

Mae Nam Prachinburi

Map of River

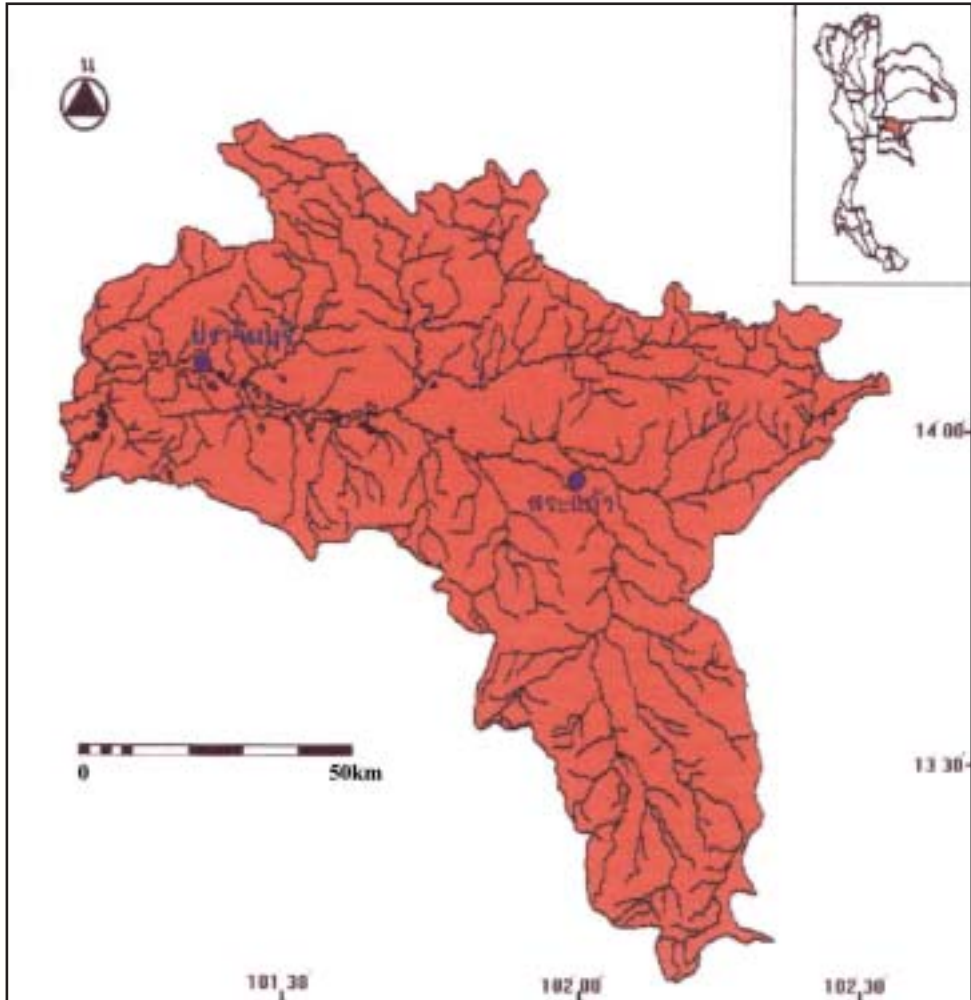


Table of Basic Data

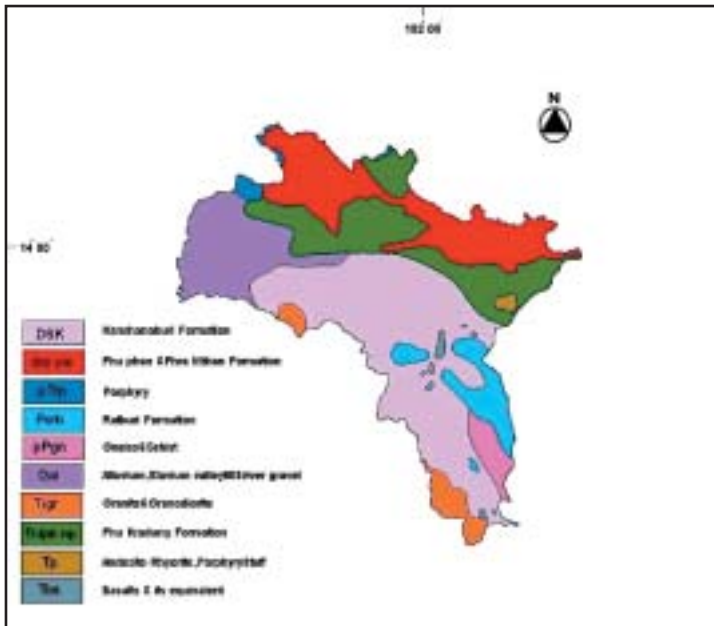
Name: Mae Nam Prachinburi		Serial No.: Thailand-6
Location: Eastern region	N 13° 02' - 14° 28'	E 101° 10' - 102° 33'
Area: 10,006 km ²	Length: 325 km (total length)	
Origin: Mt. Phanom Donglek	Highest point: 1,369 m (Mt. North Soidao)	
