

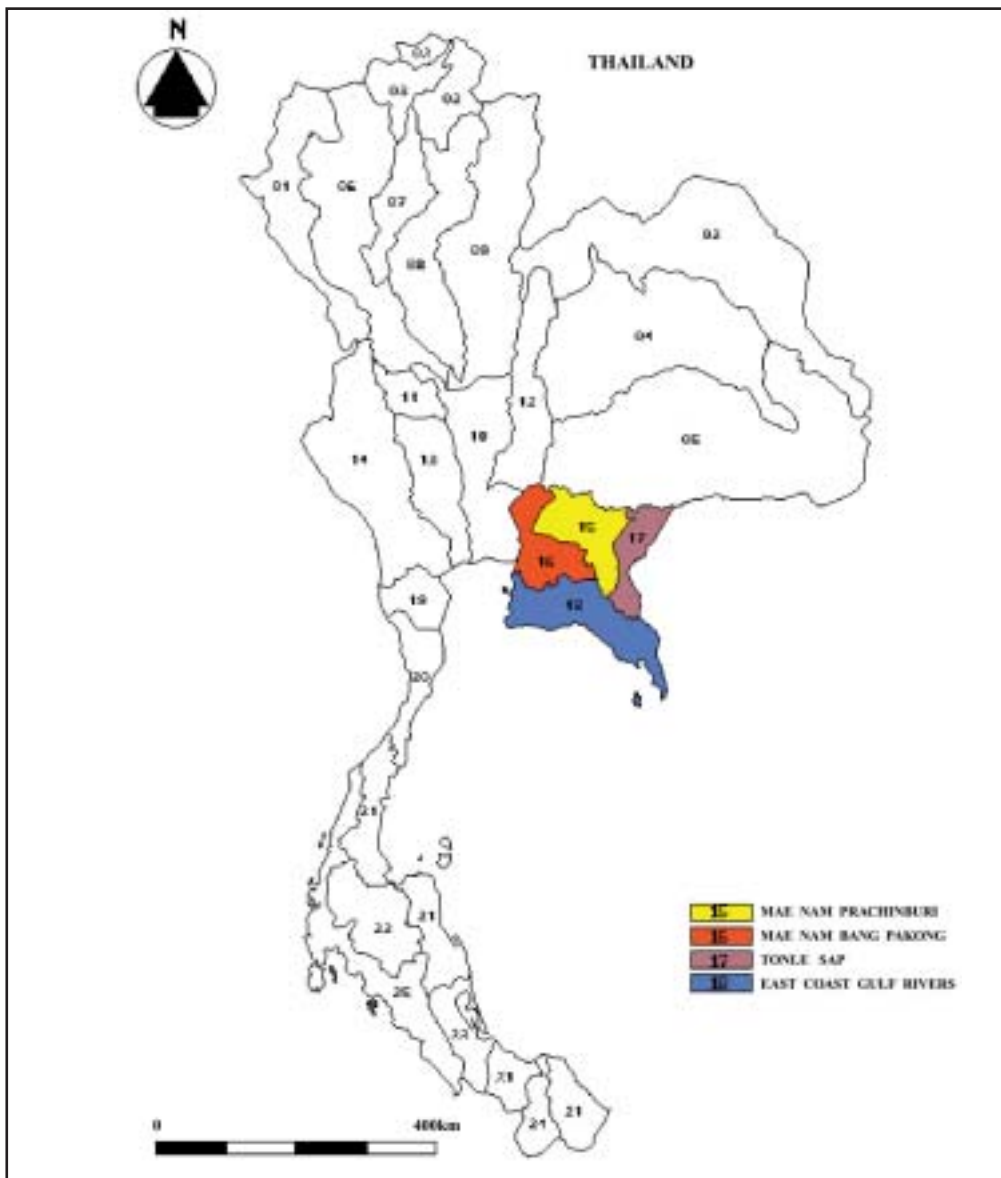
Thailand

Thailand 6: Mae Nam Prachinburi

Thailand 7: Mae Nam Bang Pakong

Thailand 8: Tonle Sap

Thailand 9: East Coast Gulf Rivers



Introduction

Thailand is situated in the tropical monsoon zone of Southeast Asia and covers an area of 513,115 km² from latitudes 5° 30' to 21° 00' N and longitudes 97° 00' to 105° 30' E. The country is bordered on the west and northwest by Myanmar, on the northeast and east by the People's Democratic Republic of Lao, on the southeast by Cambodia and the Gulf of Thailand, and on the south by Malaysia. Thailand has maximum dimensions of about 2,500 km north to south and 1,250 km east to west, with a coastline of approximately 1,840 km along the Gulf of Thailand, and 865 km along the Indian Ocean. The topographic features of Thailand comprise of three main types of landform: highlands, plains and plateaus. The highlands include several mountain ranges covered with forest extending from north to south along the entire western length of the country. The coastal area east of the Gulf of Thailand is another part of the highlands. The central part of the country is an extensive alluvial plain, while the northeast region is an undulating plateau. Thailand is a warm and semi-humid tropical country. The climate is monsoonal, marked by a pronounced rainy season lasting from about May to September and a relatively dry season for the remainder of the year. The monsoon season rainfall is around 90 percent of the annual rainfall. The mean annual precipitation is 1,400 mm varying from 1,100 mm in the northeast plateau to over 1,800 mm in the southern peninsula. The population in 2000 was approximately 61 million.

