

TEAM GROUP OF COMPANIES



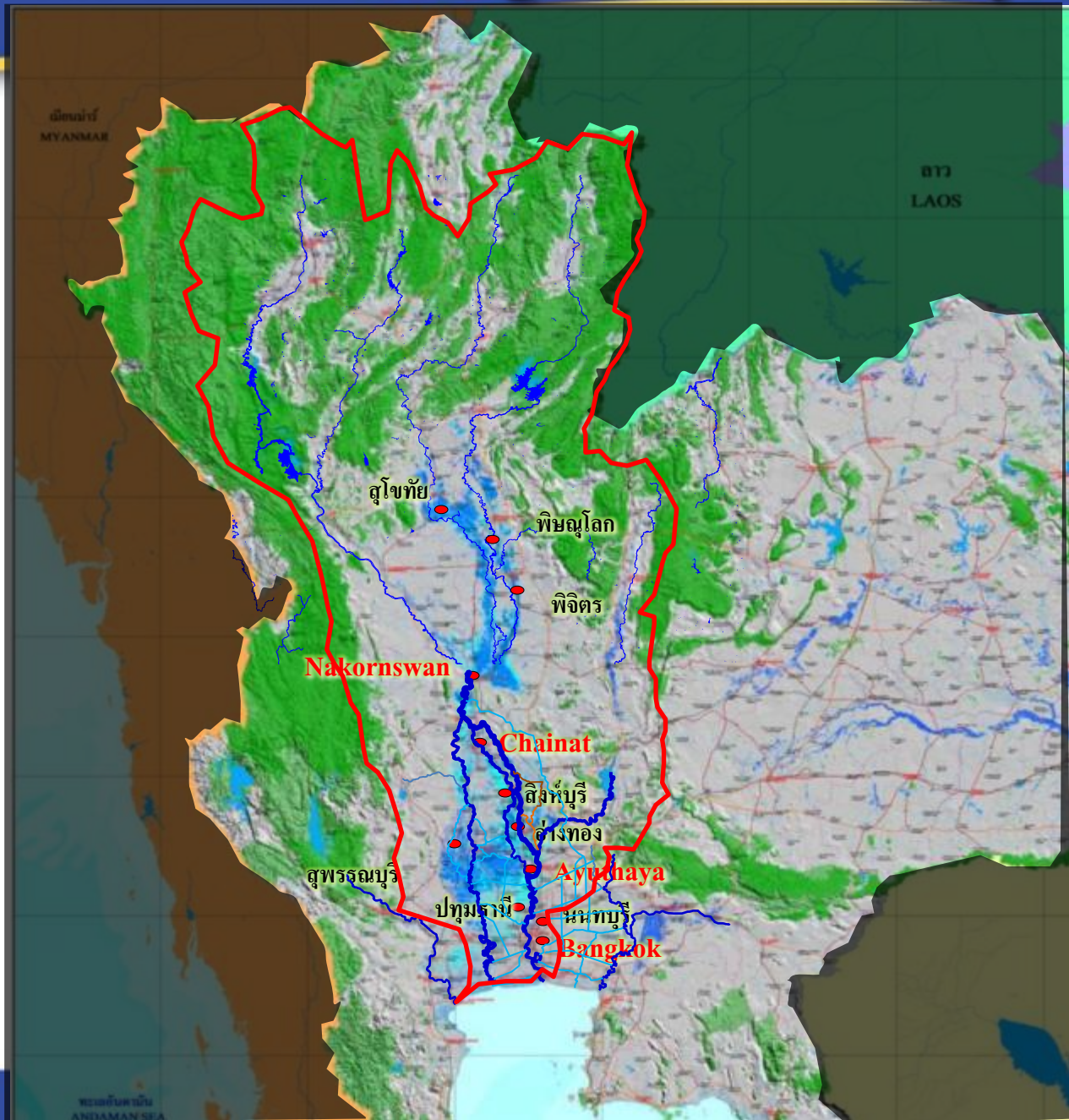
The 2011 Flood of the Century

Dr.Pornsak Supparatarn

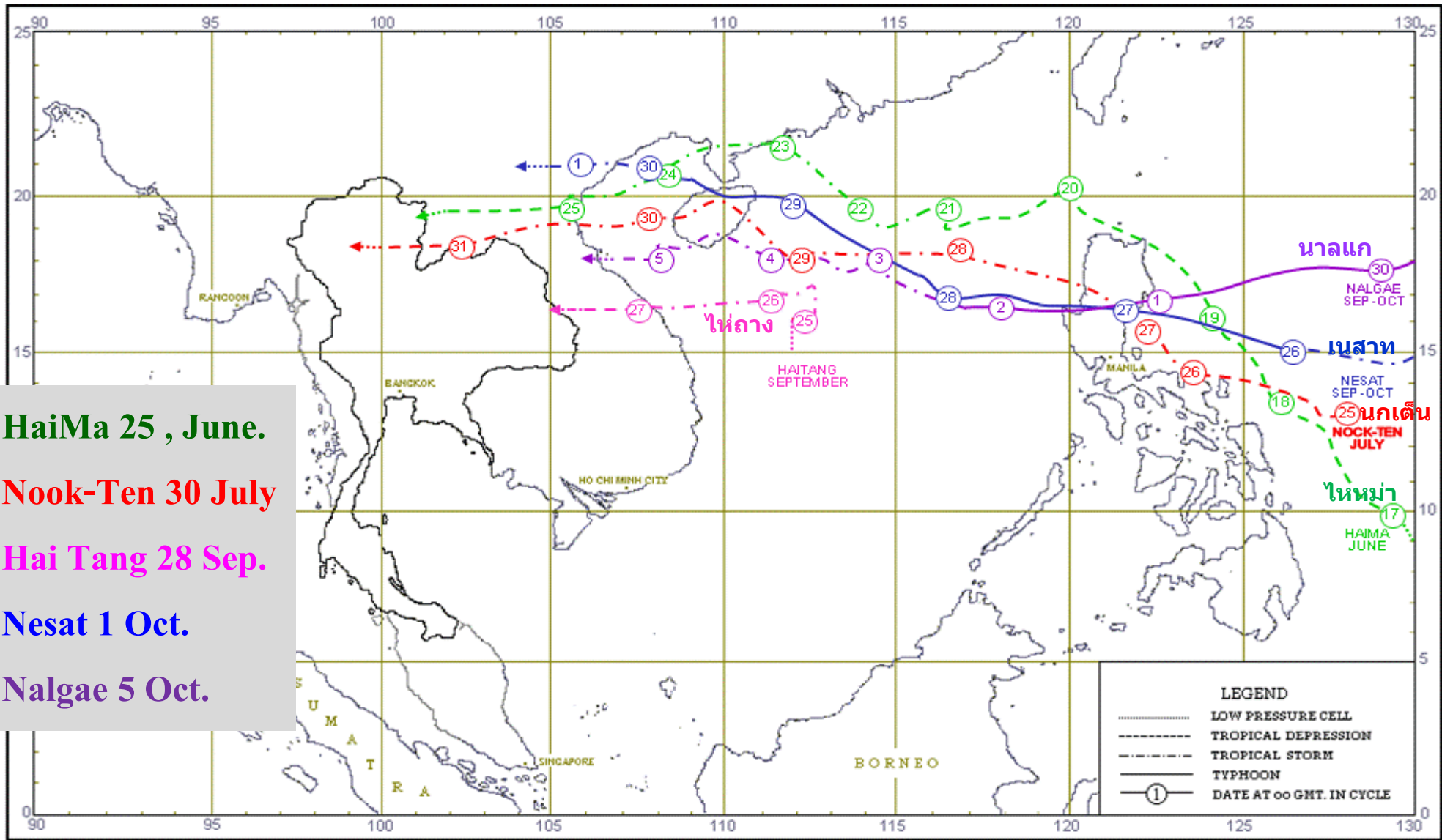


On the forefront of global trends through service excellence

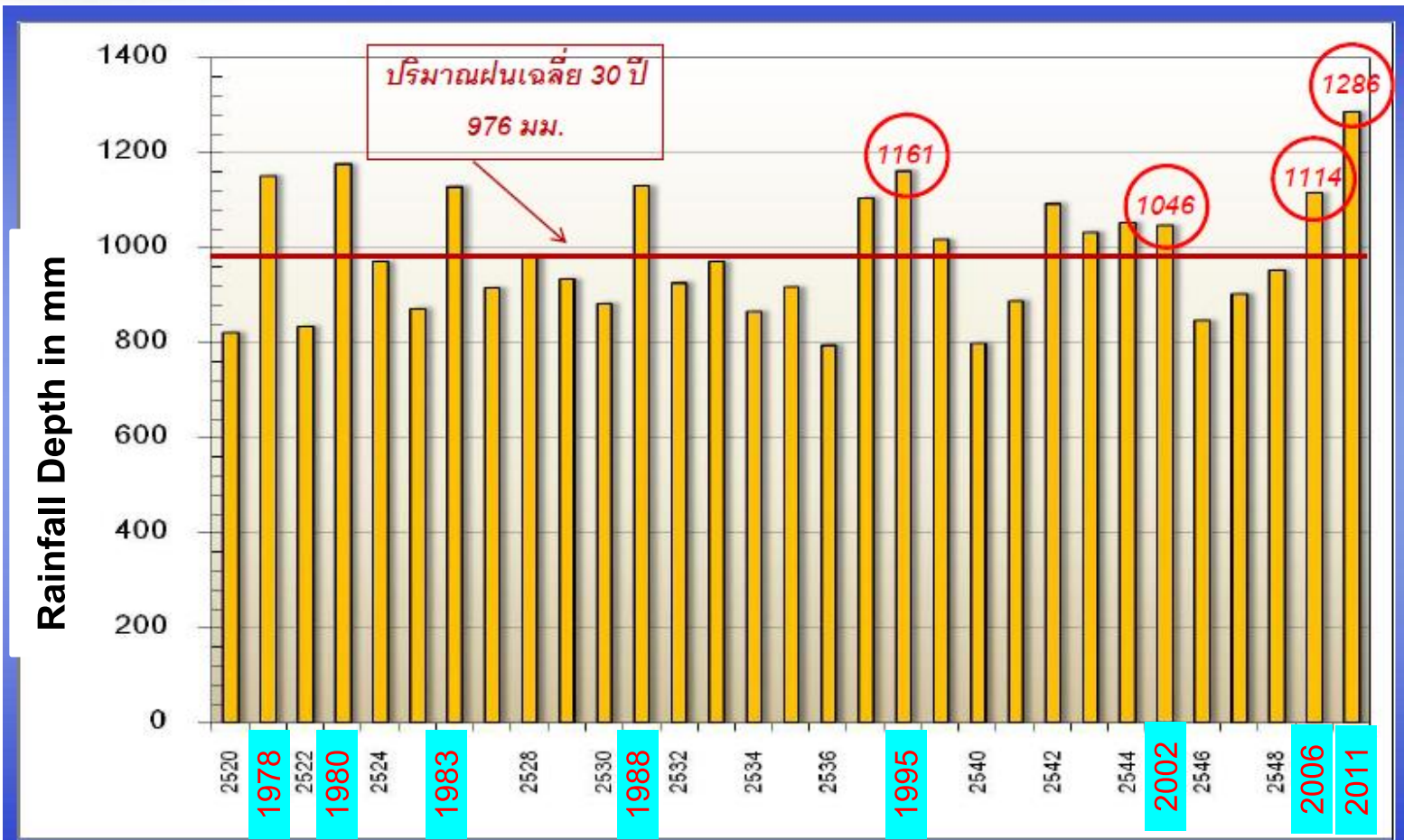
The 2011 Flooding in the Chao Phraya River



Storm Track from the Pacific Ocean in 2011



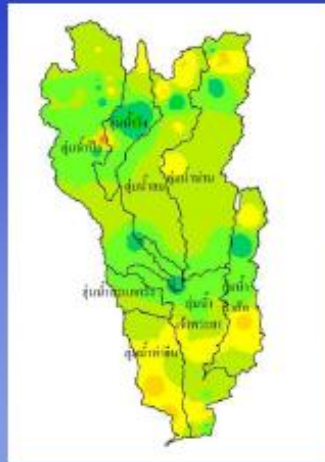
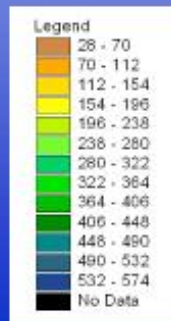
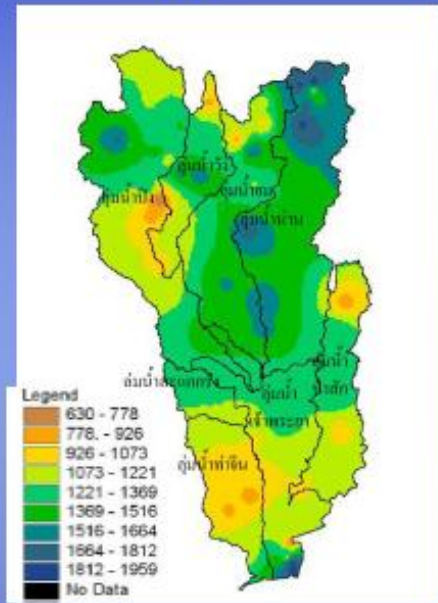
1. HaiMa 25 , June.
2. Nook-Ten 30 July
3. Hai Tang 28 Sep.
4. Nesat 1 Oct.
5. Nalgae 5 Oct.



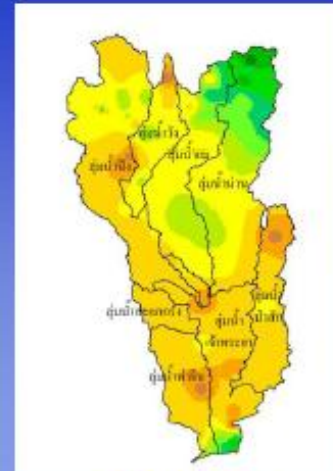
ที่มา : ข้อมูลน้ำฝนจากกรมอุตุนิยมวิทยาและกรมชลประทาน

หมายเหตุ ปริมาณฝนย้อนหลัง 30 ปี อ้างอิงจากสถานีวัดน้ำฝน 728 สถานี ปริมาณฝนปี 2554 อ้างอิงจากสถานีวัดน้ำฝน 65 สถานี

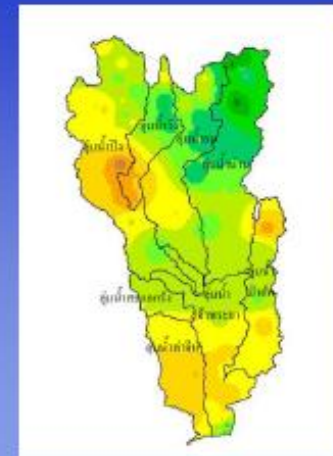
Cumulative Rain In the wet season



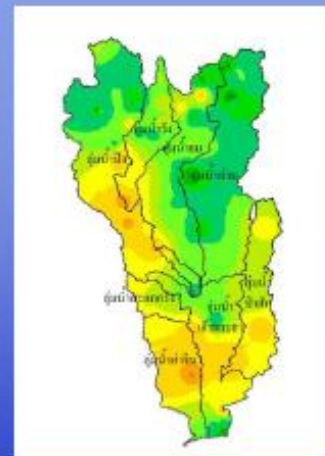
May



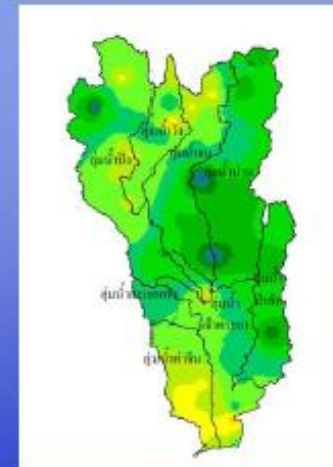
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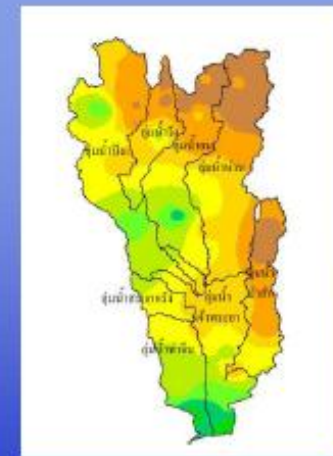
July



