



Reducing Flood Damage via Met/Hydro Information in Thailand: Case of Bang Saphan Basin

Adisorn Champathong
Royal Irrigation Department, Thailand

Bang Saphan Basin Map



Gt.7 River Bank 7.50 M.(A.D.) (+11.80 M.Msl) 1090 CMS
 Gt.20 River Bank 6.00 M.(A.D.) (-2.30 M.Msl) 225 CMS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

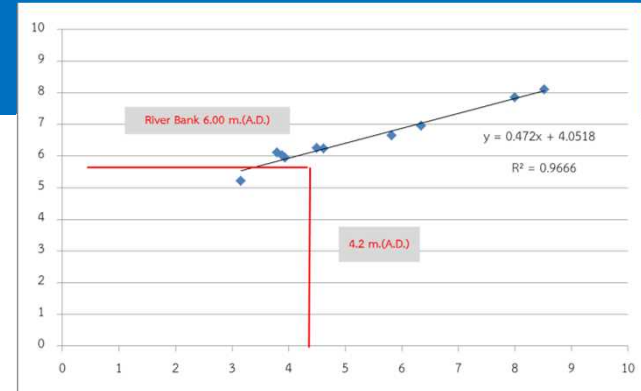
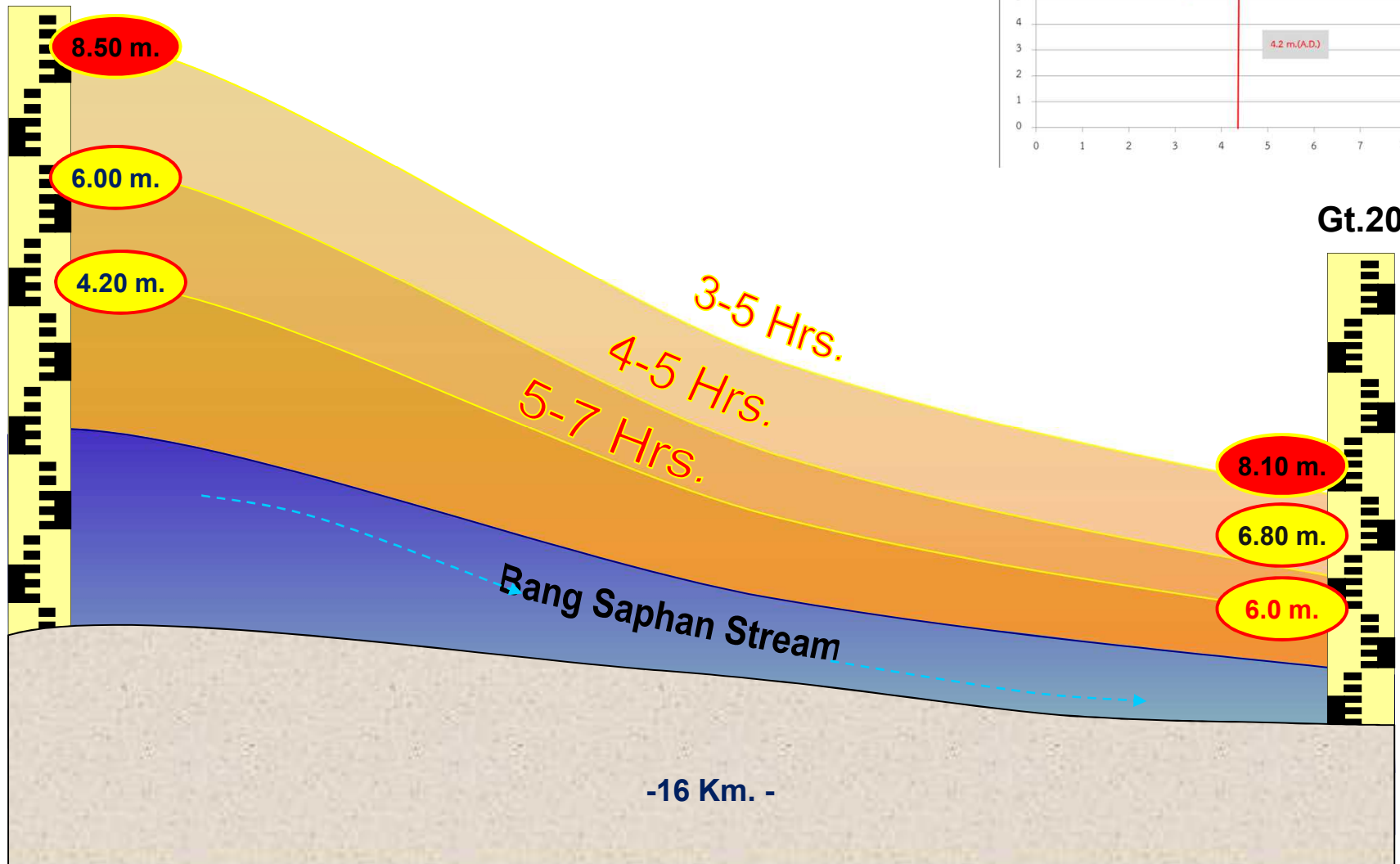