Outlet: Mae Nam Bang Pakong	Lowest point: 1 m	
Main geological formations: 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.

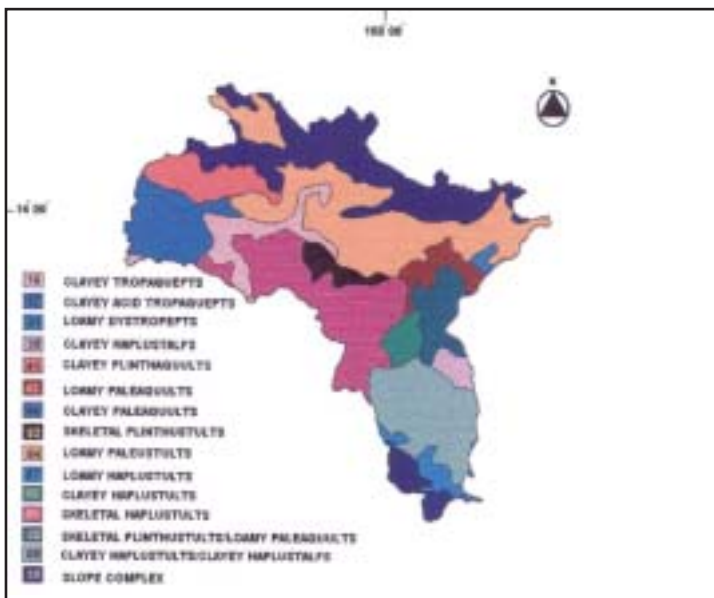
2 Geographical Information

2.1 Geological Map



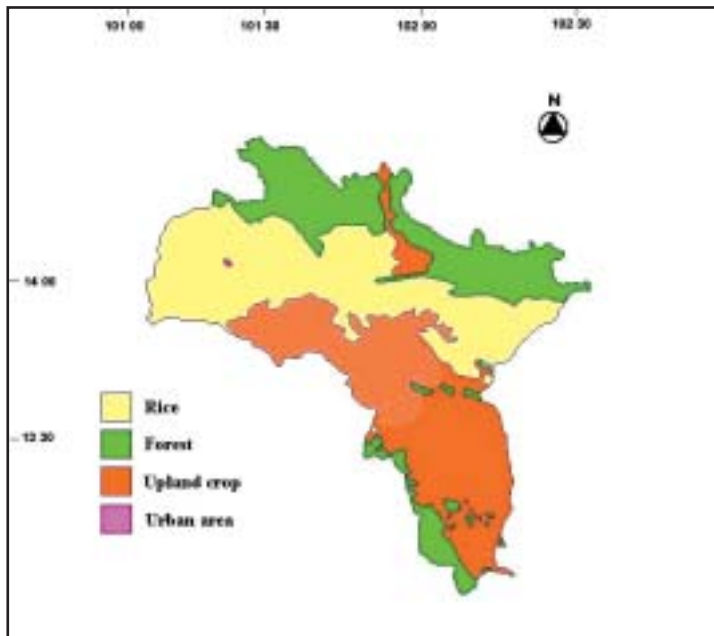
Source: Geological Map of Thailand, Jumchet C. and Javanaphet, 1969, Department of Mineral Resources