August

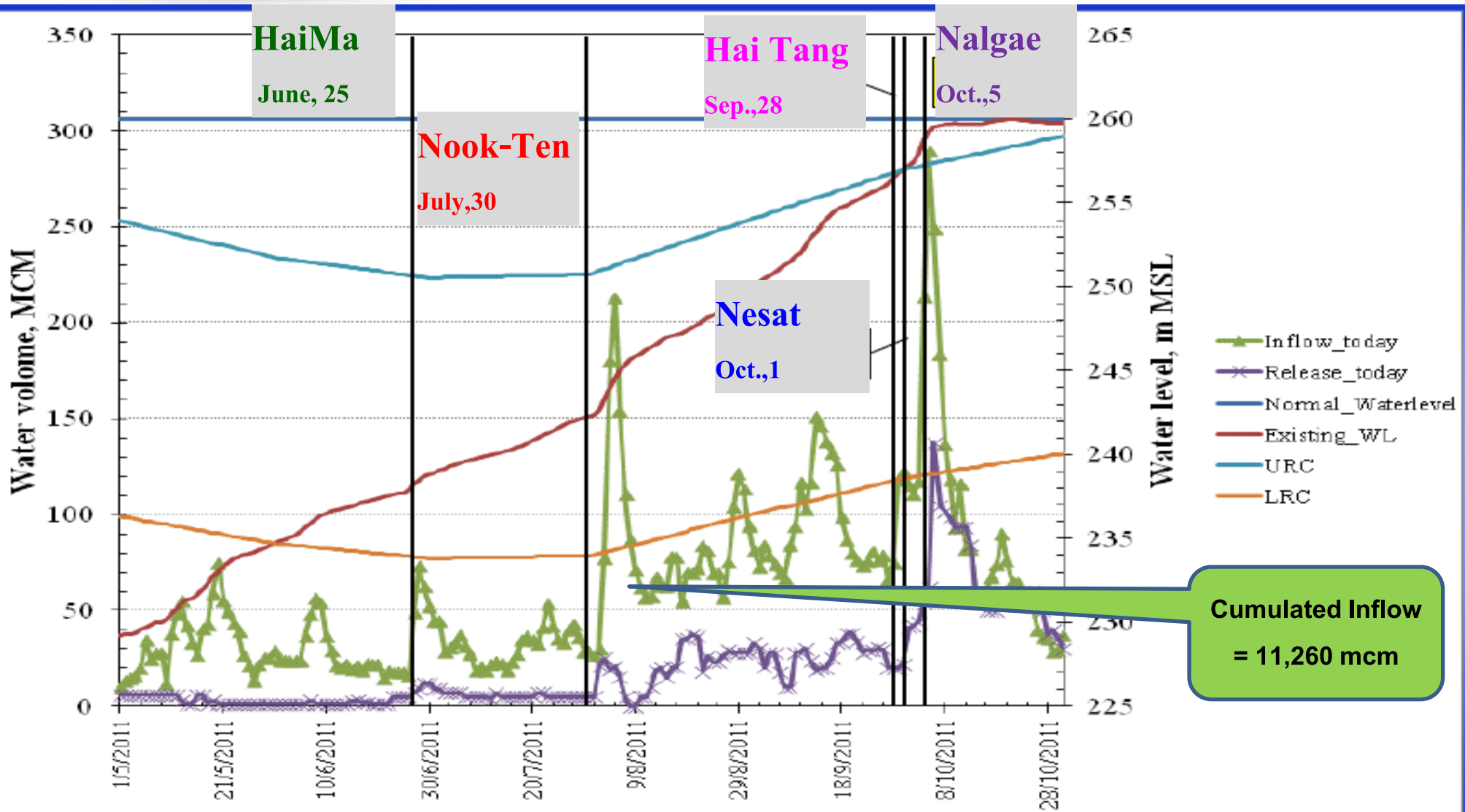


September

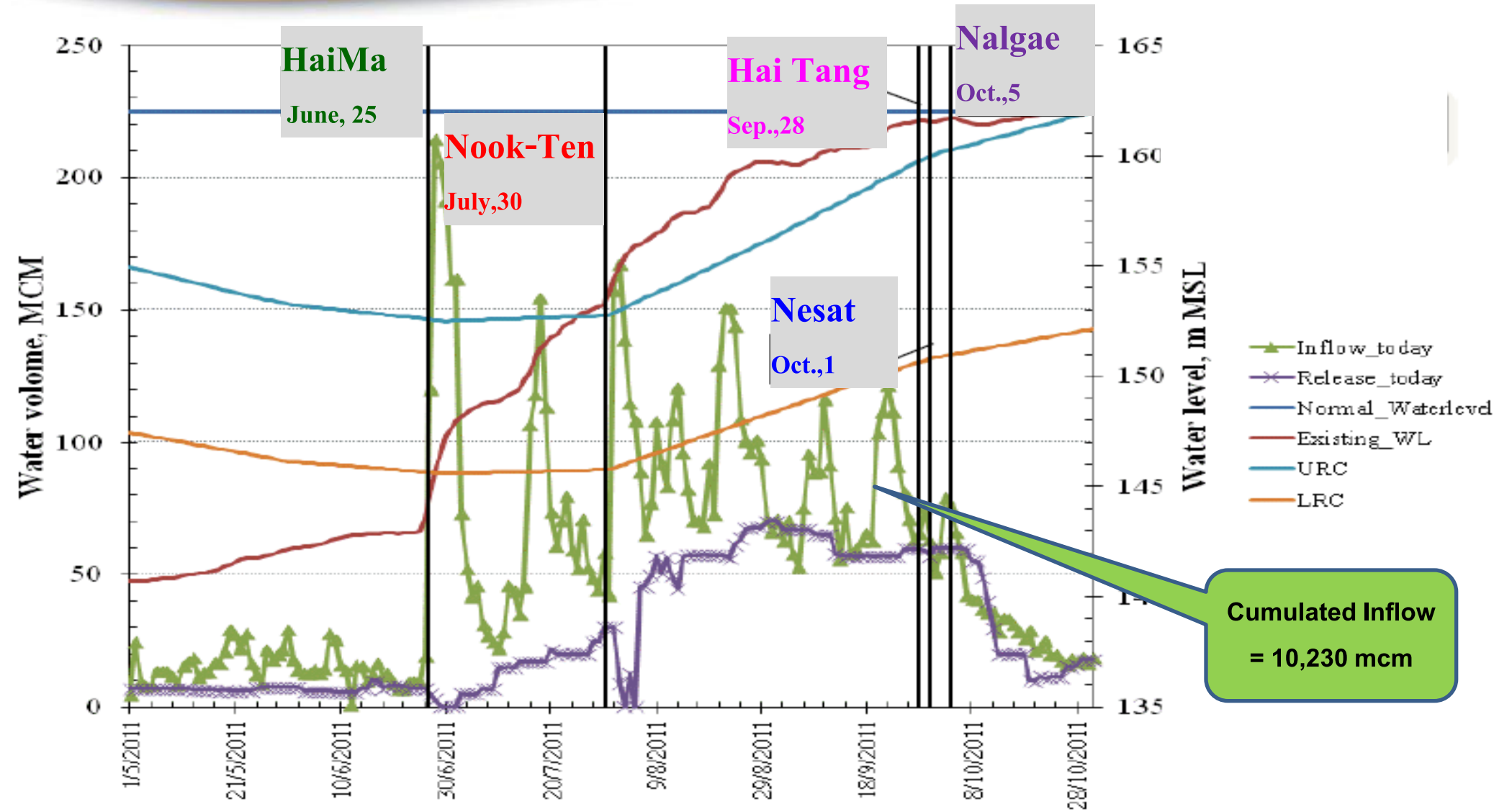


October

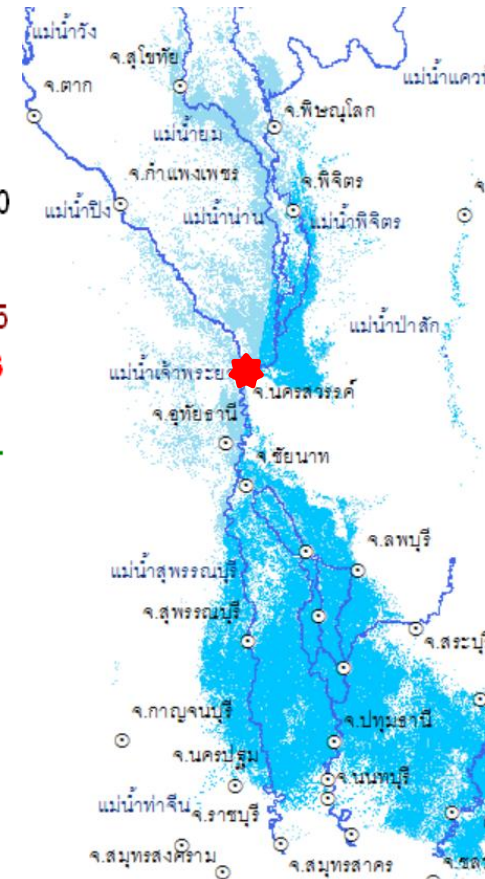
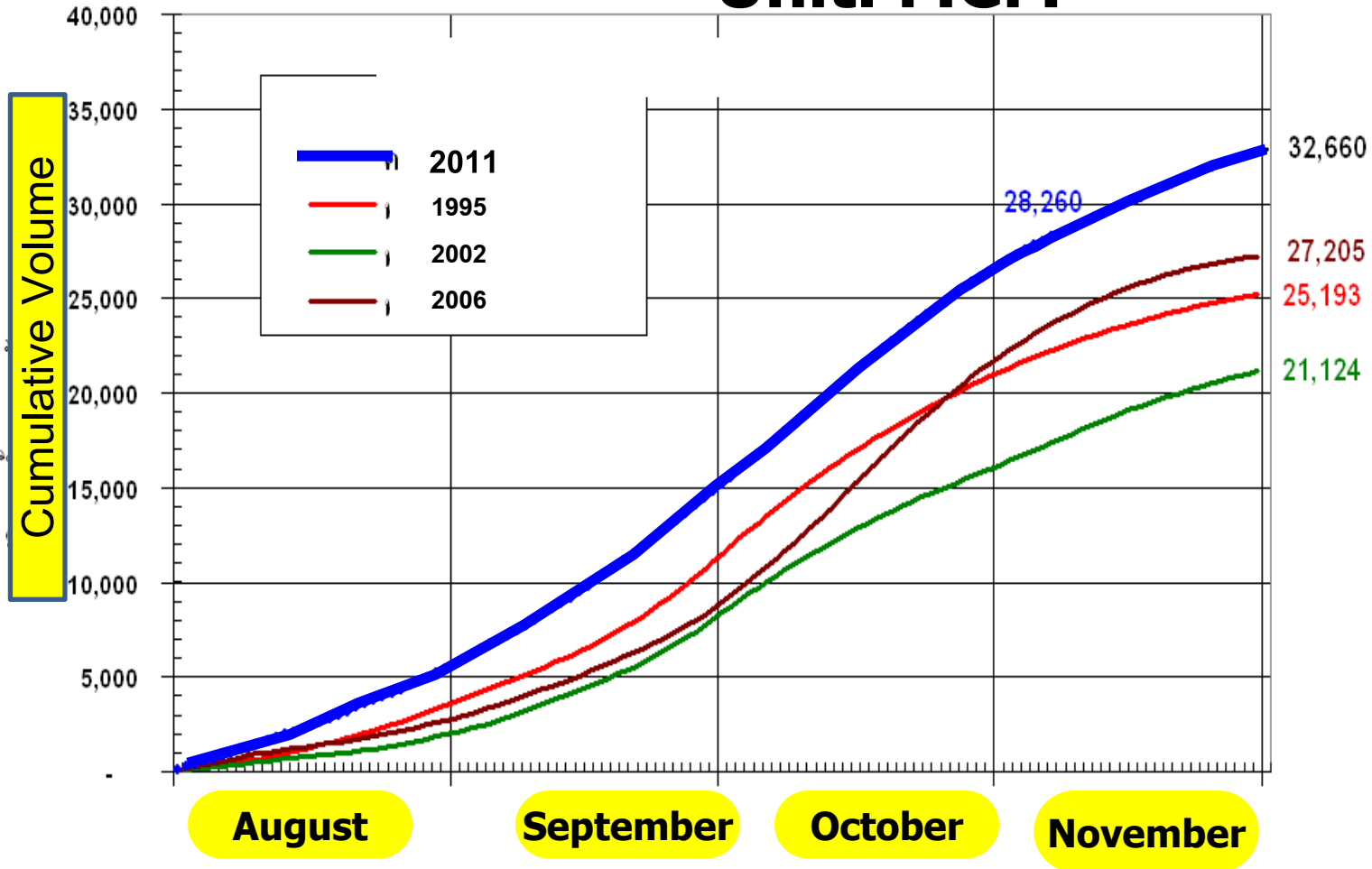
Bhumipol Reservoir



