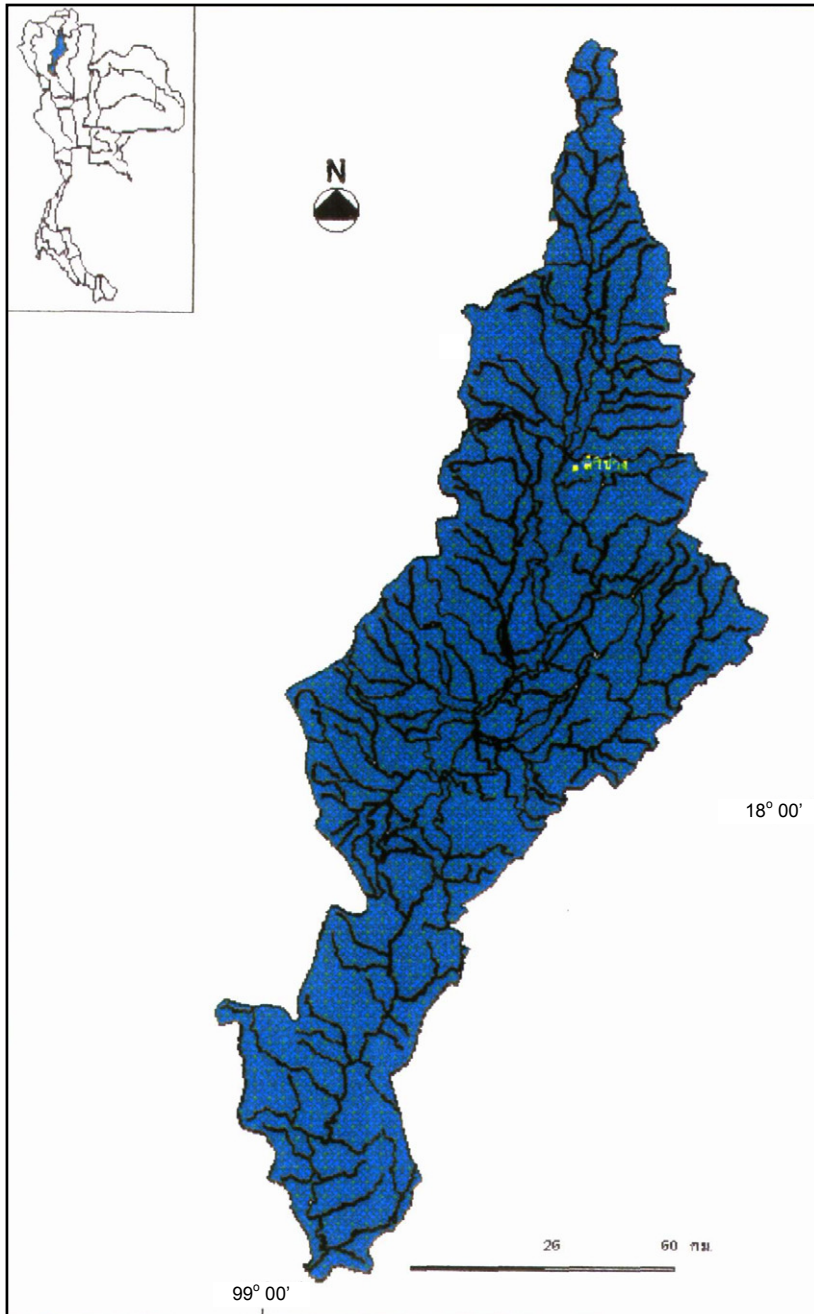


# Mae Nam Wang

## Map of River



## Table of Basic Data

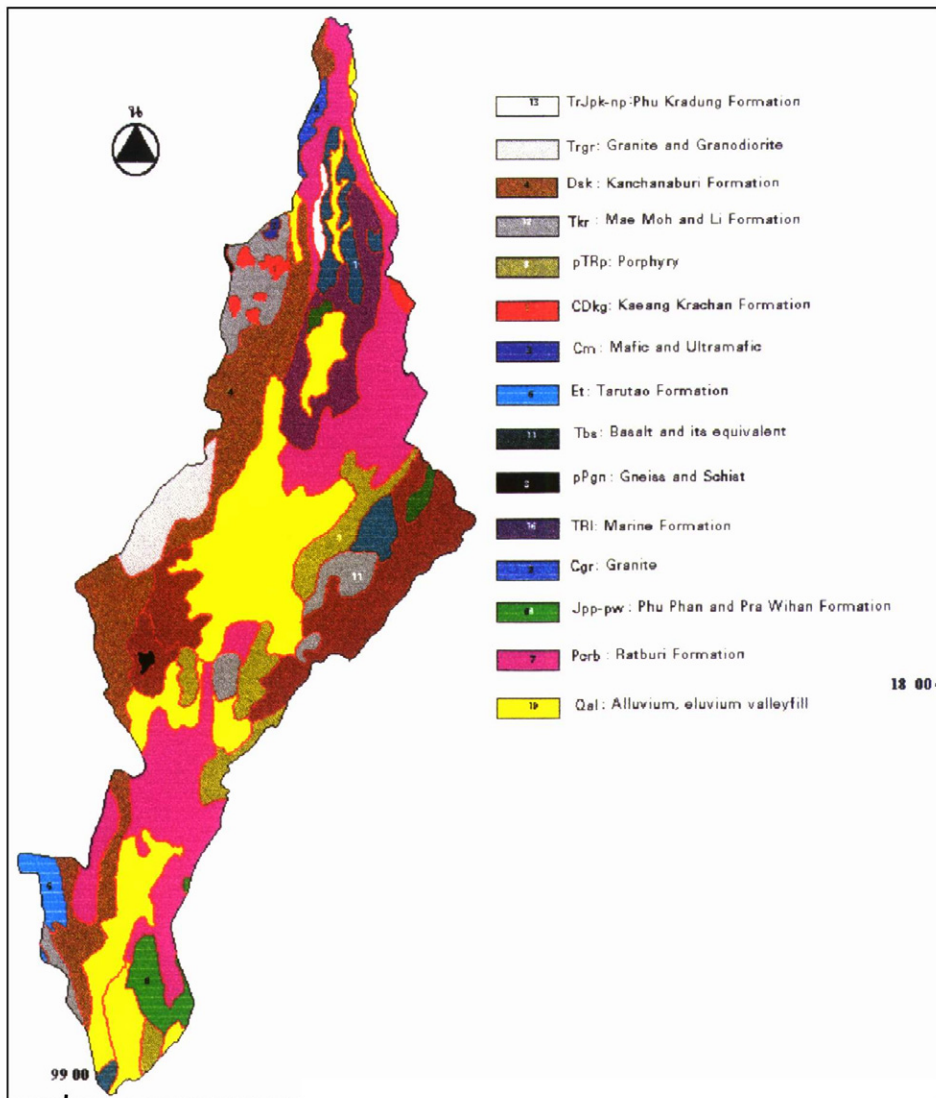
<b>Name:</b> Mae Nam Wang		<b>Serial No.:</b> Thailand-5
<b>Location:</b> Northern part of Thailand	N 17° 05' ~17° 30'	E 98° 54' ~ 99° 58'
<b>Area:</b> 10 791 km <sup>2</sup>	<b>Length of main stream:</b> 440 km	
<b>Origin:</b> Mt. Phi Pannam	<b>Highest point:</b> 2 079 m (Wang Nua District, Lum Pang Province)	
<b>Outlet:</b> Mae Ping River (Ban Tak District, Tak Province)	<b>Lowest point:</b> River mouth (130 m)	
<b>Main geological features:</b> Pre-cambrian to Paleozoic; Granite, Gneiss, Limestone		
<b>Main tributaries:</b> Nam Mae Tum River (738 km <sup>2</sup> ), Nam Mae Chang River (1 600 km <sup>2</sup> ), Nam Mae Tui River (801 km <sup>2</sup> ), Nam Mae Suaey River (743 km <sup>2</sup> )		
<b>Main lakes:</b> None		
<b>Main reservoir:</b> Kew Lom Dam (108 x 10 <sup>6</sup> m <sup>3</sup> , 1972)		
<b>Mean annual precipitation:</b> 1 068 mm (1951~1995)		
<b>Mean annual runoff:</b> 9.32 m <sup>3</sup> /s at Sam Ngao District, Tak Province		
<b>Population:</b> 878 079 (1995)	<b>Main cities:</b> Lum Pang Province, Tak Province	
<b>Land use:</b> Forest (61.4%), Agriculture & urban area (38.2%), Water resources (0.4%)		