Soil Map



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

2.2 Land Use Map

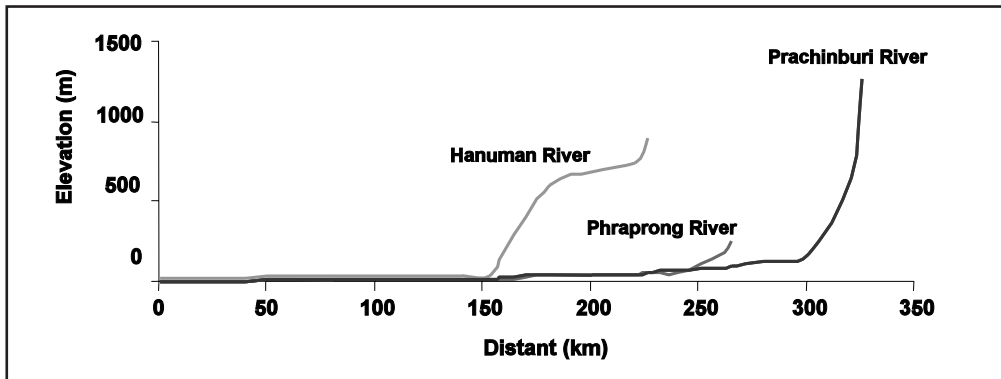


Source: Eastern Sub-region Land Use Map, 1998, Land Use Planning Div., Department of Land Development

2.3 Characteristics of River and Major Tributaries

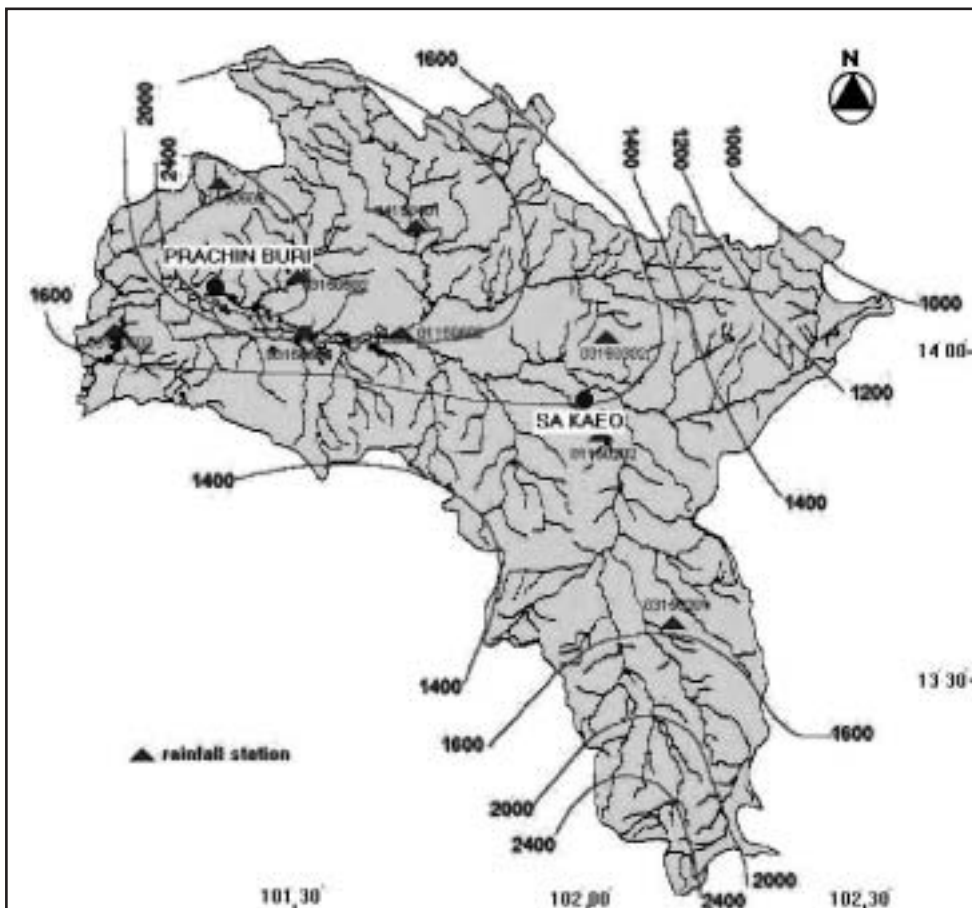
No.	Name of river	Length [km] Catchment area [km ²]	Highest peak Elevation [m]	Cities
1	Khlong Phrasathung	172 2,648	North Soidao Mt. 1,369	A.Wangnamyen, Sakeao A.Pongnamron, Chanthaburi
2	Phraprong River	112 1,691	Yai Mt. 816	A.Watthanakhon, Sakeao
3	Hanuman River	111 2,145	Leam Mt. 1,326	A. Nadi Prachinburi
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