Sirikit Reservoir

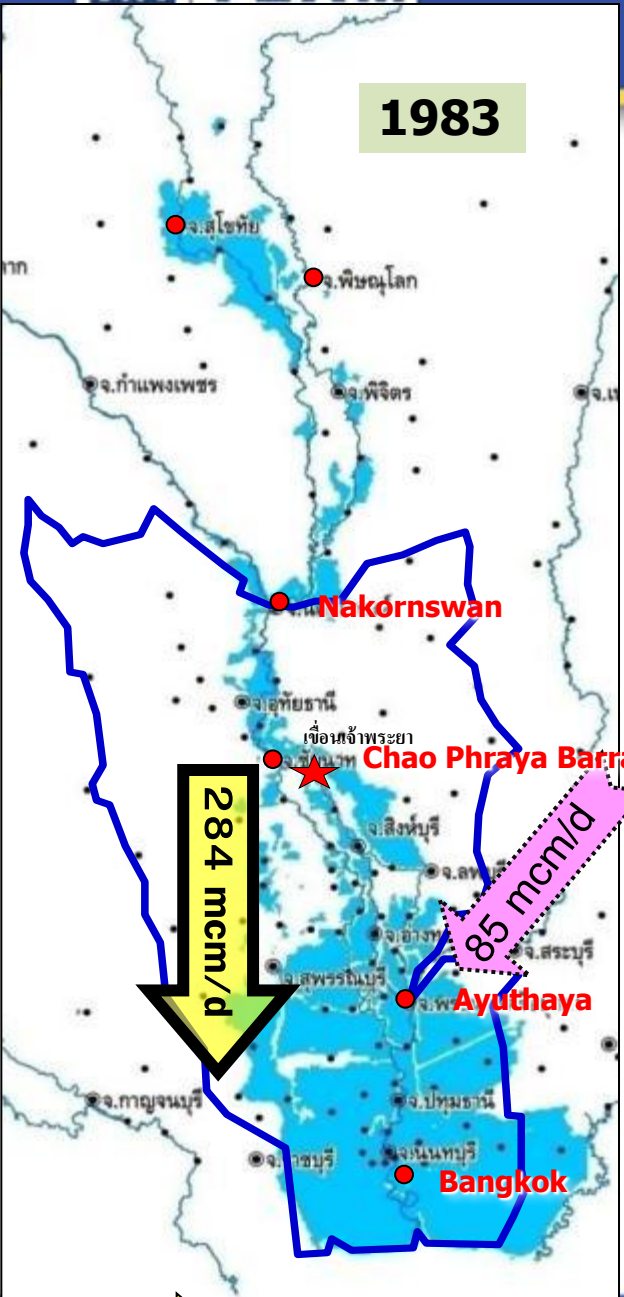


Unit. MCM

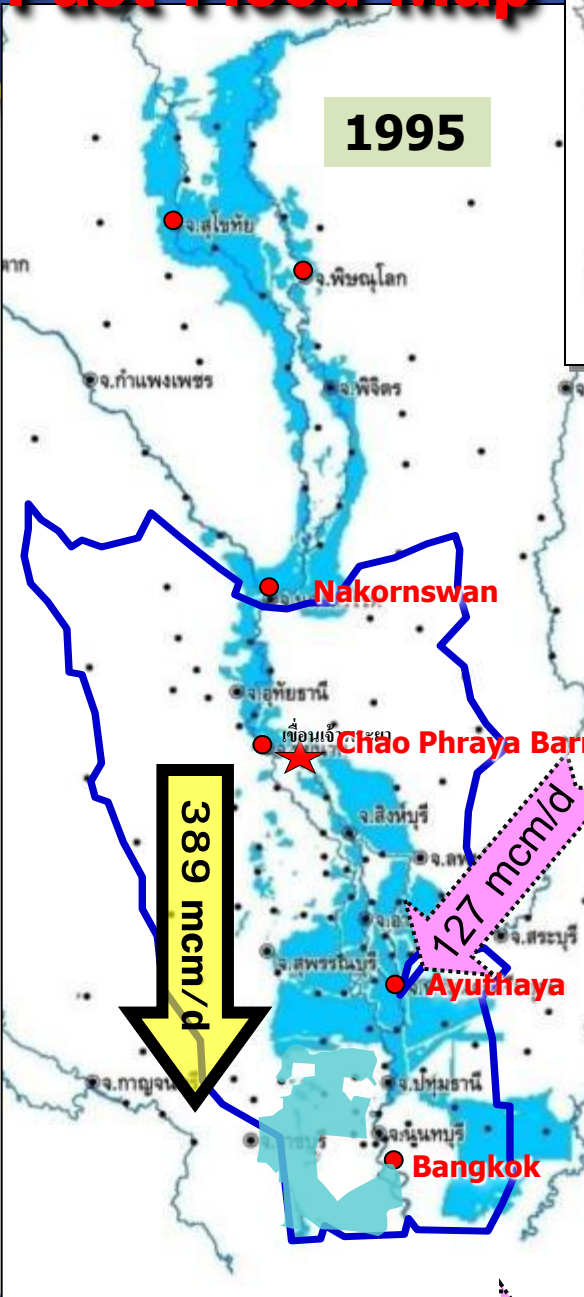


Past Flood Map

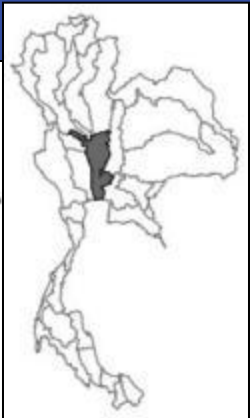
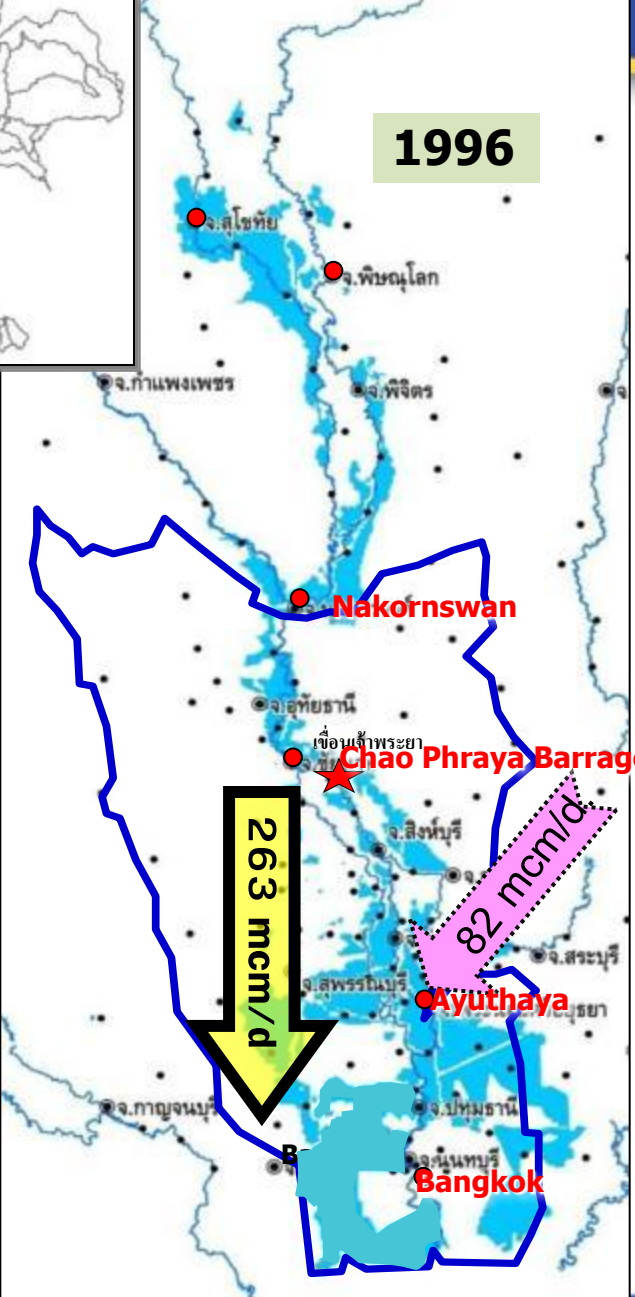
1983



1995



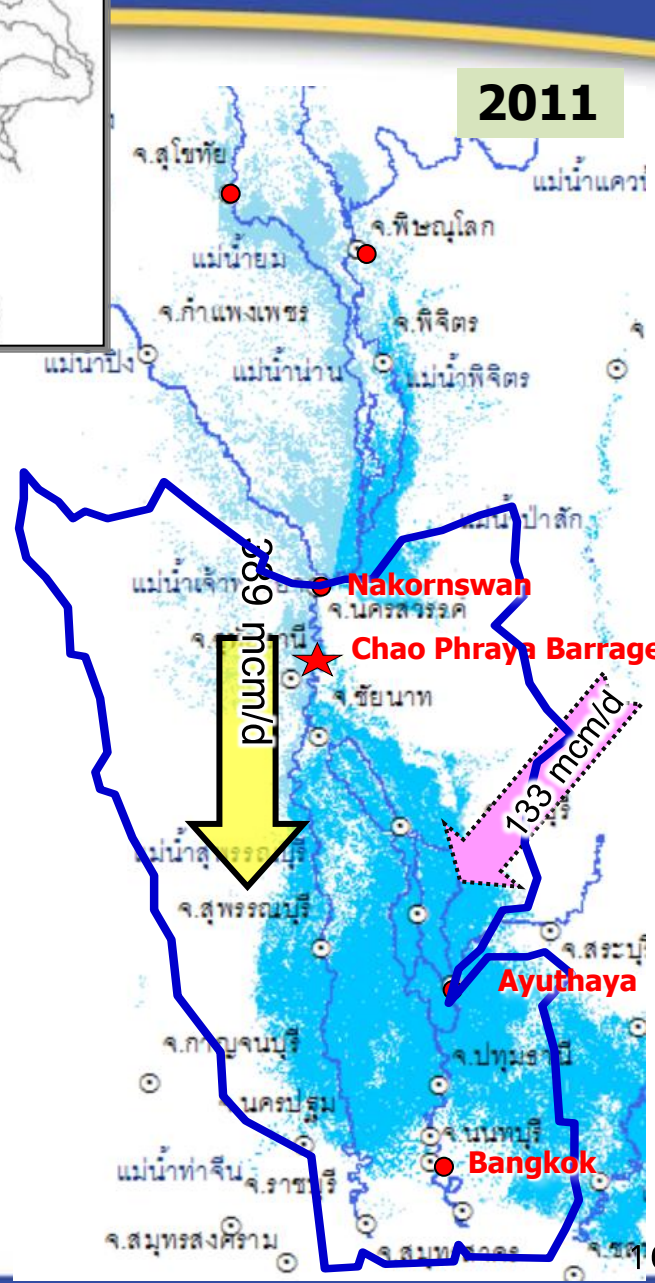
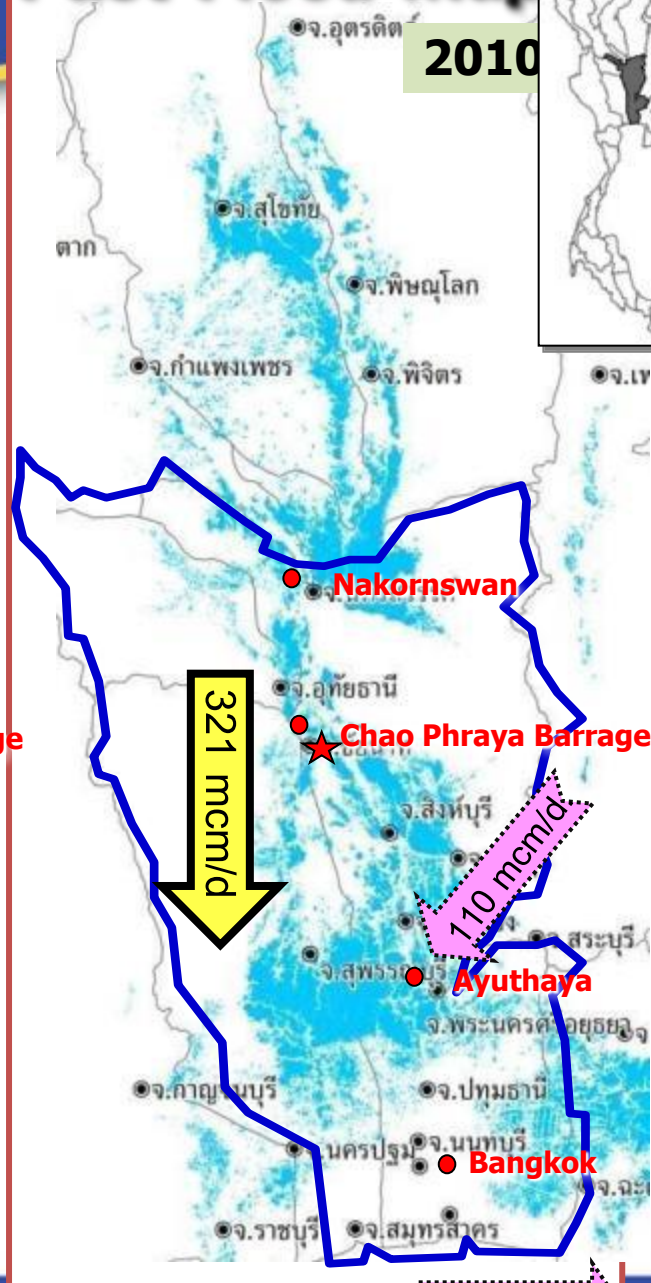
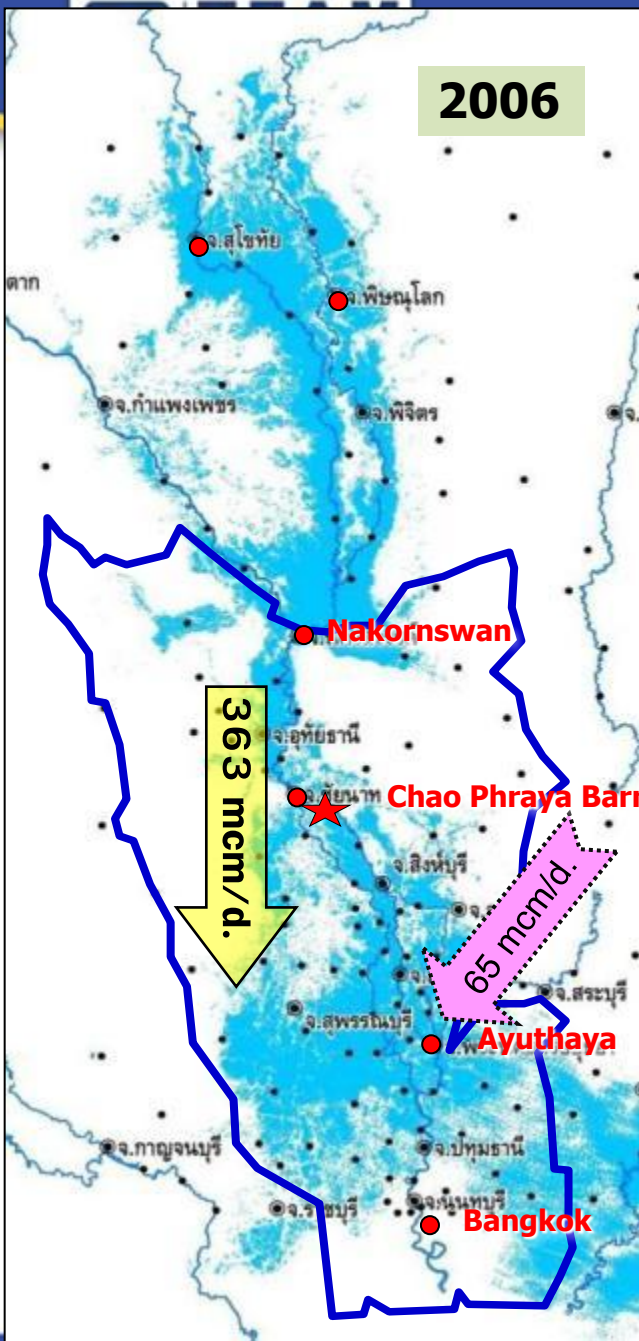
1996



Discharge from Chao Phraya Barrage

Discharge from Rama VI Barrage

Past Flood Map



Discharge from Chao Phraya Barrage

Discharge from Rama VI Barrage



Flooding in the lower Chao Phraya River is not unusual and cover the large area in the past. However, damage is much less as people adapted to it.

The dike was constructed to protect both city and agricultural area confining the water only in the river channel and increase substantially water level which quite often overflow the dike and/or collapse the dike .

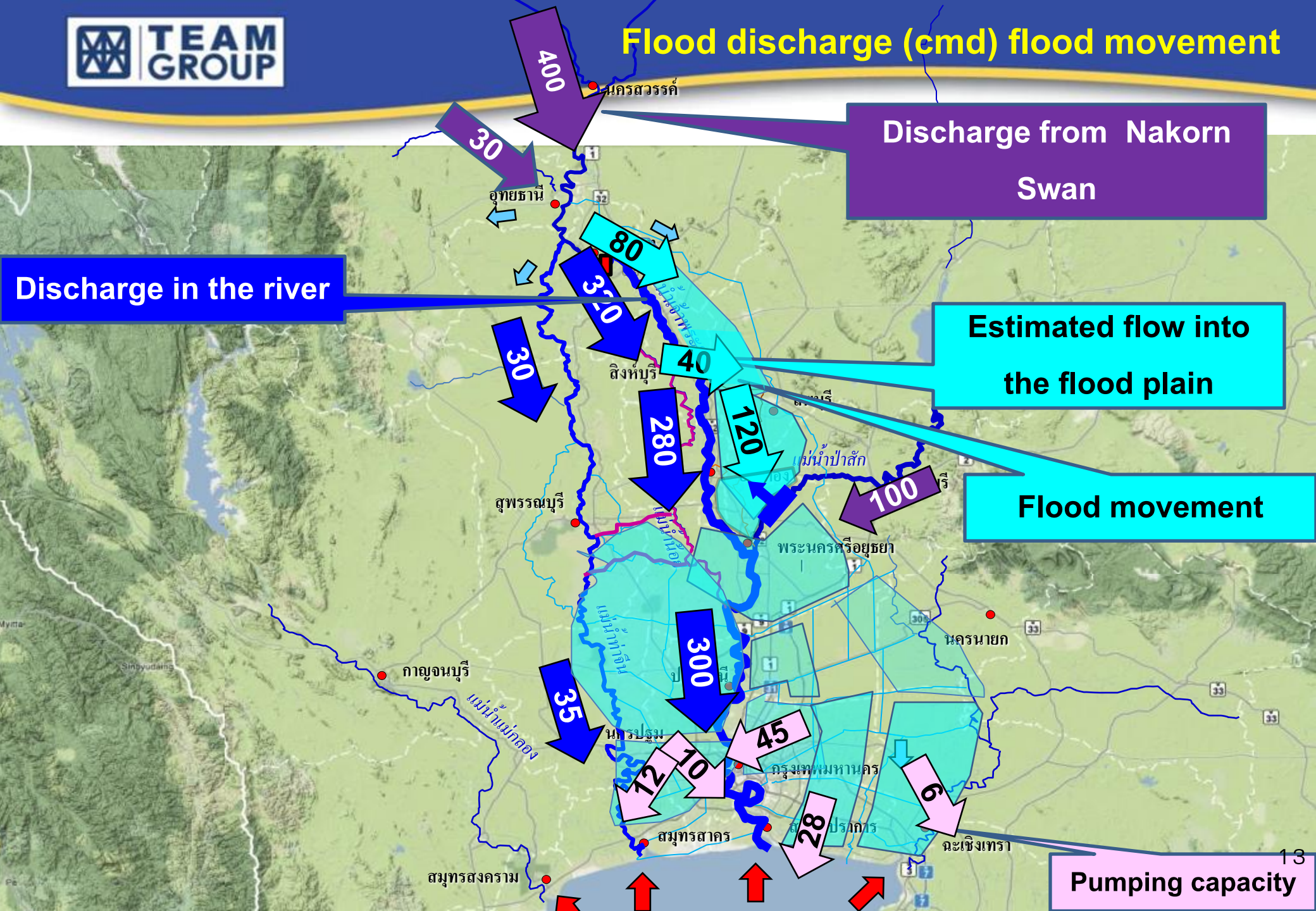
Development in the floodplain area is significantly increase with insufficient protection due to the lack of the knowledge of the risk. The high flood discharge and volume this year result in huge damage as high flood level over flow and/or collapse many portion of dike.

