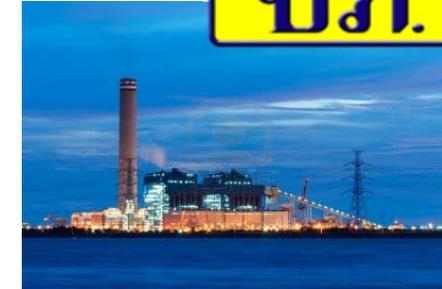


Disaster Prevention and Mitigation



MR.PISUT ANURAT

MR.SAPOL KAMCHAMNARN

Disaster Prevention Measure Bureau

Department of Disaster Prevention and Mitigation THAILAND

AGENDA

Introduction

Organization Profile

Disaster Management in Thailand

**The Projects of Disaster Risk Reduction
in Thailand**

Introduction to Thailand

Geography

- ❖ Nestled in South East Asia
- ❖ Spreads out over 513,115 km² of land and stretch approximately 1,620 km. from north to south and 775 km. from east to west
- ❖ Bangkok area 1,568 km²
- ❖ 76 Province 877 District 7,255 Tambon (Sub-District)



Introduction



- Global warming
- Climate change
- Pollution
- Disaster
- Natural
- Human
- Technology
- AEC (Asean Economics Community)



HAO LAK, THAILAND
10/3/2004



KHAO LAK, THAILAND
12/29/2004



Relative Hazard Risk, Associated Vulnerabilities, Level of their Management and Risk of Disaster Occurrence in Thailand *				
	Hazard	Vulnerability	Management	Risk
<i>Flood</i>	<i>High</i>	<i>Moderate</i>	<i>Moderate</i>	<i>High</i>
Typhoon & Storm surge	High	High	Moderate	Moderate
Earthquake	Low	Low	Poor	Moderate
Landslide	Moderate	Low	Poor	Moderate
Drought	High	Moderate	Moderate	Moderate
Fire	High	Moderate	Moderate	Moderate
Explosion	High	Moderate	Poor	High
Major Accident	High	Moderate	Poor	High
Epidemic	Low	Low	Moderate	Low
Pest	Moderate	Low	Poor	Moderate
Civil Unrest	Low	Low	Poor	Moderate
Refugee Influx	Moderate	Low	Moderate	Moderate

* Source : Strengthening Disaster Management Strategies in Thailand, Asian Disaster Preparedness Center (ADPC), Sponsored by UNDP under THA/88/004, March 1994.

Rank order of risks of disasters of Thailand*

Hazard	Subjective Rank	Numeric Weight
<i>Flood</i>	<i>High</i>	<i>2.39</i>
Major Accidents	High	2.37
Explosion	High	2.34
Typhoon	Moderate	2.31
Drought	Moderate	2.24
Fire	Moderate	2.20
Landslide	Moderate	2.15
Earthquake	Moderate	1.97
Civil Unrest	Moderate	1.92
Refugee Influx	Moderate	1.87
Pests	Moderate	1.77
Epidemics	Low	1.63

* Source: Annex E, Page E4, Strengthening Disaster Management Strategies in Thailand, Asian Disaster Preparedness Center (ADPC), Sponsored by UNDP under THA/88/004, March 1994.

Organization Profile

Department of Disaster Prevention and Mitigation (DDPM)

Vision

DDPM, Ministry of Interior is principal government



agency to carry out the
take and responsibility of
disaster prevention and
mitigation so as to sustain
the country's inhabitability
and safety

Department of Disaster Prevention and Mitigation



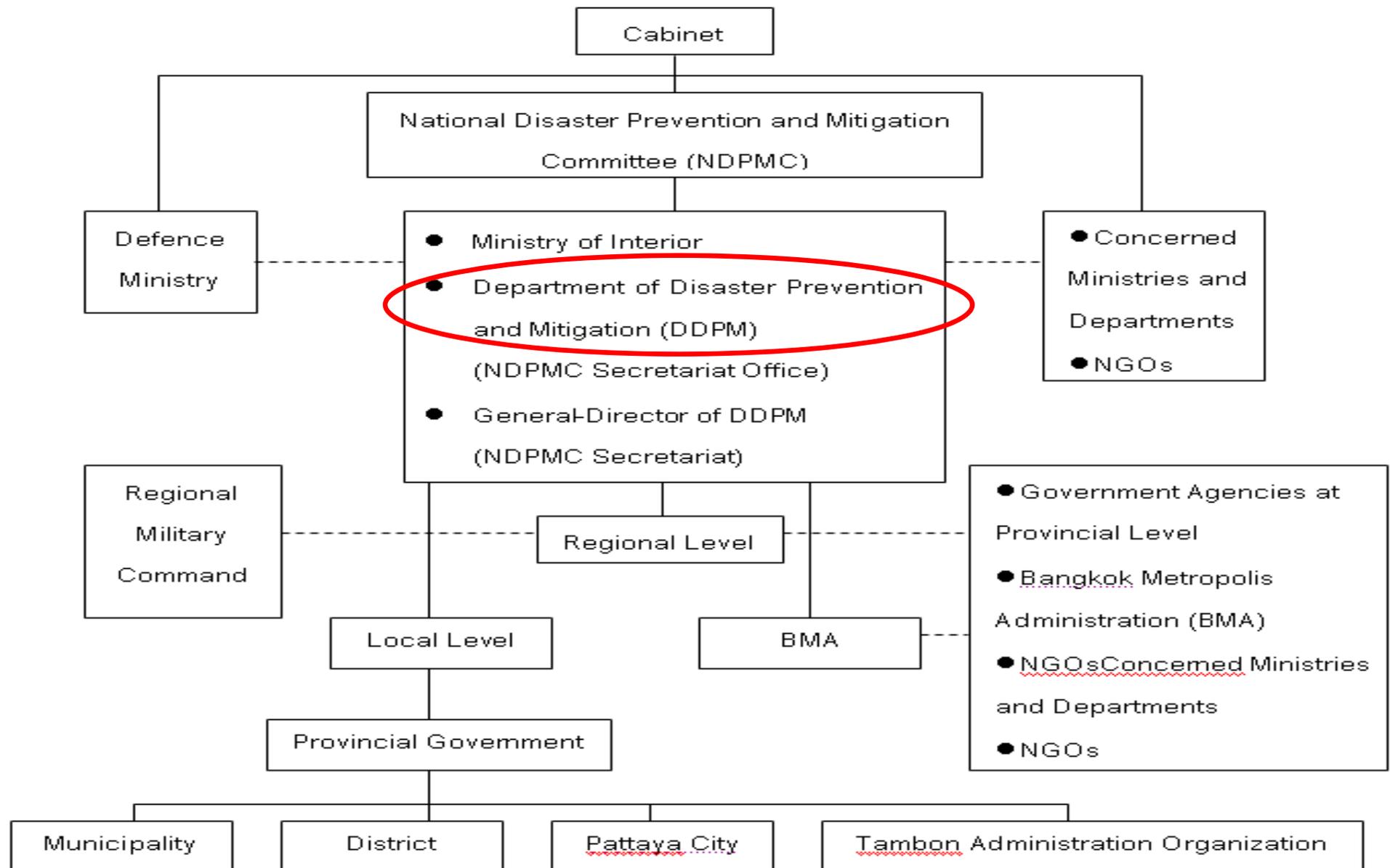
Organization Profile



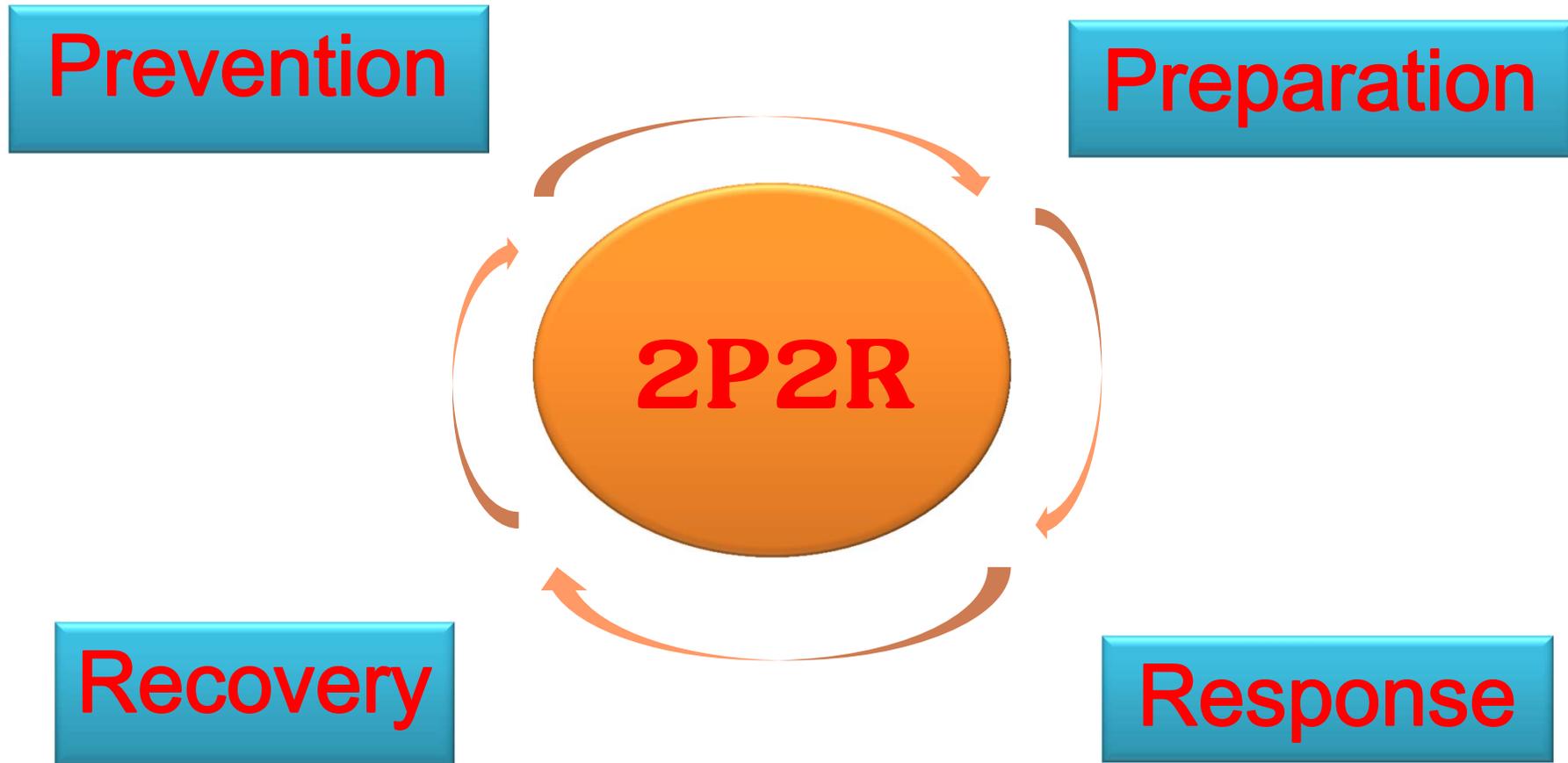
National public disaster database and the integration of information between agencies