The four river basins catalogued in this volume are: the Mae Nam Prachinburi, the Mae Nam Bang Pakong, the Tonle Sap and the East Coast Gulf Rivers. All are located in the eastern sub-region of Thailand.

Acknowledgements

Translated from the "Assessment of the Information System for the Catalogue of Rivers in Thailand to the Standard of the IHP-IV", Ms. R. Krisnamara et al. Report submitted to the Office of the National Research Council, 1998. 5 volumes by Associate Professor Dr. Suravuth Pratishtananda under the auspices of The Hydrological Information Subcommittee, Thai National Committee for IHP.

Mae Nam Prachinburi

Map of River

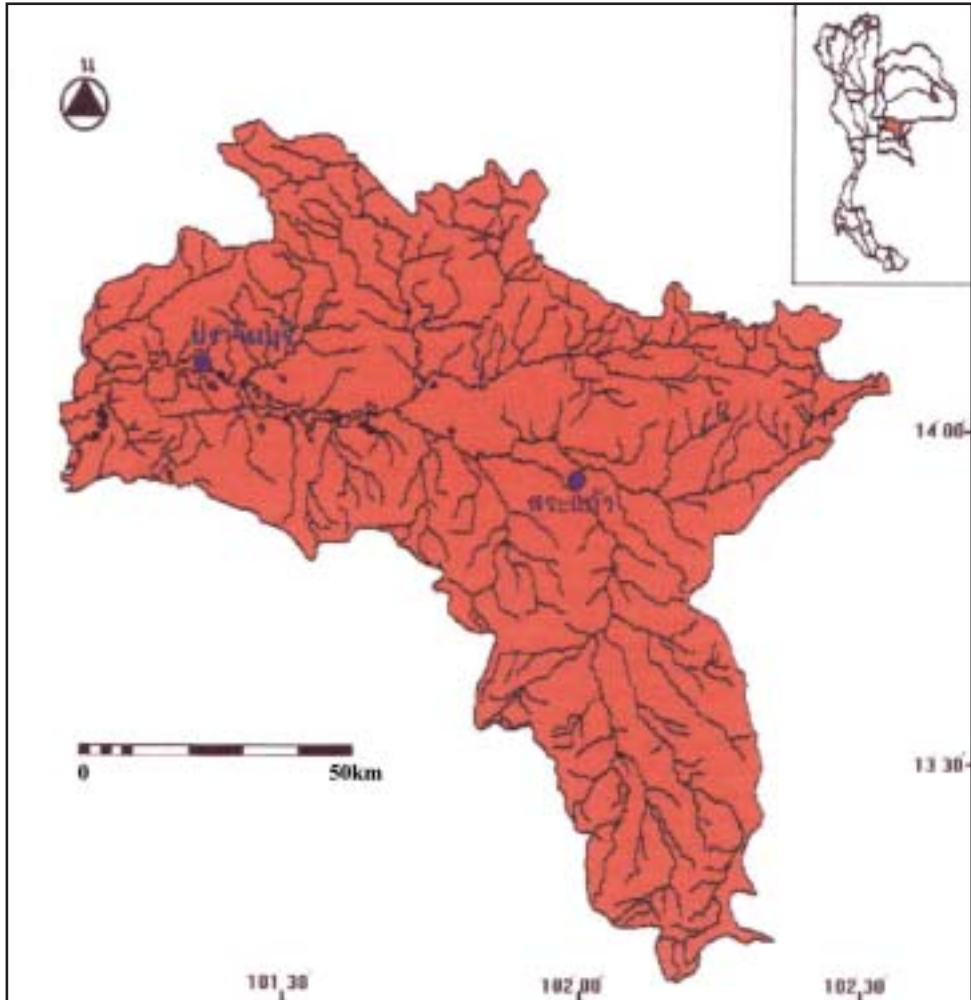


Table of Basic Data

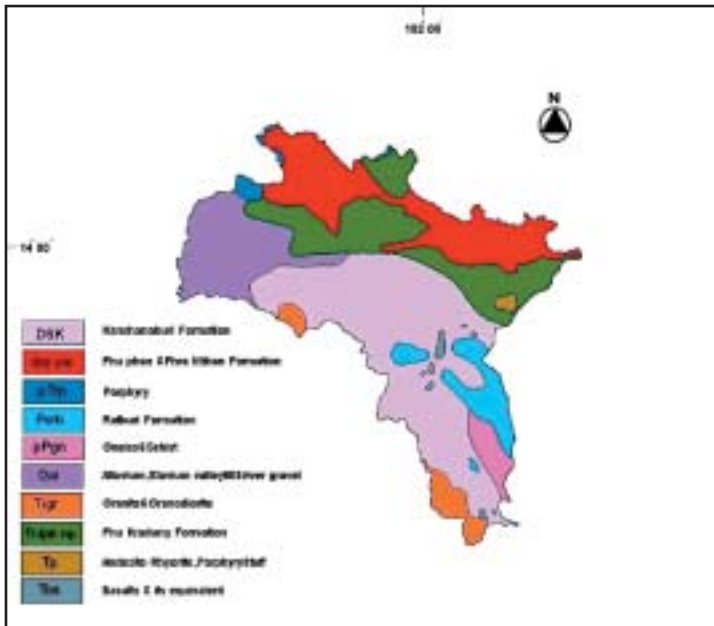
Name: Mae Nam Prachinburi		Serial No.: Thailand-6
Location: Eastern region	N 13° 02' - 14° 28'	E 101° 10' - 102° 33'
Area: 10,006 km ²	Length: 325 km (total length)	
Origin: Mt. Phanom Donglek	Highest point: 1,369 m (Mt. North Soidao)	
Outlet: Mae Nam Bang Pakong	Lowest point: 1 m	
Main geological formations: Kanchanaburii Formation, Phu Phan and Phra Wihan Formation, Porphyry, Ratburi Formation, Gneiss and Schist, Alluvium and Eluvium, Granite and Granodiorite, Phu Kradung Formation, Andesite-Rhyolite, Porphyry and Tuff, Basalts and its equivalents		