อ่าวไทย
Gulf Of Thailand



WATER LEVEL CORRELATION BETWEEN UPSTREAM AND DOWNSTREAM STATIONS (From Gt.7 to Gt.20)

Gt.7



Gt.20

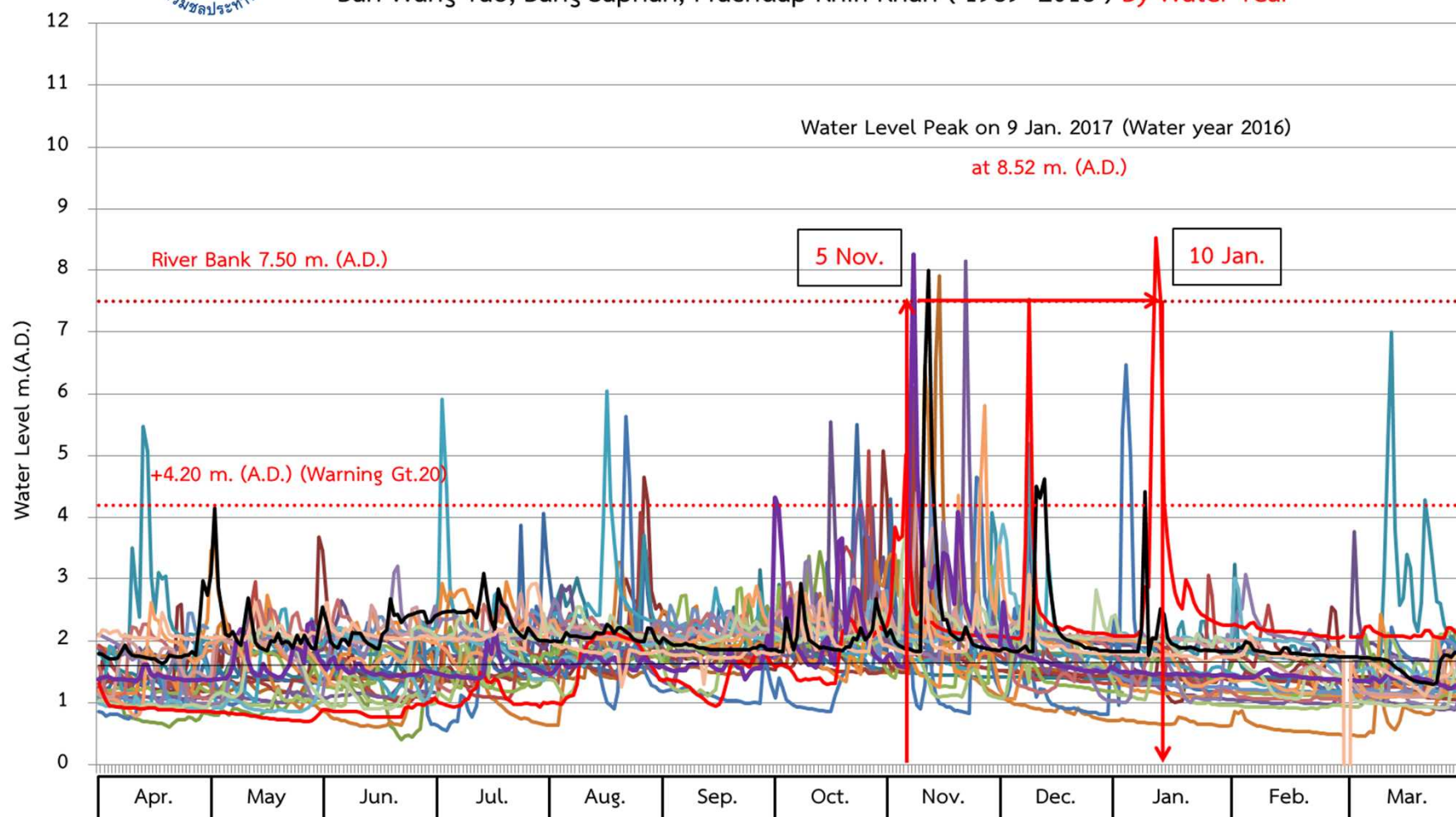
Heavy

Medium

Small



Daily Max Water Level Of Bang Saphan (GT.7) West Coast Gulf Basin
Ban Wang Yao, Bang Saphan, Prachuap Khiri Khan (1989- 2018) By Water Year