Disaster Management in Thailand



Disaster Management in Thailand

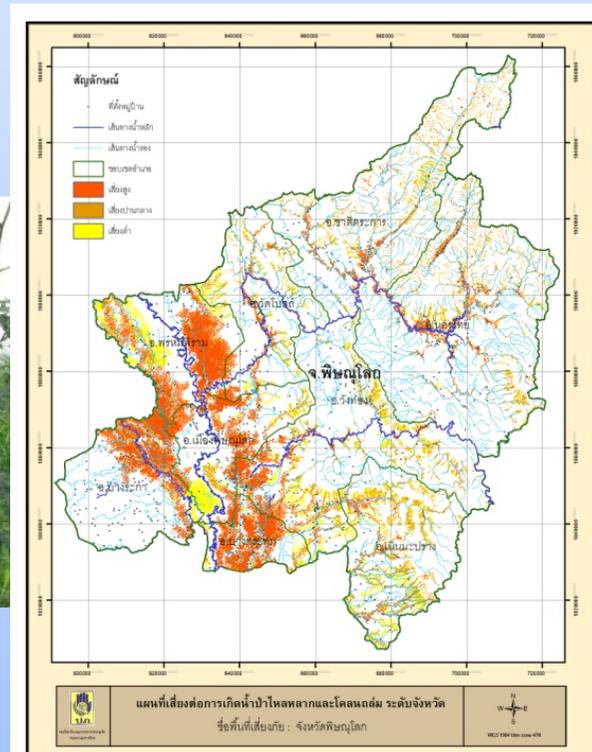


WARNING SYSTEM



Three tiers of disaster management arrangement which are;
- National level - Regional level - Local level

Prevention



Structural and non structural mitigation

Preparation



>CBDRM

COMMUNITY BASED DISASTER RISK MANAGEMENT



อปพร.



One Tambon One Search and rescue team : OTOS



มิสเตอร์เตือนภัย



Emergency Response Team : ERT



การจัดทำแผนปฏิบัติการฉุกเฉินแก้ไข
ปัญหาสาธารณภัย ระดับกลุ่มจังหวัด และ
ระดับจังหวัด

Preparation



College of Disaster Prevention and Mitigation



Preparation



Preparation

Communication



Response



ICS (Incident Command System)

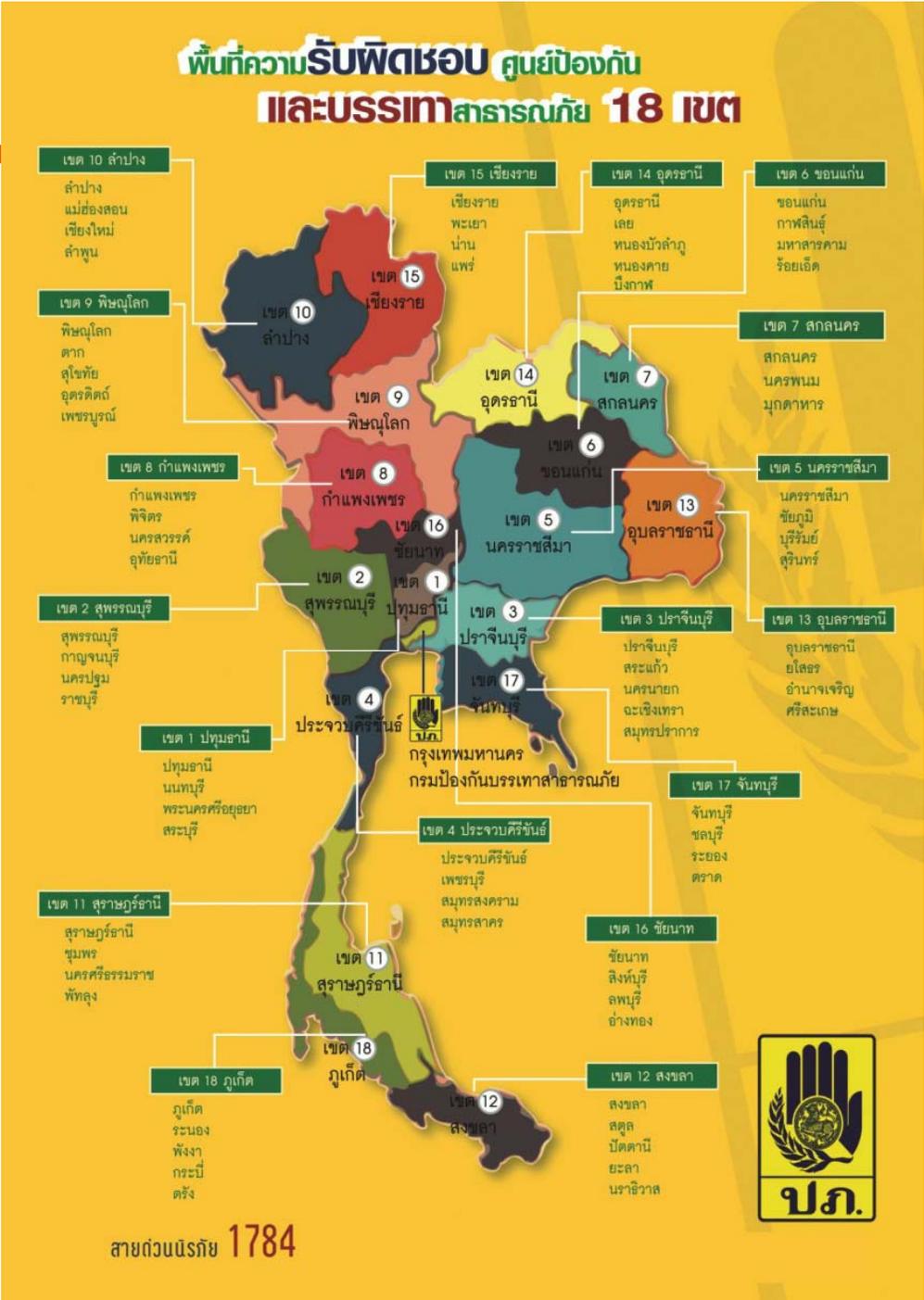
Single incident commander – Most incidents involve a single incident commander. In these incidents, a single person commands the incident response and is the decision-making final authority.



Response



สายด่วน ปก.1784



Recovery



- ◆ The shelter for victims
- ◆ Surveying the damage
- ◆ Reconstruction of public facilities And mental rehabilitation of victims
- ◆ Emergency Relief Finance from Centre fund



Department of Disaster Prevention and Mitigation Thailand

Present Topic:

**The Projects of Disaster Risk
Reduction in Thailand**

Outline

Introduction

- Disaster Management Arrangement
- Flood in Thailand

Flood Hazard Mapping in Thailand

- Normal method of Flood Hazard Mapping in Thailand
- New GIS Analysis Technique For Flood & Mud flow Hazard Mapping in Thailand
- Pilot Project of Non-Structural Measure Implemented at Nam Hu Village

Near Real Time Early Warning System Project

Introduction

DISASTER MANAGEMENT ARRANGEMENT

Main Legislative Mechanism and Plan

- Abolishment of Civil Defence Act 1979
- Enactment of “Disaster Prevention and Mitigation Act 2007” which has affected on November 26, 2007
- Master Plan on Disaster Prevention and Mitigation between 2010 - 2014
- 3 levels of disaster management arrangement which are national level, local level, and Bangkok Metropolitan Administration
- Numerous proxies of central state agencies at regional level to provide assistance to disaster stricken provinces such as DPMRC and other.

