

Mae Nam Mae Klong

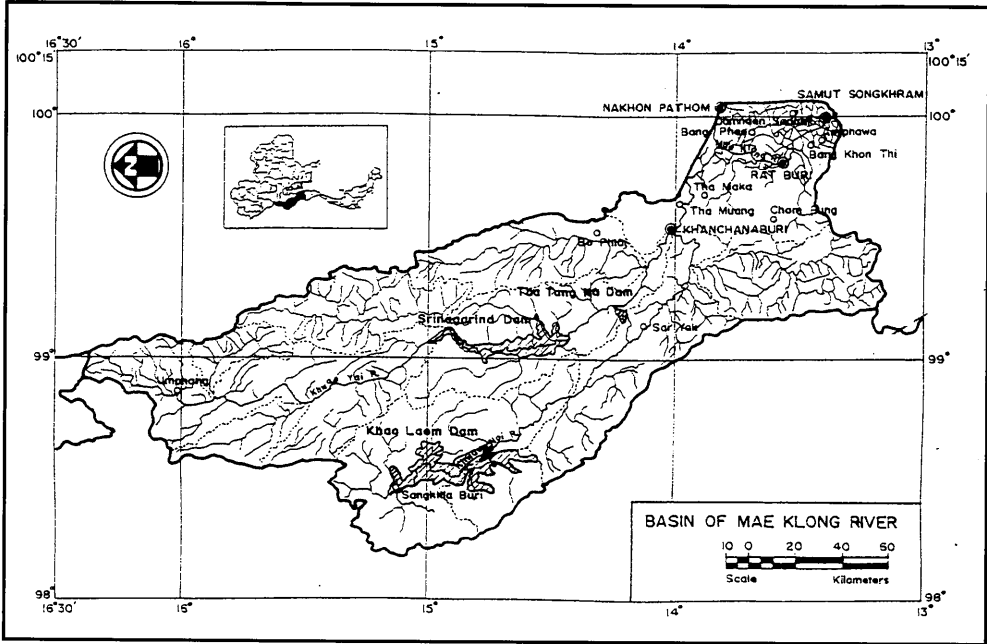


Table of Basic Data

Name: Mae Klong River		Serial No.: Thailand-2
Location: Western part of Thailand	N 13° 15' 00" ~ 16° 25' 00"	E 88° 10' 00" ~ 100° 30' 00"
Area: 30 837 km ²	Length of main stream: 520 km	
Origin: Mt. Thanon Thongchai (1 273 m)	Highest point: Umphang District (2 152 m)	
Outlet: Gulf of Thailand	Lowest point: River mouth at Samut Songkhram (0 m)	
Main geological features: Ordovician to Permian: Limestone, Sandstone, Philitite and Slate		
Main tributaries: Khwae Yai River (15 639 km ²), Khwae Noi River (10 881 km ²)		
Main lakes: None		
Main reservoirs: Srinagarind Dam (17 745 x 10 ⁶ m ³ , 1980), Khao Laem Dam (8 860 x 10 ⁶ m ³ , 1985)		
Mean annual precipitation: 1 146.5 mm (1952~1991) basin average		
Mean annual runoff: 273 m ³ /s at Ban Wang Khanai (26449 km ²) (1965~1991)		
Population: 1 495 835 (1992)	Main cities: Kanchanaburi, Ratchaburi, Samut Songkhram	
Land use: Forest (73.35%), Agriculture (18.2%), Urban (1.65%), Surface water (3.15%), Shrub/other (3.65%) (1990)		

1. General Description

The Mae Klong has the largest basin in the western region and the third largest in Thailand. It is formed by the confluence of Khwae Noi and Khwae Yai at Kanchanaburi, and flows out into the Gulf of Thailand. The river is 520 km long, originates in the rugged mountain range bordering Myanmar. Two dams, the Srinagarind built across the Khwae Yai river in 1980, and the Khao Laem built across the Khwae Noi river in 1985 have created reservoirs of capacities $17\,745 \times 10^6 \text{ m}^3$ and $8\,860 \times 10^6 \text{ m}^3$ respectively. The Khwae Noi and Khwae Yai which flow through rugged mountainous areas and have steep slopes are considered the upper reaches while the Mae Klong Plain area is considered the lower reach. The basin population has been 1 495 835 in 1992.

