

Mae Nam Bang Pakong

Map of River

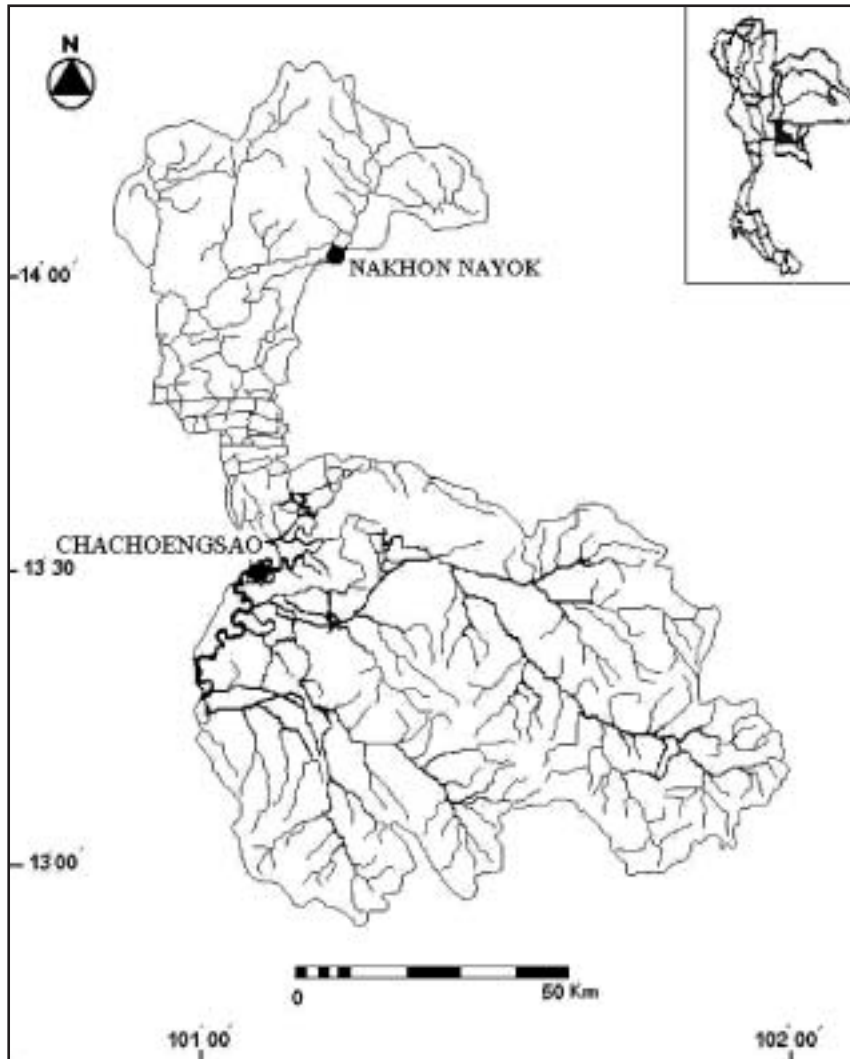


Table of Basic Data

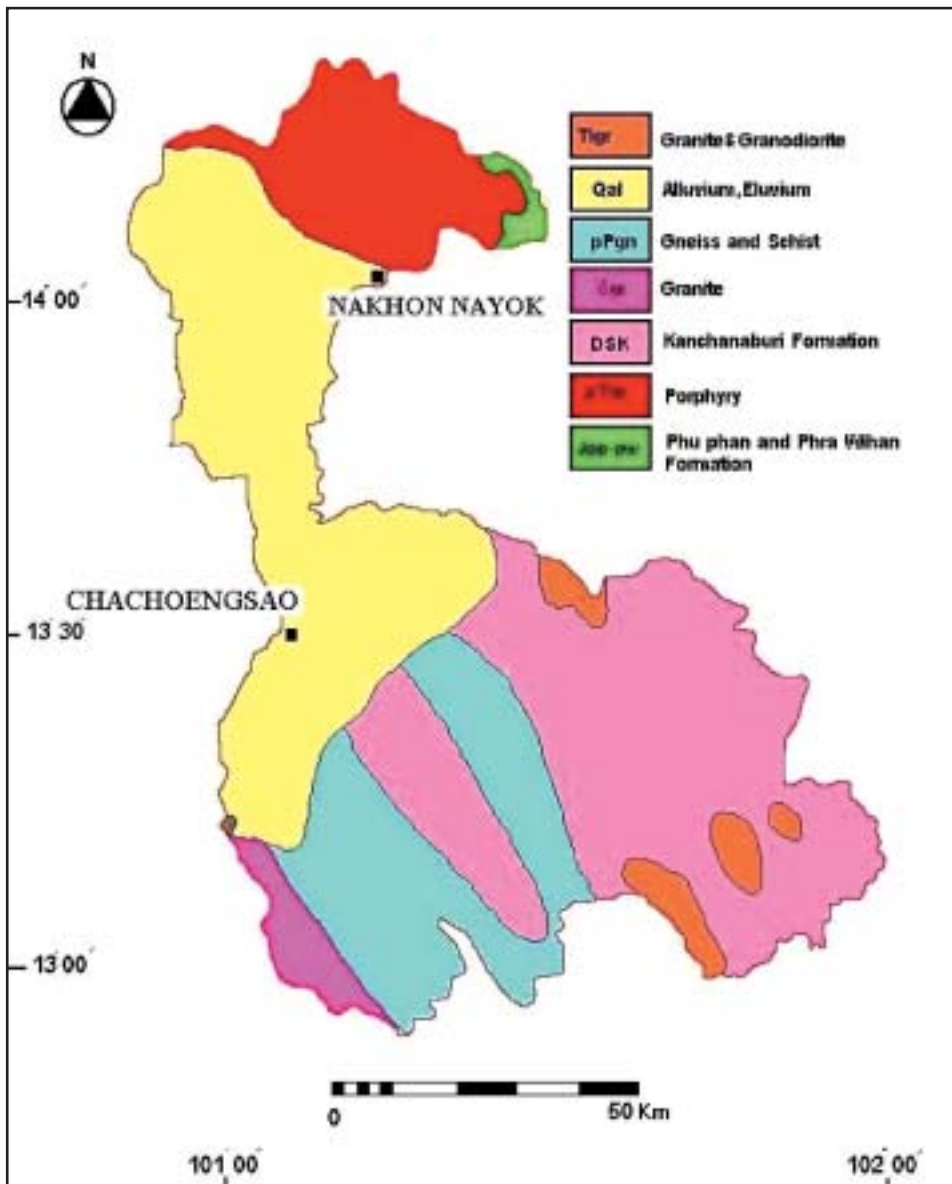
Name: Mae Nam Bang Pakong		Serial No : Thailand-7
Location: Eastern sub-region of Thailand	N 13° 05' - 14° 30'	E 100° 57' - 102° 00'
Area: 8,706 km ²	Length of main stream: 434 km	
Origin: Kead Mt.	Highest point: 1,351 m (A. Banna, Nakhonnayok)	
Outlet: Gulf of Thailand	Lowest point: 1 m (A. Bangpakong, Chachoengsao)	
Main geologic formation: Alluvium, Eluvium, Kanchanaburi Formation, Rataburi Formation, Phu Phan and Phra Wihan Formation, Porphyry, Tarutao Formation, Granite&Granadiorite, Gneiss and Schist		
Major tributaries: Nakhonnayok River (2,543 km ²), Khlong Tharat (2,965 km ²), Khlong Luang (798 km ²), Bangpakong (2,400 km ²)		
Major reservoirs: Khlong Siyat Dam (325x10 ⁶ m ³ , 1998), Khlong Rabom (252x10 ⁶ m ³ , 1998), Khlong Luang (135x10 ⁶ m ³ , 1998), Huai Prea reservoir (8.3x10 ⁶ m ³ , 1988)		
Mean annual precipitation: 1,895 mm (1952 - 1996) station 03160501 A.Mueang, Chachoengsao		
Mean annual runoff: 9.02 m ³ /s (1969 - 1996) station 01160302 Ban Takloi, A. Sanamchaikhet, Chachoengsao		
Population: 1,503,988 (1998)	Major cities: Chonburi, Chachoengsao, Nakhonnayok, Prachinburi, Saraburi	
Land uses: Forest 10.6%, Rice paddy 48.1%, Upland crops 39.2%, Orchard 1.9%, Water resources 0.2% (1998)		

1. General Description

The Mae Nam Bang Pakong merges with the Mae Nam Prachinburi at A. Bang Nampriao, Chachoengsa, and drains into the Gulf of Thailand at A. Bangpakong, Chachoengsao. The basin area is approximately 8,573 km² and the main river reach length is approximately 241 km. The majority of the basin area is a low plain and is affected by seawater intrusion in the dry season, resulting in brackish water during the months of January to April.