Introduction

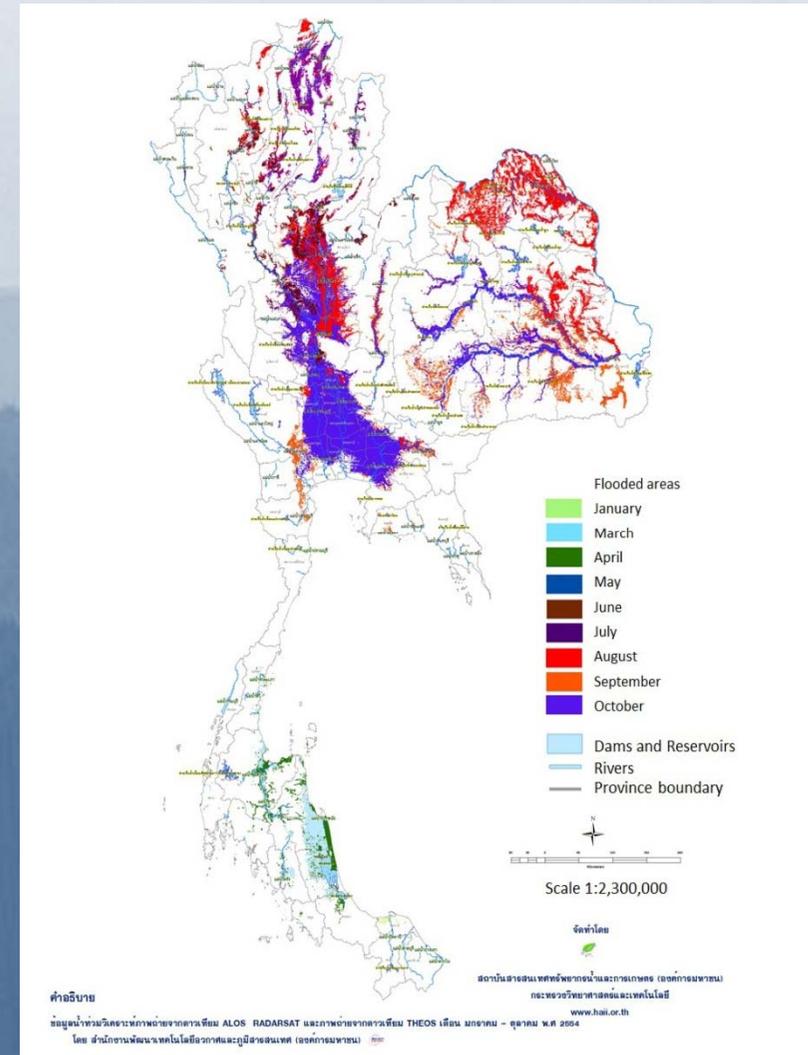
Flood in Thailand

Flood Expand from North to:

- Central of Thailand by Chao Phraya River
- Northeast by Chi and Mun Rivers

In Thai history

- Flood has occurred in 1942, 1978, 1980, 1983, 1995, 1996, 2002, 2006 and 2011.
- 1942 and 2011 is considered to be Mage flood.

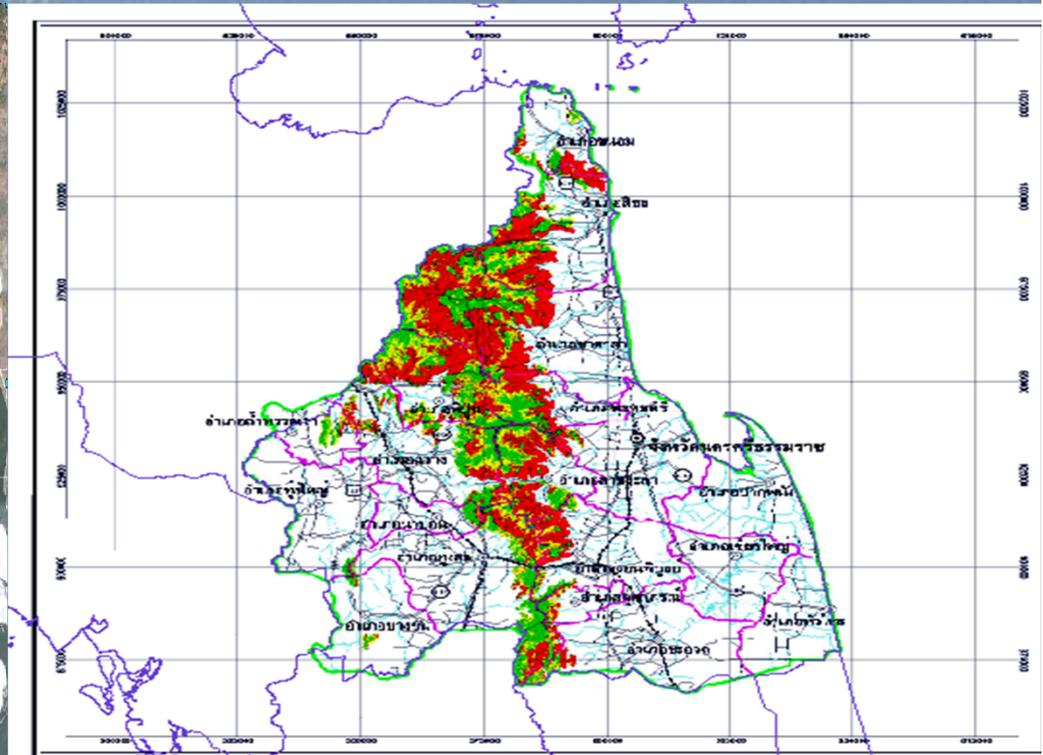
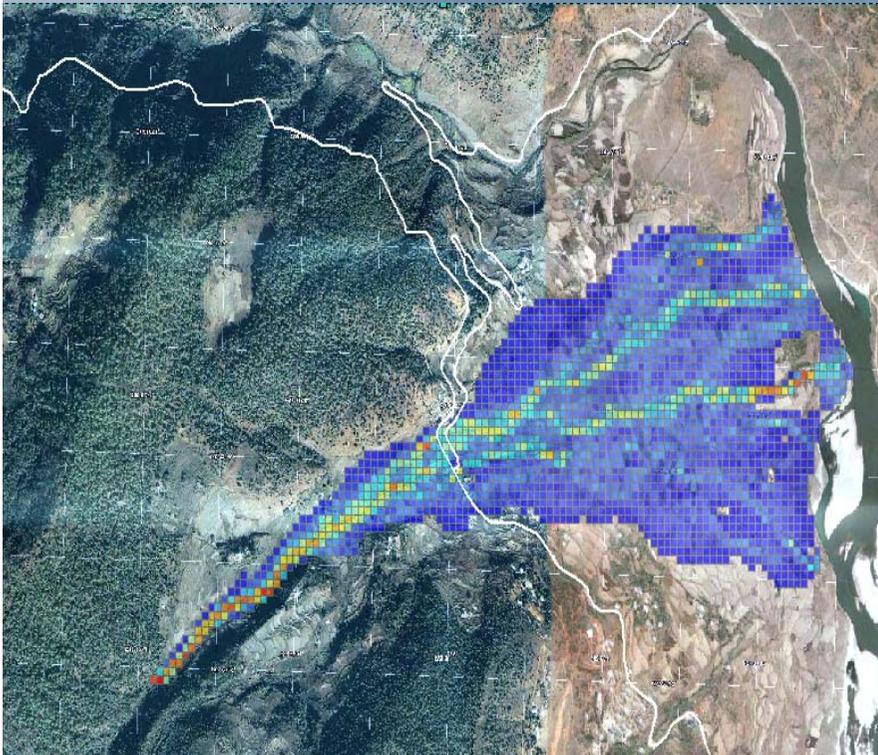


(Source: HAI, 2012)