2. Geographical Information

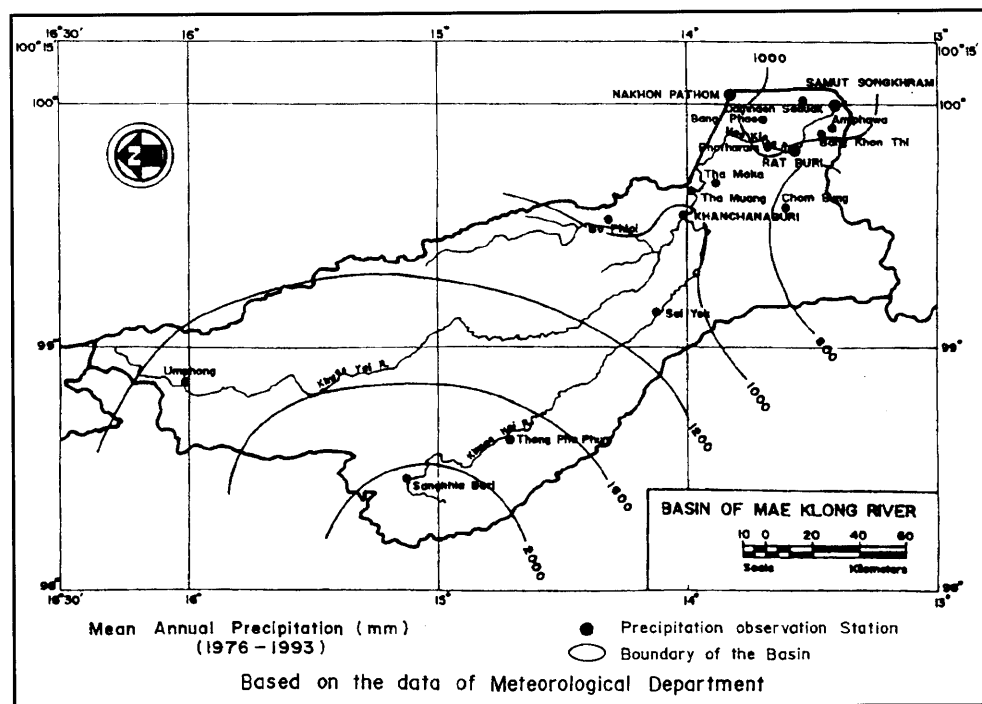
2.3 Characteristics of River and Main Tributaries

No.	Name of river	Length [km] Catchment area [km ²]	Highest peak [m] Lowest point [m]	Cities Population (1992)	Land use [%] (1990)
1	Mae Klong (Main River)	520 30 837	Mt. Khi Kho, 2 155 -----	Kanchanaburi 454 496	A (18.2) F (73.35)
2	Khwae Yai (Tributary)	450 15 639	Mt. Tu Cho, 1 443 -----	Kanchanaburi 454 496	L (3.15) SL/Other (3.65)
3	Kwae Noi (Tributary)	320 10 881	Mt. Khao Yai, 1 739 -----	Kanchanaburi 454 496	U (1.65)

A: Agricultural field F: Forest L: Lake, River, Marsh SL: Shrubland U: Urban

3. Climatological Information

3.1 Annual Isohyetal Map and Observation Stations



3.3 Monthly Climate Data

Station: Thong Pha Phum

Observation item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Period for the mean
Temperature [°C]	23.8	25.8	28.1	29.5	28.5	26.9	26.5	26.2	26.9	26.8	25.1	23.2	26.4	1970~1993
Precipitation[mm]	5.0	17.0	43.5	97.8	197.0	320.1	297.4	321.6	241.5	168.4	24.7	4.2	1 738.2	1970~1993
Evaporation [mm]*	117.8	135.5	175.0	175.3	139.1	92.5	88.6	80.8	101.2	107.8	99.2	108.0	1 420.8	1970~1993