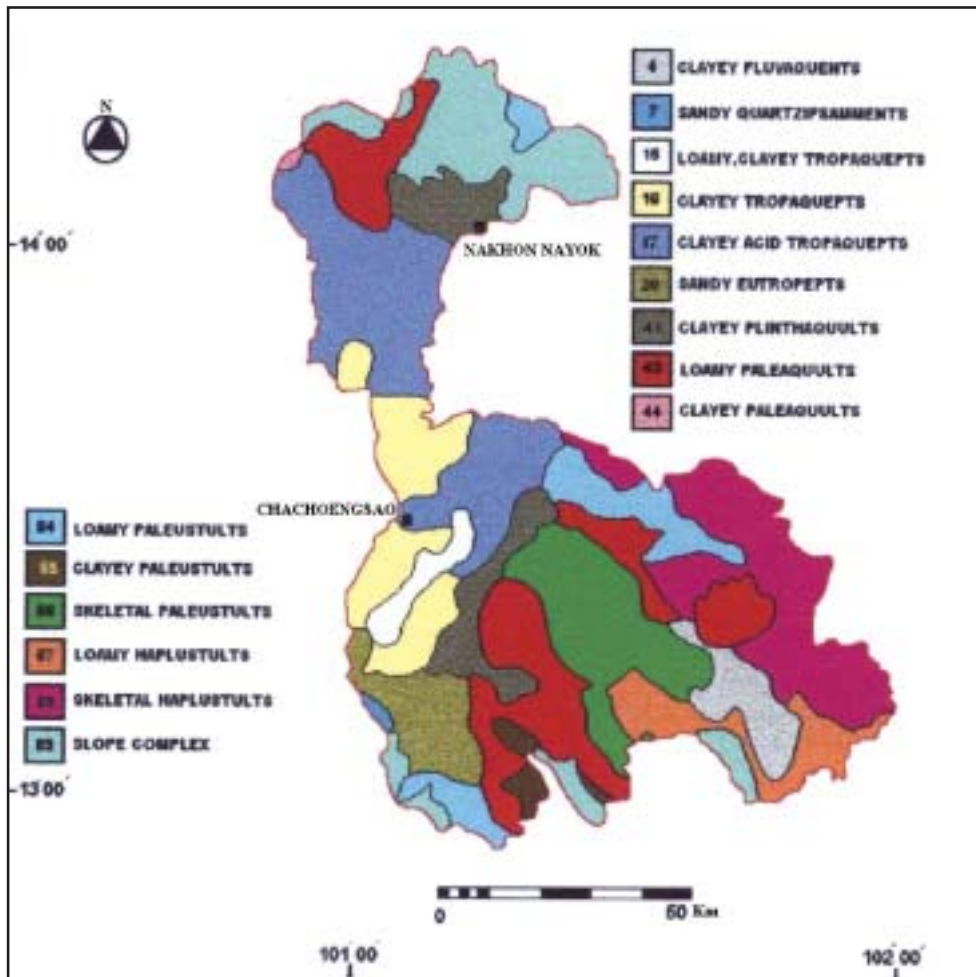
2 Geographical Information

2.1 Geological Map



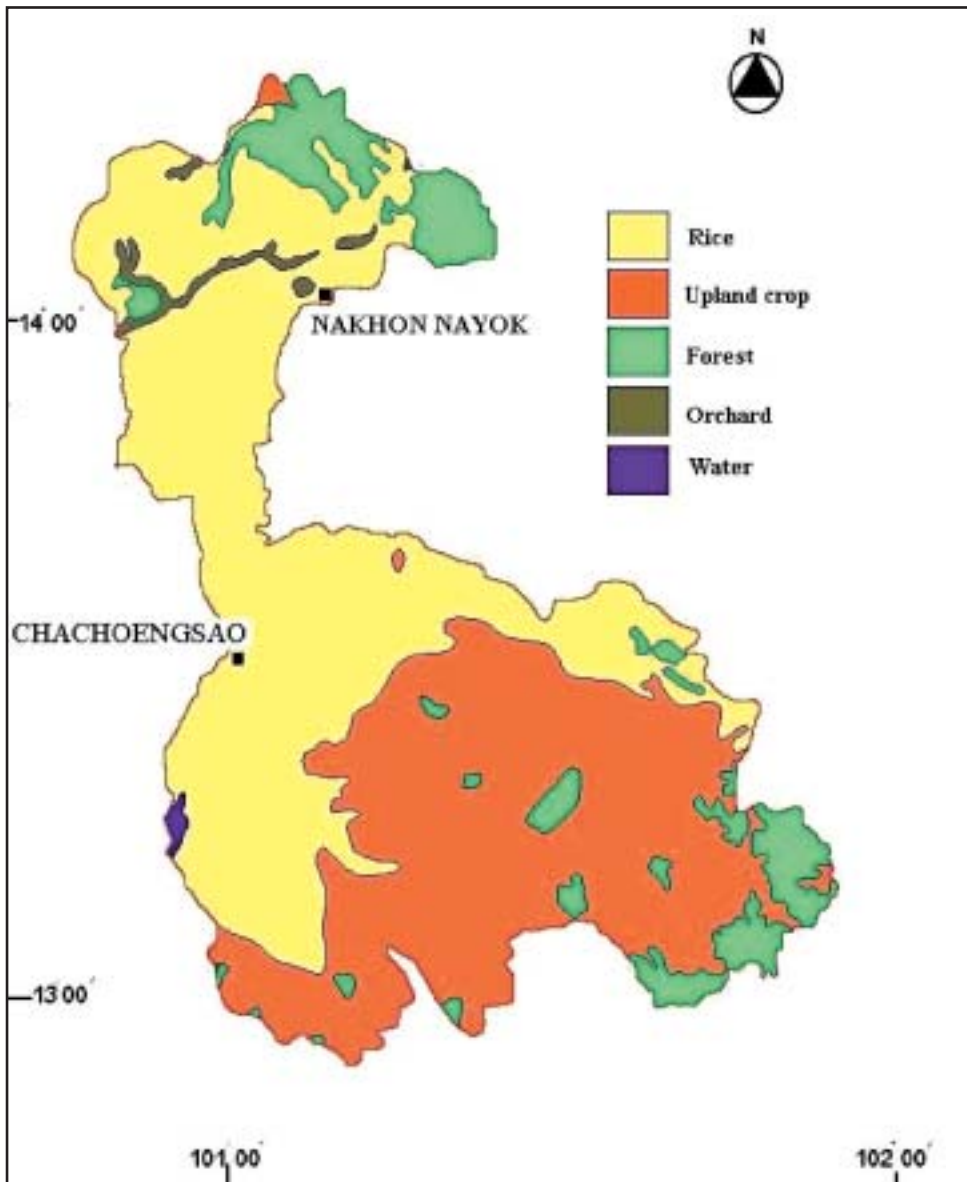
Source: Geological Map of Thailand, Jumchet C. and Javanaphet, 1969, Department of Mineral Resources