### 1. General Description

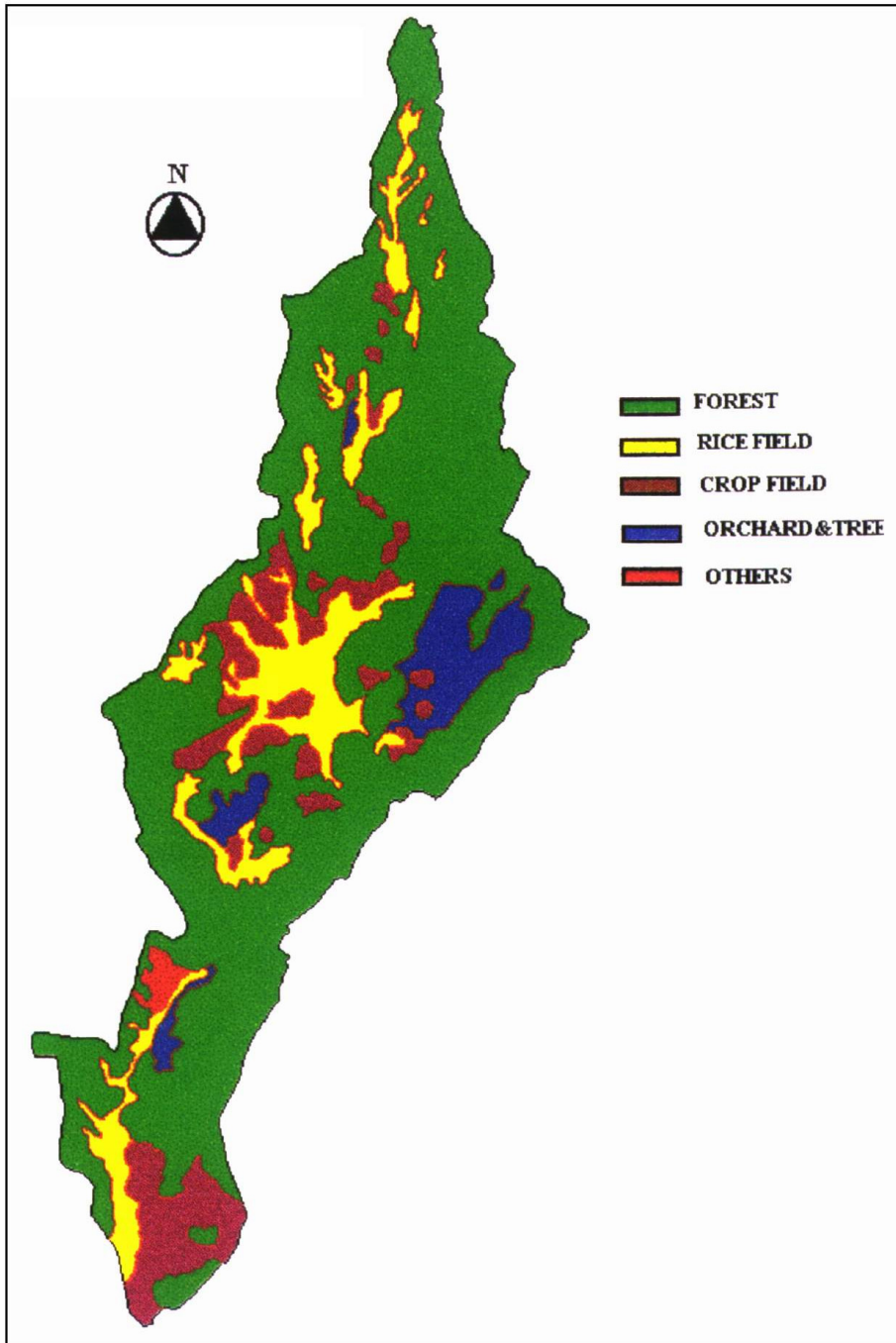
Mae Nam Wang originates from Phi Pannam mountain range in Lum Pang Province in the northern Thailand. It flows south-westward to join the Ping River at Tak Province and merges with Nan River to form the Chao Phraya River. The river is 440 km long and has a catchment area 10 791 km<sup>2</sup>. The average annual precipitation is 1 068 mm, and the average discharge during the period of 1951~1995 in the Sam Ngao District, Tak Province (Station Code: 01 07 08 04) has been 9.32 m<sup>3</sup>/s. The Kew Lom dam, built in 1971, is the only one dam of this basin. The population of the basin in 1993 was 795 492.