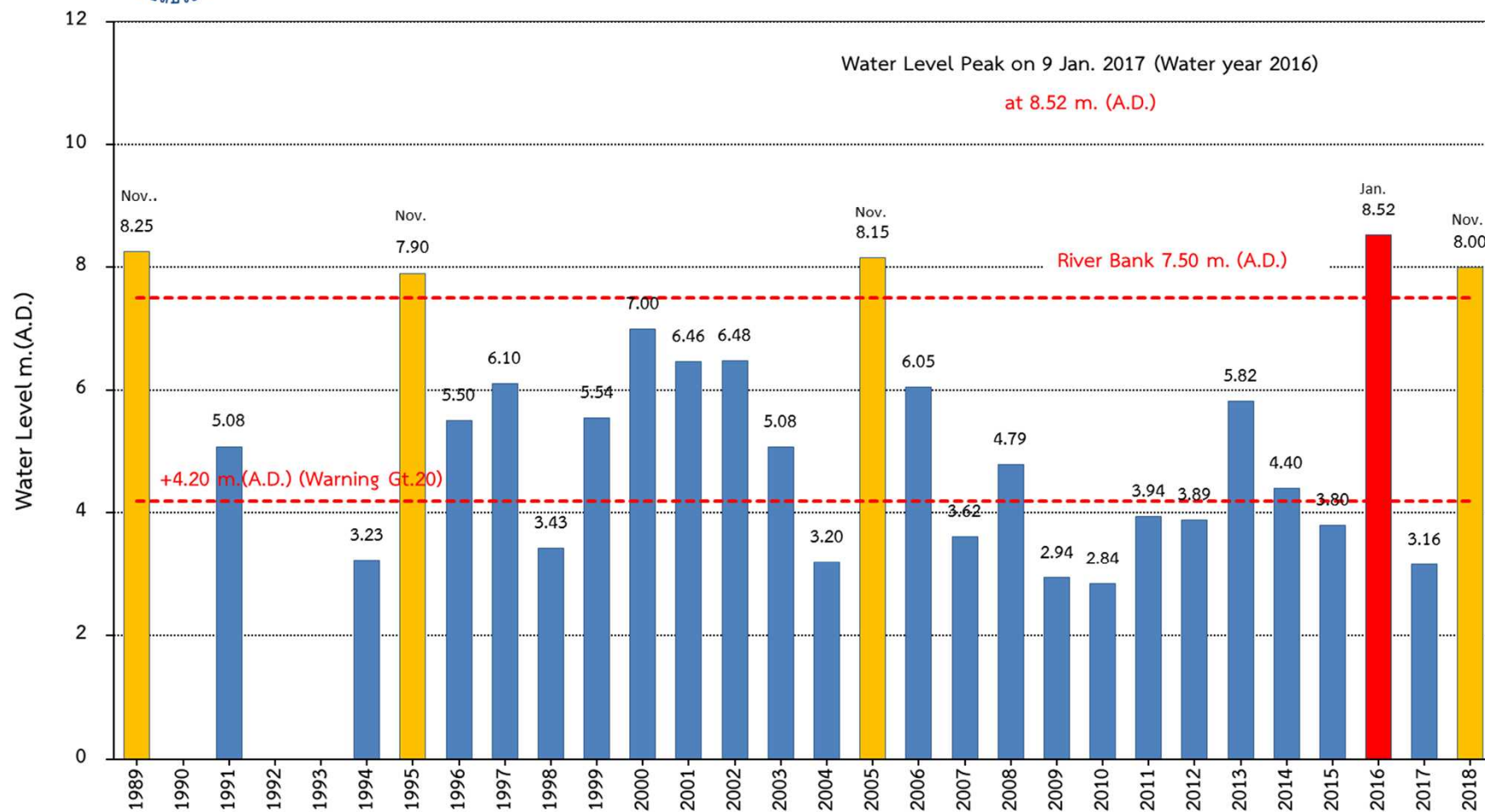


Zero Gage at Bottom Elevation 11.80 M. (MSL.)

*Water Year Start From April to March



Annual Water Level Of Bang Saphan (GT.7) West Coast Gulf Basin
Ban Wang Yao, Bang Saphan, Prachuap Khiri Khan (1989- 2018) By Water Year