Soil Map



Source: General Soil Map Of Thailand, 1972, Soil Survey Division, Department of Land Development

2.2 Land use Map

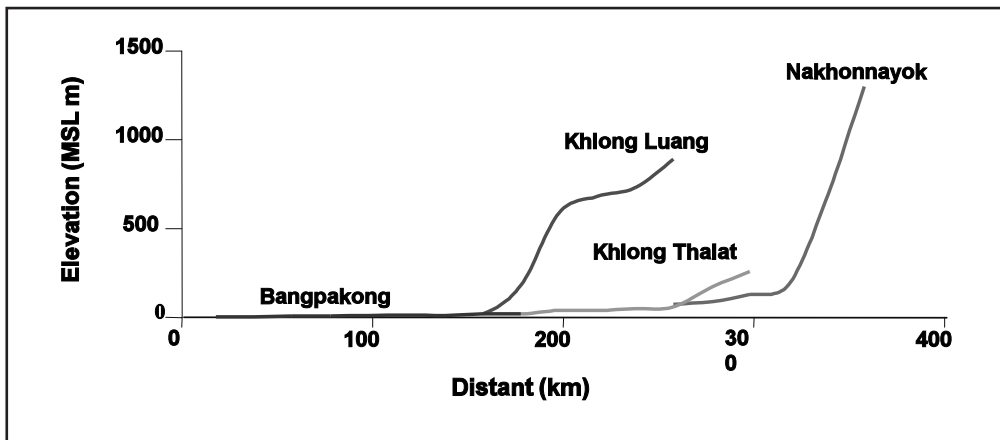


Source: Eastern Sub-region Land Use Map 1998, Land Use Planning Div., Department of Land Development.

2.3 Characteristics of the River and the Main Tributaries

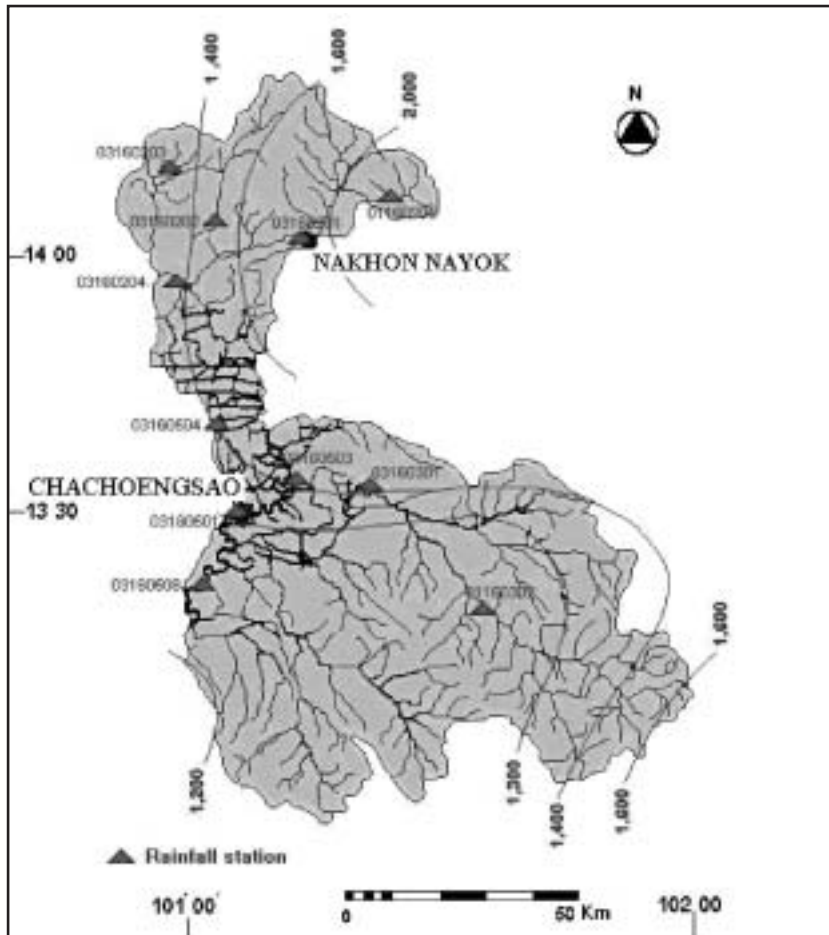
No.	Name	Length [km] Catchment Area [km ²]	Highest Peak Elevation [m]	Major cities
1	Nakhonnayok	114 2,543	Kead Mt. 1,351	A. Pakphli, A. Mueang Nakhonnayok
2	Khlong Thalot	133 2,965	Yai Mt. 777	A. Sanamchaikhet Chachoengsao
3	Khlong Luang	53 796	Chao Mt. 525	A. Bothong Chonburi
4	Lower Bangpakong	134 2,400	Chompoo Mt. 732	A. Banbueng, Chonburi A. Mueang, Chachoengsao
5	Bangpakong (main river)	241 806	Kead Mt. 1,351	Chonburi, Chachoengsao Nakhonnayok

2.4 Longitudinal Profiles



3. Climatological Information

3.1 Annual Isohyetal Map



Source: Isohyetal Map of Thailand, 1966-1995, Meteorological Department.