Water Levels in Chao Phraya River



Stations	years						
	Ground Level	1983	1995	2002	2006	2010	2011
Discharge (mcm/d) at Chao Phraya Barrage		284	389	304	363	321	321+80
Discharge (mcm/d) at Rama VI Barrage		85	127	105	65	110	125
Water Level at Singburi	10.0	11.84	12.55	12.98	13.15	13.01	13.05
Angthong	6.0	7.73	8.28	8.55	8.99	9.12	9.33
Ayuthaya	4.0	4.55	5.00	4.52	4.87	4.97	5.91
Bangsai	2.5	3.06	3.67	3.45	3.58	3.46	4.21
Pakkret	1.5	2.16	2.65	2.52	2.65	2.55	3.25
Memorail Bridge	1.0	1.90	2.27	2.10	2.31	2.15	2.51
Fort Chula		1.78	1.87	1.80	1.61	1.80	1.66

Flood discharge (cmd) flood movement



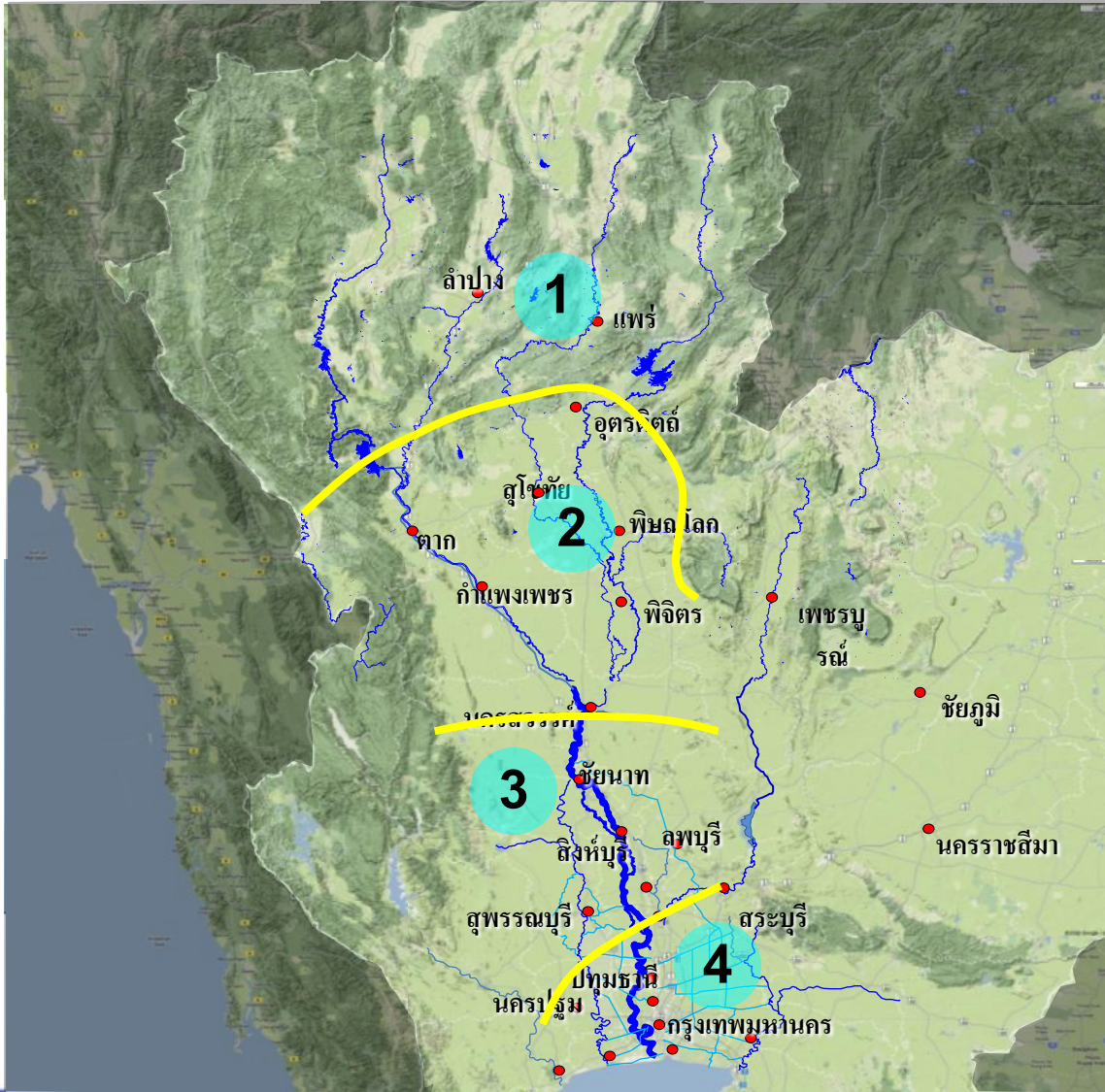
Discharge from Nakorn Swan

Discharge in the river

Estimated flow into the flood plain

Flood movement

Pumping capacity

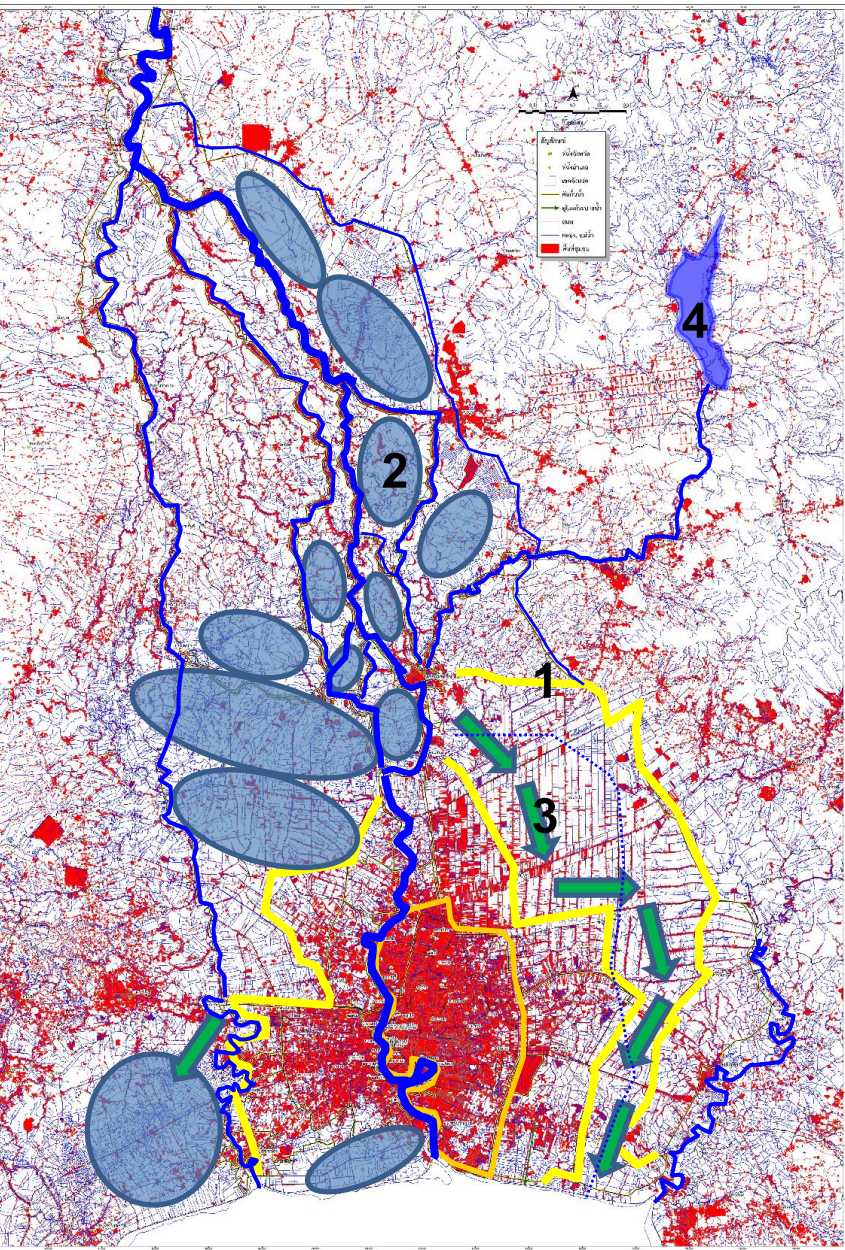


1 Reduction of Flood peak– dam, reservoir rule curve adjustment

2 Live with flood – land use zoning,, protection high economic value area/coomunity

3 Land Use Zoning, protection high economic value area, distribution of high flood peak to agricultural area

4 Increase of flood discharge capacity to the sea, large area protection of community



1. Protection of Community and Industrial Estate

- Repair the damaged flood control facilities
- Define Area and Level of Protection
- Strengthen and increase level of existing dike
- Create new protection alignments for new develop communities and (large area).

2. Floodplain storage

- Define low lying floodplain area and how to divert peak water into the area
- Create Compensation Scheme

3. Create floodway

- Define alignment
- improve the infrastructure facilities
- Create Compensation and evacuation Scheme

4. Modify of Reservoir Rule Curve

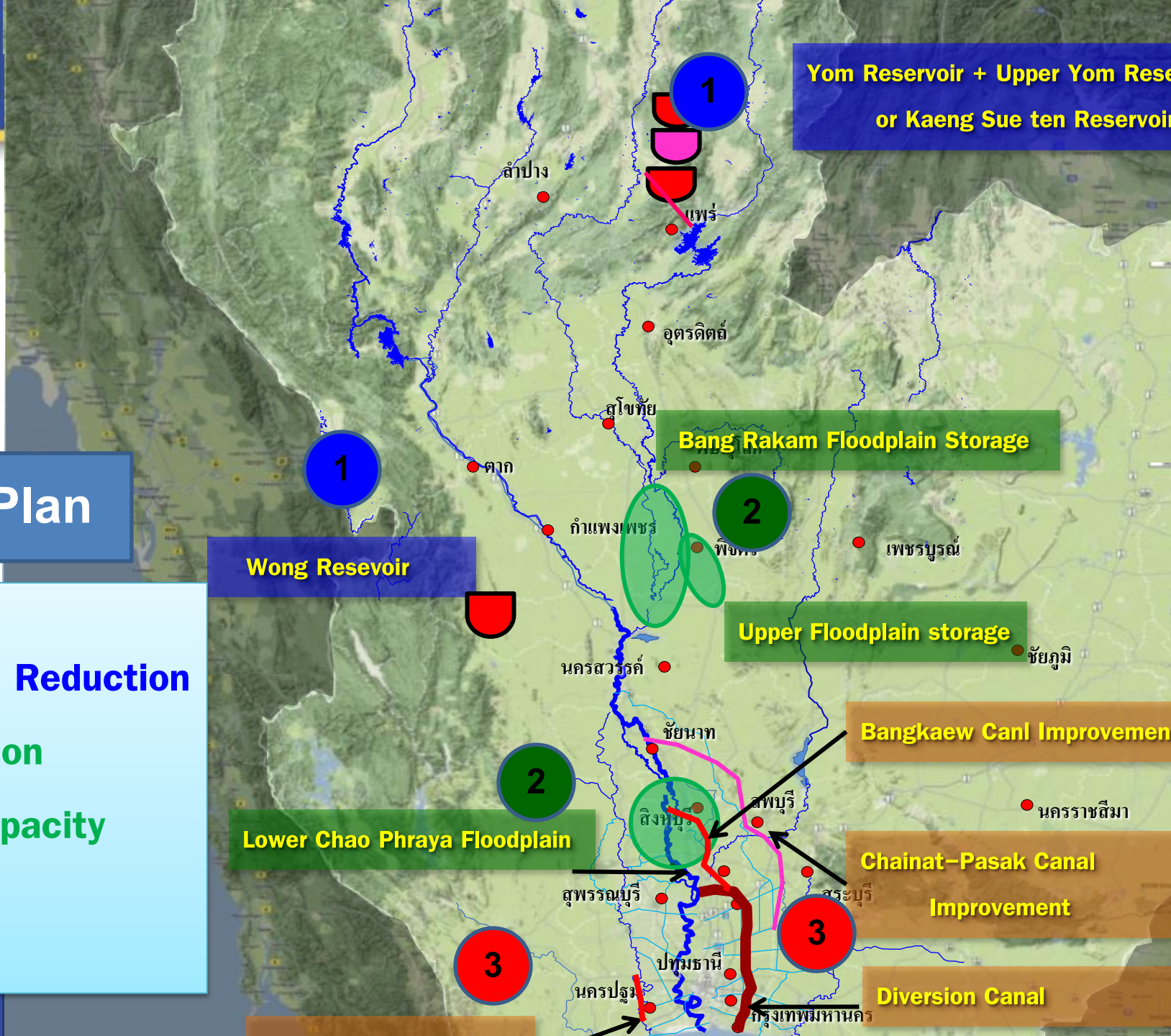
5. Flood Management plan at different flood discharge degree

