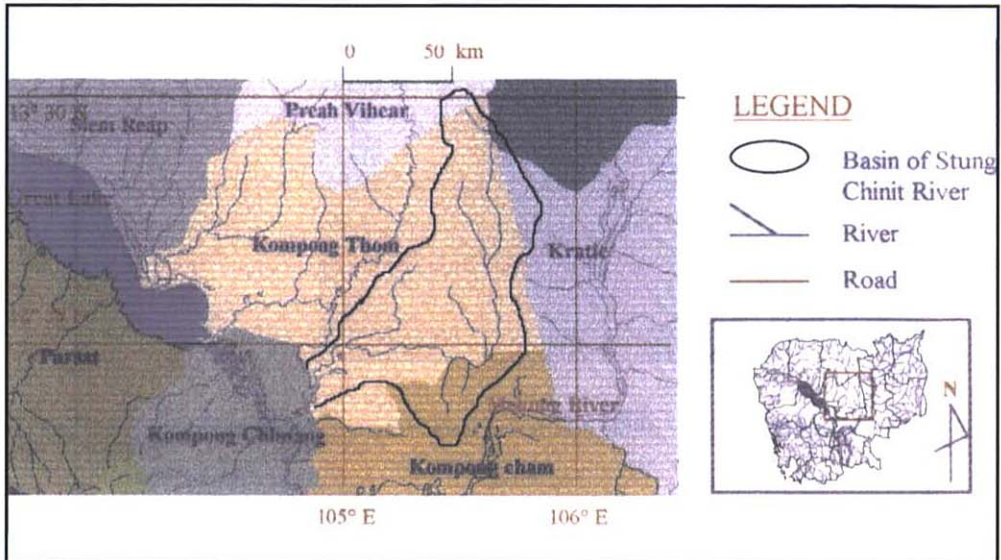


# Stung Chinit

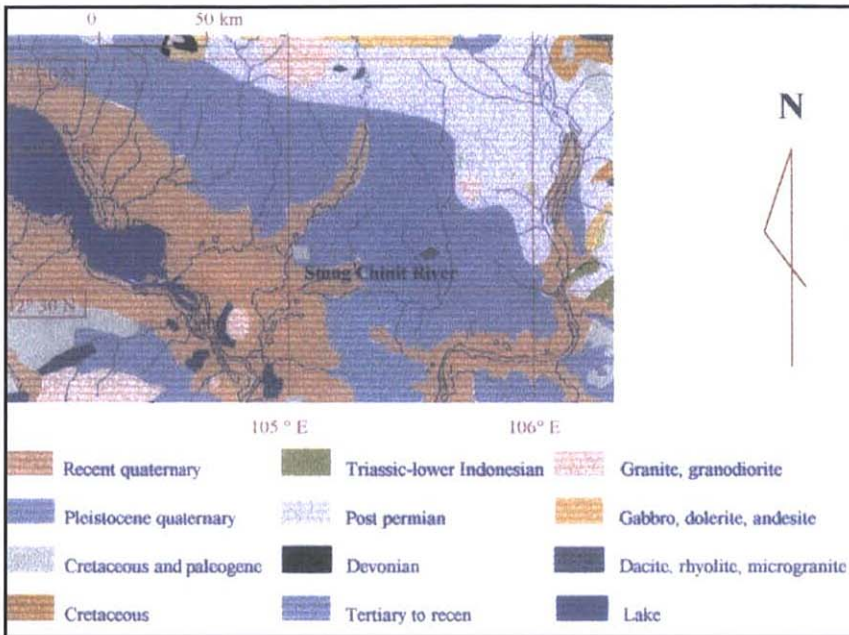
## Map of River



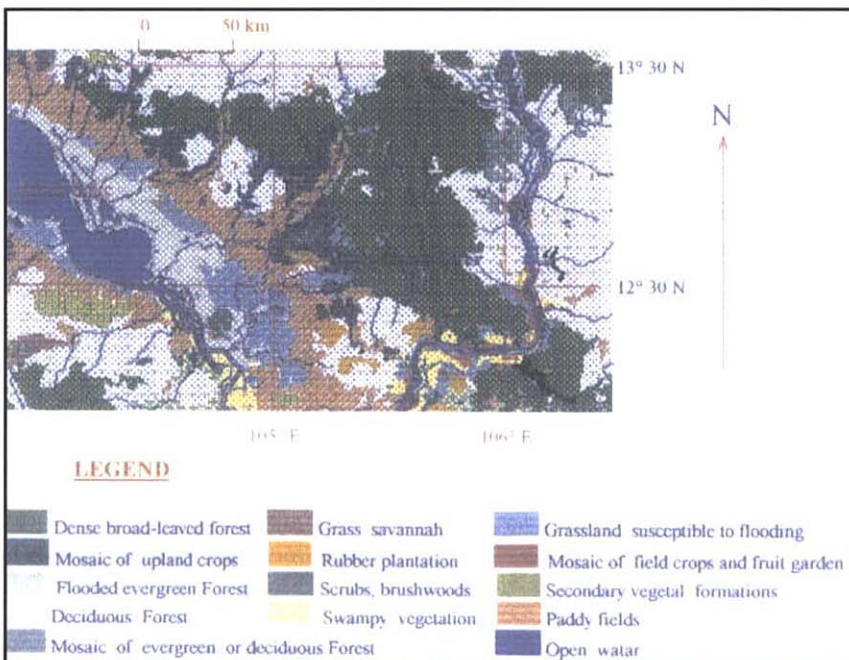
## Table of Basic Data

<b>Name:</b> Stung Chinit River		<b>Serial No.:</b> Cambodia-2
<b>Location:</b> Kompong Thom, Cambodia	N 12° 13' 00" ~ 13° 32' 15"	E 104° 47' 00" ~ 105° 47' 05"
<b>Area:</b> 5,649 km <sup>2</sup>	<b>Length of main stream:</b> 264 km	
<b>Origin:</b> Bolaven Plateau (502m)	<b>Highest point:</b> Phum Chrach (288 m)	
<b>Outlet:</b> Tonle Sap River	<b>Lowest point:</b> River mouth (5 m)	
<b>Main geological features:</b> Basalt, young and old alluvium		
<b>Main tributaries:</b> Stung Tang Krasaing (1,145 km <sup>2</sup> )		
<b>Main lakes:</b> Bung Real Lake		
<b>Main reservoirs:</b> None		
<b>Mean annual precipitation:</b> 1,590 mm (1917-1963) at Kampong Thmar		
<b>Mean annual runoff:</b> 44.1 m <sup>3</sup> /s at Kampong Thmar (4,130 km <sup>3</sup> ) (1962-1968)		
<b>Population:</b> 48,367 (1993)	<b>Main cities:</b> Santuk District Capital	
<b>Land use:</b> Forest (75.5%), Rice paddy (14.8%), Other agriculture (6.8%), Urban (0.0%) (1992/93)		

2. Geographical Information  
 2.1 Geological Map



2.2 Land Use Map