3.2 List of Meteorological Observation Stations

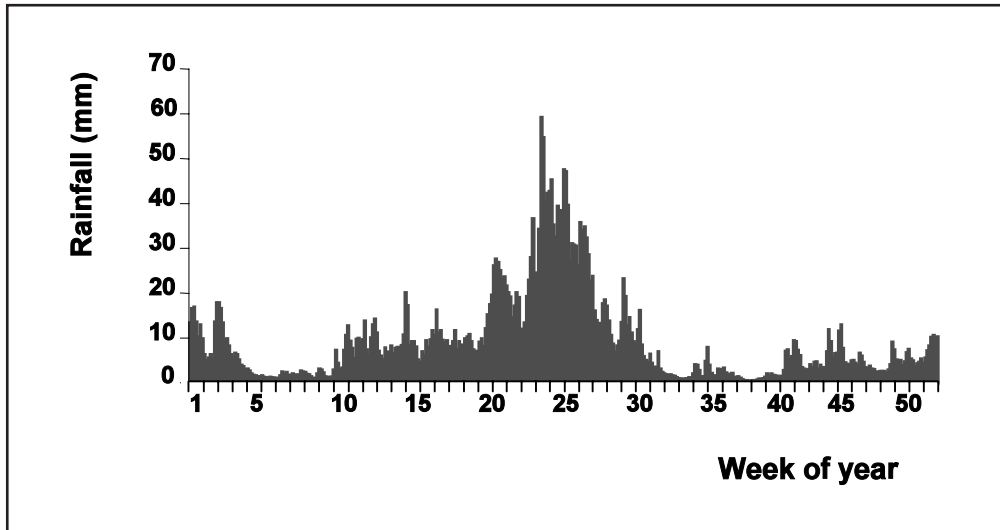
Code	Station	Gauge	Location	Duration	Mean annual [mm]	Data
03160301	A. Phanomrakham Chachoengsao	Standard	N13° 44' 36" E 101° 21' 00"	1952 - 1996	1,490.2	Precipitation
03160302	Thatakiap Agr. Exp. Sta. A. Sanamchaikhet Chachoengsao	Standard	N13° 28' 29" E 101° 37' 44"	1967 - 1996	1,331.6	Precipitation
03160501	A. Mueang Chachoengsao	Automatic	N14° 03' 00" E 101° 22' 00"	1952 - 1995	1,894.9	Precipitation
03160503	A. Bangkhla Chachoengsao	Standard	N13° 43' 34" E 101° 04' 55"	1952 - 1996	1,282.8	Precipitation
03160504	A. Bangnampriao Chachoengsao	Standard	N13° 50' 44" E 101° 03' 25"	1952 - 1996	1,353.3	Precipitation
03160508	A. Bangpakong Chachoengsao	Standard	N13° 32' 29" E 100° 59' 50"	1982 - 1996	936.3	Precipitation
01160205	Hua Narok A. Mueang Prachinburi	Standard	N14° 17' 13" E 101° 24' 16"	1986 - 1996	2,855.6	Precipitation
03160201	A. Mueang Nakhonnayok	Standard	N14° 12' 07" E 101° 13' 12"	1951 - 1996	1,894.9	Precipitation
03160202	A. Banna Nakhonnayok	Standard	N14° 15' 54" E 101° 03' 51"	1952 - 1996	1,743.0	Precipitation
03160203	A. Pakphli Nakhonnayok	Standard	N14° 09' 44" E 101° 15' 53"	1952 - 1996	1,721.7	Precipitation
03160204	A. Ongkharak Nakhonnayok	Standard	N 14° 07' 17" E 101° 00' 08"	1952 - 1996	1,314.6	Precipitation

3.3 Monthly Climate Data

Observations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	Total	Period
Temperature [°C]	26.7	28.3	29.7	30.1	29.3	28.8	28.4	28.1	28.1	28.0	27.2	26.1	28.2	-	1966 - 1997
Precipitation [mm]	8.8	19.4	53.7	120.7	216.7	253.7	284.0	386.1	364.8	162.9	33.8	8.5	159.4	1,913.0	1966 - 1997
Evaporation [mm]	137.9	130.9	169.7	160.6	147.0	124.9	133.6	126.5	123.6	124.9	135.2	137.4	137.7	1,652.3	1966 - 1997