6. Set up Unified Water Management Organization

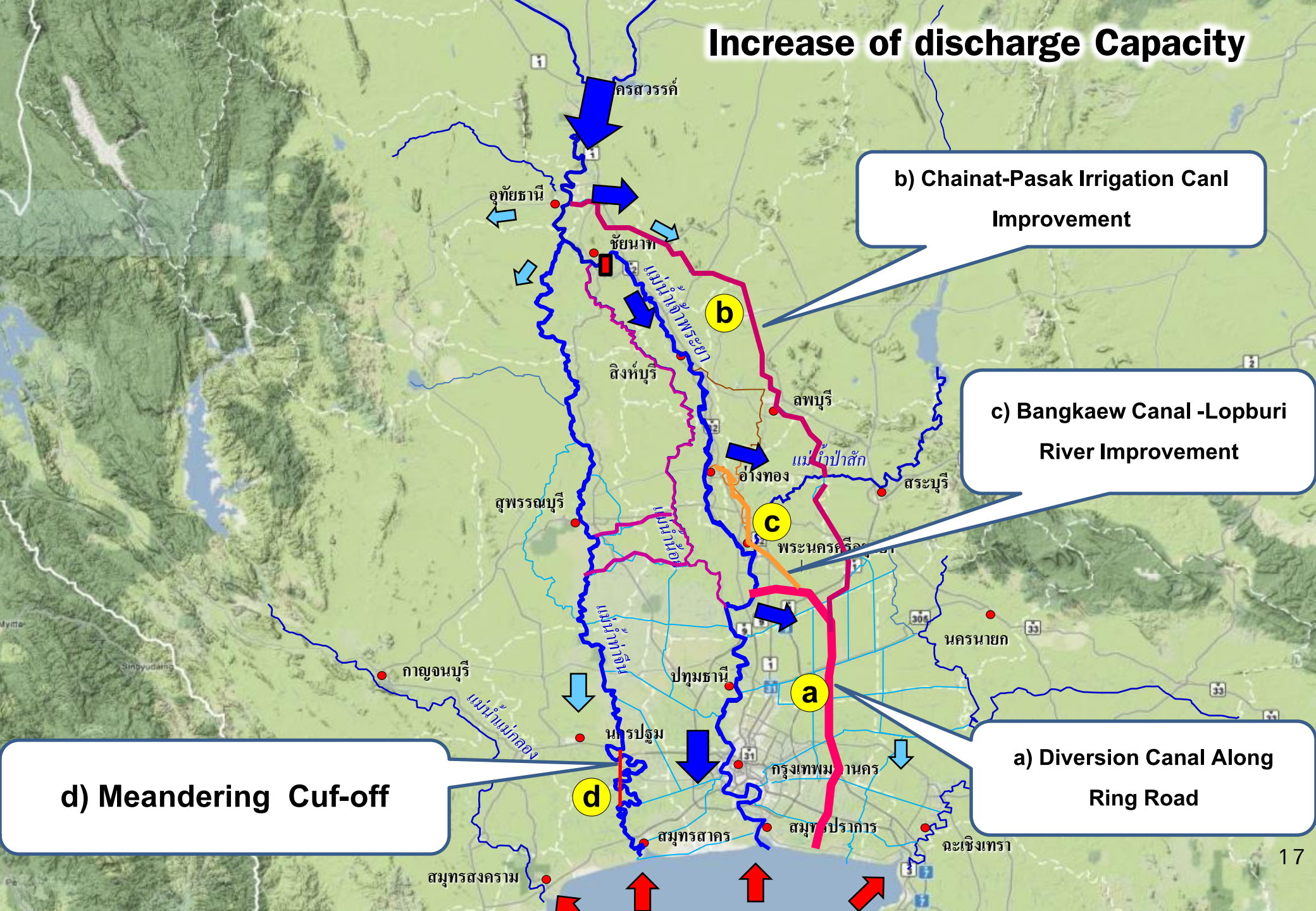
Long Term Plan

Flood Mitigation

1. Flood Volume Reduction
2. Peak Reduction
3. Discharge Capacity increase



Increase of discharge Capacity



b) Chainat-Pasak Irrigation Canal Improvement

c) Bangkaew Canal -Lopburi River Improvement

a) Diversion Canal Along Ring Road

d) Meandering Cuf-off

With Project

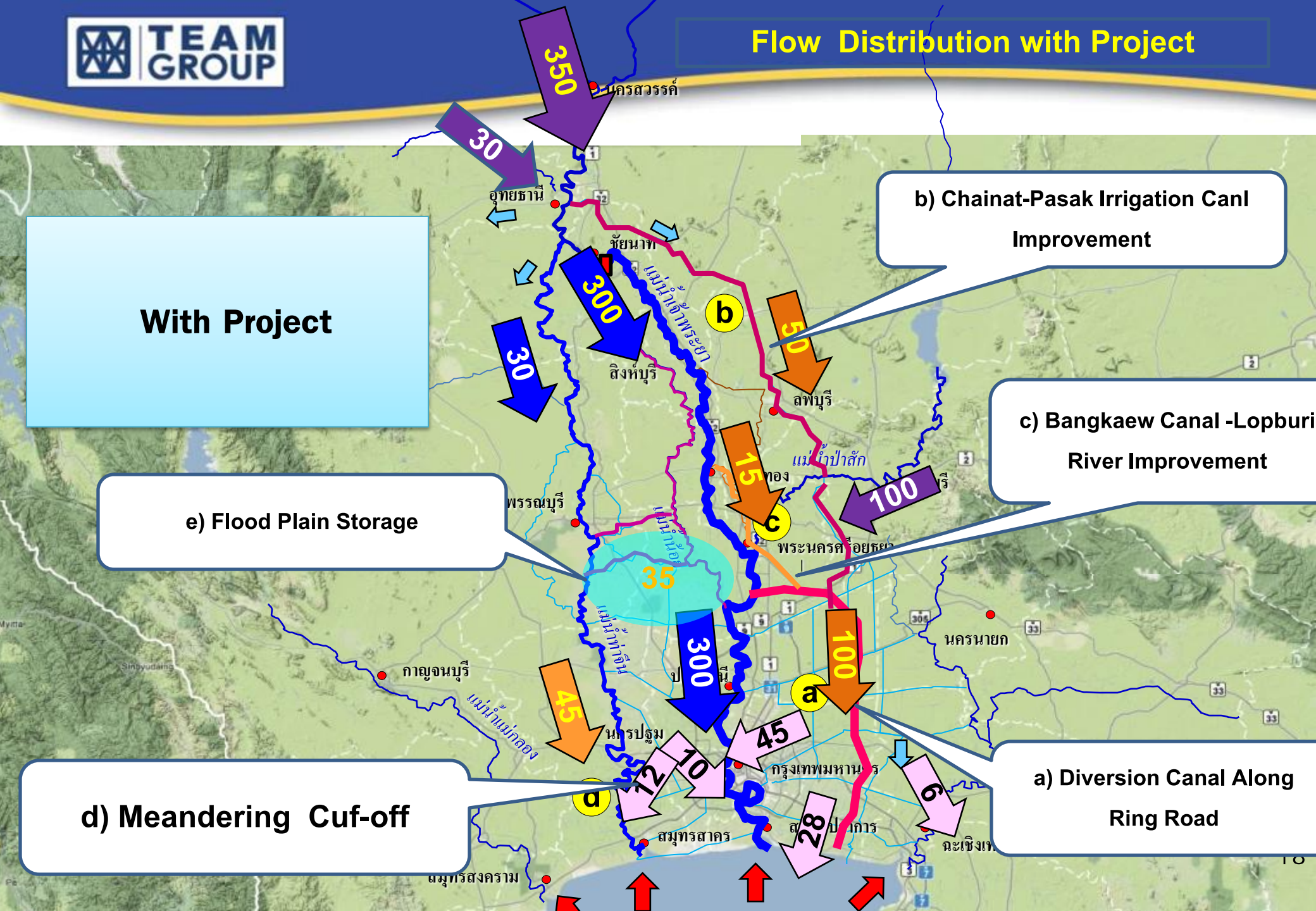
e) Flood Plain Storage

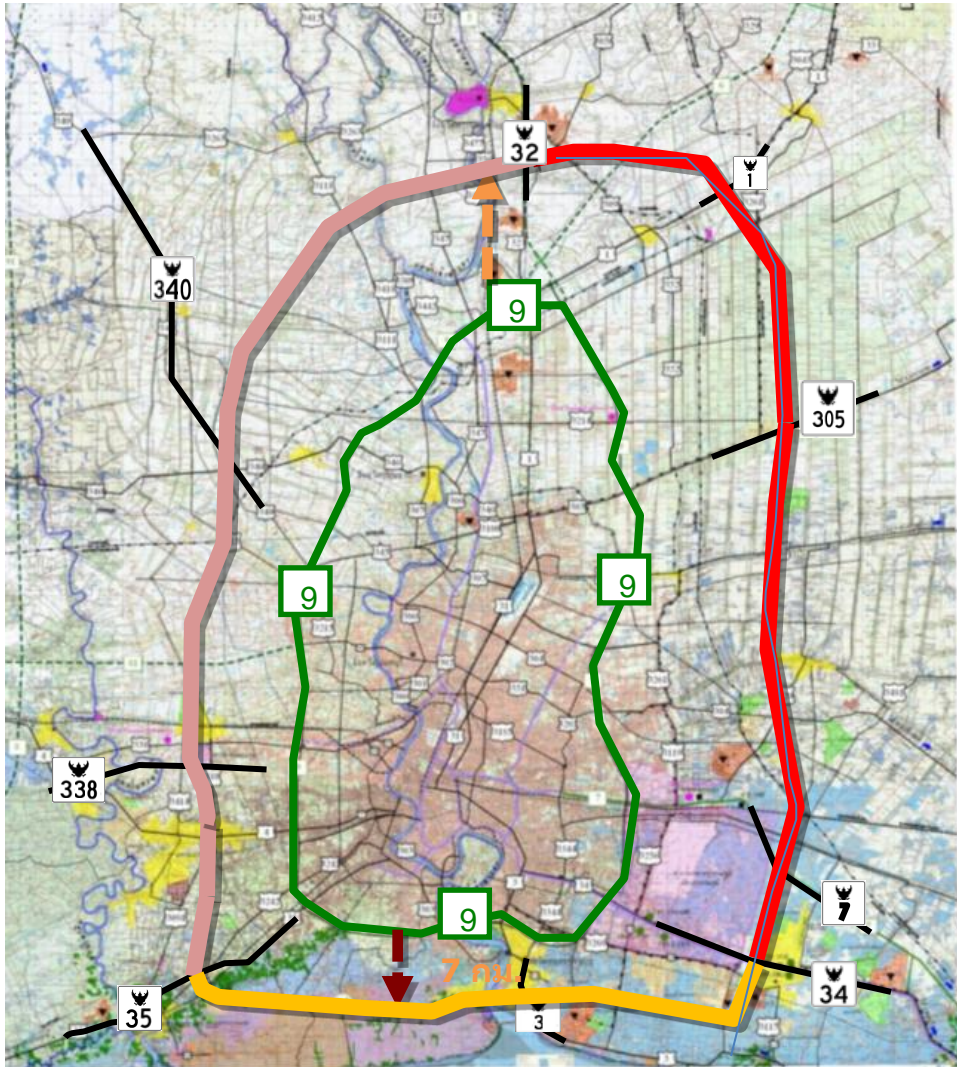
d) Meandering Cuf-off

b) Chainat-Pasak Irrigation Canal Improvement

c) Bangkaew Canal -Lopburi River Improvement

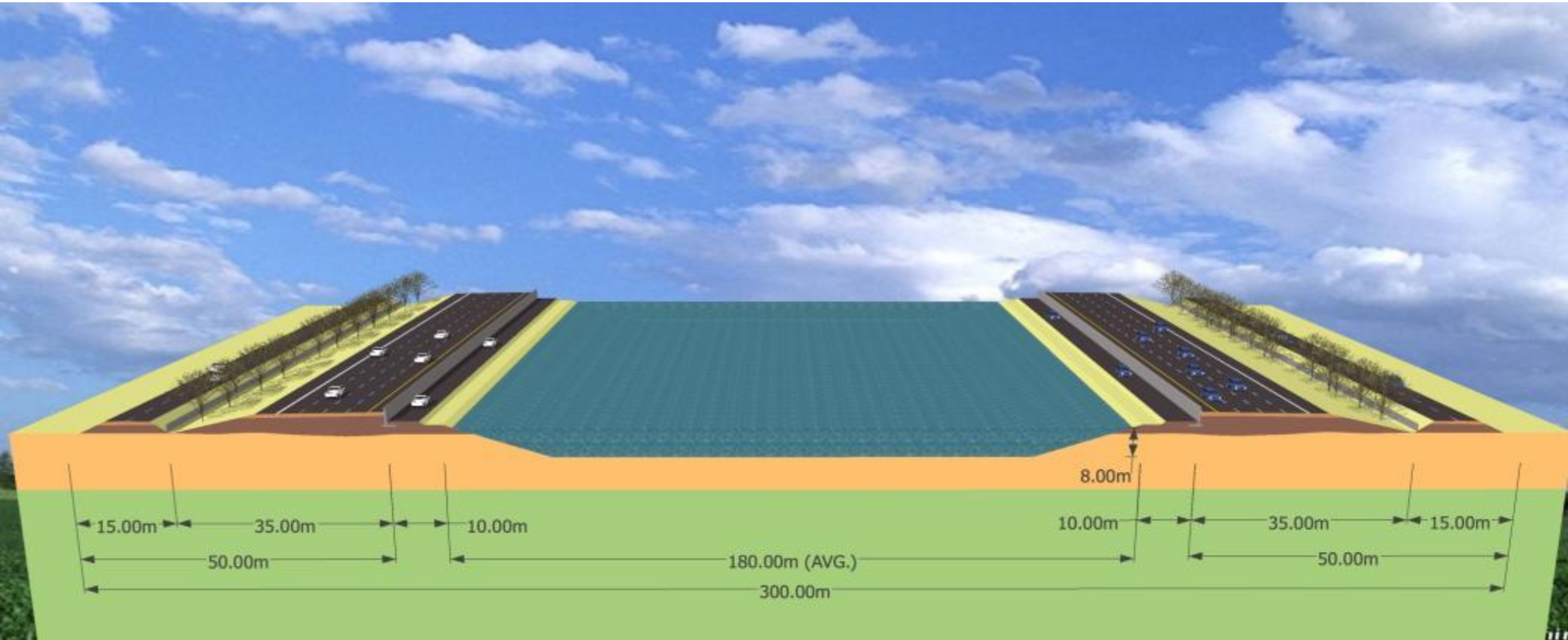
a) Diversion Canal Along Ring Road





Diversion Canal with 3rd Ring Road

Typical Cross Section



Alternative 1

Projects	Investment(M฿)
a) Diversion Canal with Eastern Ring Road	200,000
b) Improvement of Chainat-Pasak Irrigation Canal	80,000
c) Improvement of Bangkaew canal-Lopburi River	10,000
d) Thachin Meandering Cut-off	10,000
Total	300,000

ขุดคลองลัดแม่น้ำท่าจีน

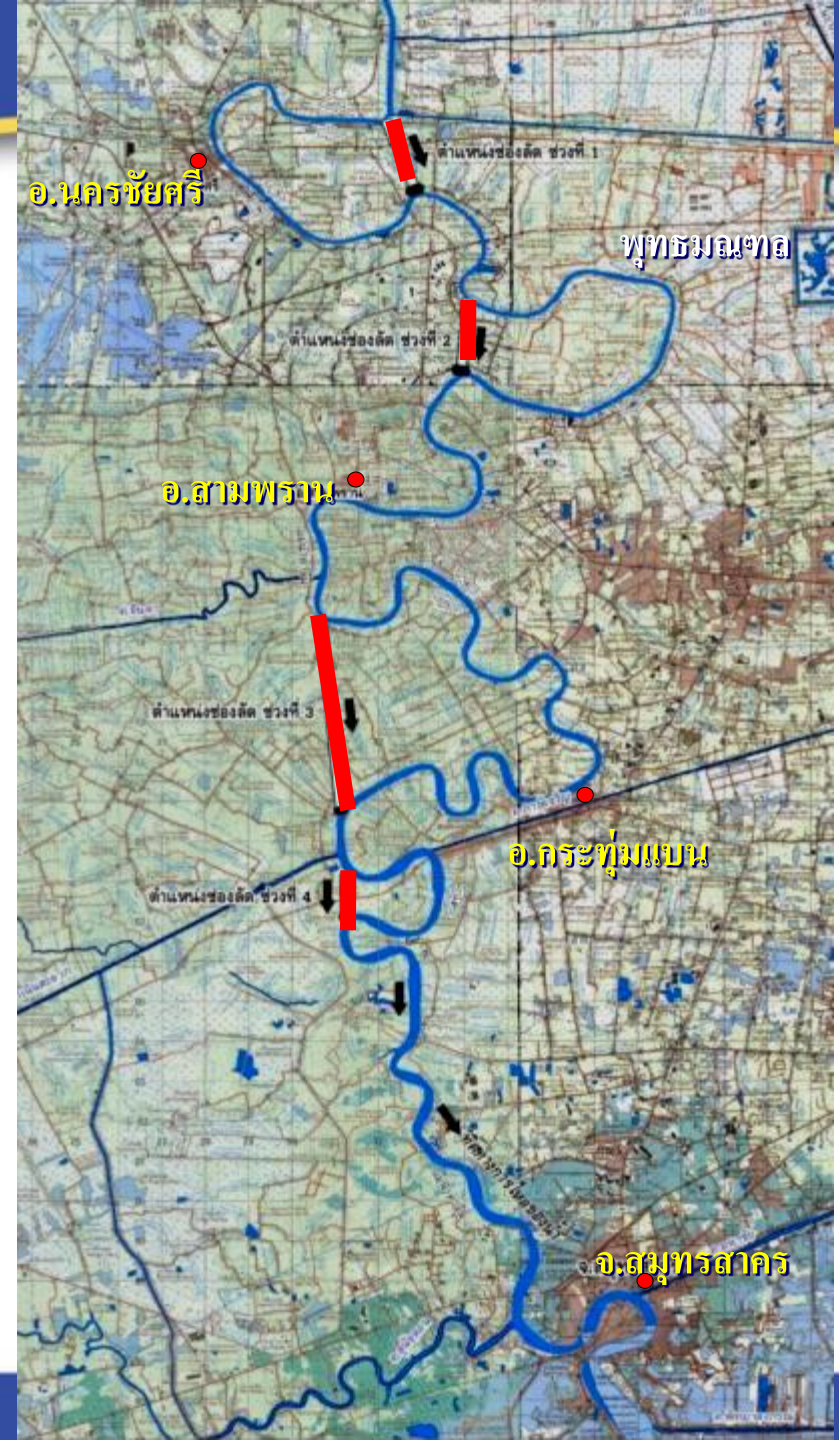
ความยาวโค้งทั้งหมด 48.3 กม.