## 1. General Description

The Stung Chinit River is one of the tributaries of the Tonle Sap (the Great Lake) in the central part of Cambodia. The catchment which lies between the latitudes N 12° 13' - 13° 32' and longitudes E 104° 47' - 105° 47' has a length of approximately 264 km and an area of 4,504 km<sup>2</sup>. Stung Tang Krasaing which has a catchment area of 1,145 km<sup>2</sup> is the major branch of Stung Chinit. The average annual precipitation in the catchment is 1,590 mm. It varies from about 1,420 mm in the west of the catchment where the spillover effect is greatest, to about 1,770 mm in the east. The annual discharge at Kampong Thmar (4,130 km<sup>3</sup>) is 43.2 m<sup>3</sup>/s.

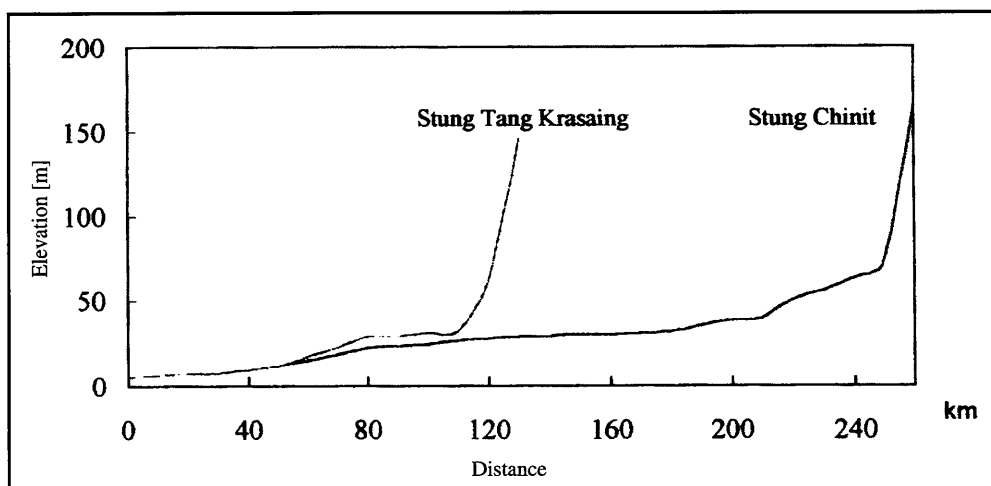
Between Bangki Tangren (on the upperstream approximately 90 km from Kampong Thmar) and Phnou (on the downstream approximately 20 km from Kampong Thmar), the river has a width ranging from about 60 m - 90 m. There is little difference in the surface slope between the dry and wet seasons, but generally it gets gentler towards the downstream. The basic annual pattern of discharge shows an increase of discharge from June, and a sharp decrease around October or November although differences of annual patterns may exist between wet and drought years. The discharge in the flood season has a high degree of fluctuation depending on the year but no such fluctuation is confirmed during the drought season. This factor to a great extent influences the utilization of water in the basin.