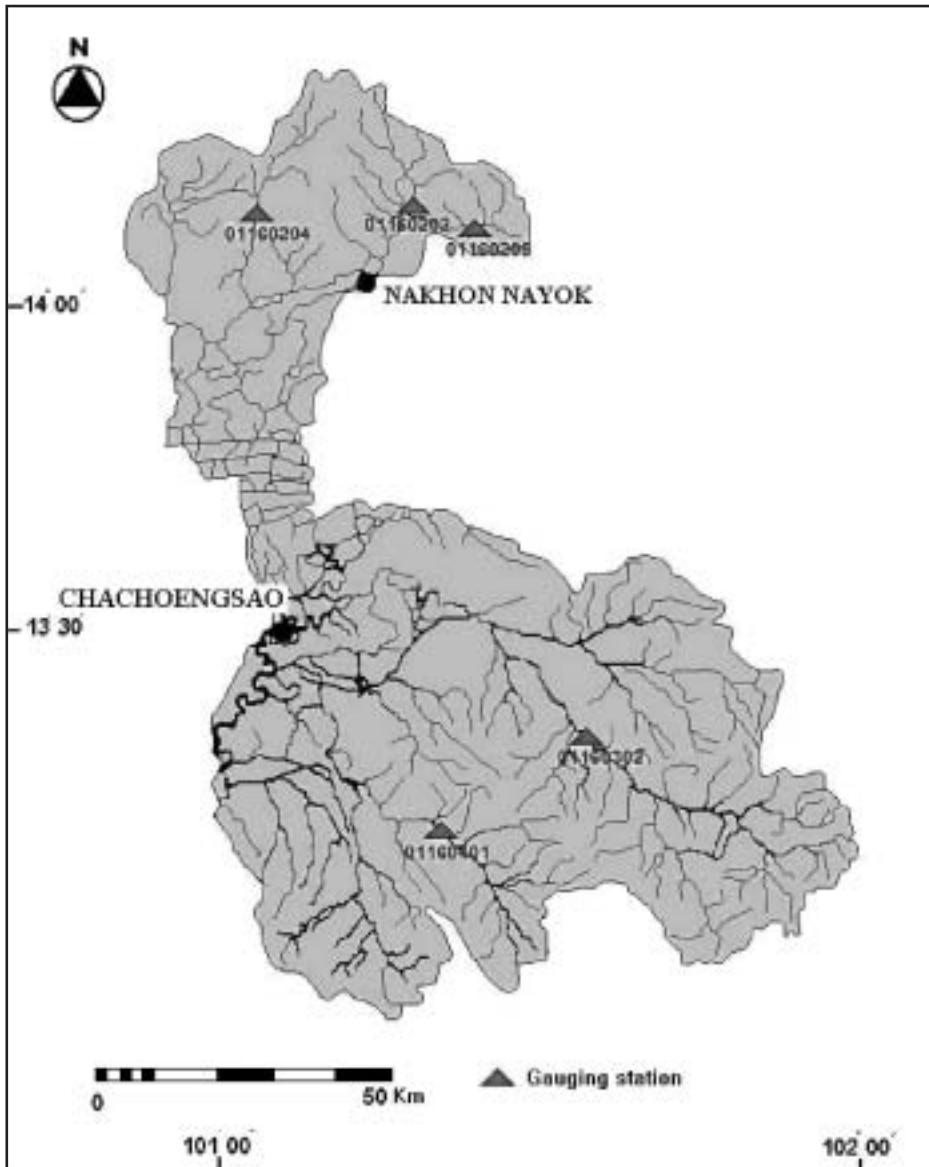
3.4 Long-term Variation of Monthly Precipitation

Station: A. Mueang, Nakhonnayok (03160201)



4. Hydrological Information

4.1 Map of Stream Flow Observation Stations



Source: Chantajitra, Y. et al., 1994, Location Map of Hydrologic and Meteorological Stations in Thailand, Office of National Research Council

4.2 List of Hydrological Observation Stations

Station	Location	Catchment area [km ²]	Duration	Mean discharge [m ³ /s]	Data items
01160302 Ban Thaloï A. Sanamchaikhet, Chachoengsao	N 13° 28' 29" E 101° 37' 44"	951	1969 - 1995	9.02	Q, H1, WQ
01160401 A. Phanatnikhom, Chonburi	N 13° 23' 17" E 101° 20' 40"	535	1965 - 1995	3.49	Q, H1, WQ
01160205 A. Mueang, Prachinburi	N 14° 17' 23" E 101° 24' 16"	128	1986 - 1995	7.70	Q, H1, WQ
01160204 A. Banna, Nakhonnayok	N 14° 17' 07" E 101° 04' 26"	203	1977 - 1995	4.59	Q, H5d
01160202 A. Mueang, Nakhonnayok	N 14° 14' 45" E 101° 12' 38"	519	1973 - 1995	22.40	Q, H5d

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
01160302	9.02	500	190	0.02	0.95	52.6	1969-1995
01160401	3.49	358	66.2	0.10	0.65	66.9	1965-1995
01160205	7.70	429	286	0.00	6.02	335	1986-1995
01160204	4.59	115	79.1	0.03	2.26	56.7	1977-1995
01160202	22.40	535	342	0.11	4.32	103.08	1973-1995

1) Q: Discharge

H1: Water level (daily)

H5d: Water level (5-day)