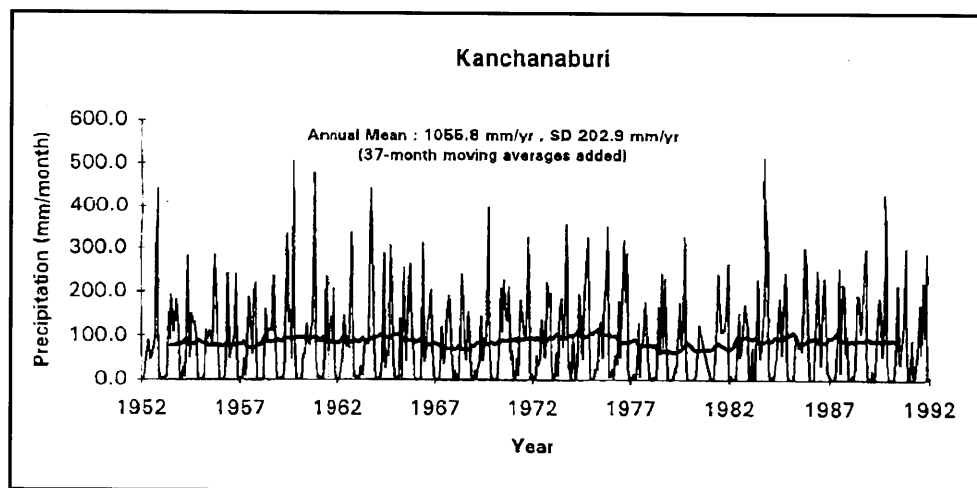
* Average using Class A Pan

Station: Kanchanaburi

Observation item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Period for the mean
Temperature [°C]	25.5	27.9	29.9	31.3	30.0	28.8	28.5	28.2	27.9	27.1	25.9	24.0	28.0	1970~1993
Precipitation[mm]	4.8	15.5	28.9	69.2	146.7	85.5	103.3	101.7	227.3	223.3	63.5	8.2	1 077.9	1951~1993
Evaporation [mm]*	137.3	147.2	208.8	220.5	194.3	155.7	166.8	157.4	140.8	124.0	129.2	139.2	1 921.2	1976~1993