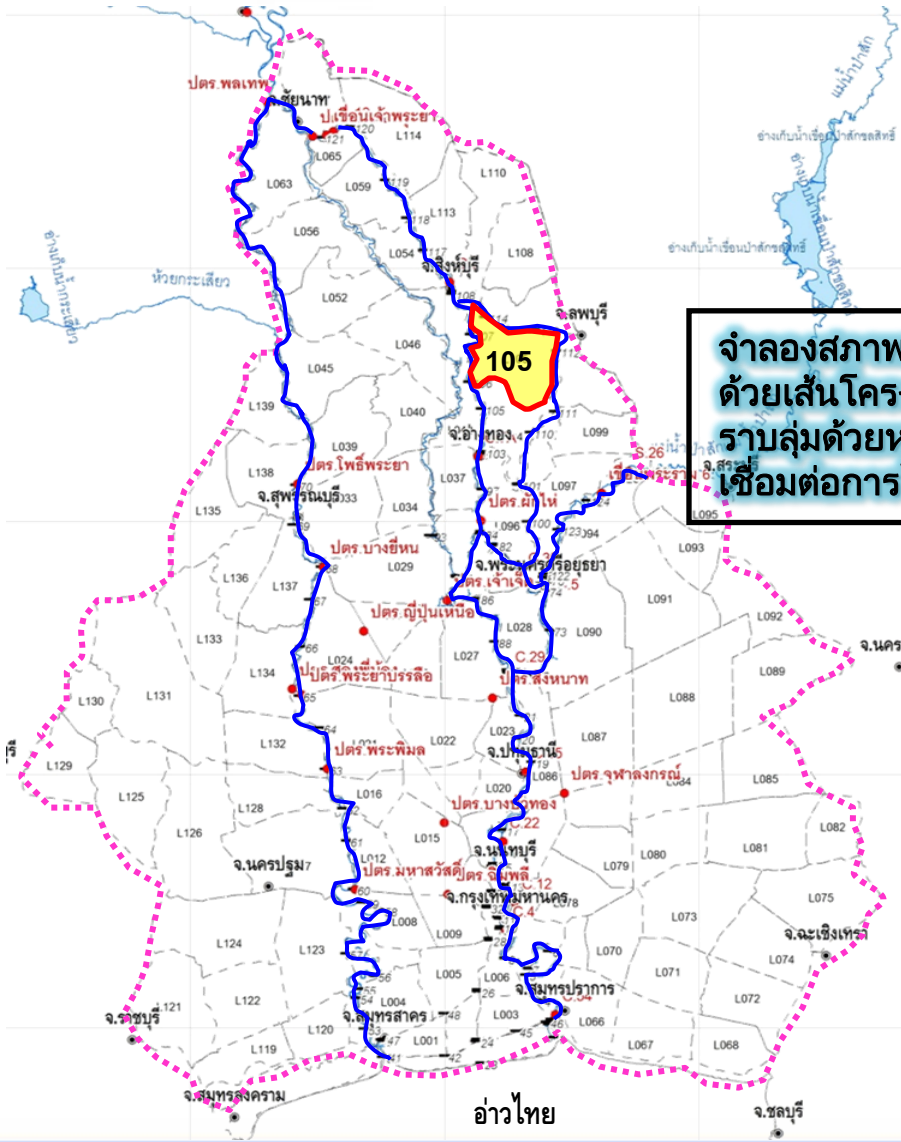
ทำคลองลัด เหลือความยาวตรง 10.0 กม.

รันระยะทางลงได้ 38.3 กม.

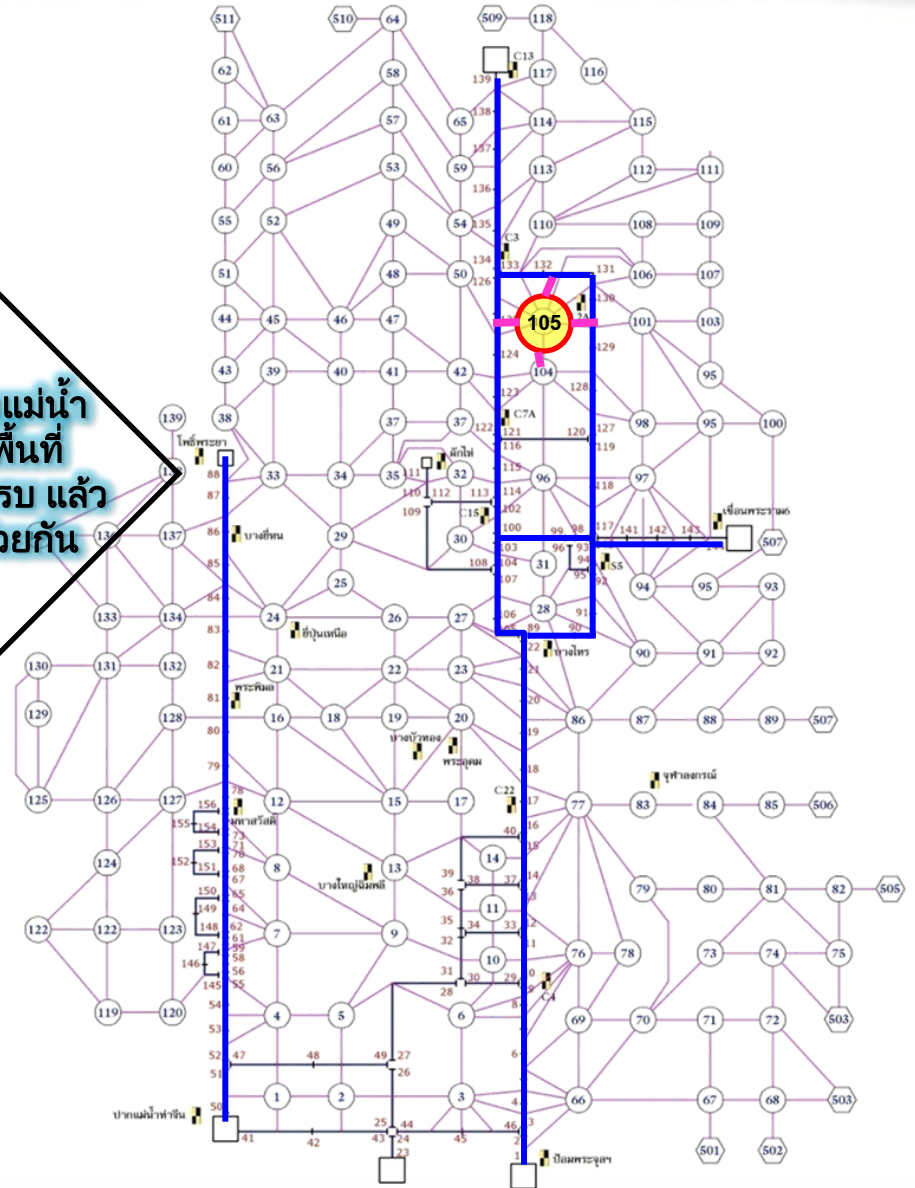
เพิ่มอัตราการไหลได้ 30% จาก 35 ล้าน

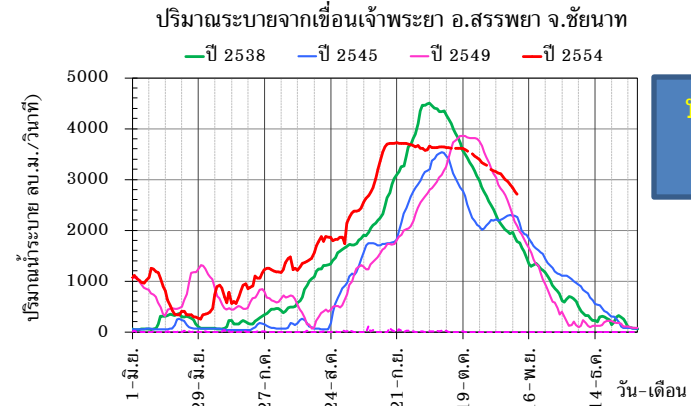
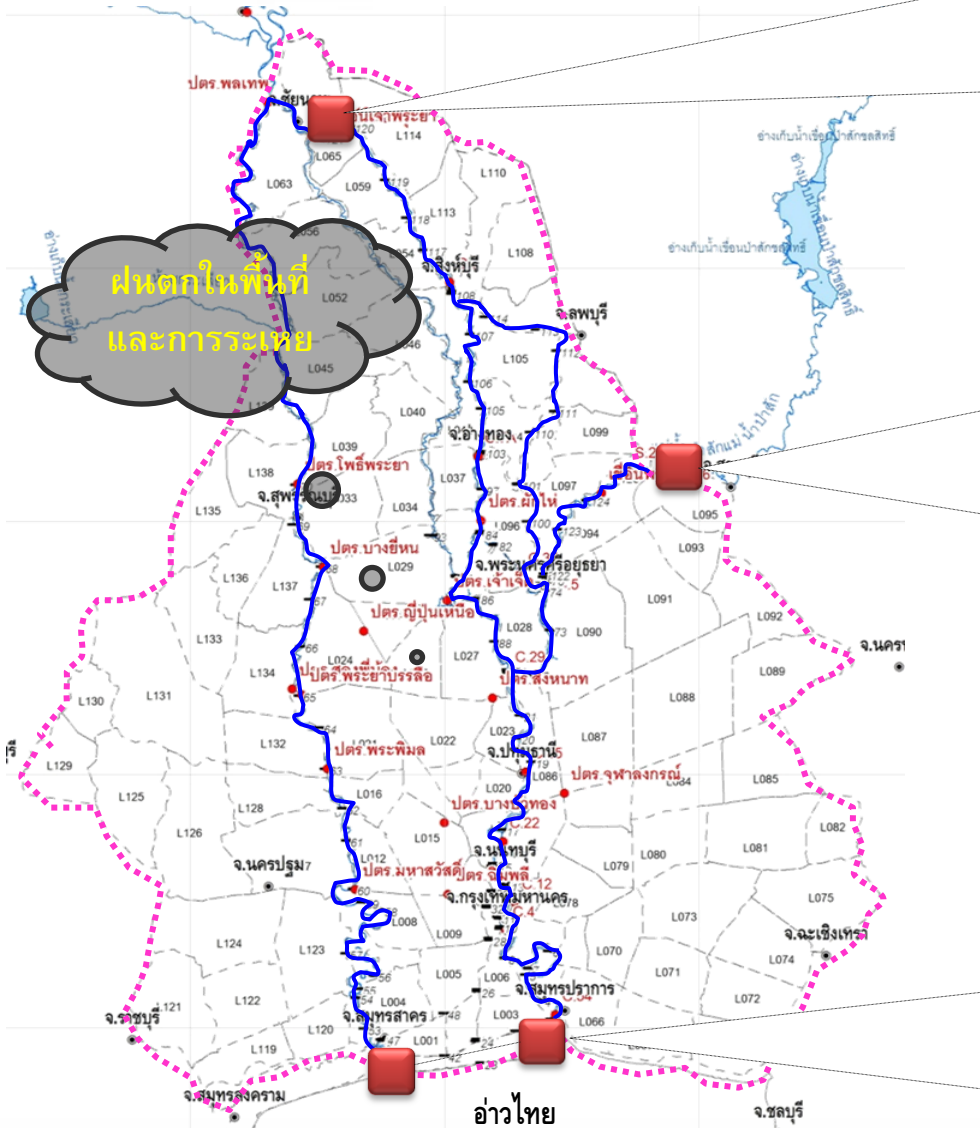
ลบ.ม./วัน เป็น 45 ล้าน ลบ.ม./วัน



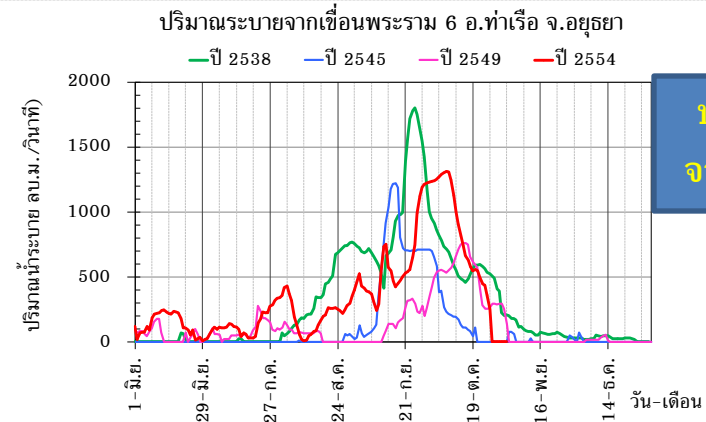


จำลองสภาพลำน้ำของแม่น้ำด้วยเส้นโครงข่ายและพื้นที่ราบลุ่มด้วยหลุมขมหมึกครบแล้ว เชื่อมต่อการไหลเข้าด้วยกัน

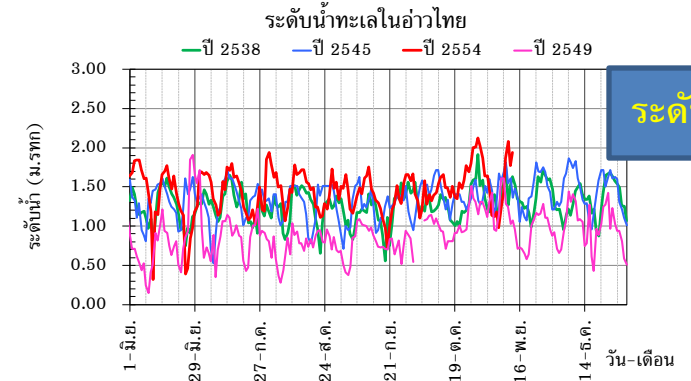




ปริมาณน้ำจากท้ายเขื่อนเจ้าพระยา



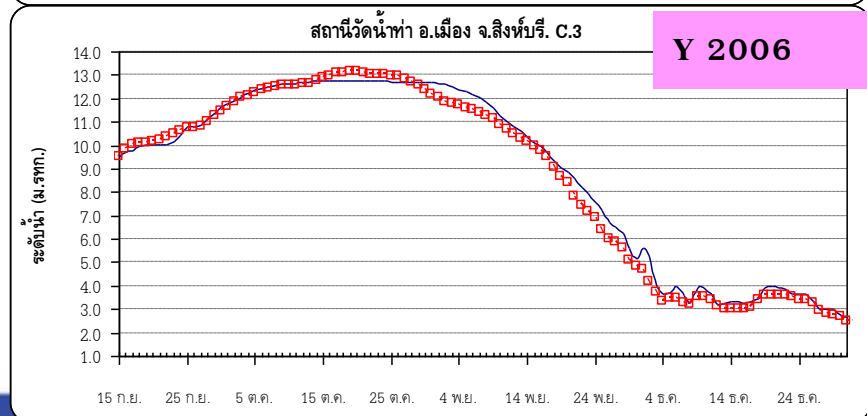
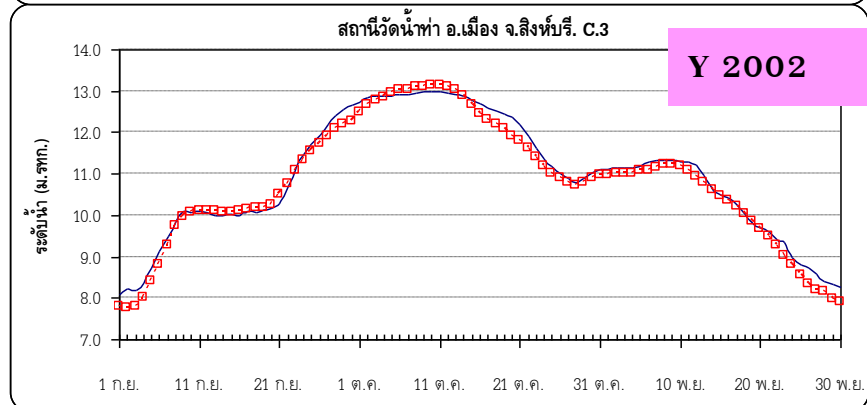
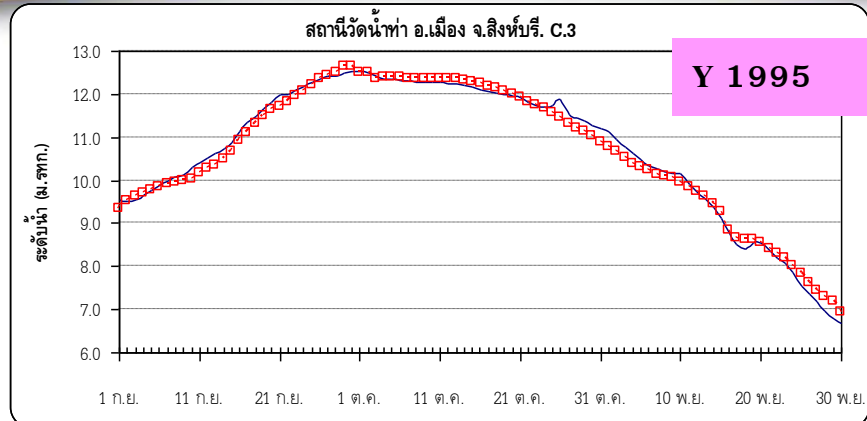
ปริมาณน้ำระบายจากปตร.พระราม 6