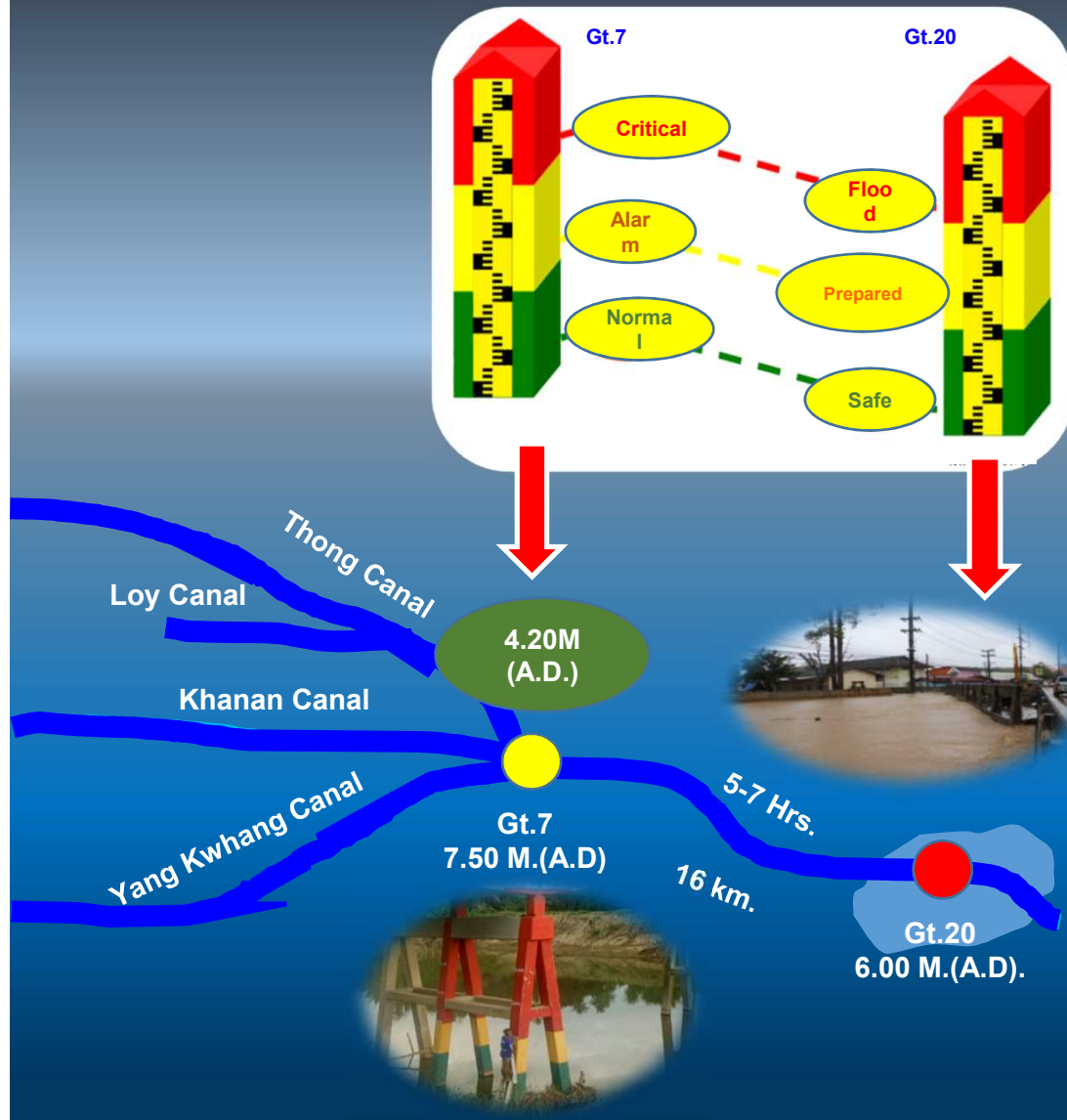


Zero Gage at Bottom Elevation 11.80 M. (MSL.)

*Water Year Start From April to March

Effect from floodwater to the city

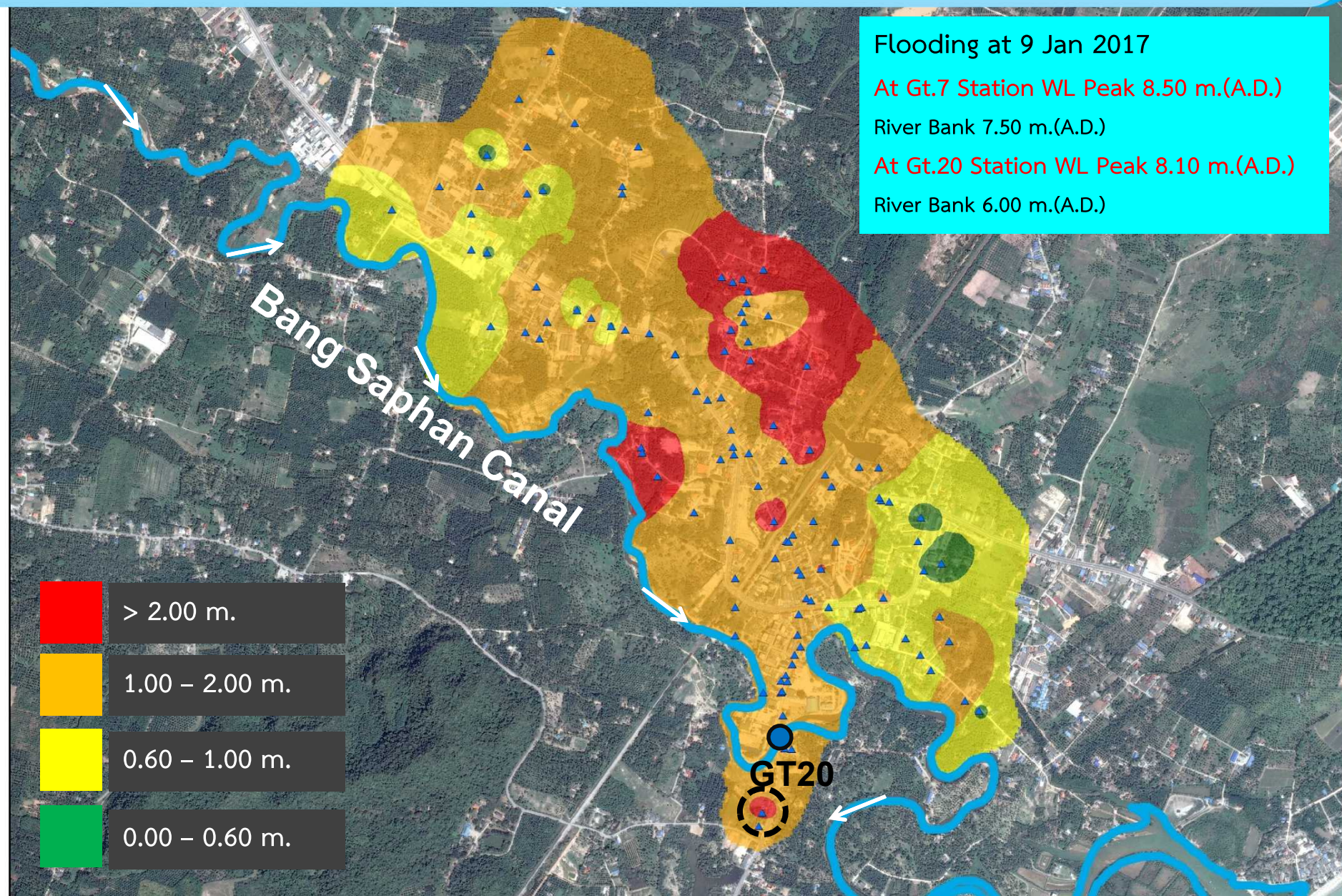
- Stage correlation at upper stream (Gt.7)