Major tributaries: Khlong Phrasathung (2,648 km ²), Phraprong (1,692 km ²), Hanuman (20,142 km ²), Lower Prachinburi (3,521 km ²)		
Major reservoirs: Phrasathung Dam (61.4x10 ⁶ m ³ , 1998), Sainoi Dam (322x10 ⁶ m ³ , 1998), Huai Samong Dam (275.5x10 ⁶ m ³ , 1998)		
Mean annual precipitation: 1,619.0 mm (1952-1995) at station 01150502 (A. Kabinburi, Prachinburi)		
Mean annual runoff: 1,210 mm (1944-1995) at station 01150502 (A.Kabinburi, Prachinburi)		
Population: 584,552 (1998)	Major cities: Prachinburi, Sakaeo	
Land uses: Forest 26.1%, Rice paddy 36.7%, Upland crops 37.1%, Urban 0.1% (1998)		

1. General Description

The headwaters of the Mae Nam Prachinburi lie in the mountain ranges of the northern part of Prachinburi province in the eastern sub-region of Thailand. The drainage direction is from east to west. The River is formed by the confluence of the Hanuman and Phraprong Rivers before flowing westward to merge with the Nakhonnayok River at A. Bang Nampriao, near Chachoengsao, to form the Mae Nam Bang Pakong River. The middle and lower parts of the basin are plateau and plain areas with the flat land being used for agriculture.

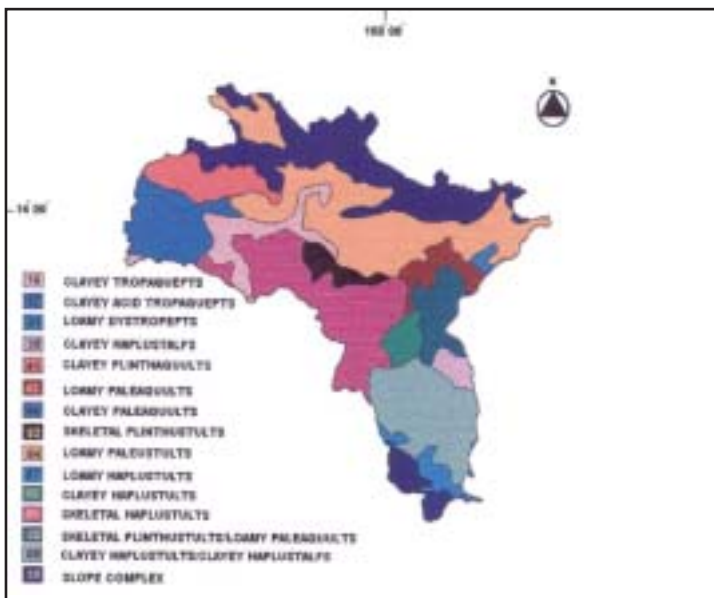
2 Geographical Information

2.1 Geological Map



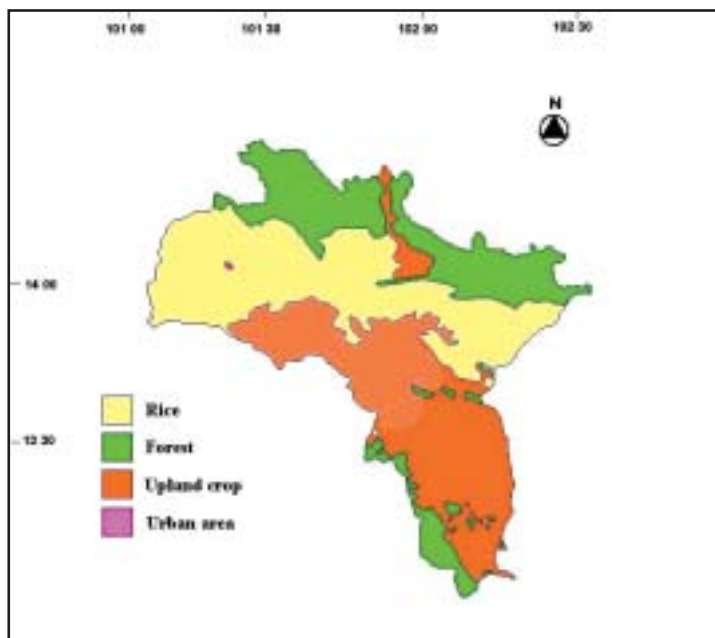
Source: Geological Map of Thailand, Jumchet C. and Javanaphet, 1969, Department of Mineral Resources