## 2. Geographical Informations

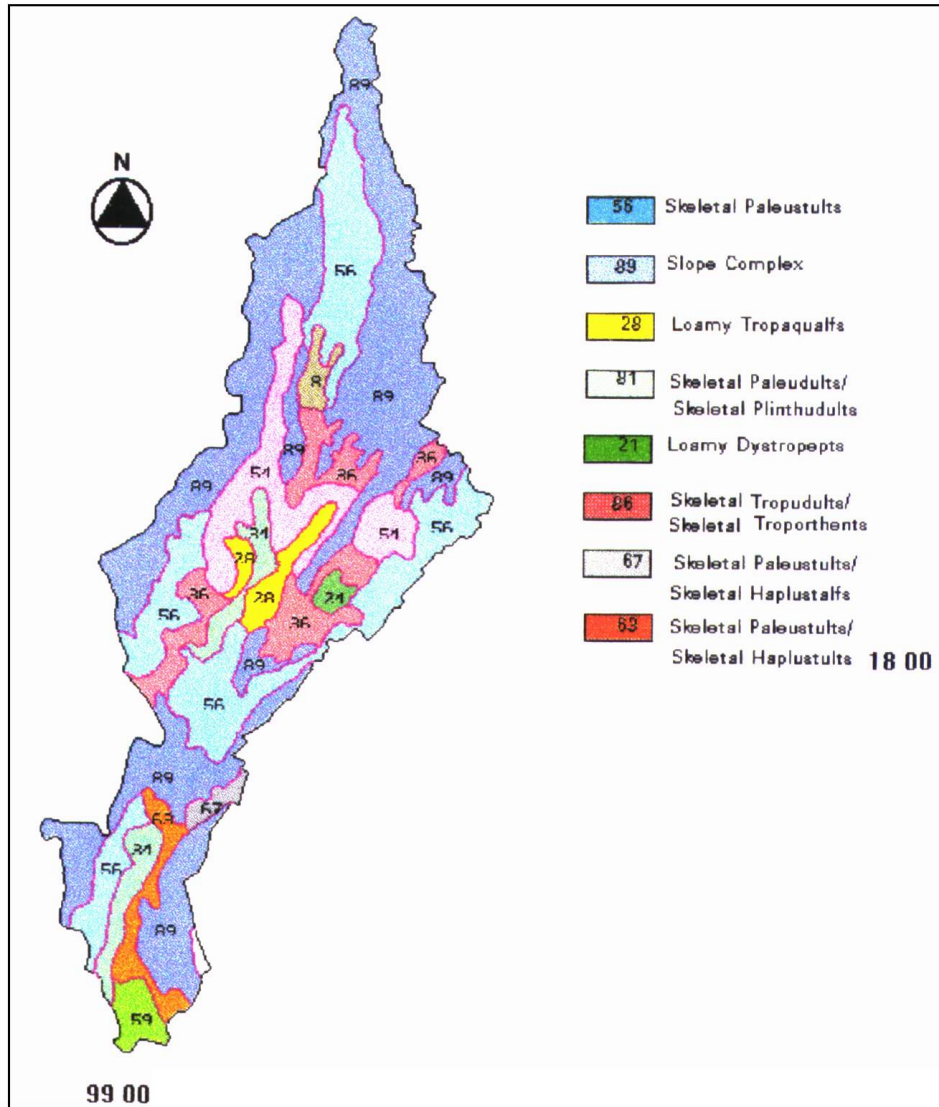
### 2.1. Geological Map



2.2. Land Use Map



2.3. Soil Map

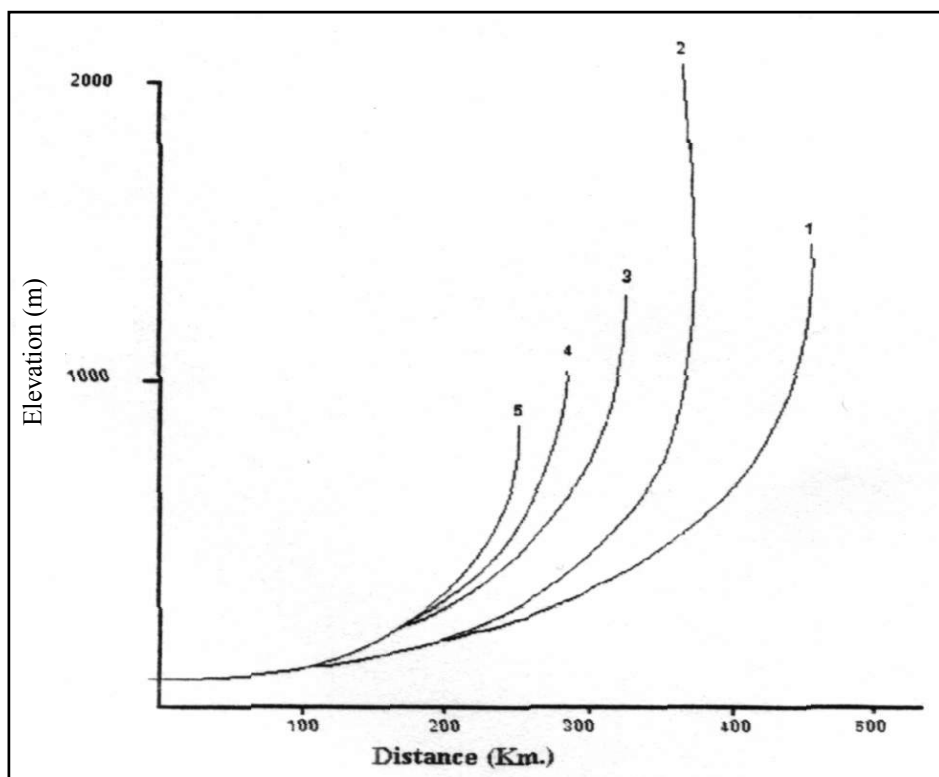


## 2.4. Characteristics of River and Main Tributaries

No.	Name of river	Length [km] Catchment area [km <sup>2</sup> ]	Highest peak [m] Lowest point [m]	Cities Population (1995)	Land use <sup>1)</sup> [%]
1.	<b>Wang</b> (Main River)	440 10 791	Doi Mae Ta Ma; 1 495 -	Lum Pang Province 800 895	A & U (38.2) F (61.4) W (0.4)
2.	<b>Nam Mae Suay</b> (Tributary)	50 743	Doi Lanka ; 2 031 -	Jae Hnom District, Lum Pang Province -	
3.	<b>Nam Mae Tui</b> (Tributary)	70 801	1 263 -	Hang Chat District, Lum Pang Province -	
4.	<b>Nam Mae Chang</b> (Tributary)	90 1 600	1 036 -	Mae Tha District, Lum Pang Province -	
5.	<b>Nam Mae Tum</b> (Tributary)	60 738	Sop Thum Doi; 1 313 -	Koa Kha District, Lum Pang Province -	
6.	<b>The Upper River of Nam Mae Wang</b>	140 1 687	Do Mae Ta Ma; 1 459 -	Wang Nua District, Lum Pang Province -	