Flood Area at Gt.20
Bang Saphan District



Example of Flood Map in the City (near Gt.20)

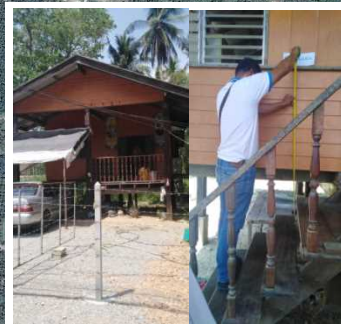


Example of Flood Survey

At Station : Gt.7 8.50 m.(A.D.) and near Gt.20 8.10 m.(A.D.)
on 9 Jan 2017



Bang Saphan Hospital
Lat : 11.224722
Long : 99.496666
Depth 1.85 m.



Lat : 11.214562
Long : 99.504299
Depth 2.33 m.



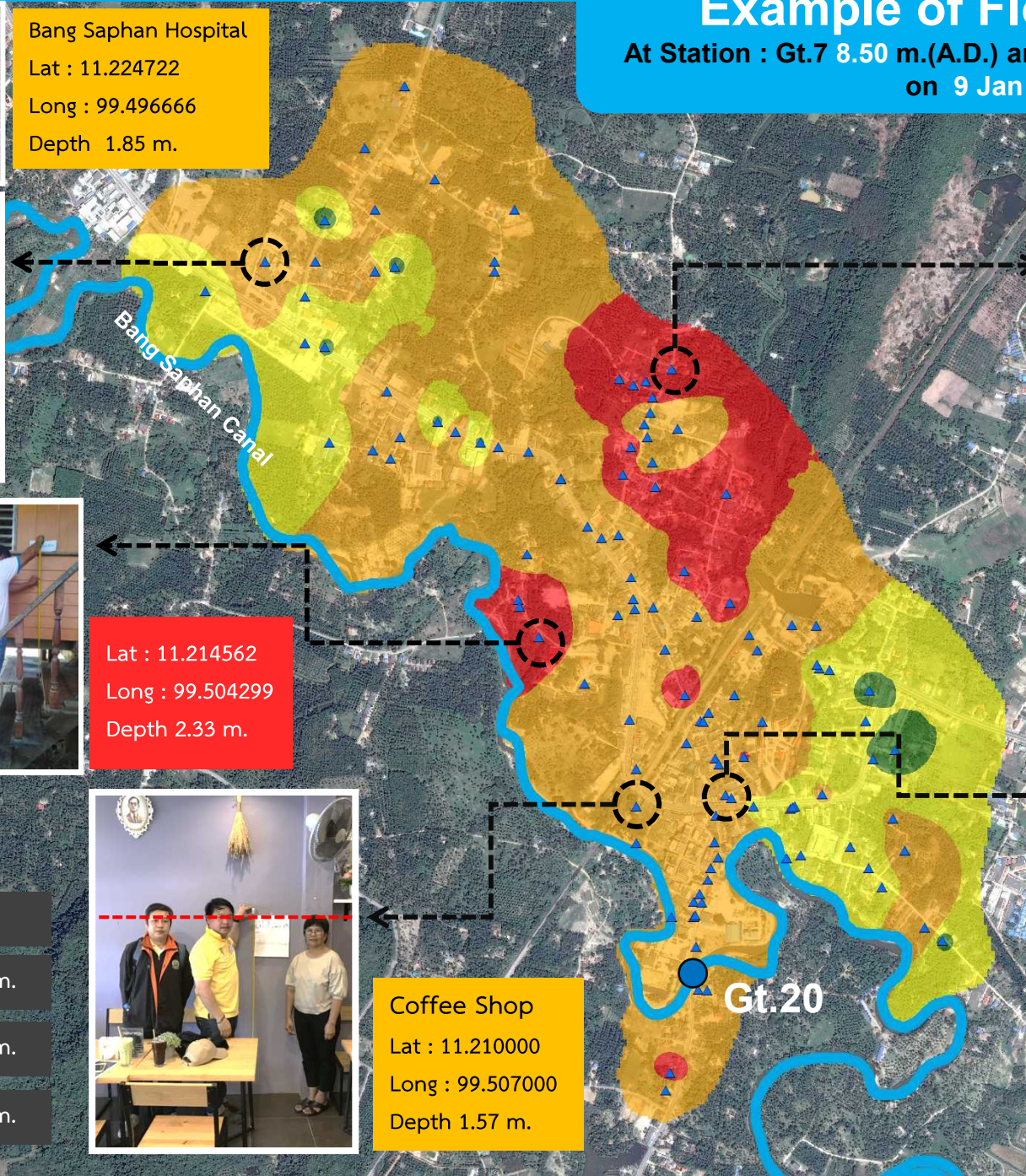
Coffee Shop
Lat : 11.210000
Long : 99.507000
Depth 1.57 m.