Soil Map



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

2.2 Land Use Map

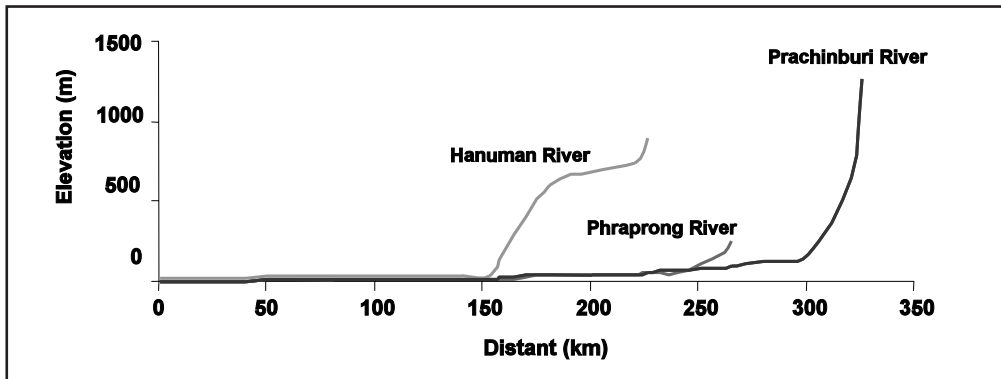


Source: Eastern Sub-region Land Use Map, 1998, Land Use Planning Div., Department of Land Development

2.3 Characteristics of River and Major Tributaries

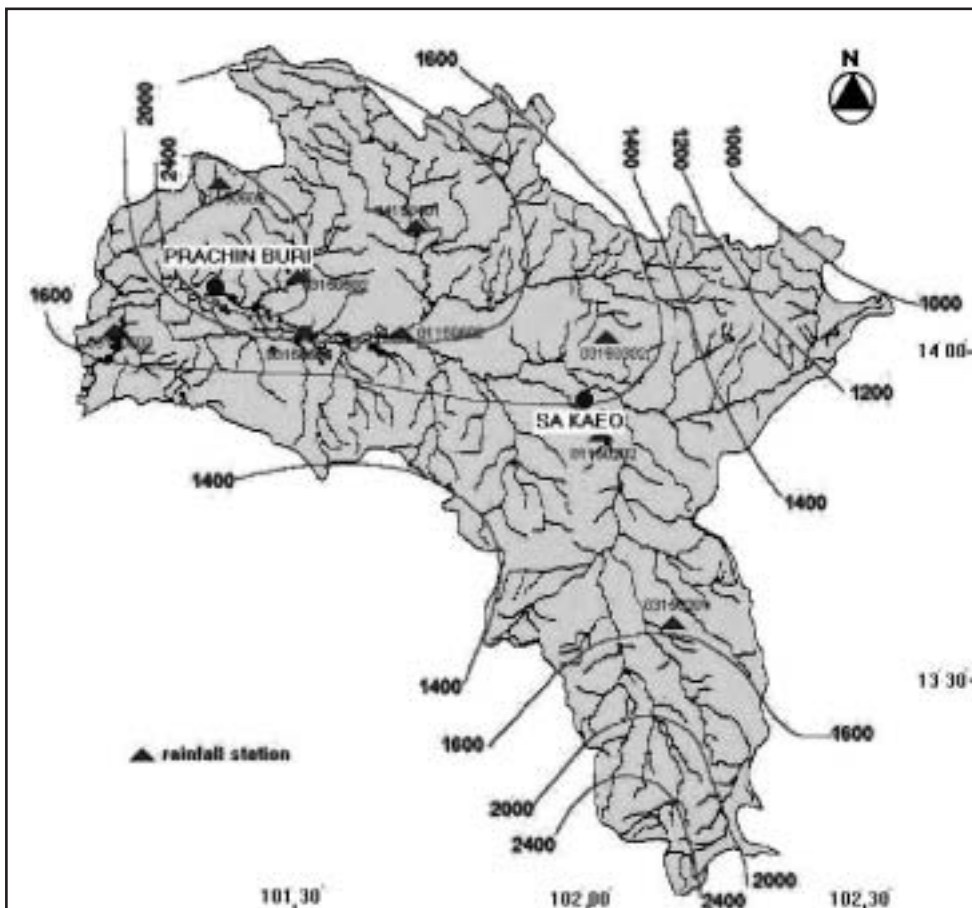
No.	Name of river	Length [km] Catchment area [km ²]	Highest peak Elevation [m]	Cities
1	Khlong Phrasathung	172 2,648	North Soidao Mt. 1,369	A.Wangnamyen, Sakeao A.Pongnamron, Chanthaburi
2	Phraprong River	112 1,691	Yai Mt. 816	A.Watthanakhon, Sakeao
3	Hanuman River	111 2,145	Leam Mt. 1,326	A. Nadi Prachinburi
4	Prachinburi (lower)	155 3,521	Plailamkhraduk Mt. 1,000	Kabinburi Prachinburi
5	Prachinburi (main river)	325 10,006	North Soidao Mt. 1,369	Chanthaburi Prachinburi, Sakeao