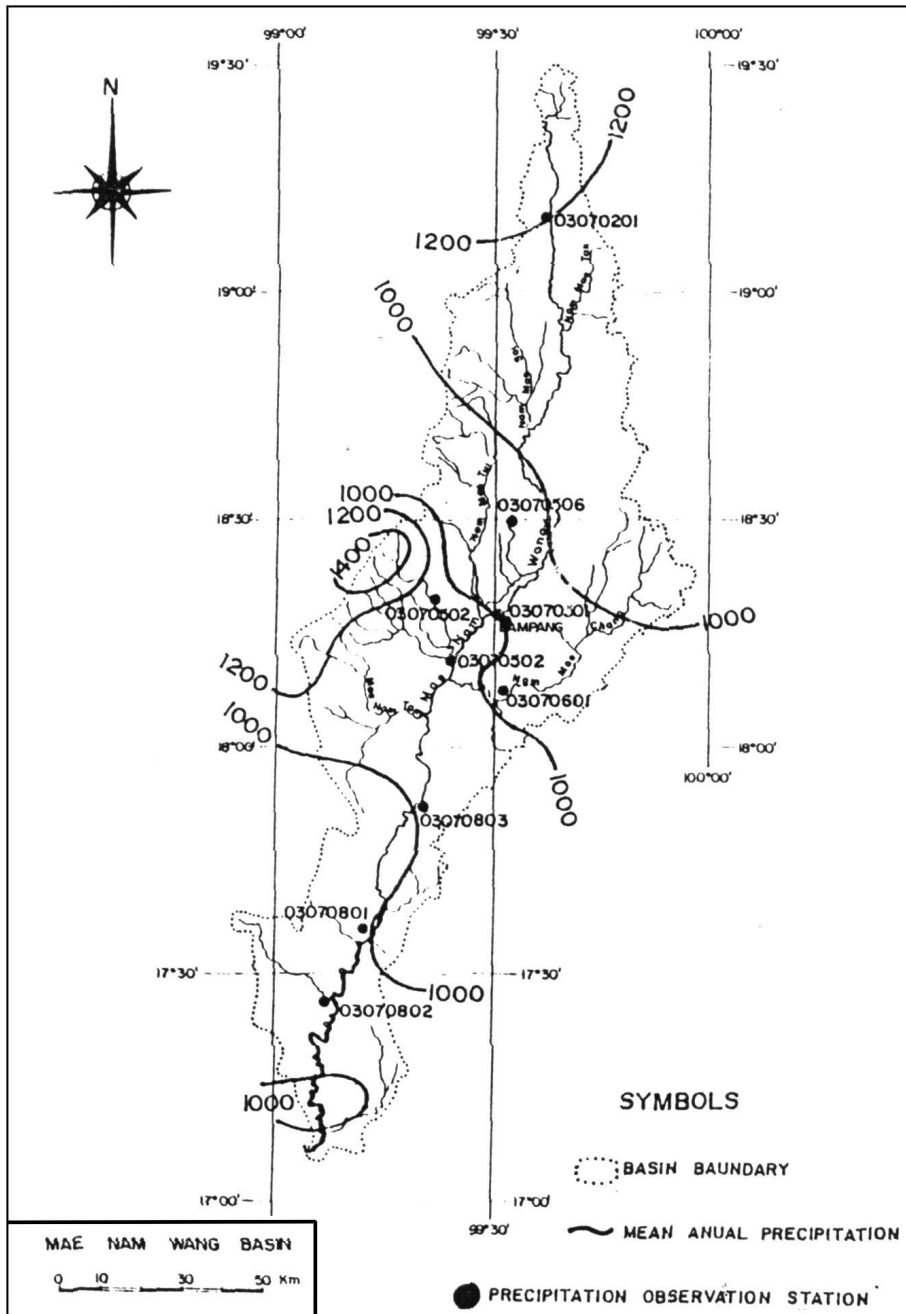
1) A & U: agriculture and urban area; F: forest; W: water resources

## 2.5. Longitudinal Profiles



### 3. Climatological Information

#### 3.1. Annual Isohyetal Map and Observation Stations



### 3.2. List of Meteorological Observation Stations

Station No.	Station name	Location	Observation period	Mean annual precipitation [mm]	Observation items <sup>1)</sup>
03070201	Wang Nua	N 19° 08' 43" E 99° 37' 16"	1976~present	1 087.6	P(S)
03070501	Lum Pang	N 18° 17' 00" E 99° 31' 00"	1951~present 1976~present	1 068.1 1 467.3	P(S) Pan
03070502	Hang Chat	N 18° 19' 33" E 99° 01' 24"	1976~present	973.9	P(S)
03070503	Koa Kha	N 18° 11' 20" E 99° 23' 48"	1976~present	1 123.4	P(S)
03070506	MaeSai Kham	N 18° 30' 00" E 99° 32' 00"	1976~present	995.6	P(S)
03070601	Mae Tha	N 18° 07' 57" E 99° 31' 00"	1976~present	944.4	P(S)
03070801	Thun	N 17° 36' 40" E 99° 13' 07"	1976~present	1 017.1	P(S)
03070802	Mae Prik	N 17° 26' 51" E 99° 07' 00"	1977~present	960.5	P(S)
03070803	Sop Prap	N 17° 52' 46" E 99° 20' 25"	1976~present	1 003.6	P(S)

P(S): Precipitation from standard rain gauge  
Pan: Evaporation from US Class A pan

### 3.3. Monthly Climatic Data

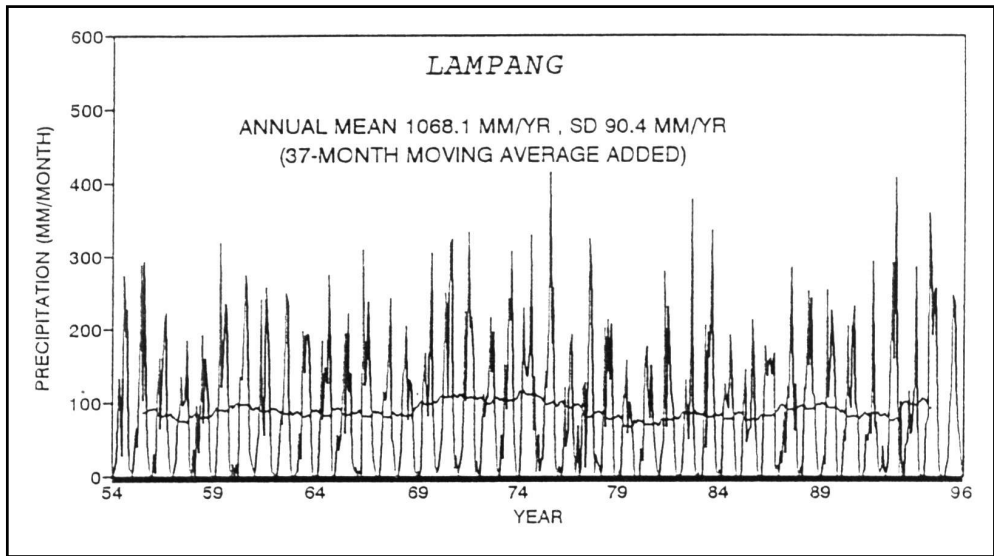
#### Station: Lum Pang (03070501)