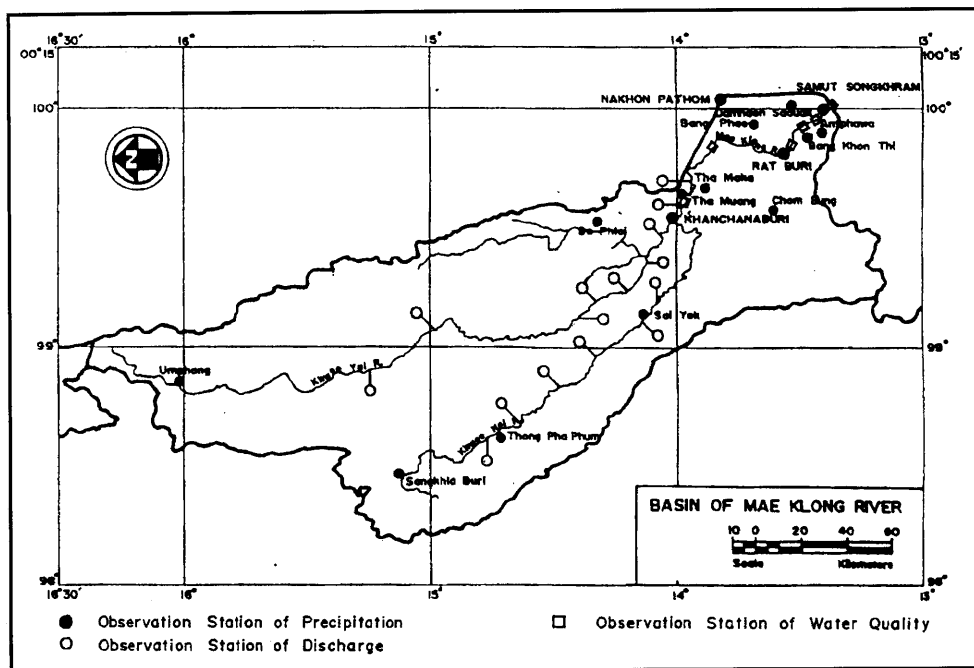
* Monthly average using Class A Pan

3.4 Long-term Variation of Monthly Precipitation



4. Hydrological Information

4.1 Map of Streamflow Observation Stations



4.2 List of Hydrological Observation Stations

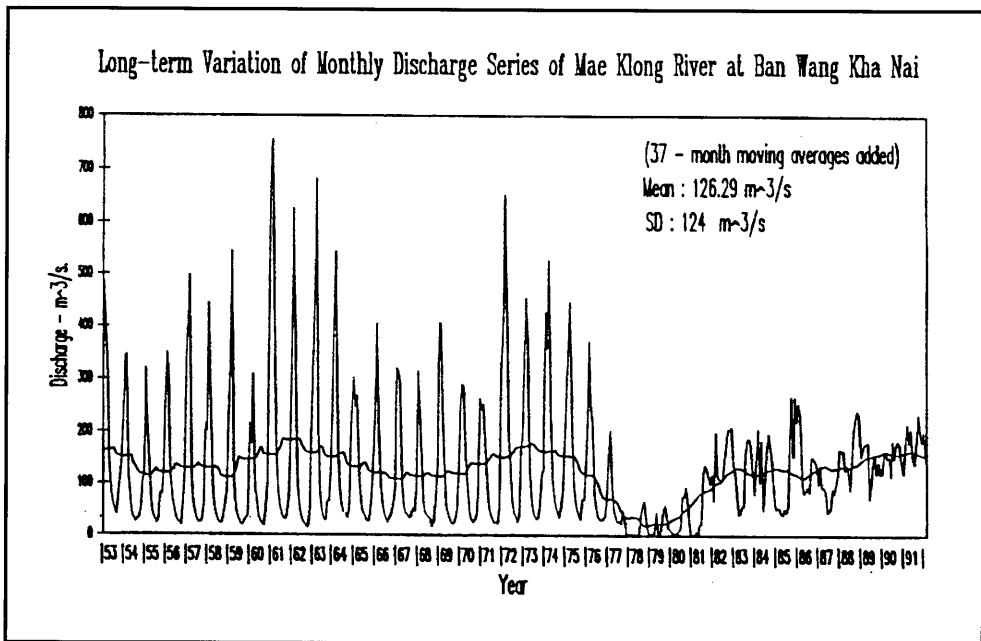
No.*	Station	Location	Elevation [m]	Catchment area (A) [km ²]	Observation period	Observation items ¹⁾ (frequency)
K13	Ban Tha Khanun	N 14° 43' 50" E 98° 38' 32"	97.165	4 047	1965~1990 1979~1986 1987~1990	Q(16d) Q(13d) Q(15d)
K10	Ban Lun Sum	N 14° 05' 40" E 99° 10' 28"	52.057	7 008	1965~1991	Q(16d)
SNR	Srinagarind Dam	N 14° 24' 00" E 99° 07' 00"		10 880	1952~1977 1978~1993	Q(H1) Water balance
K11	Ban Wang Khanai	N 13° 56' 55" E 99° 38' 42"	21.985	26 449	1965~1974 1975~1991	Q(5d) Q(H1), WQ(m)
K35	Ban Nong Bua	N 14° 03' 22" E 99° 27' 35"	7.667(A.D.)	14 528	1984~1992	Q(5d)
KE6	Ban Phu Toei	N 14° 18' 12" E 98° 59' 00"		6 512	1969~1992	Q(5d), Q(13d)
K36	Ban Tha Manao	N 14° 09' 48" E 99° 16' 38"	6.88(A.D.)	11 787	1984~1992	Q(5d)
K37	Ban Wang Yen	N 13° 55' 57" E 99° 25' 37"	9.150(A.D.)	10 603	1984~1992	Q(5d)