Lat : 11.221797
Long : 99.507996
Depth 2.40 m.



Market
Lat : 11.210300
Long : 99.509500
Depth 1.70 m.

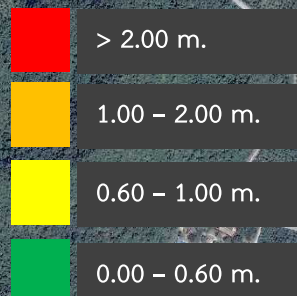


Example of Flood Survey

At Station : Gt.7 8.50 m.(A.D.) and near Gt.20 8.10 m.(A.D.)
on 9 Jan 2017



Lat : 11.218440
Long : 99.509510
Depth 2.48 m.



Gt.20

Lat : 11.220320
Long : 99.509510
Depth 1.90 m.



Name
Address
Call .
Contact
Lat 11.202806 Long 99.507944
Data
Information



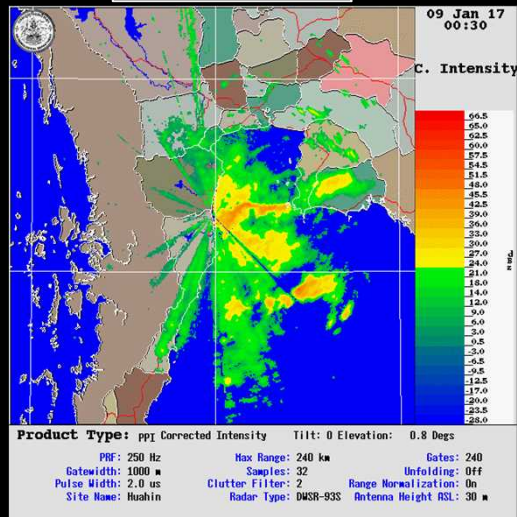
BEFORE VS AFTER FLOOD EVENT (NOV.2018)