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Period of the mean
1	21.5	24.0	27.5	29.8	28.9	28.0	27.6	27.2	26.7	25.9	23.9	21.2	26.0	1951~1995
2	5.8	6.5	23.0	60.25	149.5	126.9	134.9	201.7	211.7	112.6	27.9	7.1	1 068.1	1951~1995
3	89.2	112.5	157.4	183.5	166.2	135.7	127.7	118.7	108.6	99.8	86.8	81.2	1 467.3	1976~1995

1: Temperature [°C]  
2: Precipitation [mm]  
3: Evaporation [mm]

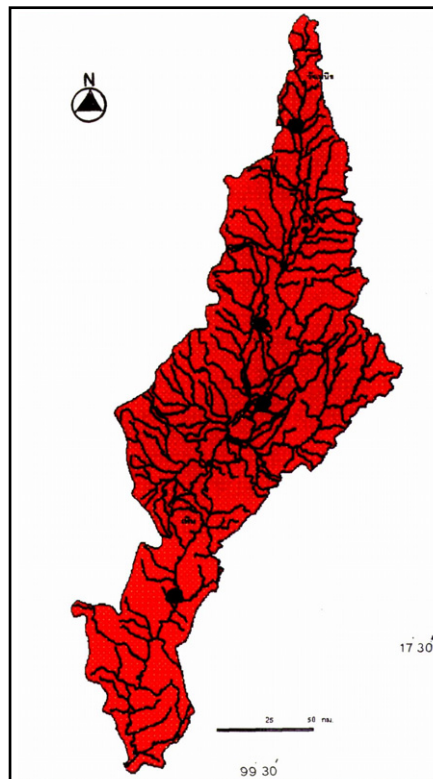


### 3.4. Long-term Variation of Monthly Precipitation Series



## 4. Hydrological Information

### 4.1. Map of Streamflow Observation Stations



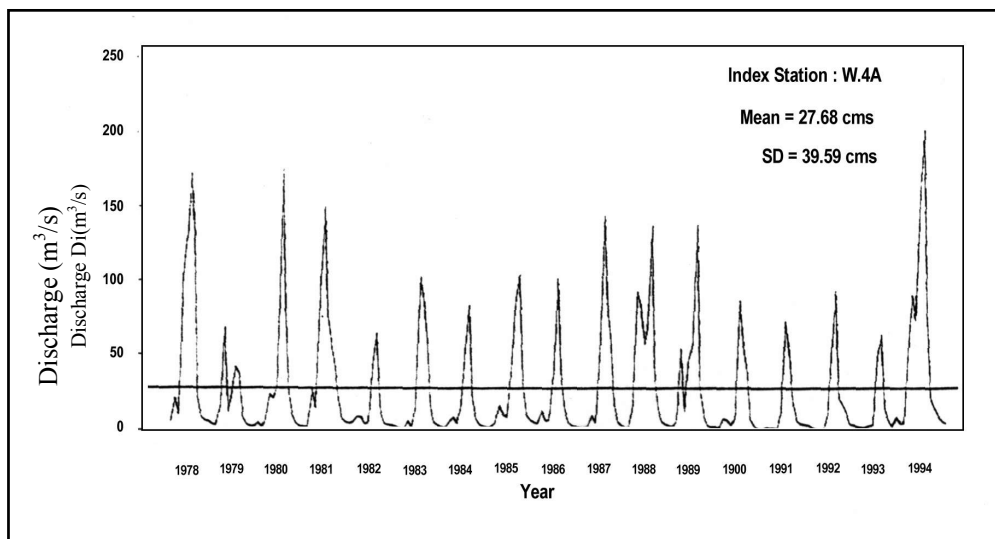
#### 4.2. List of Hydrological Observation Stations

No.	Station	Location	Catchment area [km <sup>2</sup> ]	Observation period	Observation items <sup>1)</sup> (frequency)
01070802	Thun District Lum Pang Province	N17 38 29 E99 14 04	8 985	1967~present	Q(H1)
01070804	Muang District Lum Pang Province	N17 12 22 E99 06 08	10 507	1971~present	Q(H1) WQ(H6m)
04070301	Jae Hnom District Lum Pang Province	N18 43 16 E99 34 12	619	1980~present	Q(H1)
01070604	Mae Moa District Lum Pang Province	N18 24 42 E99 29 40	95.7	1985~present	Q(H1)