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	Data
01150202	A.Mueang Sakeao	standard	N13° 48' 29" E 102° 03' 35"	1952 - 1996	1,633.6	Precipitation
03150401	A.Nadi Prachinburi	standard	N14° 06' 55" E 101° 46' 56"	1965 - 1996	2,076.3	Precipitation
01150402	A.Nadi Prachinburi	standard	N14° 09' 30" E 10° 52' 52"	1967 - 1996	1,969.0	Precipitation
01150502	A. Kabinburi Prachinburi	standard	N13° 59' 05" E 101° 42' 32"	1952 - 1996	1,601.5	Precipitation
03150501	A.Mueang Prachinburi	standard	N13° 49' 10" E 102° 04' 35"	1952 - 1996	1,946.0	Precipitation
03150502	Prachantakham Prachinburi	standard	N14° 03' 45" E 101° 31' 05"	1952 - 1996	1,741.2	Precipitation
03150503	Bansang Prachinburi	standard	N13° 59' 35" E 101° 13' 25"	1951 - 1996	1,571.0	Precipitation
03150504	A. Simahaphot Prachinburi	standard	N13° 58' 09" E 101° 31' 13"	1951 - 1996	1,562.0	Precipitation
03150505	A. Simahosot Prachinburi	standard	N13° 53' 18" E 101° 24' 23"	1983 - 1996	1,327.0	Precipitation

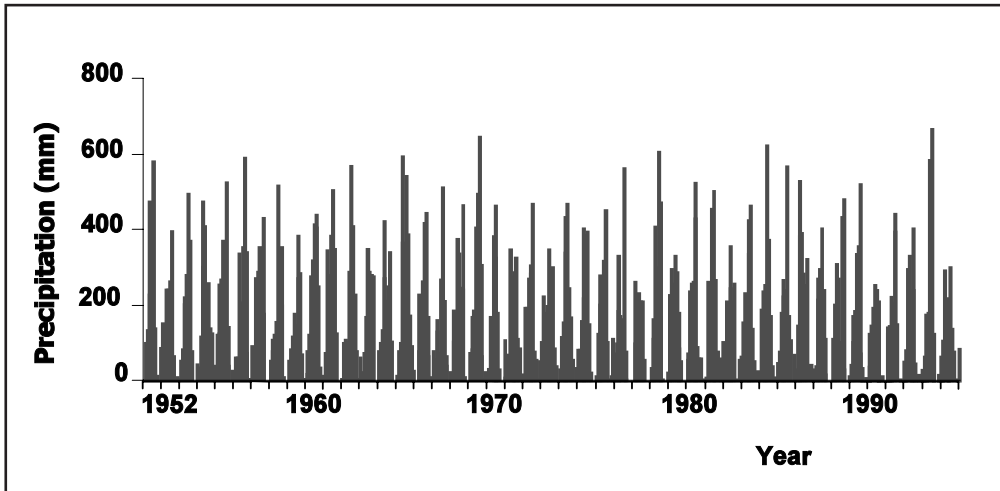
3.3 Monthly Climate Data

Station: A. Mueang, Prachinburi (03150501)

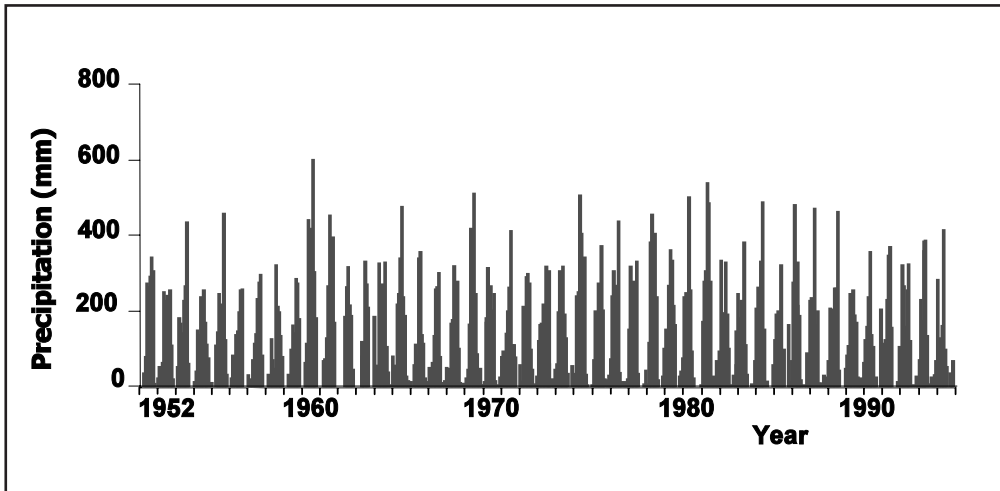
Observation item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean	Annual	Period
Temperature [°C]	26.7	28.3	29.7	30.1	29.3	28.8	28.4	28.1	28.1	28.0	27.2	26.1	28.2	-	1966 - 1997
Precipitation [mm]	8.8	19.4	53.7	120.7	216.7	253.7	284.0	386.1	364.8	162.9	33.8	8.5	159.4	1,913.0	1966 - 1997
Evaporation [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, Prachinburi (03150501) (1952 - 1996)