Flood Hazard Mapping in Thailand

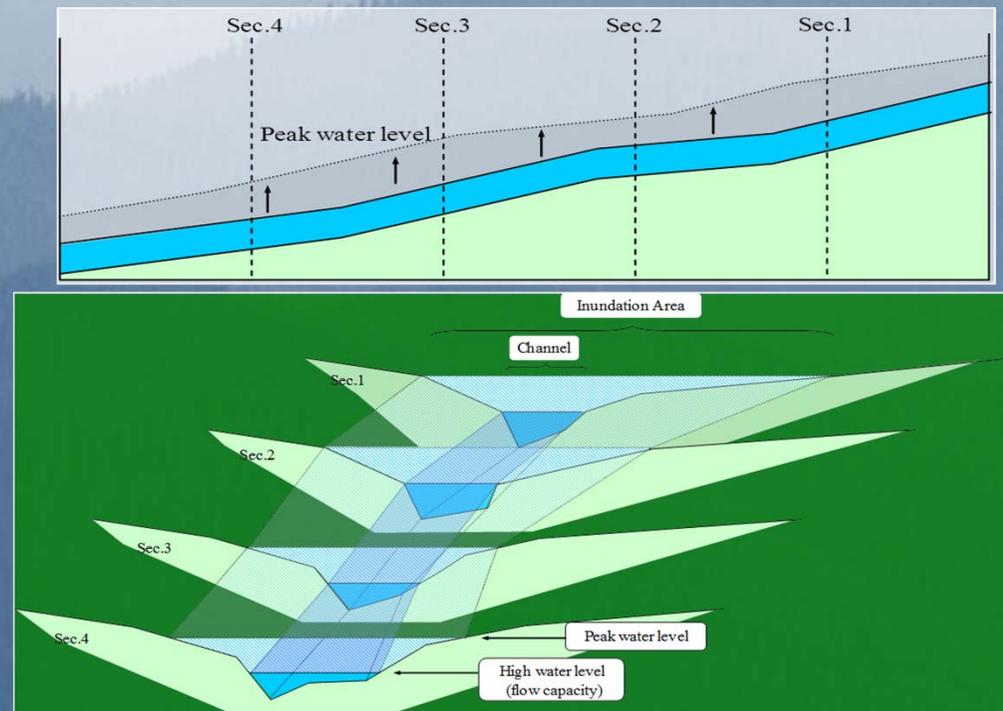
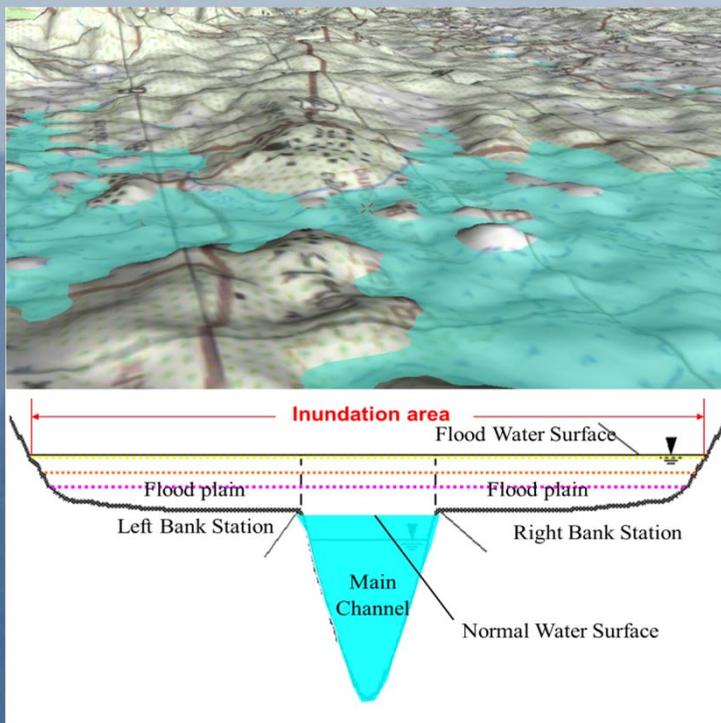
Normal method of Flood Hazard Mapping in Thailand

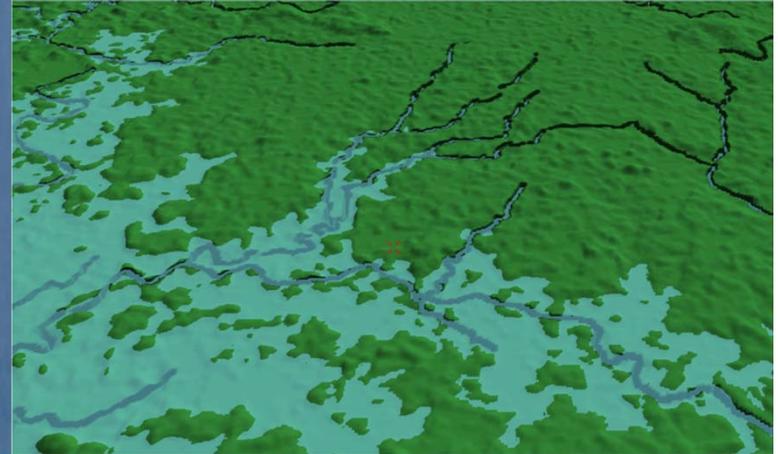
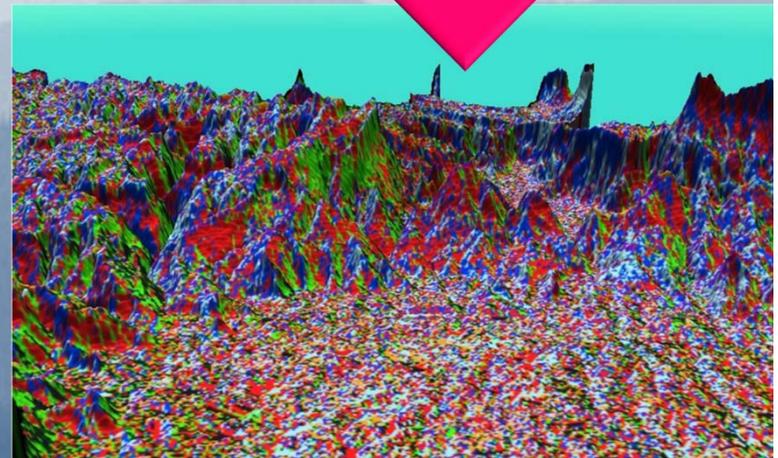
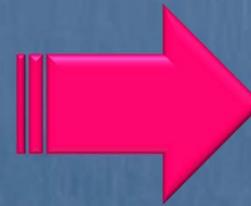
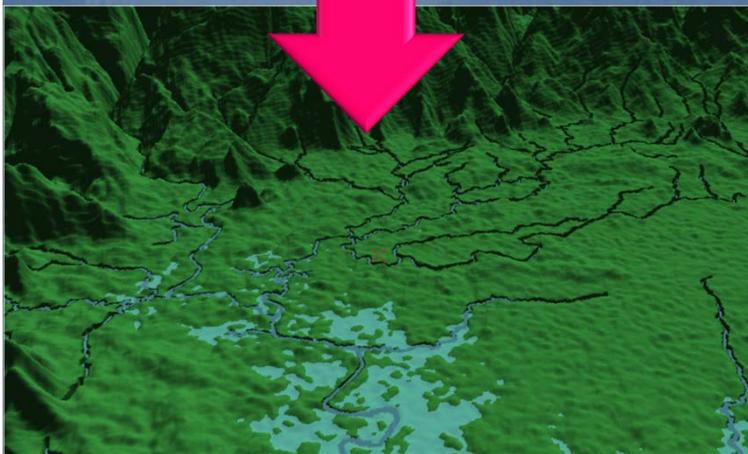
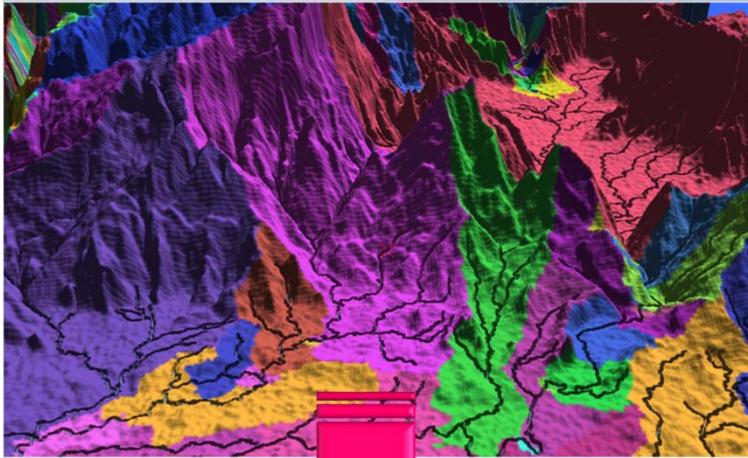
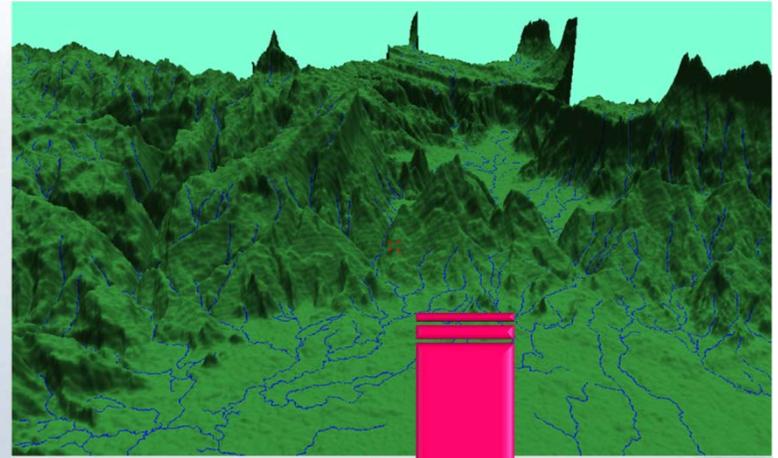
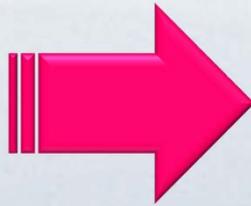
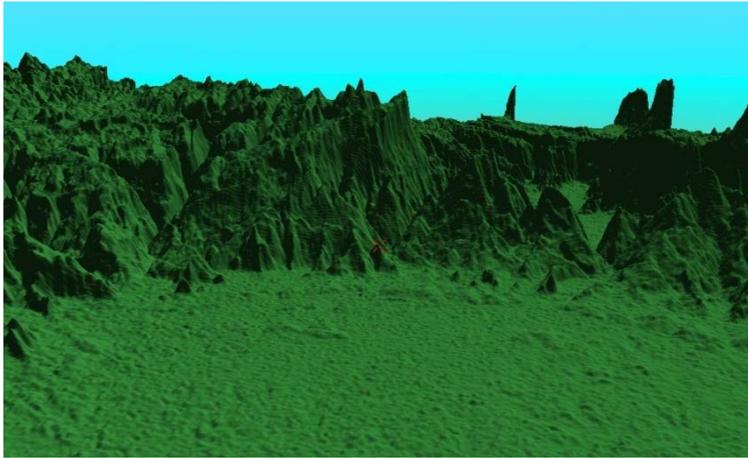
1. Hydrological methodology
2. GIS layer analysis