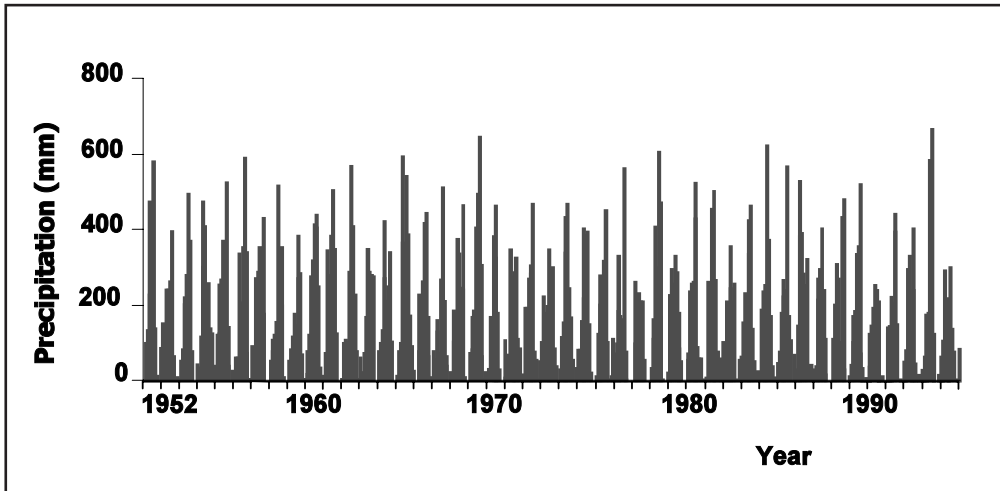
3.3 Monthly Climate Data

Station: A. Mueang, Prachinburi (03150501)

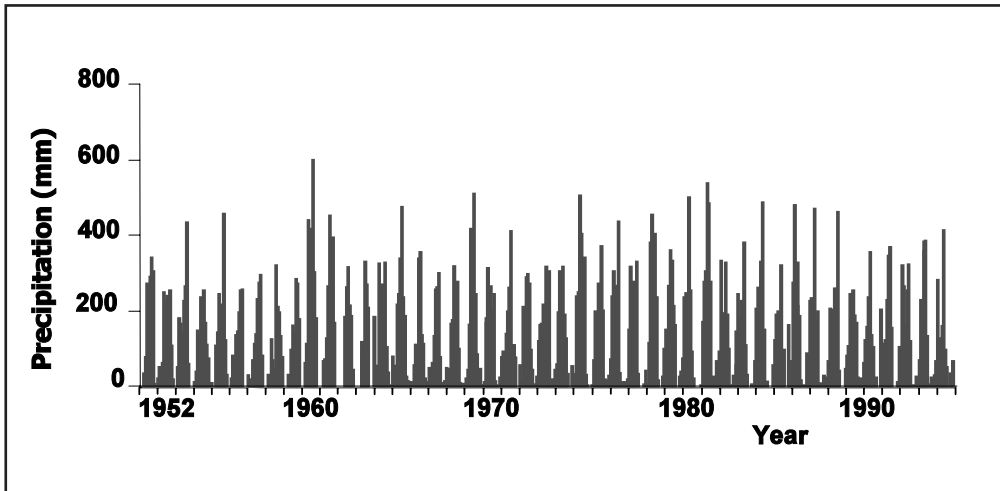
Observation item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean	Annual	Period
Temperature [°C]	26.7	28.3	29.7	30.1	29.3	28.8	28.4	28.1	28.1	28.0	27.2	26.1	28.2	-	1966 - 1997
Precipitation [mm]	8.8	19.4	53.7	120.7	216.7	253.7	284.0	386.1	364.8	162.9	33.8	8.5	159.4	1,913.0	1966 - 1997
Evaporation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