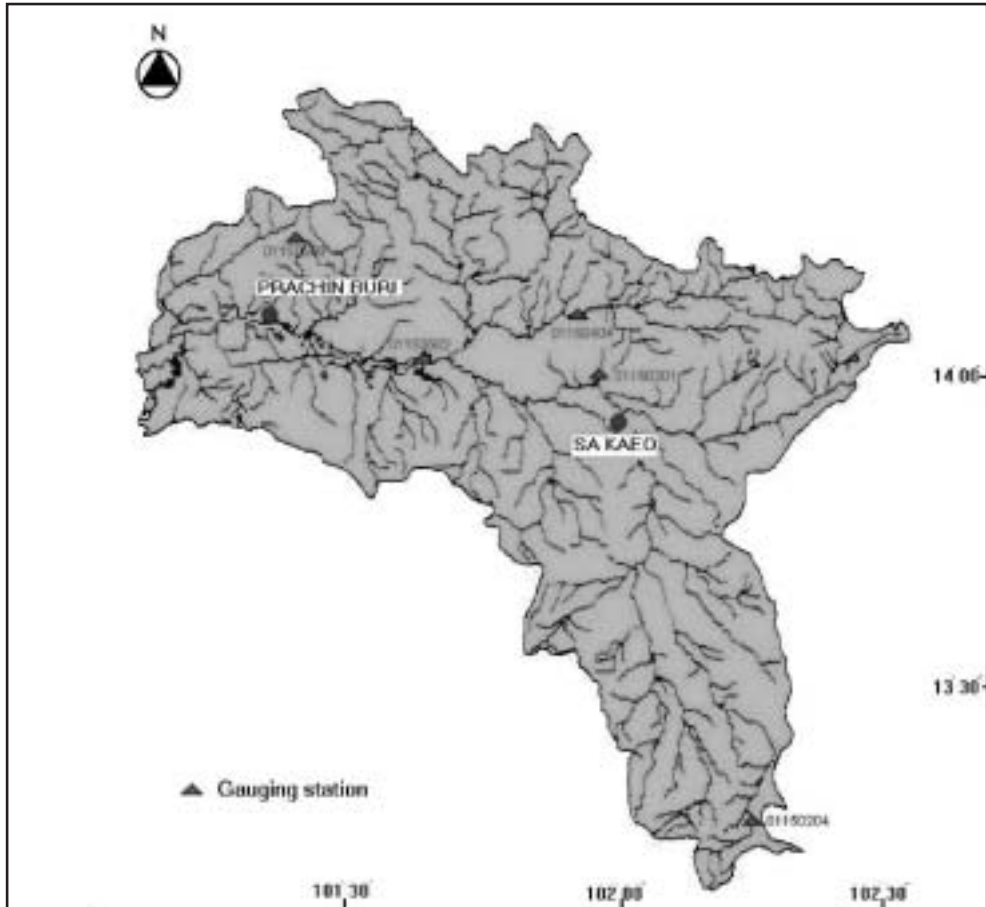


Station: A. Kabinburi, Prachinburi (0115502) (1952 - 1996)



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

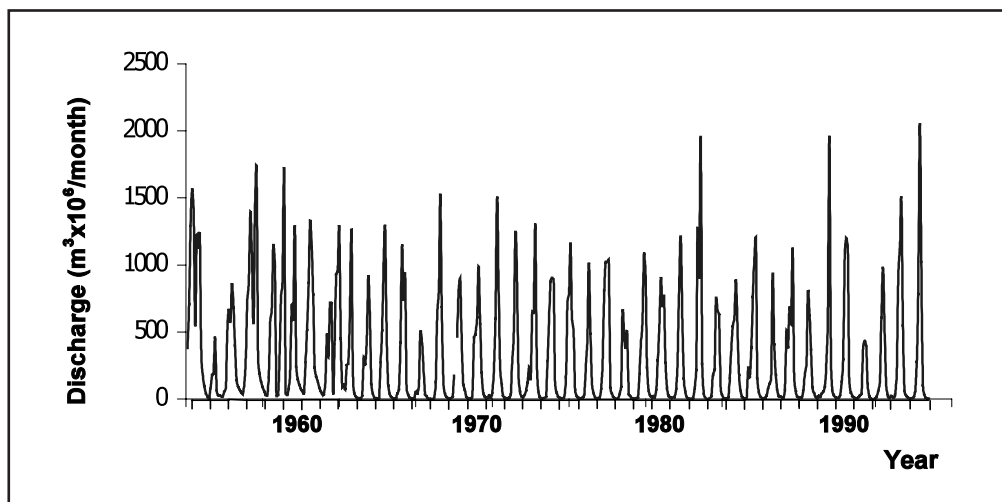
Station	Location	Catchment area [km ²]	Observation period	Q [cms]	Observation items
01150202 A. Mueang, Sakaeo	N 13° 48' 29" E 101° 03' 05"	2,523	1966 - 1995	25.4	Q, H1, WQ
01150301 A. Mueang, Sakaeo	N 13° 56' 02" E 101° 58' 41"	1,540	1966 - 1995	18.7	Q, H1, WQ
01150404 A. Kabinburi, Prachinburi	N 14° 08' 46" E 101° 55' 39"	590	1968 - 1995	11.2	Q, H1
01150502 A. Kabinburi, Prachinburi	N 13° 59' 05" E 101° 42' 32"	7,502	1941 - 1995	121.0	Q, H5d, WQ
01150509 A. Pakphli Nakhonnayok	N 14° 12' 02" E 101° 22' 05"	45	1983 - 1995	1.56	Q, H1, WQ

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
01150202	25.4	1,420	353	0.25	1.01	56.3	1966 - 1995
01150301	18.7	487	167	0.04	1.21	31.6	1966 - 1995
01150404	11.2	558	204	0.12	1.90	94.6	1968 - 1995
01150502	121.0	2,220	753	2.46	1.61	29.6	1941 - 1995
01150509	1.56	126	68.8	0.01	3.47	280.0	1983 - 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. Kabinburi, Prachinburi (01150502) (7,502 km².)