No.	Q [m <sup>3</sup> /s]	Qmax* [m <sup>3</sup> /s]	Qmax** [m <sup>3</sup> /s]	Qmin [m <sup>3</sup> /s]	Q/A [m <sup>3</sup> /s/100 km <sup>2</sup> ]	Qmax/A [m <sup>3</sup> /s/100 km <sup>2</sup> ]	Period of statistics
01070802	19.8	1 399	336	1.00	0.22	15.57	1976-1995
01070804	9.32	445	422	1.11	0.09	4.24	1976-1995
04070201	4.82	687	229	0.22	0.38	53.50	1976-1995
01070301	2.23	313	90.3	0.23	0.36	50.57	1976-1995

H1: Waterlevel with daily reading;  
 Q: Mean annual discharge  
 Qmax\*: Maximum discharge  
 Qmax\*\*: Mean annual maximum discharge  
 Qmin: Mean annual minimum discharge  
 WQ: Water quality; H6m: Six monthly

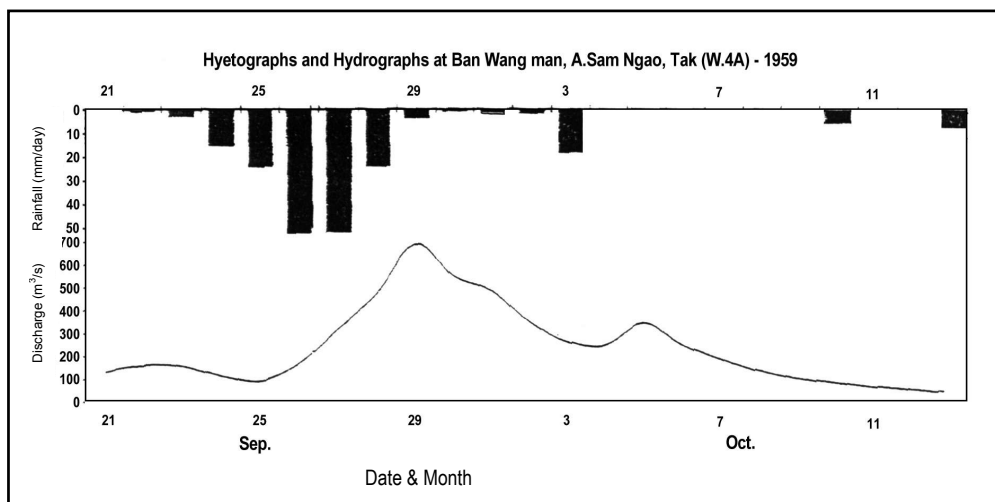
#### 4.3. Long-term Variation of Monthly Discharge Series



#### 4.4. Annual Maximum and Minimum Discharges

Year	Maximum		Minimum		Year	Maximum		Minimum	
	Date	[m <sup>3</sup> /s]	Date	[m <sup>3</sup> /s]		Date	[m <sup>3</sup> /s]	Date	[m <sup>3</sup> /s]
1971	8.26	419	4.01	0.00	1983	9.17	246	7.19	0.10
1972	10.06	294	8.04	0.00	1984	10.24	238	1.08	1.00
1973	9.24	445	12.05	2.50	1985	11.22	244	4.21	0.70
1974	8.19	360	4.01	3.30	1986	9.13	239	12.26	1.10
1975	9.02	415	5.01	3.95	1987	8.29	244	5.31	0.10
1976	10.29	445	12.16	3.40	1988	10.20	306	4.04	1.16
1977	9.11	400	12.31	2.30	1989	10.08	256	5.06	0.50
1978	9.28	344	4.01	1.80	1990	9.19	151	12.30	0.00
1979	6.14	241	4.12	1.90	1991	9.01	227	8.14	0.00
1980	9.09	369	3.16	0.15	1992	10.21	210	6.01	0.00
1981	8.13	347	4.22	1.20	1993	10.08	150	6.27	0.45
1982	10.03	194	12.25	1.21	1994	9.05	249	5.05	1.25