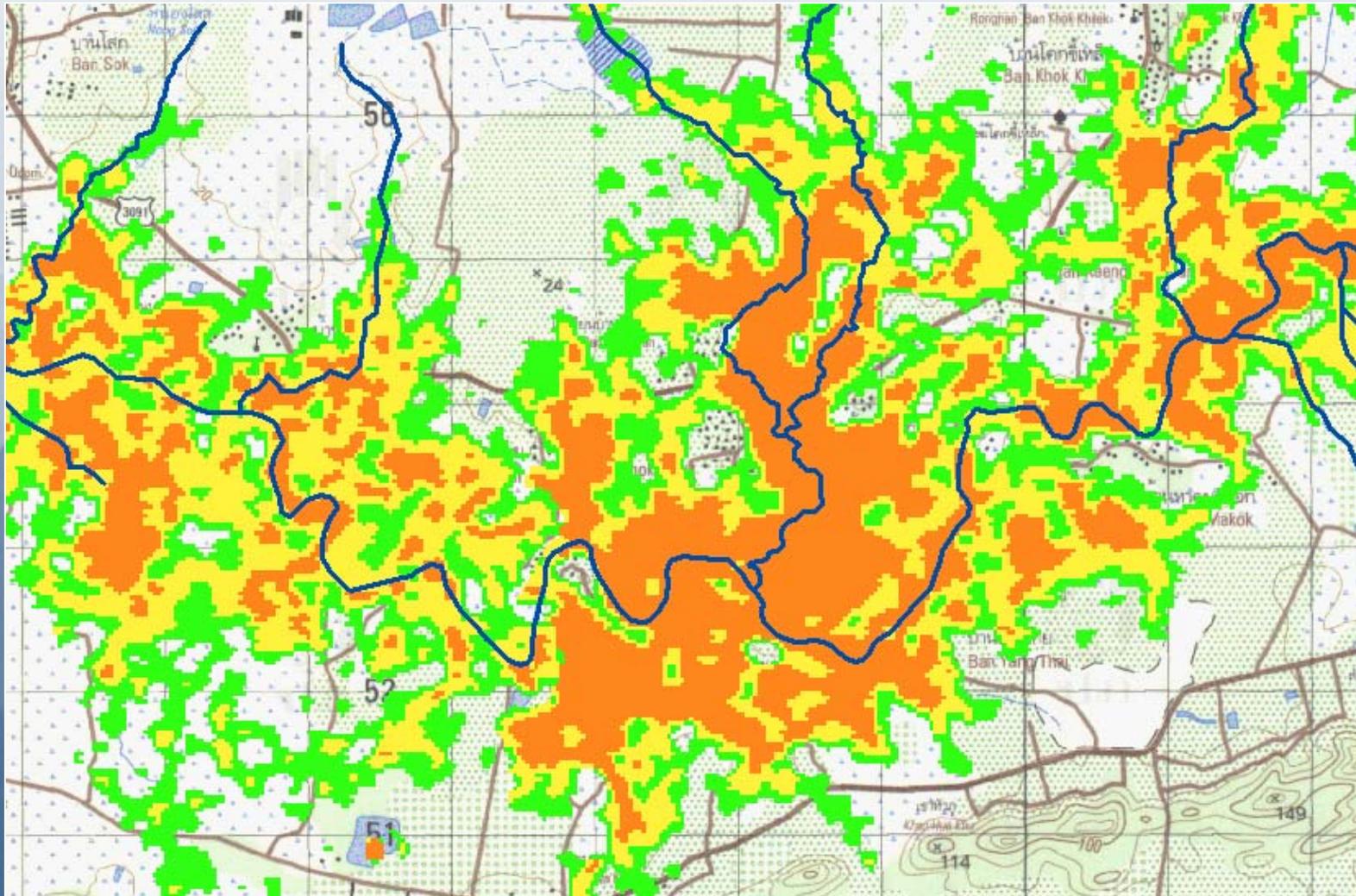
Flood Hazard Mapping in Thailand

New GIS Analysis Technique For Flood Hazard Mapping in Thailand with JICA





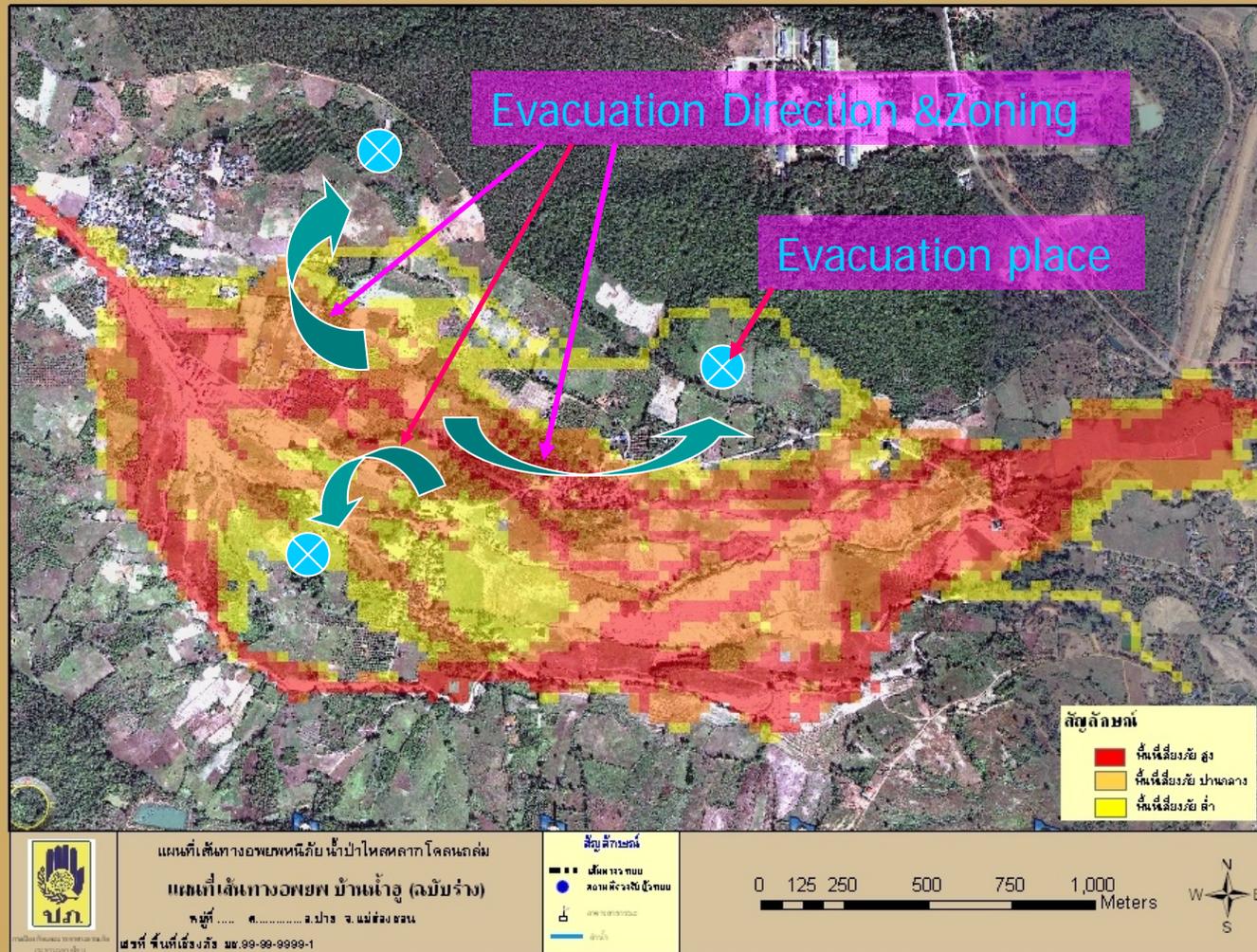
FHM Procedure



- Integrated Inundation area from each level to be Risk area

Pilot Project of Non-Structural Measure Implemented at Nam Hu Village using New GIS Analysis Technique