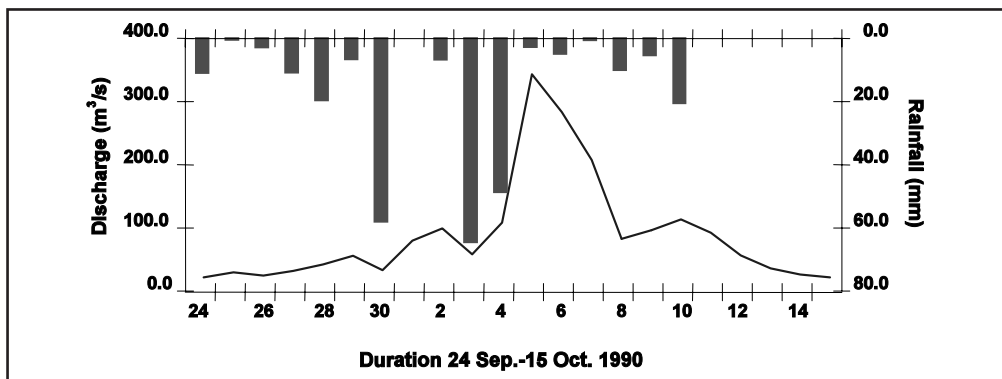
4.6 Annual Maximum and Minimum Discharges

Station: A. Kabinburi, Prachinburi (01150502) (7,502 km²)

Year	Maximum		Minimum		Year	Maximum		Minimum	
	Date	[m ³ /s]	Date	[m ³ /s]		Date	[m ³ /s]	Date	[m ³ /s]
1941	8.27	632	5.05	3.50	1969	9.23	1,111	4.27	0.12
1942	8.31	1,042	4.17	6.20	1970	8.29	577	4.01	1.50
1943	9.21	890	3.31	8.20	1971	9.05	552	4.09	0.50
1944	8.18	894	4.27	6.95	1972	9.21	993	3.21	1.40
1945	9.27	826	3.31	6.35	1973	9.30	855	4.20	0.80
1946	10.06	945	4.25	6.50	1974	10.16	952	3.15	0.70
1947	7.27	827	4.01	8.00	1975	10.12	579	5.01	1.70
1949	10.13	744	4.01	0.00	1976	9.20	659	4.27	1.50
1950	9.18	878	4.28	0.00	1977	9.13	670	3.12	1.10
1951	9.10	853	4.02	0.00	1978	10.03	1,056	3.31	0.00
1952	10.29	927	4.15	0.00	1979	10.01	538	4.10	0.00
1953	10.02	883	4.30	0.00	1980	9.02	513	4.21	1.20
1954	-	-	-	-	1981	9.30	770	4.01	1.80
1955	6.30	808	4.01	0.86	1982	8.26	606	3.18	0.20
1956	9.27	811	3.28	0.00	1983	10.20	1,064	3.23	0.00
1957	10.14	940	4.05	0.00	1984	8.16	504	3.28	0.00
1958	9.27	710	4.31	0.00	1985	9.22	516	3.29	0.20
1959	10.17	845	4.26	0.00	1986	10.11	795	4.12	0.70
1960	10.07	885	5.24	0.85	1987	9.13	538	3.24	2.20
1961	8.22	768	4.28	1.08	1988	10.25	613	4.13	2.10
1962	9.20	586	4.27	0.00	1989	8.15	604	4.23	1.90
1963	10.08	824	4.25	0.00	1990	-	-	-	-
1964	10.05	856	5.01	0.00	1991	8.21	576	4.21	1.50
1965	9.24	592	5.07	0.45	1992	9.02	555	2.02	0.00
1966	9.20	720	4.01	0.70	1993	9.11	488	5.11	0.00
1967	10.04	725	4.15	0.20	1994	9.02	660	3.02	1.60
1968	8.17	400	4.15	0.08	1995	9.24	1,067	3.31	0.40