No.*	\bar{Q} ²⁾ [m ³ /s]	Q max ³⁾ [m ³ /s]	\bar{Q} max ⁴⁾ [m ³ /s]	\bar{Q} min ⁵⁾ [m ³ /s]	\bar{Q} / A [m ³ /s/100km ²]	Q max / A [m ³ /s/100km ²]	Period of statistics
K13	148.80	3 029	1 465.46	6.30	3.68	74.85	1965~1990
K10	185.31	3 250	1 439.77	15.8	2.64	46.38	1965~1991
SNR	136.69				1.26		1952~1993
K11	273.05	3 561	1 629.52	33.28	1.03	13.46	1965~1991
K35	95.29	821	375.81	8.01	0.66	5.65	1984~1992
KE6	195.87	3 990	510.71	18.97	3.01	61.27	1982~1993
K36	102.44	350	318.91	0.60	0.87	2.97	1984~1992
K37	187.96	1 530	638.67	31.83	1.77	14.43	1984~1992

* Serial number used by Royal Irrigation Department and Electricity Generating Authority of Thailand

- | | |
|---------------------------------------|---------------------------|
| 1) H1: Water level in recording chart | 2) Mean annual discharge |
| Q: Discharge, WQ: Water quality | 3) Maximum discharge |
| 5d: 5-day, etc. m: Monthly | 4) Mean maximum discharge |
| A.D.: Arbitrary datum | 5) Mean minimum discharge |

4.3 Long-term Variation of Monthly Discharge



4.6 Annual Maximum and Minimum Discharges

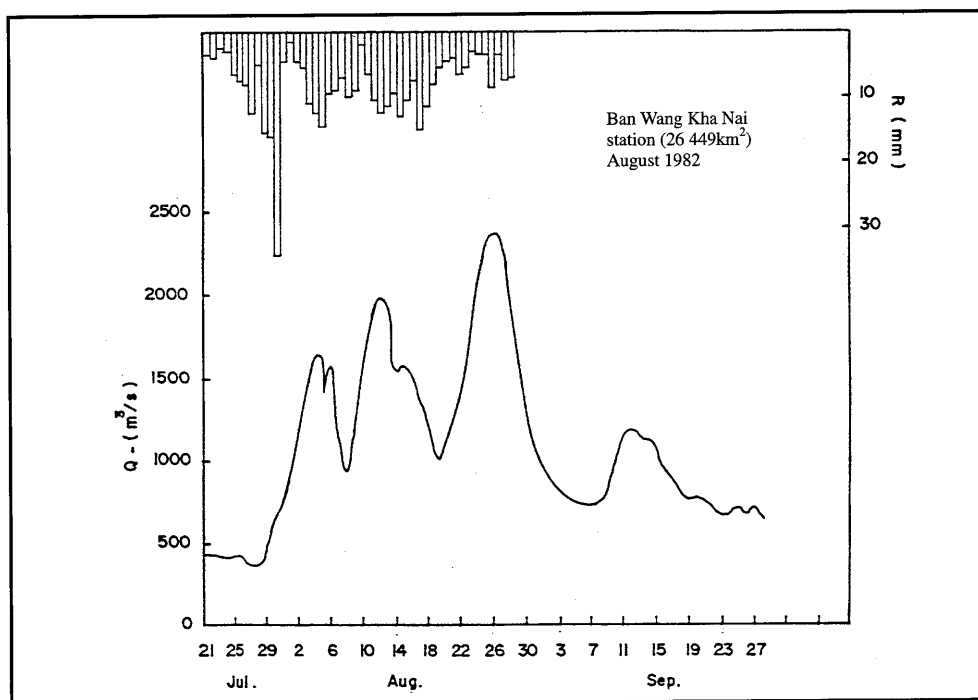
At Ban Wang Kha Nai (Kil) [26 449 km²]