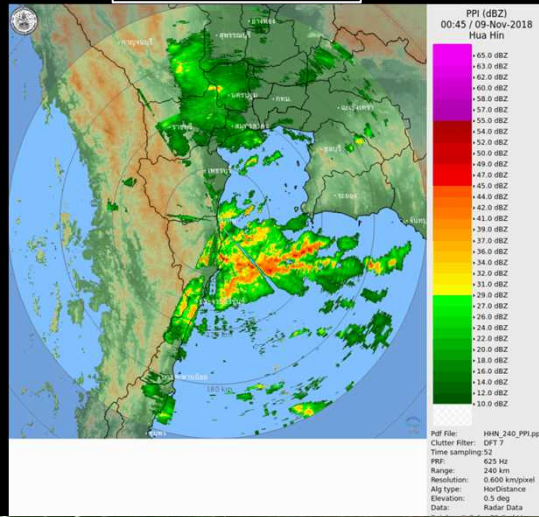
FLOOD-MARK INVENTIO



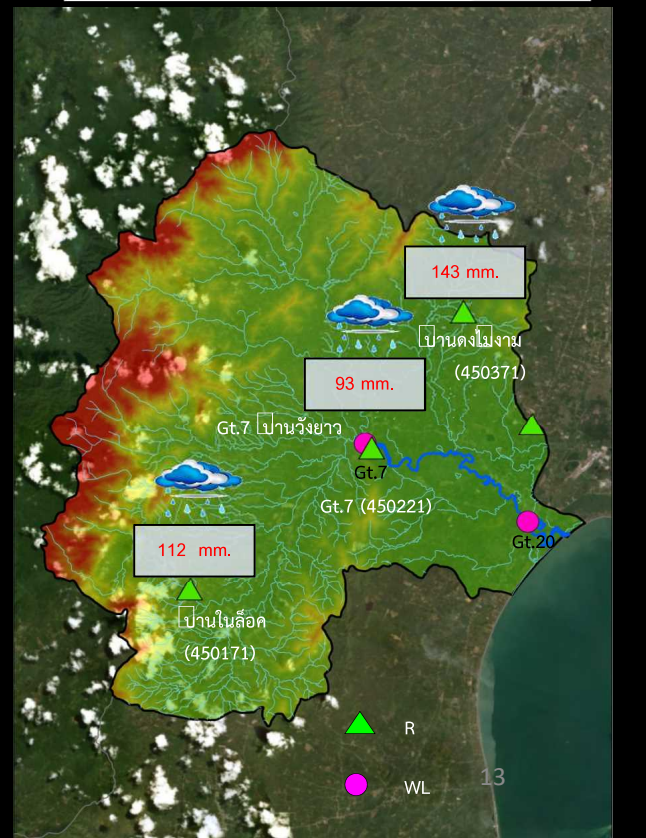
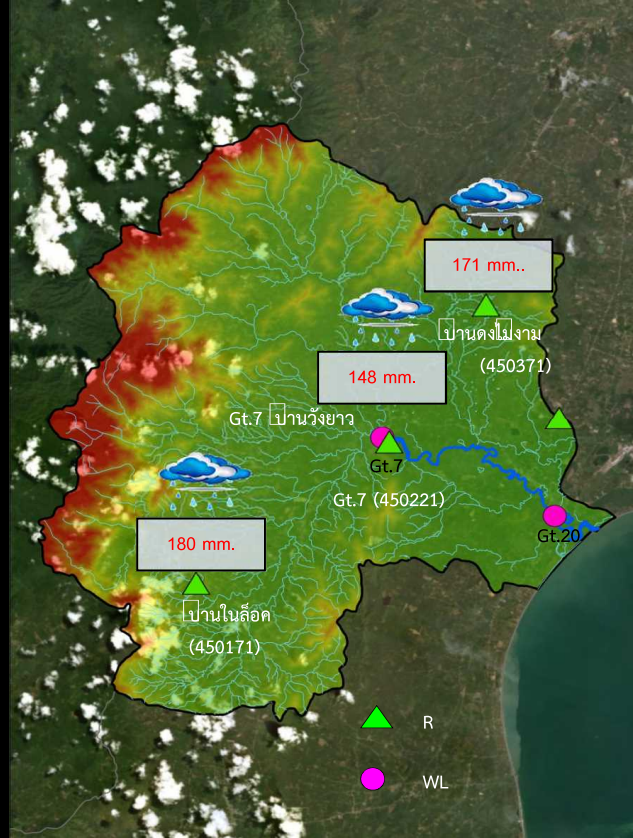
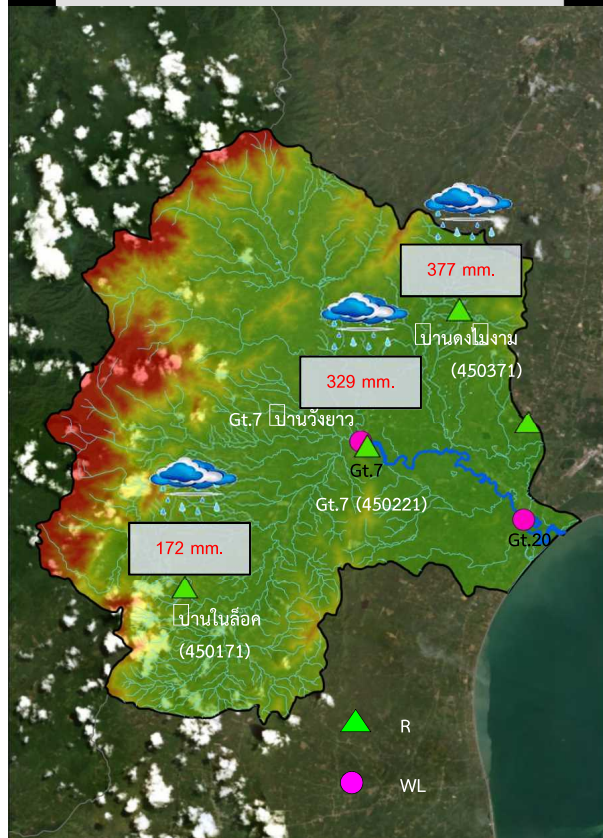
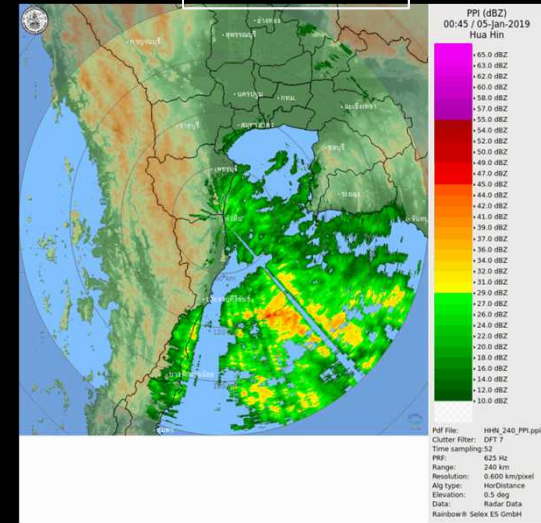
9 Jan 2017