#### 4.5. Hyetographs and Hydrographs of Major Floods



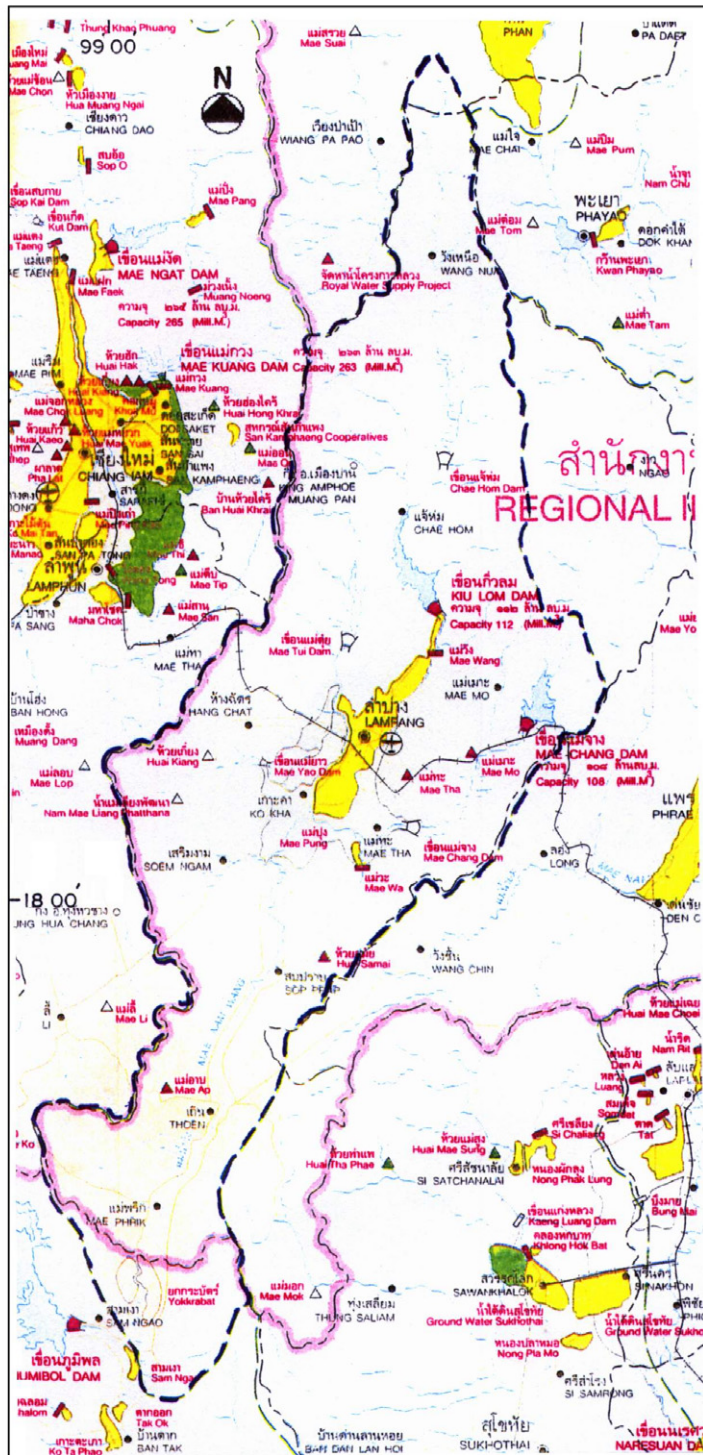
## 5. Water Resources

### 5.1. General Description

The Wang River basin is divided into 5 sub-basins. Most of the areas in the upper part of the basin are mountainous which are the headwater of its sub-basins, but in the lower part there are mostly agricultural and urban areas. The water resource is utilized mainly for paddy irrigation. At present there are 168 existing irrigation projects in the area which is covering the irrigated area of 623.3 km<sup>2</sup>.

Kew Lom Dam is the only existing largest impounding reservoir in the basin which has the gross and effective capacities of  $112 \times 10^6 \text{ m}^3$  and  $108 \times 10^6 \text{ m}^3$  respectively.

5.2. Map of Water Resources System



### 5.3. List of Major Reservoir

Name of river	Name of reservoir	Catchment area [km <sup>2</sup> ]	Gross capacity [10 <sup>6</sup> m <sup>3</sup> ]	Effective capacity [10 <sup>6</sup> m <sup>3</sup> ]	Purpose <sup>1)</sup>	Year of completion
Wang	Kew Lom	2 700	112	108	A, F, I, P, W	1972

<sup>1)</sup> A: Agriculture, F: Flood Control, I: Industrial Use, P: Hydro-power, W: Municipal water supply

### 5.4. Major Peak Discharge Experiences

Station No.	Catchment area [km <sup>2</sup> ]	Peak discharge		Date	Period of data
		[m <sup>3</sup> /s]	[m <sup>3</sup> /s/100 km <sup>2</sup> ]		
01070201	1 284	687	53.5	24/8/73	1971~1995
01070301	619	502	81.1	7/8/86	1980~1995
01070802	8 985	1 756	19.5	5/10/64	1953~1995
01070804	10 507	445	4.2	24/9/73	1971~1995

### 5.5. Water Quality

Place and Year	pH	BOD [mg/l]	Coliform [MPN/100 ml]
Upper Stream over Kew Lom Dam (1991)	7.8 ~ 8.3	-	170 ~ 500
Kew Lom Dam (1991)	7 ~ 7.6	-	-
Lum Pang (1991)	7.7 ~ 9	0.7 ~ 1.5	24 000
Lum Pang, The Ping River (1991)	7.7 ~ 8.9	1.3	54 000

## 6. Socio-cultural Characteristics

The Mae Nam Wang basin is located between the Ping River basin and the Yom River basin. Many hilltribes live in the high altitude headwater areas of the basin. Most of them use hill slopes for field crop cultivation, which lead to soil erosion during rainy season. They have their own culture, dialects, traditions and beliefs, but most can understand Thai language quite well. Ethnic Thais live in the plain of the basin on both sides of the Nan River and tributaries. They do agricultural practices and speak northern Thai dialect. The Water Festival, sometimes known as the Thesakarn Songkran or Thai New Year Celebration, is a primitive water related tradition, which, according to the lunar calendar is celebrated on the 13<sup>th</sup> of April. The people here are conservative, religious and prefer peaceful life.

## 7. References

- Department of Mineral Resources, (1969): Geological Map of Thailand.
- Electricity Generating Authority of Thailand, (1992): Surface runoff and specific yield of river basin in Thailand, Survey and Ecology Department, Meteorology and Hydrology Division, (February 1992).
- Meteorological Department, (1995): Climatological Data of Thailand. 1951-1995.
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