Risk Map for CBDRM Planning and Drill





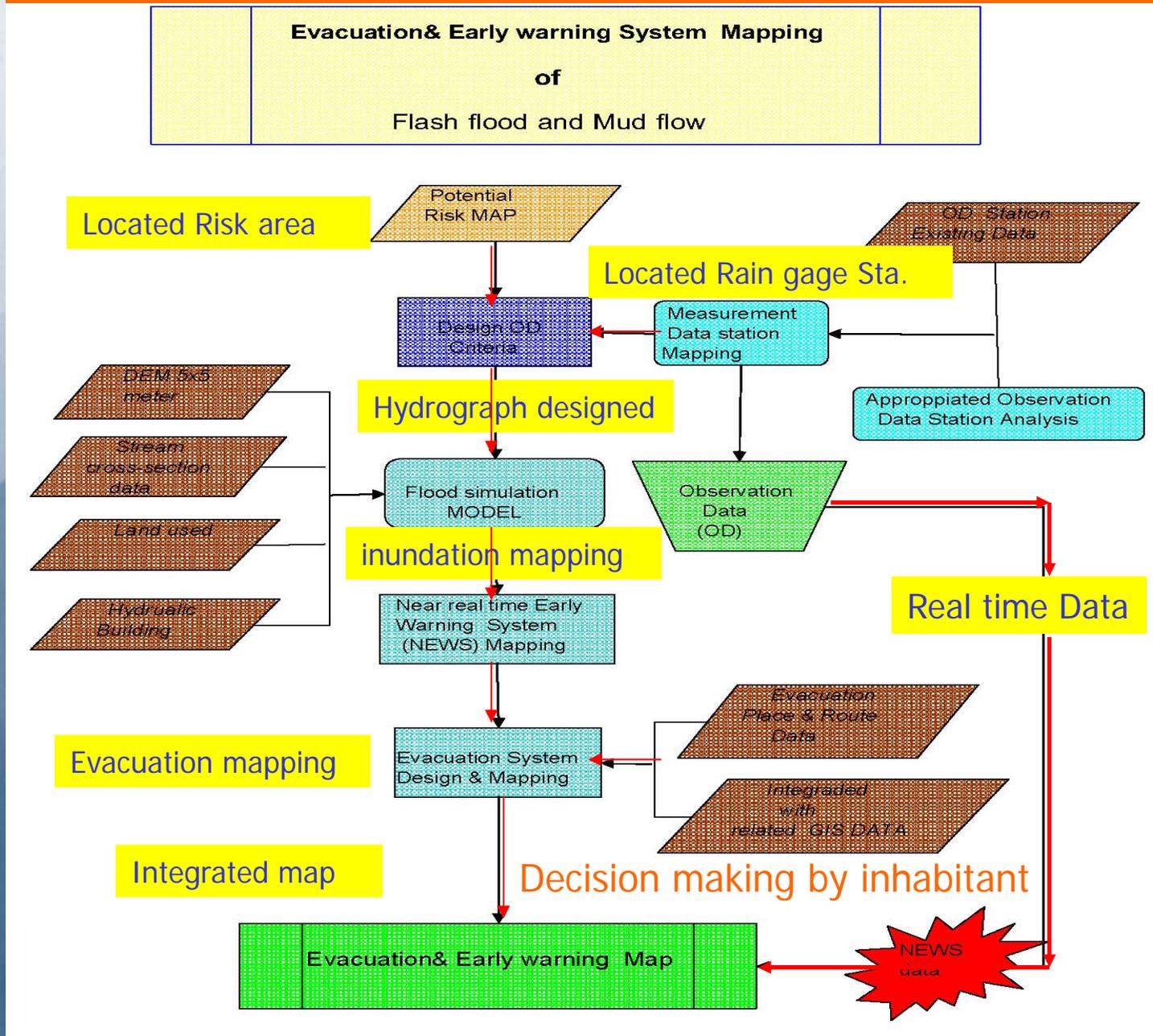
Near Real Time Early Warning System Project



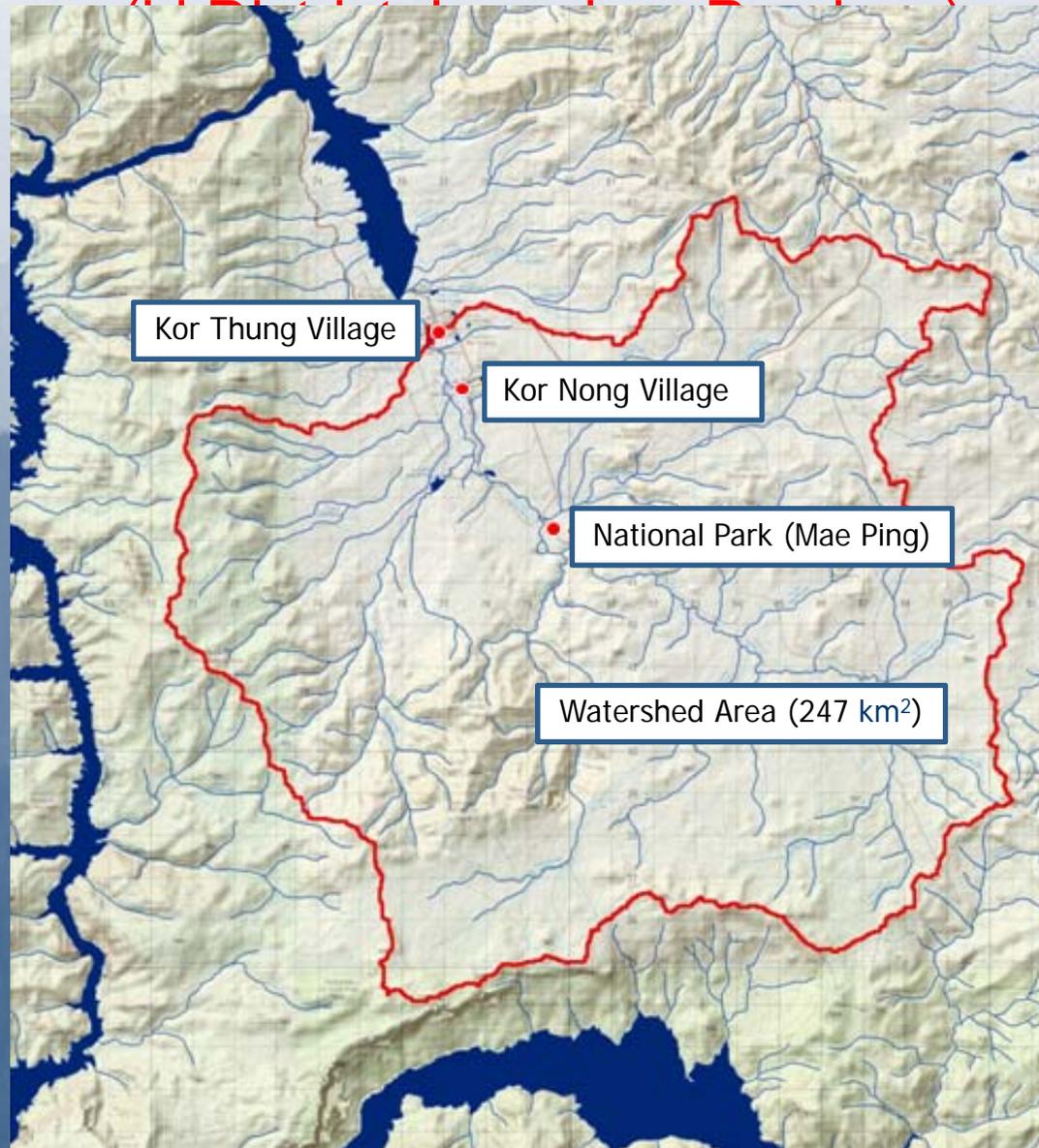
■Project on Capacity Development
in Disaster Management in Thailand – Phase 2



Flow chart of Near real time Early Warning & Evacuation mapping of Flash flood and Mud flow



Focus Area: Kor Nong and Kor Thung Village



Data Request for Setup Meteorologic Model HEC-HMS

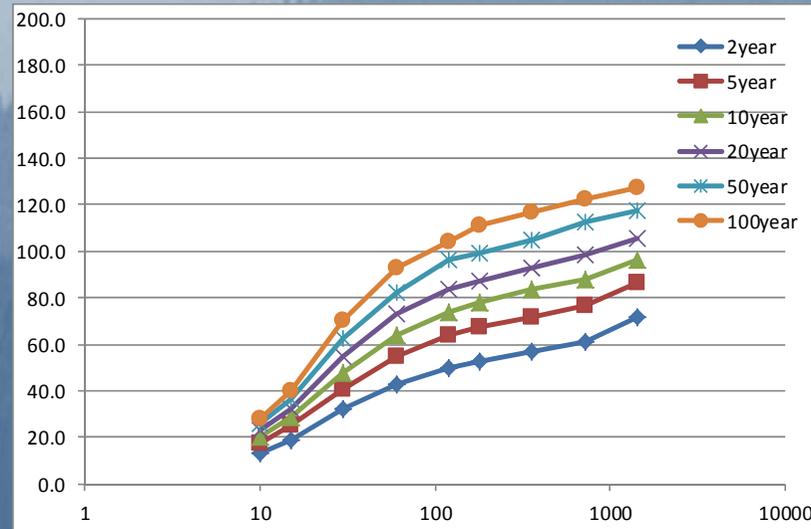
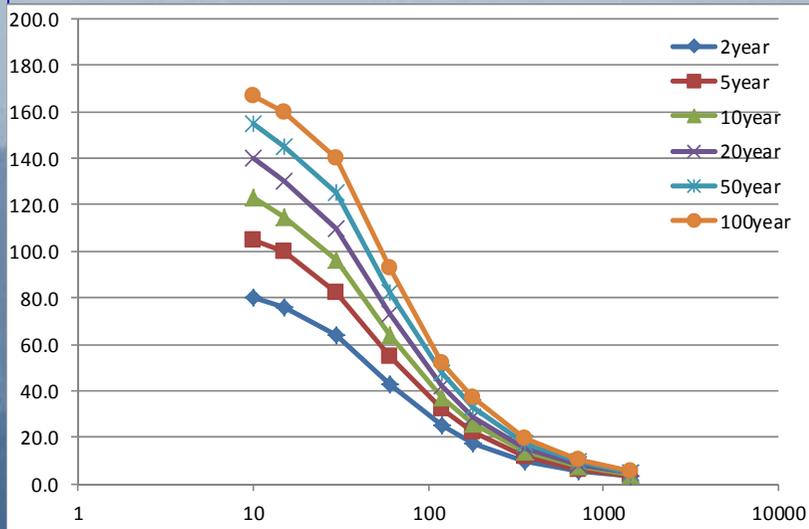
Bhumibol Dam, Tak