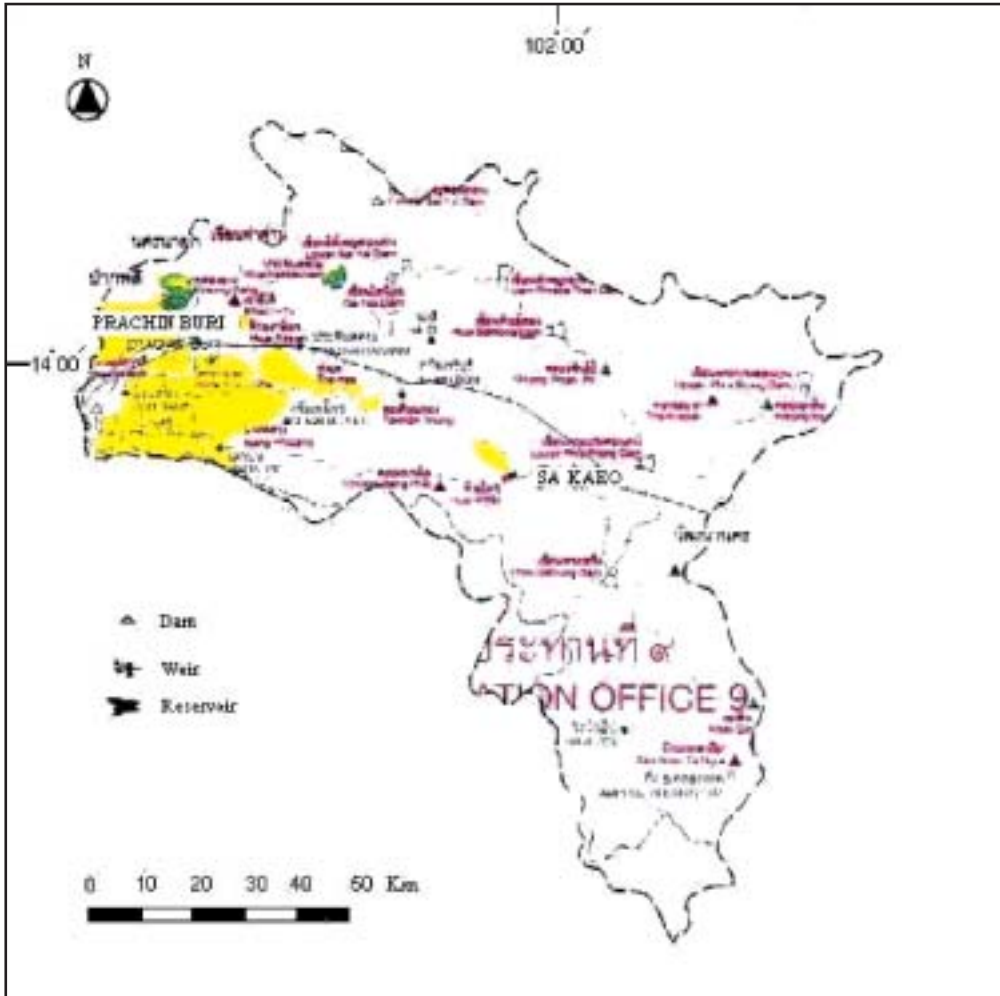
4.7 Hyetograph and Hydrograph of Major Flood

Station: 01150502 A. Kabinburi, Prachinburi (7,502 km²)



5. Water Resources

5.2 Map of Water Resources System



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

5.3 List of Major Water Resource Facilities

River	Dam	Catchment area [km ²]	Gross capacity [10 ⁶ m ³]	Effective capacity [10 ⁶ m ³]	Purposes	Year of completion
Khlong Phrasathung	Phrasathung Dam	574	65	61.4	A, F, I, P, W	1998
Khlong Sainoi	Sainoi Dam	459	326	322	A, F, I, P, W	1998
Huai Samong	Huai Samong Dam	443	295	275.5	A, F, I, P, W	1998
Lam Phrayathan	Lam Phrayathan Dam	68	30	25.95	A, F, I, P, W	1998

A: Agriculture F: Flood protection I: Industries P: Hydropower W: Water supply

5.4 Major Floods

Station code	Catchment area [km ²]	Maximum discharge		Date	Observation period
		m ³ /s	m ³ /s/km ²		
01150301	1,540	487	0.316	10/5/83	1966 - 1995
01150404	590	558	0.946	10/5/90	1968 - 1995
01150202	2,523	1,420	0.563	10/6/90	1966 - 1995
01150502	7,502	2,220	0.296	10/6/90	1941 - 1995
01150509	45	126	2,800	9/10/93	1983 - 1995

5.5 Water Quality

Sampling point	Major Indices				
	Year	pH	DO [ppm]	BOD [mg/l]	Coliform [MPN/100ml.]
1) Prachinburi River - A.Bansang, Prachinburi	1991	7.7 - 7.8	6.0 - 7.0	0.56 - 0.80	-
2) Prachinburi River - A.Mueang, Prachinburi	1997	-	5.4	0.6	60,500
3) Prachinburi River - A.Bansang - A.Mueang -A. Prachantakham -A.Simahaphot	1998	6.0 - 6.9 6.4 - 7.0 5.8 - 6.8 6.1 - 7.2	5.0 - 7.2 6.9 - 7.1 6.5 - 7.2 7.4 - 7.2	-	-
4) Kwai Khamong (Hanuman River tributary) A.Kabinburi, Prachinburi	1998	6.2 - 7.1	6.5 - 7.4	-	-
5) Phraprong River -A.Kabinburi, Prachinburi -A.Mueang, Sakaeo -A.Wattananakhon, Sakaeo	1998	6.5 - 7.2 6.7 - 6.8 6.8 - 7.1	6.5 - 7.1 7.5 - 7.8 7.6 - 8.2	- - -	- - -

Sources:

- 1) Pal Consultant Ltd. 1994 Study of Potential Development of Water Resources in the Prachinburi River Basin, submitted to NESDB
- 2) Brown Record, Thailand Pollution Status Report 1997, Department of Pollution Control
- 3)-5) Hydrological Data System Report, Land and Water Conservation Div., Dept. of Land Development

6. Socio-Cultural Characteristics

The Mae Nam Prachinburi originates from the mountain ranges of the eastern sub-region within the provinces of Sakaeo and Prachinburi. 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. In general, people in this region are diligent, but conservative, and prefer a peaceful life. The basin climate is suitable for agriculture and is a major source of agricultural produce for the Bangkok area. Hence the economic conditions in this river basin are better than average with high average annual incomes for the majority of households.

7. References

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