9 Nov 2018



5 Jan 2019



Meteo-Hydro Data Monitoring

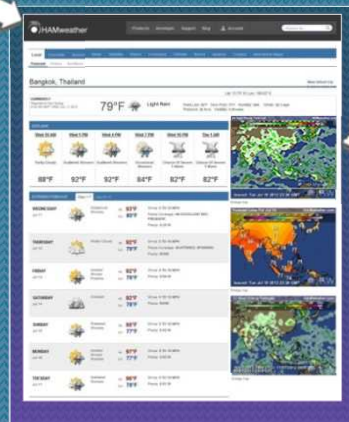
1

Weather Map



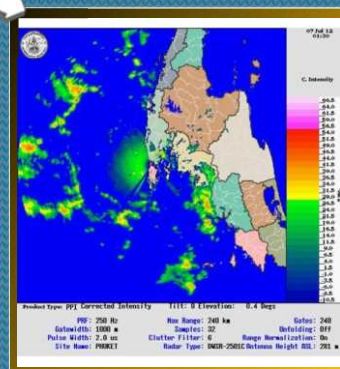
2

Forecast 7 Days



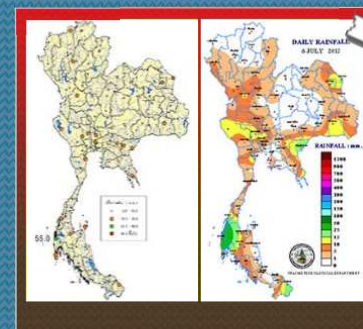
3

Radar



4

Hourly, Daily Rain



5

Water Levels



Communication with community

Tools

- Hourly Water Level at critical stations via website
- Information board near Community
- LINE (set by Local community)
- FACEBOOK PAGE (set by Local community)



รายงานสถานการณ์น้ำภาคตะวันตก(ภาคอุบลราชธานี) สำนักบริหารการคาดการณ์และอุทกวิทยา กรมชลประทาน
ศูนย์อุทกวิทยาสภาพอากาศตะวันตก(ภาคอุบลราชธานี) วันที่ 9 พฤศจิกายน 2561

เวลา	Ky.3		Gt.9		Gt.10		Gt.7		Gt.20		เวลา
	ระดับน้ำ 4.40 ม. ZG+19.800 ม.(พท.)	ปริมาณ 340.00 ลบ.ม./วินาที	ระดับน้ำ 4.00 ม. ZG+6.900 ม.(พท.)	ปริมาณ 75.00 ลบ.ม./วินาที	ระดับน้ำ 3.50 ม. ZG+25.400 ม.(พท.)	ปริมาณ 210.00 ลบ.ม./วินาที	ระดับน้ำ 7.50 ม. ZG+11.800 ม.(พท.)	ปริมาณ 1090.00 ลบ.ม./วินาที	ระดับน้ำ 6.00 ม. ZG- 2.300 ม. (พท.)	ปริมาณ 225.00 ลบ.ม./วินาที	
1.00			0.74	2.08	0.88	46.60	5.73	390.80	6.59	299.00	1.00
2.00			0.74	2.08	0.61	35.40	5.30	325.00	6.62	302.00	2.00
3.00			0.74	2.08	0.40	28.00	4.74	248.20	6.66	306.00	3.00
4.00			0.74	2.08	0.25	23.50	4.25	189.50	6.69	309.00	4.00
5.00			0.82	2.70	0.23	22.90	3.84	149.60	6.68	308.00	5.00
6.00	1.10	3.50	0.87	3.20	0.27	24.10	3.55	123.50	6.62	302.00	6.00
7.00			0.92	3.74	0.38	27.40	3.42	111.80	6.54	294.00	7.00
8.00			1.09	5.78	0.57	33.95	3.49	118.10	6.43	283.00	8.00
9.00			1.47	11.59	0.97	50.65	3.81	146.90	6.26	266.00	9.00
10.00	1.25	7.75	2.01	22.42	1.48	78.80	4.26	190.60	6.21	261.00	10.00
11.00			2.53	35.24	1.88	102.80	4.79	254.70	6.10	250.00	11.00
12.00			2.99	48.79	2.31	129.15	5.50	355.00	6.20	260.00	12.00
13.00			3.41	62.23	2.15	119.00	6.25	487.00	6.17	257.00	13.00
14.00			3.92	72.68	1.84	100.40	6.93	646.50	6.27	267.00	14.00
15.00			4.40	87.00	1.72	93.20	7.16	705.60	6.28	268.00	15.00
16.00			4.82	99.60	2.14	118.40	7.26	732.20	6.35	275.00	16.00
17.00			5.22	111.60	2.43	136.95	7.92	926.00	6.52	292.00	17.00
18.00			5.30	114.00	2.26	125.90	7.70	860.00	6.68	308.00	18.00
19.00			5.28	113.40	1.99	109.40	7.41	773.00	7.03	343.00	19.00
20.00			5.20	111.00	1.78	96.80	7.12	695.20	7.13	353.00	20.00
21.00			5.08	107.40	1.64	88.40	6.77	606.80	7.11	351.00	21.00
22.00			4.95	103.50	1.36	71.60	6.14	464.00	7.00	340.00	22.00
23.00			4.80	99.00	1.15	59.50	5.67	381.20	6.94	334.00	23.00
24.00			4.65	94.50	0.98	51.10	5.20	310.00	6.88	328.00	24.00

Challenge: Structural measure, Reinforce Existing Structure
~ Acceptance from People for Drainage System Improvement ~



Example: Dredging Bang Saphan Canal, Thailand

Challenge: Structural measure, Reinforce Existing Structure
~ Acceptance from People for Drainage System Improvement ~



Dredging Bang Saphan Canal (2017)
(to enhance efficient drainage)



THANK YOU FOR ATTENTION