Rainfall Intensity (mm/hr)

	2year	5year	10year	20year	50year	100year
5						
10	80.0	105.0	123.0	140.0	155.0	167.0
15	76.0	100.0	115.0	130.0	145.0	160.0
30	64.0	82.0	96.0	110.0	125.0	140.0
60	43.0	55.0	64.0	73.0	82.0	93.0
120	25.0	32.0	37.0	42.0	48.0	52.0
180	17.5	22.5	26.0	29.0	33.0	37.0
360	9.5	12.0	14.0	15.5	17.5	19.5
720	5.1	6.4	7.3	8.2	9.4	10.2
1440	3.0	3.6	4.0	4.4	4.9	5.3

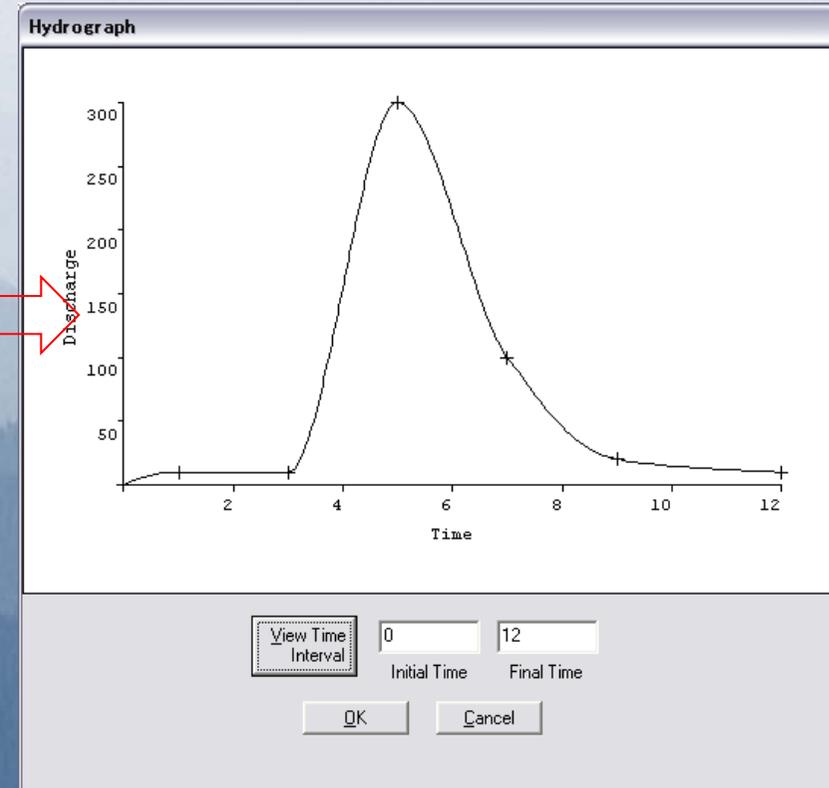
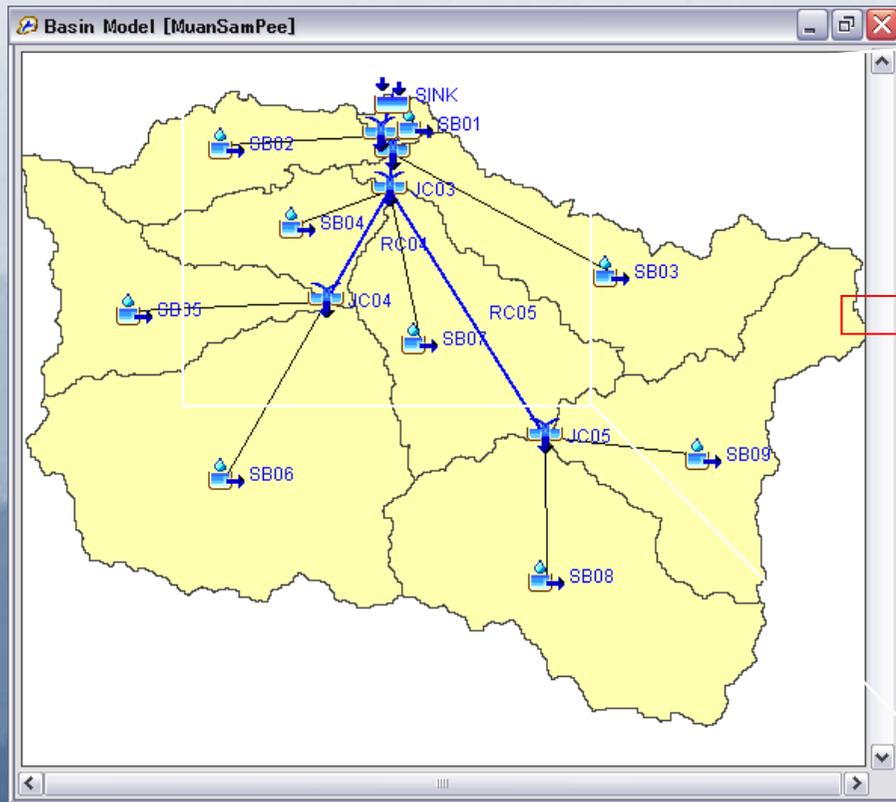
Rainfall Depth (mm)

	2year	5year	10year	20year	50year	100year
5						
10	13.3	17.5	20.5	23.3	25.8	27.8
15	19.0	25.0	28.8	32.5	36.3	40.0
30	32.0	41.0	48.0	55.0	62.5	70.0
60	43.0	55.0	64.0	73.0	82.0	93.0
120	50.0	64.0	74.0	84.0	96.0	104.0
180	52.5	67.5	78.0	87.0	99.0	111.0
360	57.0	72.0	84.0	93.0	105.0	117.0
720	61.2	76.8	87.6	98.4	112.8	122.4
1440	72.0	86.4	96.0	105.6	117.6	127.2

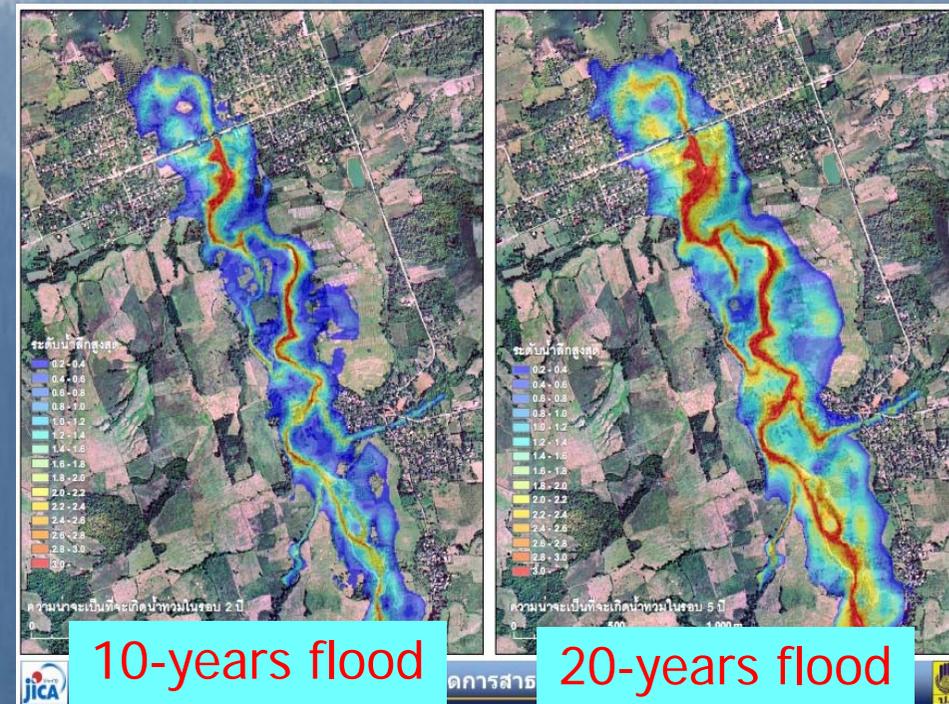
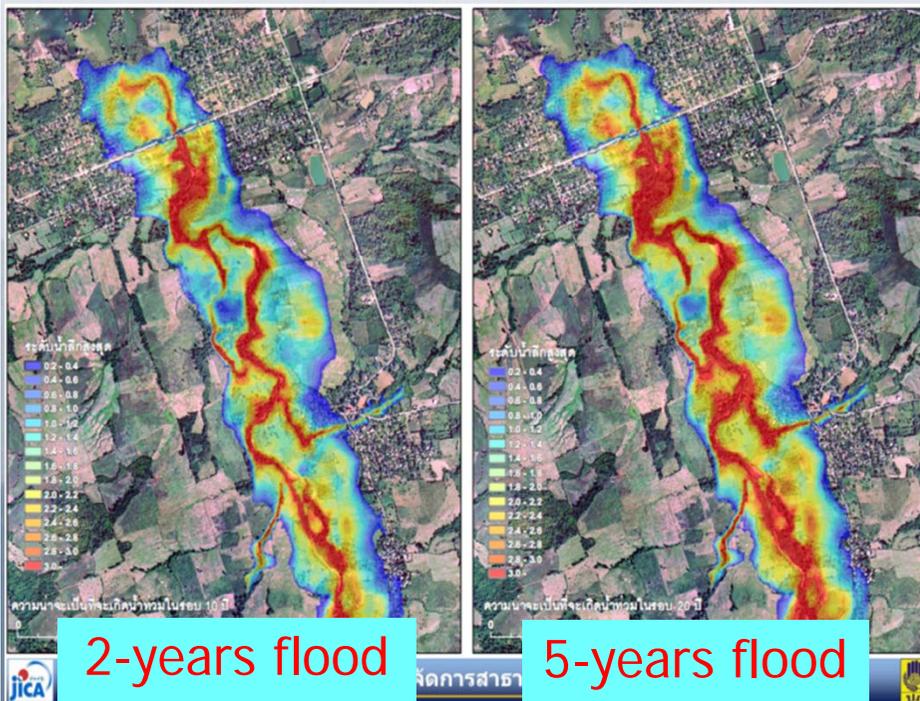