WQ: Water qualities

2) Mean annual discharge

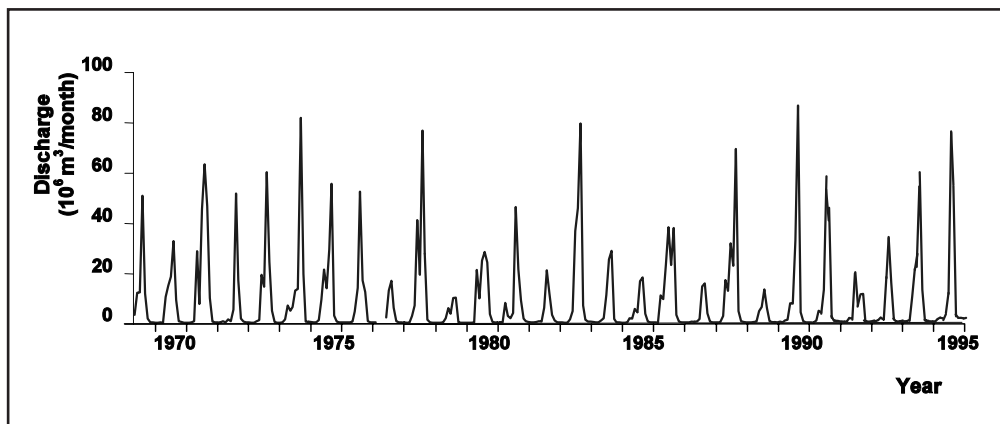
3) Maximum discharge.

4) Mean maximum discharge

5) Mean minimum discharge

4.3 Long-term Variation of Monthly Discharge

Station: A. Sanamchaikhet, Chachoengsao (01160302)



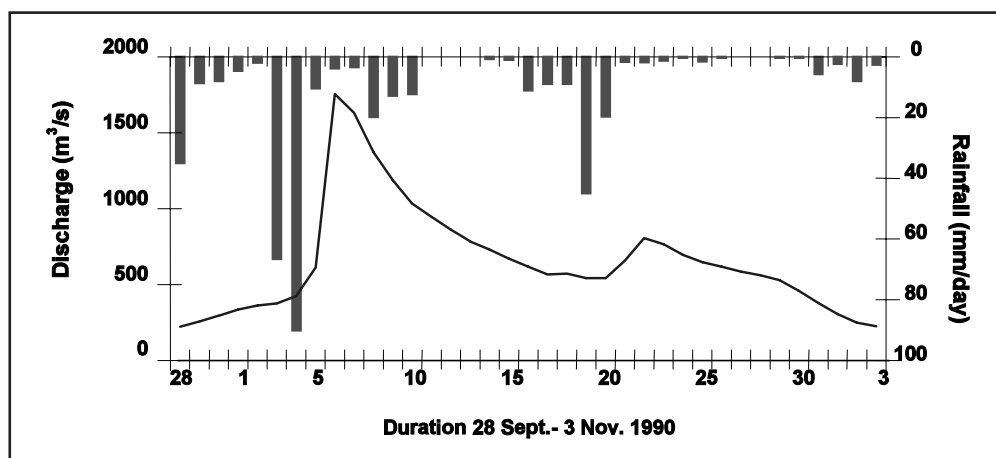
4.6 Annual Maximum and Minimum Discharge

Station: A. Sanamchaikhet, Chachoengsao: (01160302) (951 km²)

Year	Maximum		Minimum		Year	Maximum		Minimum	
	Date	m ³ /s	Date	m ³ /s		Date	m ³ /s	Date	m ³ /s
1969	9.22	268	3.21	0.00	1982	9.11	55	3.31	0.02
1970	9.22	138	3.23	0.00	1983	10.20	383	4.24	0.00
1971	10.30	212	4.14	0.03	1984	10.10	118	3.17	0.01
1972	9.25	129	3.31	0.01	1985	10.24	73	3.31	0.00
1973	9.19	217	4.17	0.00	1986	10.07	184	4.09	0.00
1974	10.20	134	4.04	0.10	1987	10.06	79	4.20	0.01
1975	10.05	158	3.08	0.09	1988	10.19	214	4.11	0.00
1976	9.14	500	3.10	0.06	1989	9.13	54	5.07	0.15
1977	9.24	101	3.27	0.00	1990	10.05	475	4.23	0.00
1978	9.19	301	3.29	0.00	1991	9.26	220	3.31	0.00
1979	9.30	91	5.06	0.00	1992	11.02	121	5.10	0.00
1980	9.24	118	5.09	0.00	1993	8.24	103	3.09	0.03
1981	9.23	171	4.11	0.03	1994	9.03	223	3.06	0.05
					1995	10.11	243	4.01	0.12