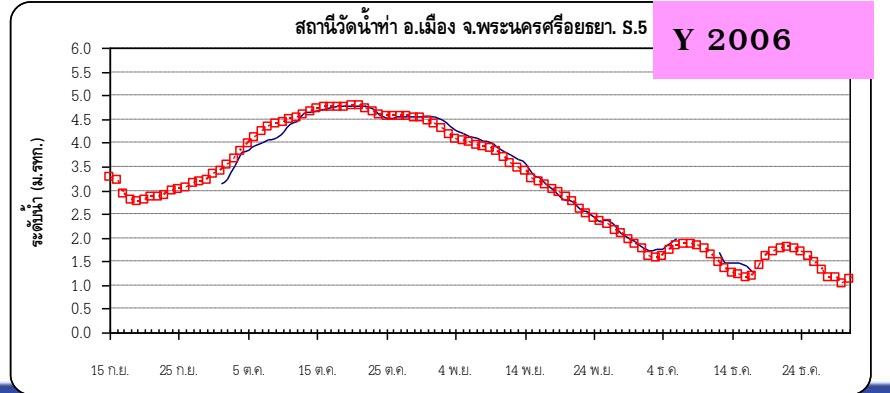
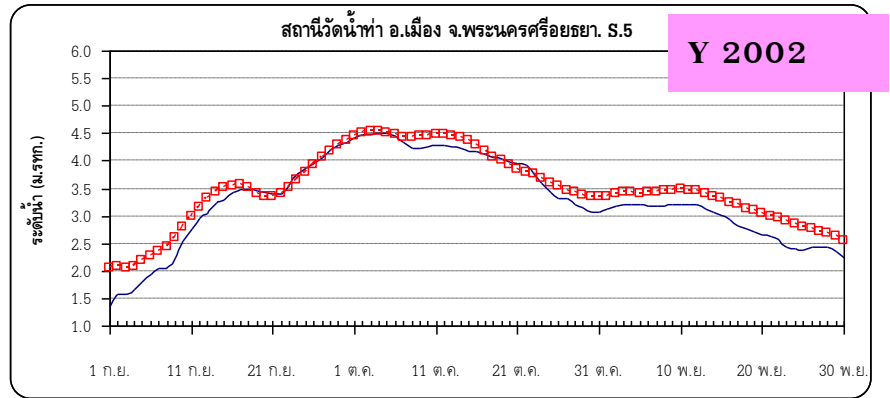
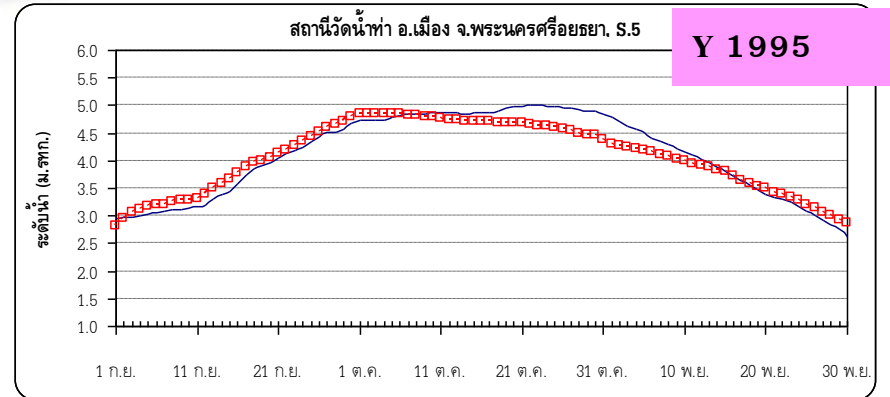
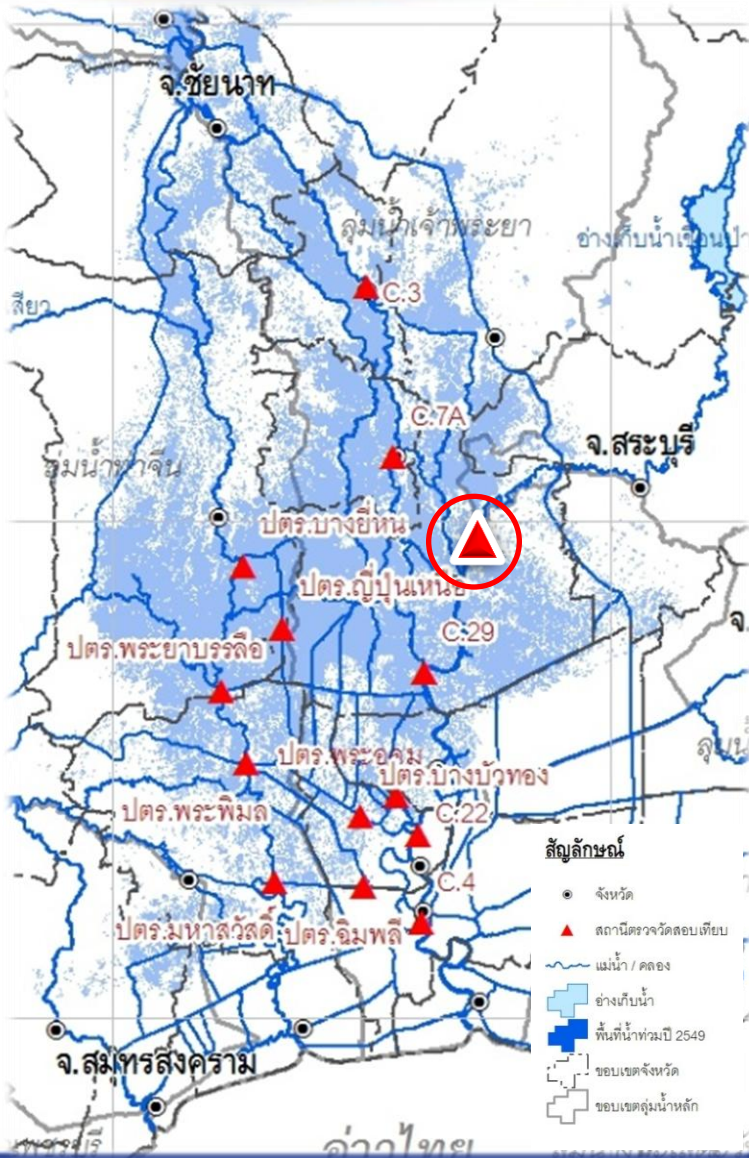


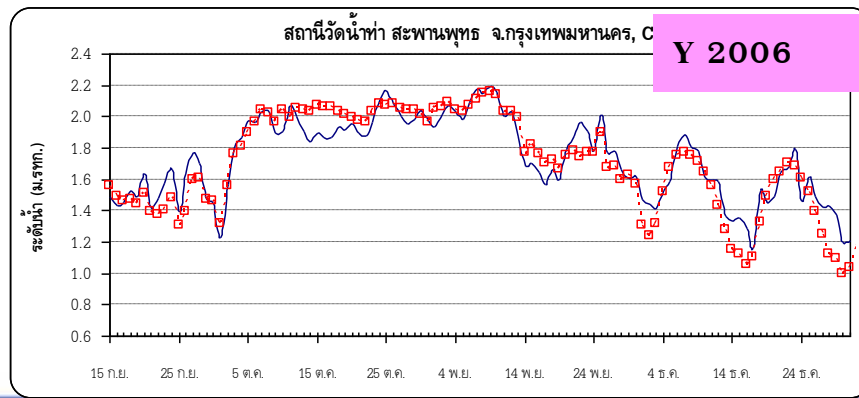
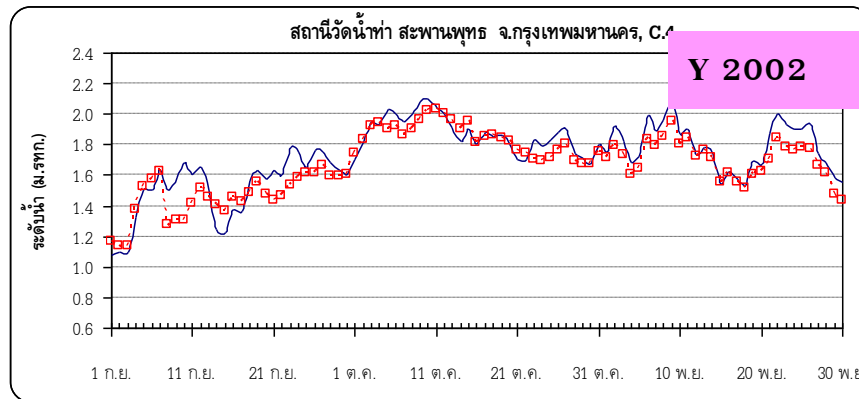
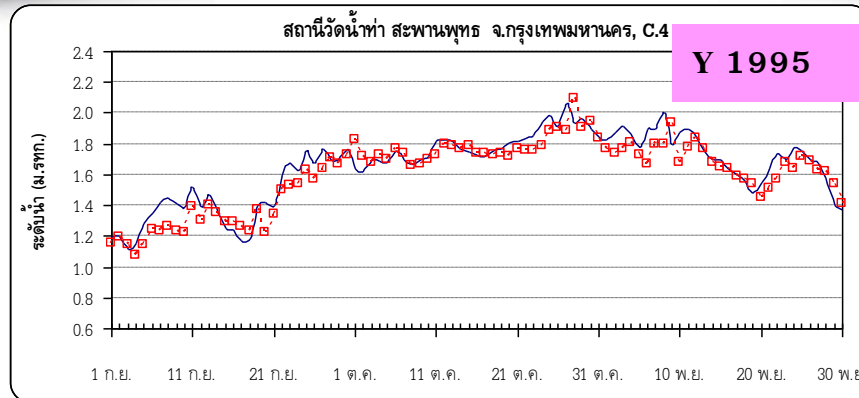
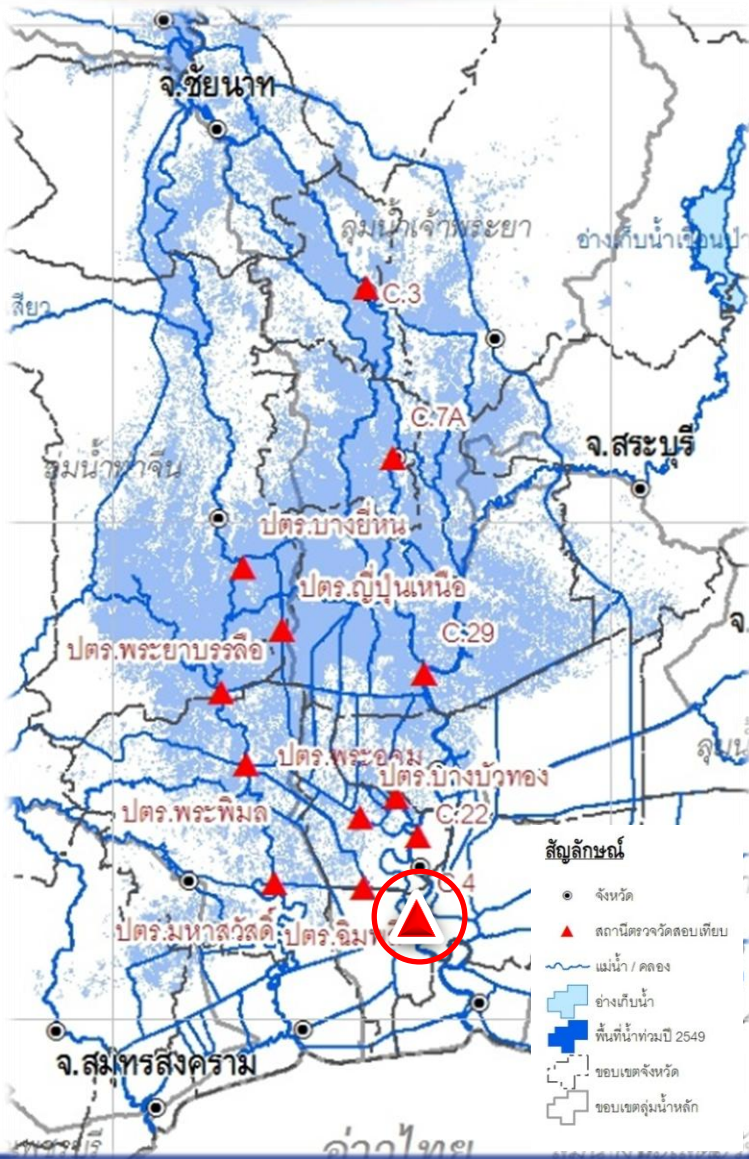
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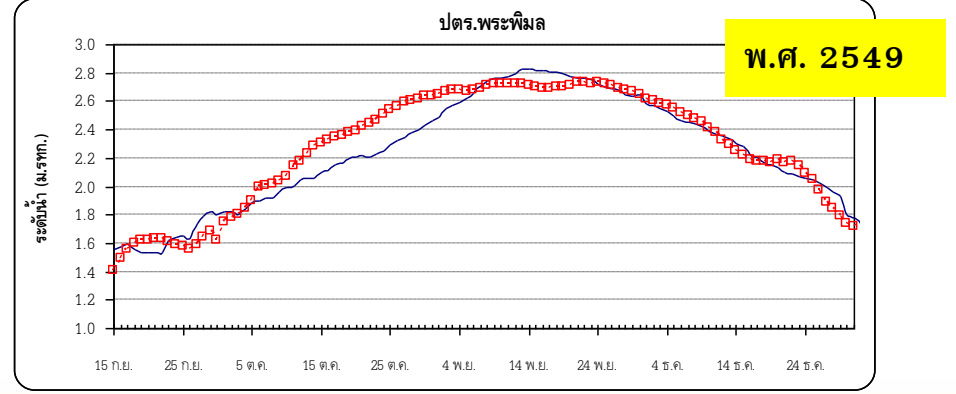
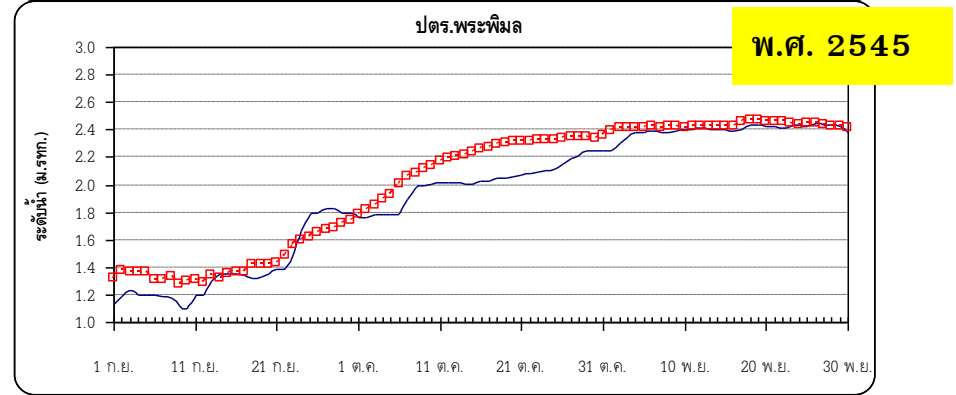
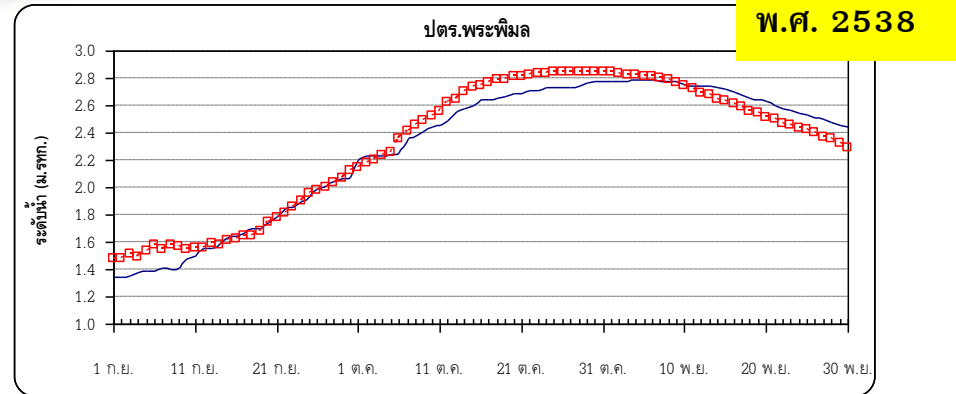
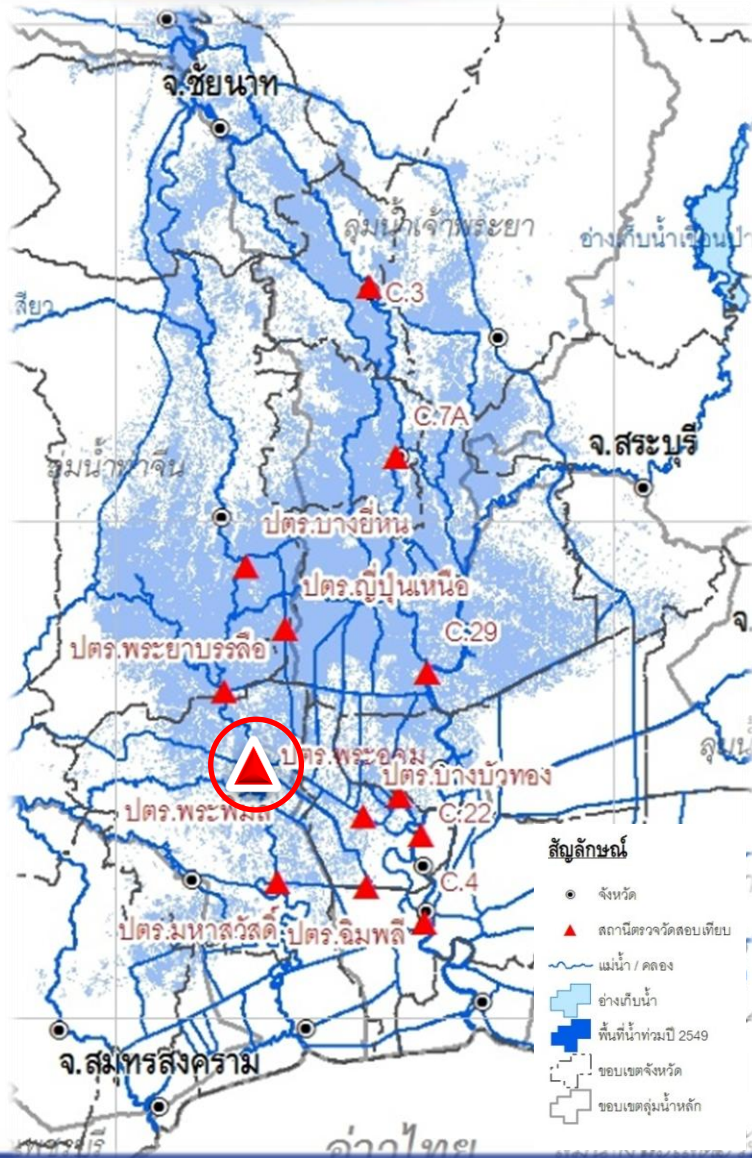
- Gates
- Pumps
- Sand Bag
- Fail of Dike