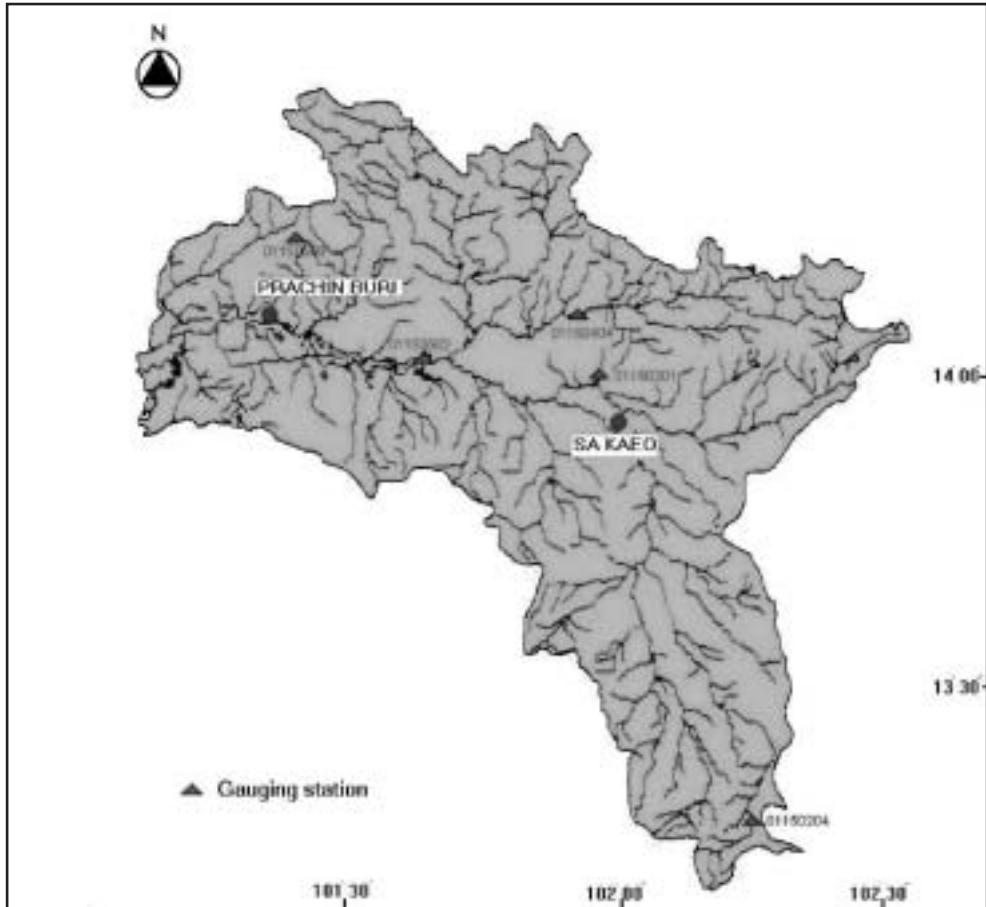


Station: A. Kabinburi, Prachinburi (0115502) (1952 - 1996)