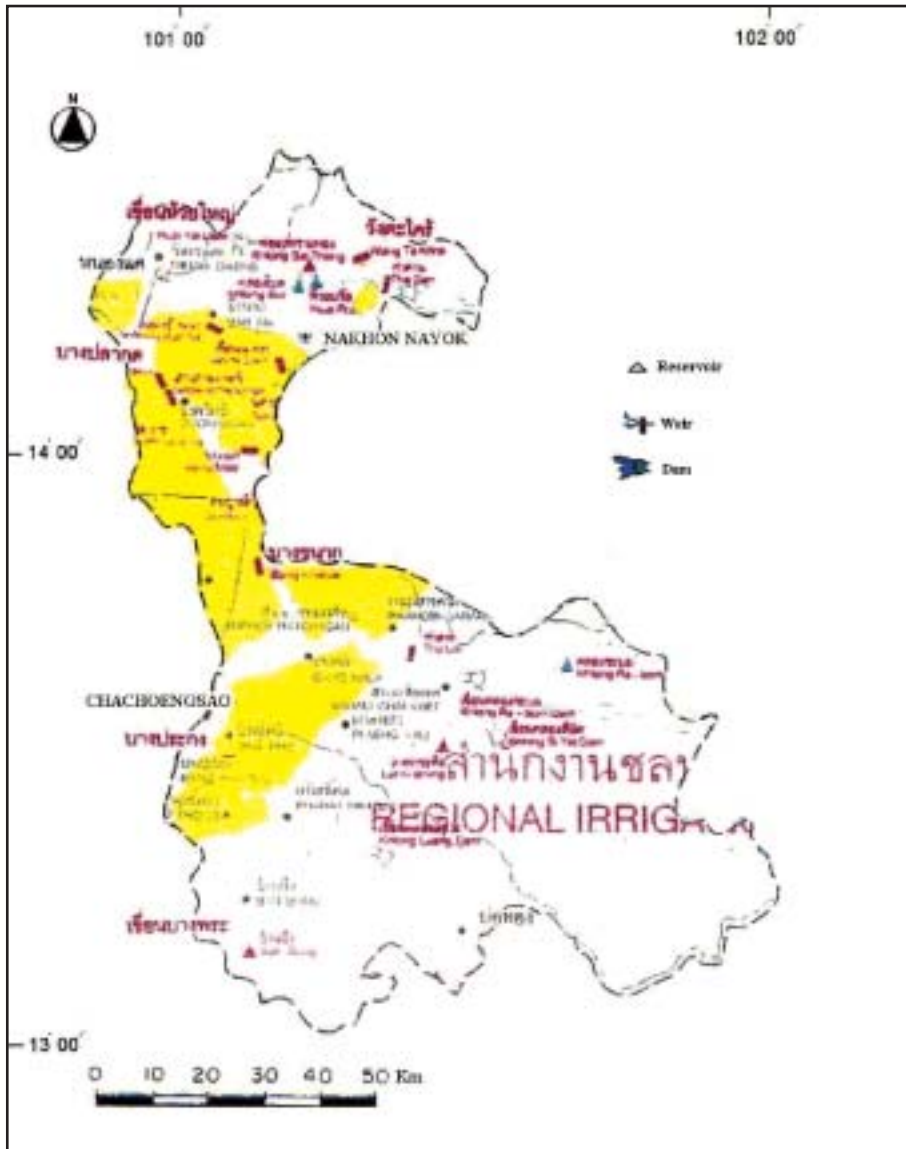
4.7 Hyetograph and Hydrograph of Major Flood

Station: A. Sanamchaikhet, Chachoengsao (01160302)



5. Water Resources

5.1 Map of Water Resources System



Source: Map of Irrigation Projects in Thailand 1989, Planning and Budget Div., Royal Irrigation Department

5.2 List of Major Reservoirs

River	Name	Catchment area [km ²]	Gross capacity [10 ⁶ m ³]	Effective capacity [10 ⁶ m ³]	Purposes	Year completed
Khlong Rabom (Khlong Tharat tributary)	Khlong Rabom Dam	798	272	252	A, W	1990
Khlong Luang	Khlong Luang	528	135	119	A, W	1995
Khlong Siyat	Khlong Siyat Dam	951	325	300	A, W	1995

A: Agriculture W: Water supply

5.4 Major Floods

Station code	Catchment area [km ²]	Peak discharge		Date	Duration
		m ³ /s	m ³ /s/km ²		
01160302	951	500	0.526	14/9/76	1969 - 1995
01160401	535	303	0.566	10/5/90	1965 - 1995
01160205	128	429	3.352	10/5/90	1986 - 1995
01160204	203	115	0.567	10/5/90	1977 - 1995
01160202	519	535	1.031	13/8/91	1973 - 1995

5.5 Water Quality

Location	Year	pH	DO [ppm]	BOD [mg/l]	Coliform [MPN/100ml.]
Nakhonnayok River (Khlong Hokwa)	1991	7.1	7.28	1.12	-
	1992	7.1	5.68	0.16	-
Bangpakong River (Wat Sothon)	1991	7.0	3.60	0.88	-
	1992	7.5	5.28	1.44	-
Bangpakong River (Bangpakong Bridge)	1991	7.1	3.44	0.80	-
	1992	7.8	5.20	1.60	-
Khlong Rabom	1991	8.3	4.80	0.64	-
	1992	7.8	5.28	0.72	-

Source: Dept. of Water Resources Engineering, Kasetsart University, 1994, Study of Potential Development of Water Resources in the Bangpakong River Basin, report submitted to NESDB

6. Socio-cultural Characteristics

The Mae Nam Bang Pakong River originates from the mountain ranges in the eastern sub-region covering the provinces of Chachoengsao, Nakhonnayok, Chonburi, Prachinburi and Saraburi. The population of this sub-region is similar to that of the Central Plain in terms of culture, language, religion and beliefs. The people living on the low lying river plain are mainly involved in agriculture. Water related festivals are the Songkran and the Loy Kratong. There are also other provincial festivals, for example the Buffalo Race and Rice Piling contests in Chonburi. In general, people in this region are diligent, but conservative, and prefer a peaceful life. The beautiful natural resources, like waterfalls and the long coastline, attract tourists all the year round. In addition there exist deep water sea ports catering for international cargo ships. These favorable economic basin conditions make the people of the area well off with relatively high annual incomes.

7. References

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