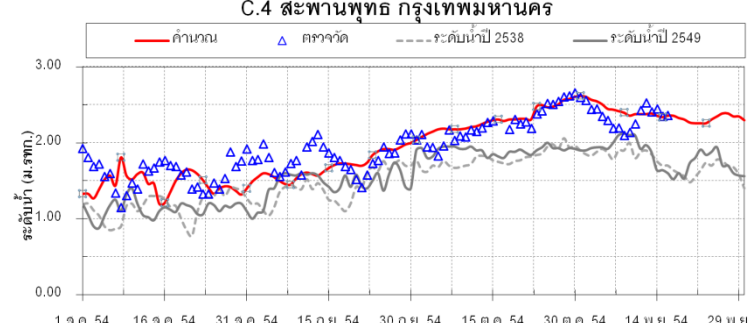
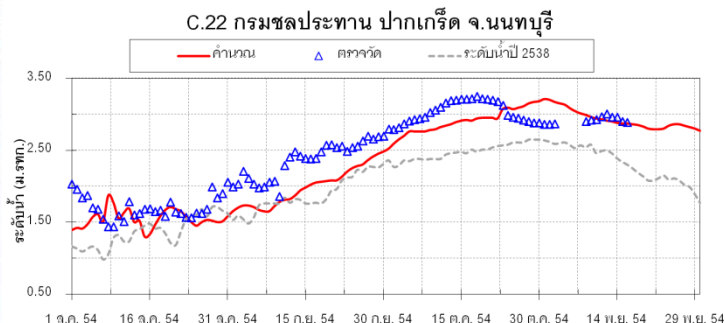
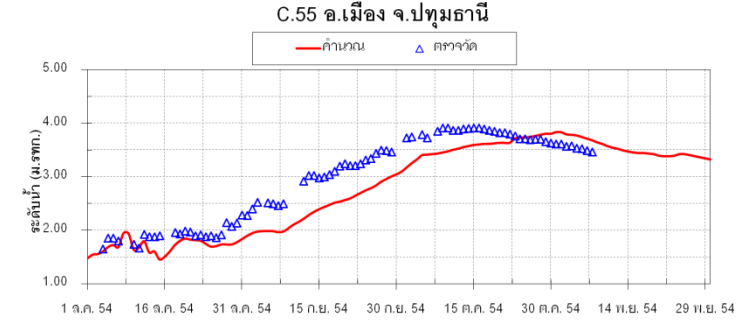
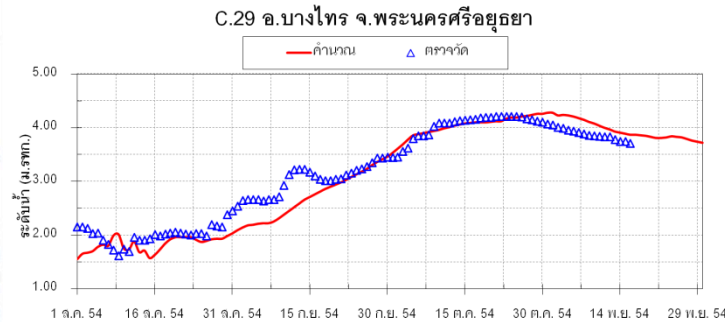
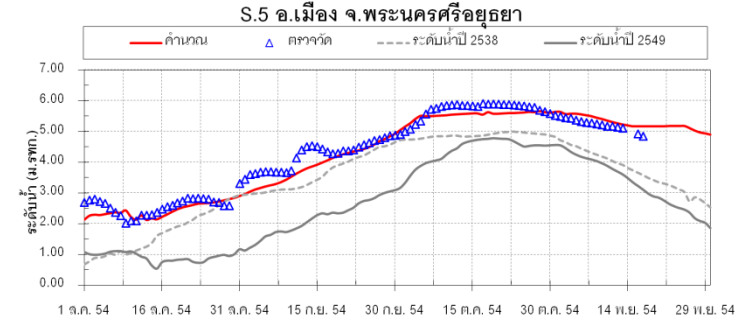
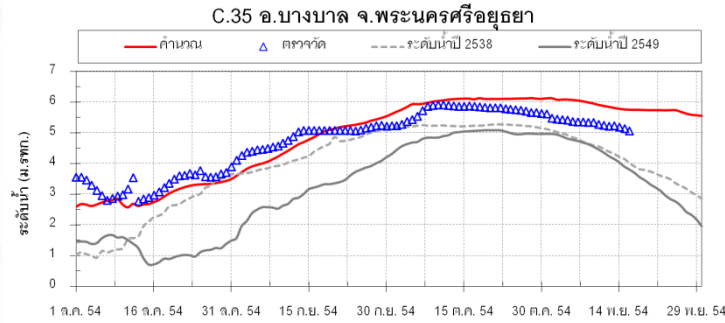
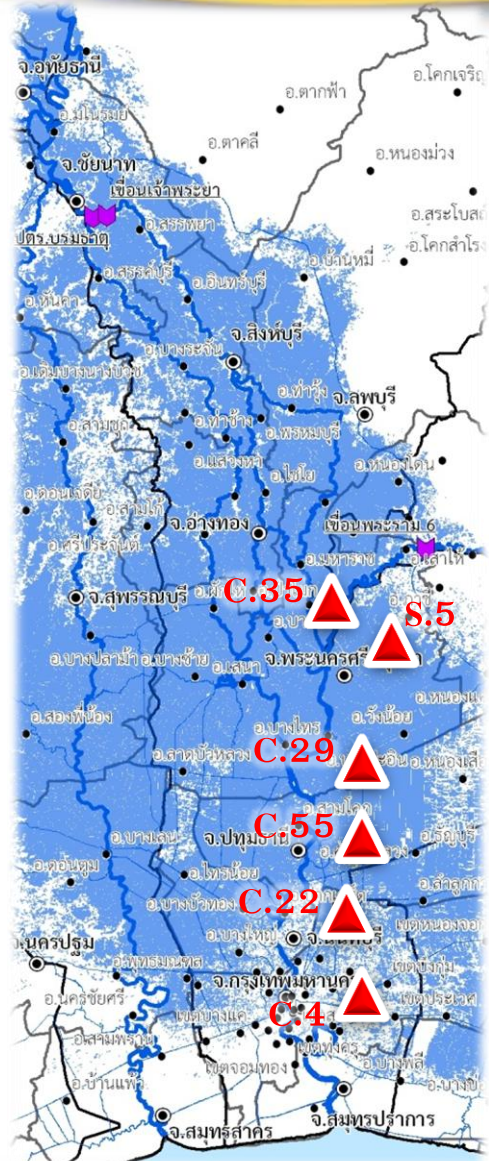


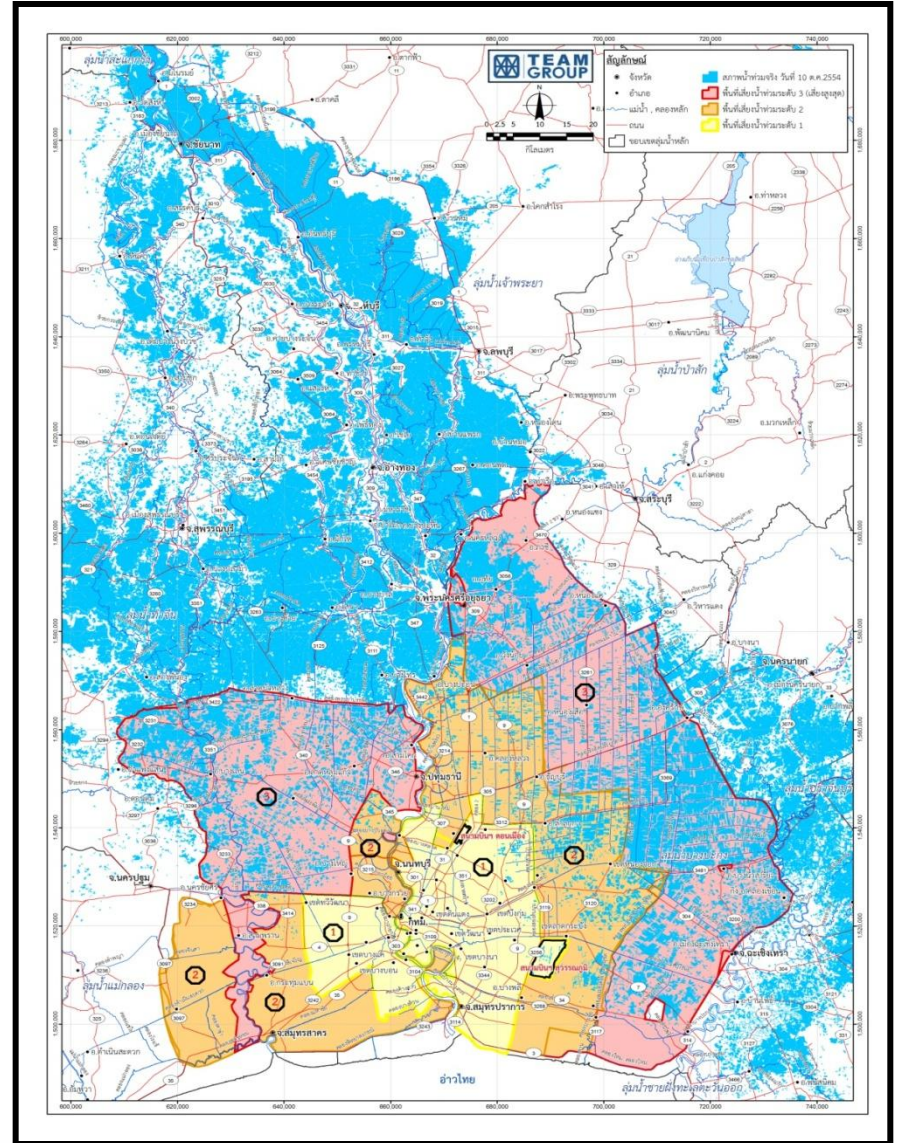
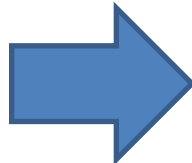
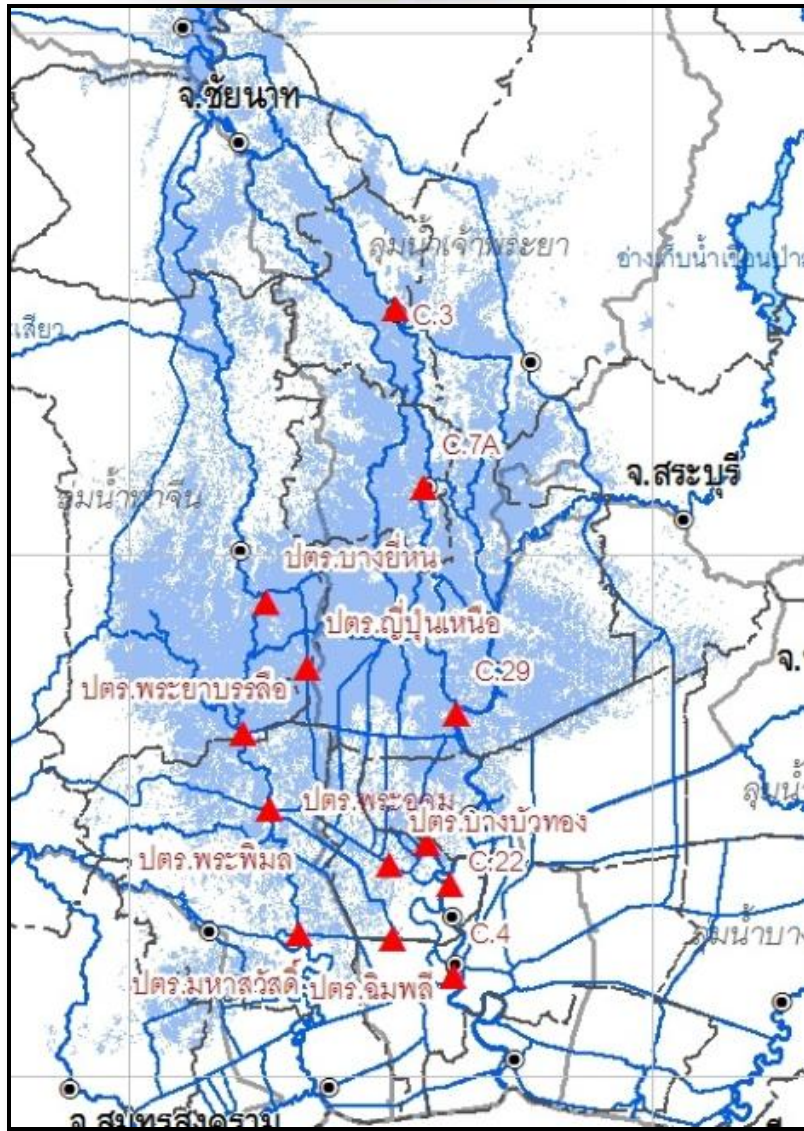












The Calibrated Model will be used for the followings:

- Flood Levels and Flooding area Forecast
- Decision tools for Flood Management
- Effectiveness and Impact of The Proposed Flood Measures
- Predetermination of flood level and flood map at possible flood magnitude and the management

ขอบคุณครับ