Year	Maximum ¹⁾		Minimum ²⁾		Year	Maximum ¹⁾		Minimum ²⁾	
	Date	[m ³ /s]	Month	[m ³ /s]		Date	[m ³ /s]	Month	[m ³ /s]
1965	7.31	2 034	5	32.0	1979	8.15	1 425	3	15.0
1966	9.14	2 195	5	44.0	1980	9.06	756	6	16.8
1967	8.22	1 805	3	37.0	1981	8.17	2 356	4	56.4
1968	8.18	1 476	3	30.0	1982	8.26	2 377	5	62.6
1969	8.14	2 822	4	27.0	1983	10.22	1 712	6	61.0
1970	7.19	1 339	3	37.0	1984	5.04	304	8	34.8
1971	7.29	2 293	3	35.0	1985	10.15	1 141	3	28.2
1972	7.19	2 983	5	20.0	1986	5.10	874	2	36.0
1973	6.21	1 952	4	30.0	1987	6.12	556	2	39.0
1974	8.21	3 561	4	42.0	1988	10.20	1 696	3	28.0
1975	8.17	1 449	3	32.0	1989	6.15	488		
1976	9.10	1 733	3	28.0	1990	10.12	563		
1977	9.14	1 202	10	12.0	1991	8.22	1 075		
1978	8.18	1 830	4	15.0					

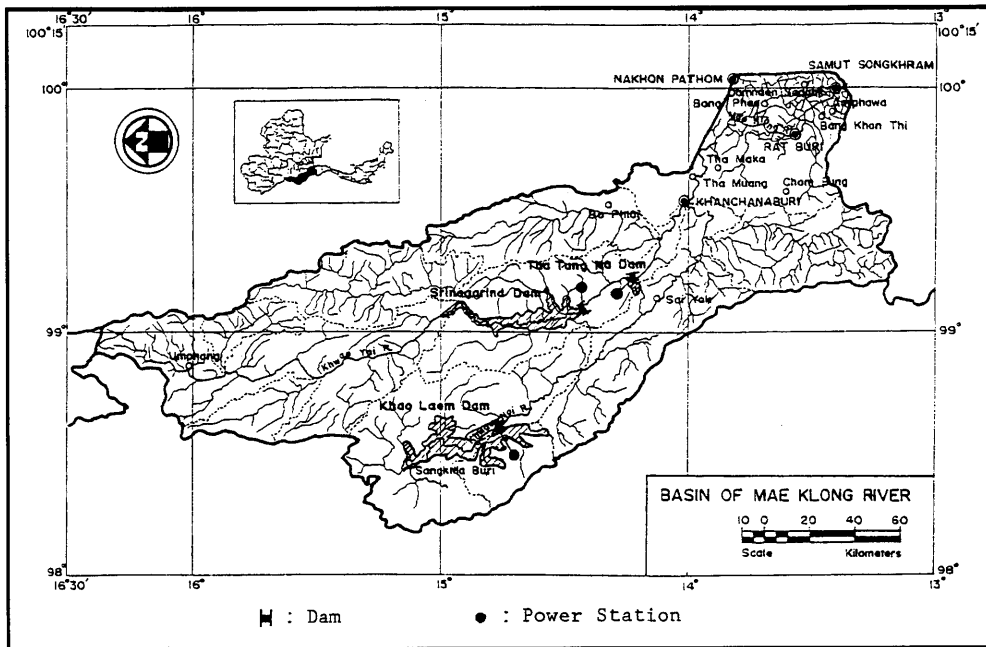
1), 2) Instantaneous observation by recording chart (1975~1991)

Observation interval: hourly (1965~1974)

4.7 Hyetographs and Hydrographs of Major Floods



5.2 Map of Water Resources Systems



7. References, Databooks and Bibliography

- Asian Institute of Technology (1994): *Study of potential development of water resources in the Mae Klong River Basin*, Water Resources Engineering Programme, School of Civil Engineering, submitted to the Office of National Economic and Social Development Board, Bangkok, Thailand, Vol. I - Main Report, April 1994. (1.3, 2.3)
- Electricity Generating Authority of Thailand (1992): *Surface runoff and specific yield of river basins in Thailand*, Meteorology and Hydrology Division, Survey and Ecology Department, February 1992. (4.7)
- Meteorological Department, *Climatological Data of Thailand, 1951-1990*, Bangkok, Thailand.
- Royal Irrigation Department, *Thailand hydrological yearbook*, Hydrology Division, Bangkok, Vol. 8-34. (4.1, 4.2, 4.3, 4.6)
- Social Development Board (1994): *Main report*, Vol. 1, Bangkok, Thailand, April 1994. (1.3, 2.3)