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

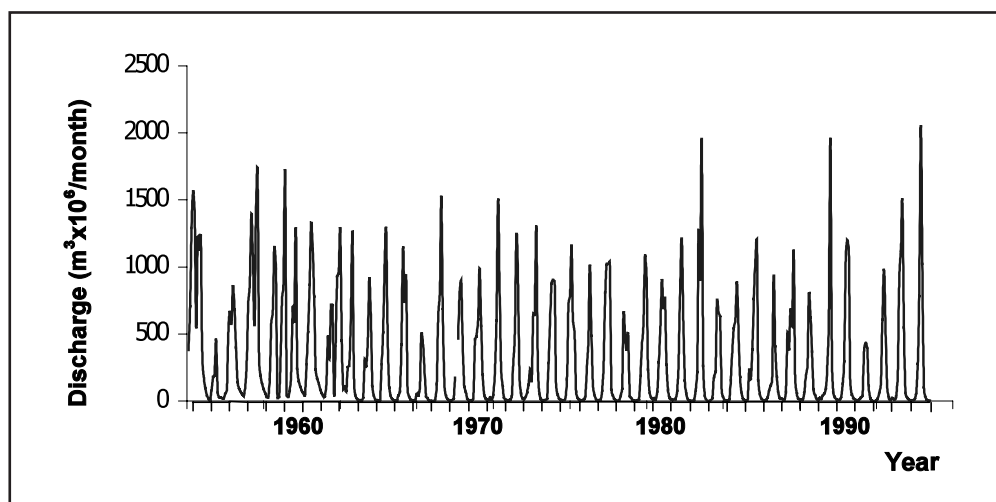
Station	Location	Catchment area [km ²]	Observation period	Q [cms]	Observation items
01150202 A. Mueang, Sakaeo	N 13° 48' 29" E 101° 03' 05"	2,523	1966 - 1995	25.4	Q, H1, WQ
01150301 A. Mueang, Sakaeo	N 13° 56' 02" E 101° 58' 41"	1,540	1966 - 1995	18.7	Q, H1, WQ
01150404 A. Kabinburi, Prachinburi	N 14° 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.)



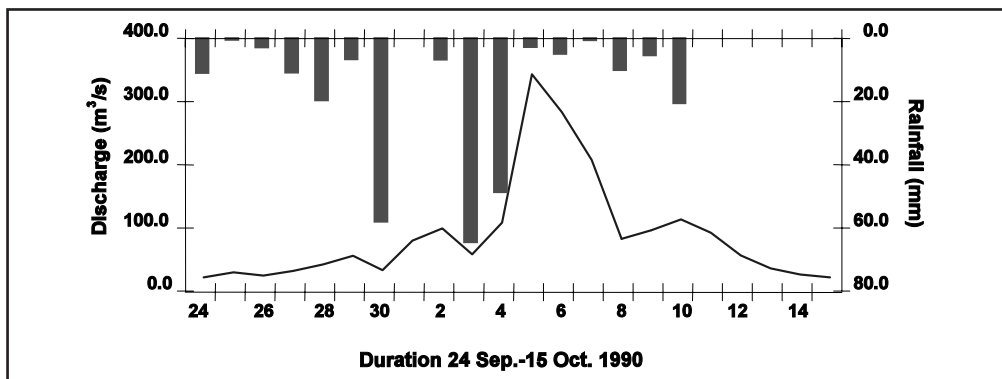
4.6 Annual Maximum and Minimum Discharges

