meteorological warning and forecast are highly perishable products and should be dissemination rapidly to public.

Furthermore , the forecast and information are a vital component in the decision making processes for much weather sensitive sectors as well as for disaster ma Division management . The services provided by the Department of Meteorology and Hydrology can contribute to the protection of life and poverty, mitigation of national disaster.

Website of the Department of Meteorology and Hydrology is an importance communication system . It is improve for international and other sections to interest in information of the Department of Meteorology and Hydrology in weather forecast , weather forecast and disaster warning in Laos.

Radio station is an important part of awareness about Air, water resources and disaster warning for public, which these news are contribute by DMH in every

day , for television in the country is incomplete , cause is the network is not cover whole the country.

2. Outline of the Xebangfai River basin, Khammouane province.

Target area is Xebangfai area it mean Xebanfai River.Khammouane province,Lao PDR. Xebangfai area include 7 district there has Nongbok, Xebangfai, Mahasai, Xaibouathong, Gnommalath, Nakai and Thakek.

Policy : to secure residential people's life and their assets from flood to secure from raging epidemics ,damage of agricultural production.

Mitigation: to establish early warning system , to protect life such as water supply , main road transportation , telephone line and electricity.

Geography : Khamouane province is location on southern central part of Lao PDR The area of Xebangfai basin has 62 % share in Khamouane province.Annual precipitation 2600 mm. 46% rain falls only in 2 months July and August.. mean temperature is 26.4 c.Xebangfai is one of the biggest tributaries of Mekong in Mekong in Lao PDR its catchment area is 10,345 km². The incline of Xebangfai is very low .Mean slope is 1/6000. Especially lower area is lower than 1/20000. An annual differential of discharge is very large . In 2007 Maximum discharge at Xebanfai bridge station is 2,380 m³/s , minimum is 3 m³/s .River section is so narrow that annual differential of water level is more than 10 m.

Lowest elevation is 150 m. and the highest is 1,624 m. Length is 140 km. Width is 110 km.

Demography: Total population of Khamouane province is 353 thousands and density is 22 person/ km² .

Flood situation in Lao P.D.R.(LAOS)

- ▶ Normally caused by tropical cyclone and depression, rarely by typhoon.
- ▶ Tropical season is from May to October.
- ▶ On average 10–13 tropical cyclone occur annually.
- ▶ The probability of tropical cyclone occurrence rises during July, August to September.
- ▶ Past flood event, very severe flood in 1966, 1995, 2002 and 2008.



Lao government organization responsible for flood control and mitigation have proposed some control project. However a few project are completed due to lack of the budget. The examples of structure measure project are dam construction, weir construction, embankment and levee construction ,ect...

Practically, Lao central government assigns the flood control and mitigation system into this stages follows :

1. Before flood
2. During flood
3. After flood

Before: Preparation of historical of flood, flood defense planning and workshop, preparation of manpower , machines, equipments, and rapid flood alert team.

During : Evacuation of people , distribution of emergency food ,setup the security.

After : Setting up the mitigation unit, provision of the temporary residences, food, clothes clean water , investigation of the damages and losses in detail, restoration of affected facilities , provision of jobs for jobless people who are affected from flood.

Table of the Past event from 2000–2008

Sources : NDMO

year	Province	District	Village	Family	Population	Women	Death	Affected Area		Damage Area		Damage of Construction		Estimate Damage Cost (US)
								rice field	Garden	rice field	Garden	House	School	
								2000	15	71	2338	73838	661584	
2001	9	44	582	20926	113327	1406				33511.23		37	3	808500
2002	12	56	1635	67557	387195	45901	2	15666.23		32340		2		14170578
2004	13	31	591	20325	90291	5457		2711.27	1254.92	3263.61	44.101	2		750399
2005	11	44	1231	42465	211922	23395	5	28294	25966	23793.7	23367.6	1		1316582
2006	7	25	272	20689	104206	48513	6	1328.13	8648	2124.1	3529	140	3	3636124
2007	2	8	115	5965	41028			1814.96	58.57	642.1				8059829
2008	9	48	685	39752	155383	31860	6	18506	2581	28739	8564	4329	1	4384407
Total	78	327	7449	291517	1764936	228339	36	201338.5	38508.49	279734.64	35504.701	4597	7	40.010.644

3. Schedule of implementation

The schedule make in the action plan within the next five years is shown in the next table .

Action plan	year				
	1	2	3	4	5
1 learning of how to make the FHM	•				
2 collection of necessary data	•				
3 composition of anticipated inundation map		•			
4 proposition and evaluation of anticipated inundation map		•			

5 proposition of budget required for ground survey and publication of FHM			•		
6 ground survey				•	
7 composition of the FHM					•

- Problem in making flood hazard maps in Laos
 1. Lack of some data
 2. Lack of some budget
 3. Attitude of the administration to flood hazard maps
 4. Social economic development slow
 5. Late of dissemination system
 6. It is not evacuation system
- 4 Estimated budget is 20,000 \$ US per year.
- 5 Expected effectiveness

According to the objective of this training course we do hope to achieve the development of the capacity on flood mitigating measurement .Through this training course , we do expect strongly can be use knowledge, skill on flood hazard mapping and their analysis.

This training course multiply the effected technical transfer in near future.

DMH establish information services system such as flood hazard map and forecast of water level in main tributaries of Mekong river , we do expect strongly get skill to make plan for developing flood forecast, mitigation ,and agriculture development.