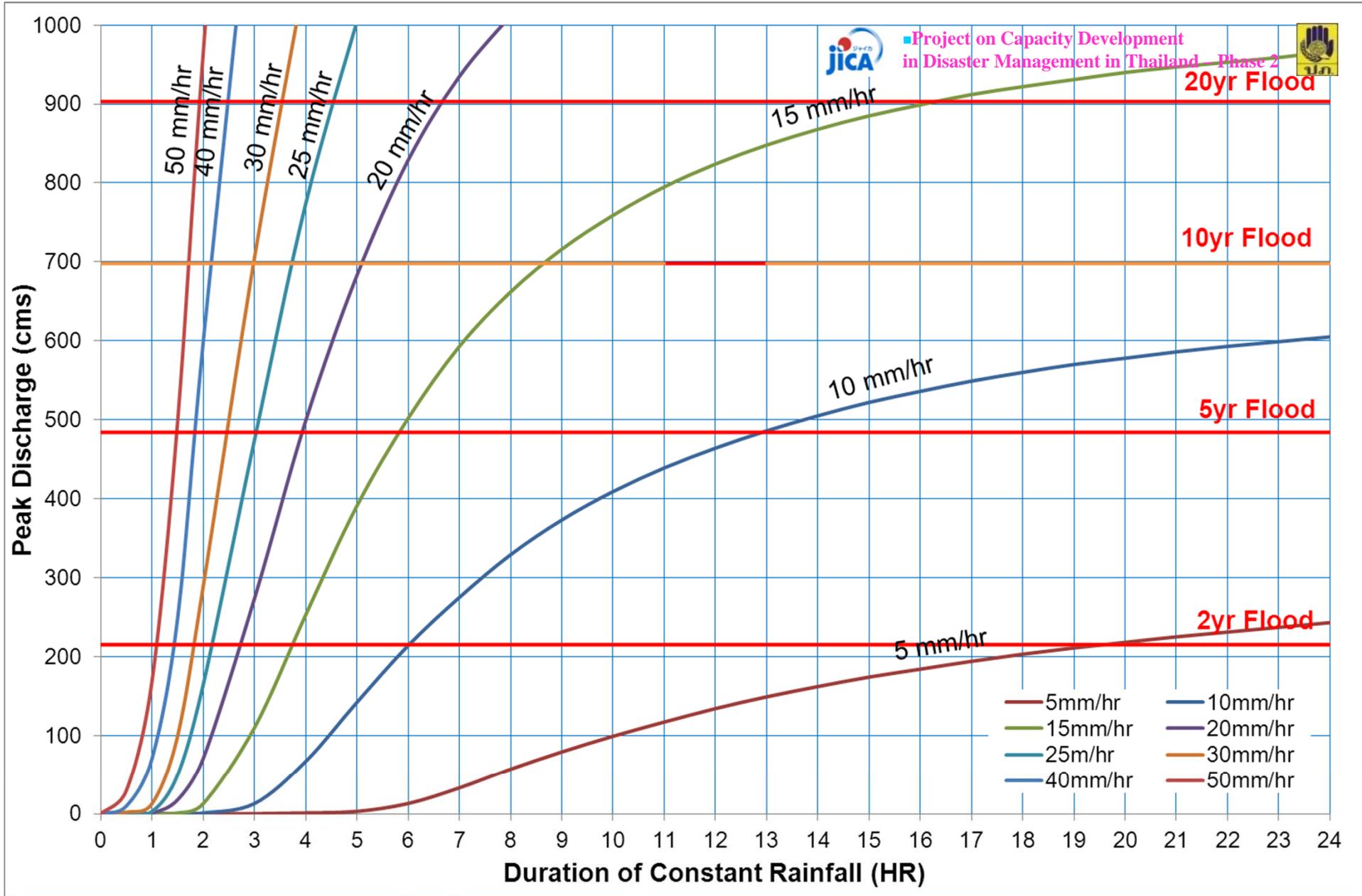
- The nearest rain gage station of Kor Nong Village is located at Bhumibol Dam.
- In HEC-HMS, Rainfall Depth (mm) is used for frequency storm.

Using HEC-HMS model to simulate river flow

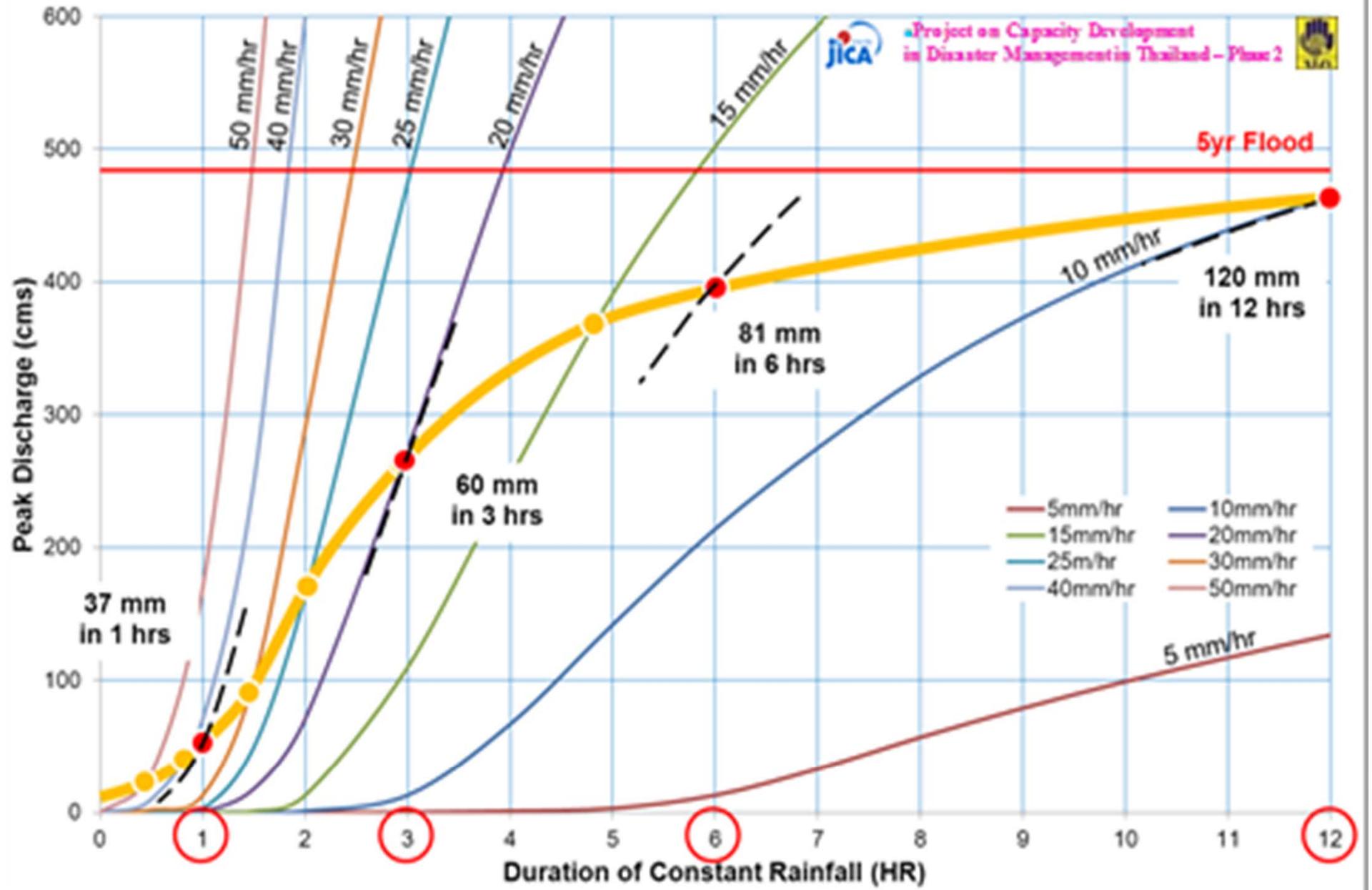


Flood simulation model had been developed and simulated of 2, 5, 10 and 20 flood return period





- When 10 mm/hr rainfall continues 6 hours, flood of 5 years probable will occur.
- When 10 mm/hr rainfall continues 13 hours, flood of 10 years probable will occur.



Recommended Rainfall Criteria for 5-year flood

- Total rainfall 40 mm in 1 hour
 - Total rainfall 60 mm in 3 hours
 - Total rainfall 80 mm in 6 hours
 - Total rainfall 120 mm in 12 hours
- When you observed the above rainfall amount, serious flood may arrive within 1 hour to both of Kor Nong and Kor Thung village

Local cabinet & community Leader meeting Site Visiting and Interview with Community Leader





**Thank You
For Your Attention**