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

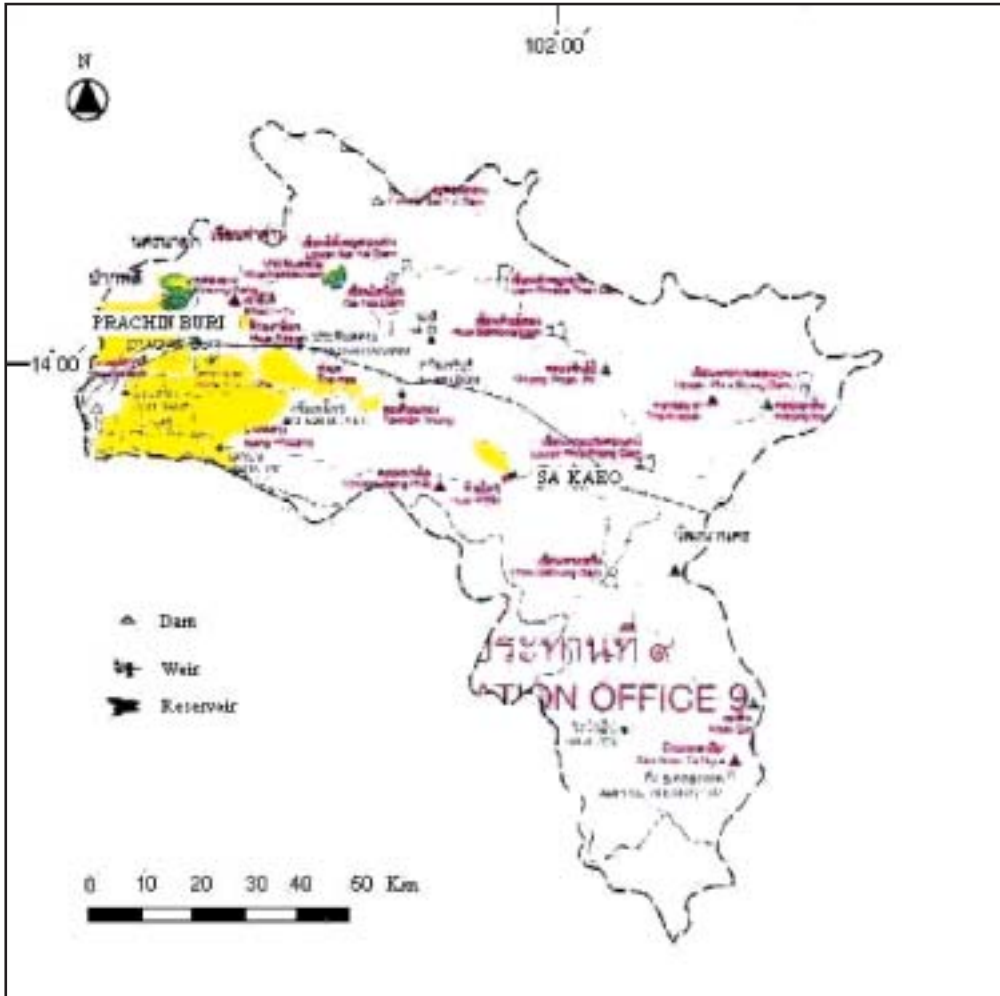
4.7 Hyetograph and Hydrograph of Major Flood

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

- Chantajitra, Y. et al. (1994): Location Map of Hydrological and Meteorological Stations in Thailand, submitted to Office of National Research Council.
- Brown Record, Thailand Pollution Status Report 1997, Department of Pollution Control, Ministry of Sciences, Technology and Environment.
- Dept. of Water Resources Engineering, Kasetsart University (1994): Study of the Potential Development of Water Resources in the Prachinburi River Basin, submitted to NESDB.
- Eastern Sub-region Land Use Map 1998, Land Use Planning Div., Department of Land Development
- Electricity Generating Authority of Thailand (1992): Surface runoff and specific yield of river basins in Thailand, Survey and Ecology Department (February, 1992), Meteorology and Hydrology Division.
- Isohyetal Map of Thailand 1966-1995, Hydrometeorology Div., Department of Meteorology
- Jumchet, C. and Javanaphet (1969): Geological Map of Thailand, Department of Mineral Resources.
- Map of Irrigation Projects in Thailand 1989, Planning and Budget Div., Royal Irrigation Department
- Meteorological Department, Climatological Data of Thailand. 1952-1997, Bangkok, Thailand.
- Pal Consultant Ltd. (1994): Study of Potential Development of Water Resources in the Prachinburi River Basin, submitted to NESDB.
- Soils the Kingdom of Thailand, Explanatory Text of the General Soil Map, Soil Survey Division, Department of Land Development, 1972.
- Thailand Hydrological Yearbook, 1978-1996, Hydrology Division, Royal Irrigation Department, Bangkok, Thailand.