### 2.3 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	Stung Chinit (Main river)	264 4,504	Phum Chrach, 288 River mouth, 5	Santuk District Capital Kompong Thon 48,367	A (5.1) F (75.5) O (6.8) P (14.8) U (0.0)
2	Stung Tang Krasaing (Tributary)	129 1,145	Phum Khaos, 145 -----		

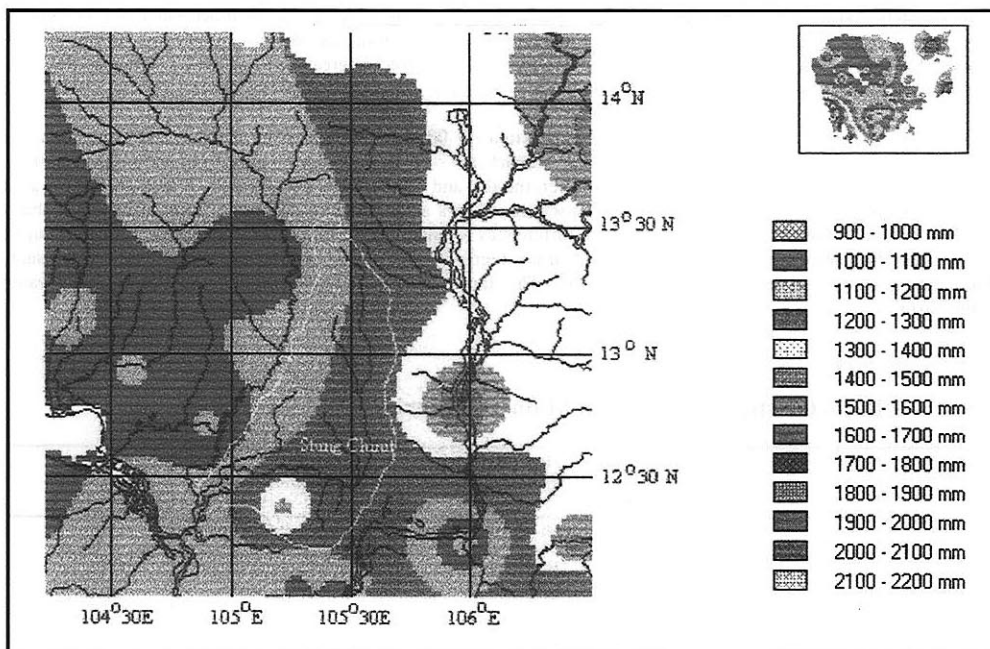
- 1) A: Agricultural field (Mosaic of upland crops and secondary vegetal formations)  
F: Forest, O: Other vegetation, P: Paddy Field, U: Urban.

### 2.4 Longitudinal Profiles



### 3. Climatological Information

#### 3.1 Annual Isohyetal Map and Observation Stations



#### 3.2 List of Meteorological Observation Stations

No.	Station	Elevation [m]	Location	Observation period	Mean annual precipitation [mm]	Mean annual evaporation [mm]	Observation items <sup>1)</sup>
110403*	Phnom Penh	10	N 11° 33' E 104° 51'	1953~1973	1,312	2,159	P, E, DS
120504*	Kampong Cham	16	N 12° 00' E 105° 27'	1960~1992	1,417		P, E, DS
130501*	Stung Treng	54	N 13° 31' E 105° 58'	1930~1992	1,691		P
120603*	Kratie	23	N 12° 29' E 106° 02'	1928~1992	1,731		P
120404*	Kampong Thom	13	N 12° 42' E 104° 54'	1960~1992	1,436		P

\*: Code number used for Mekong basin

1): DS: Duration of sunshine, E: Evaporation, P: Precipitation

### 3.3 Monthly Climate Data

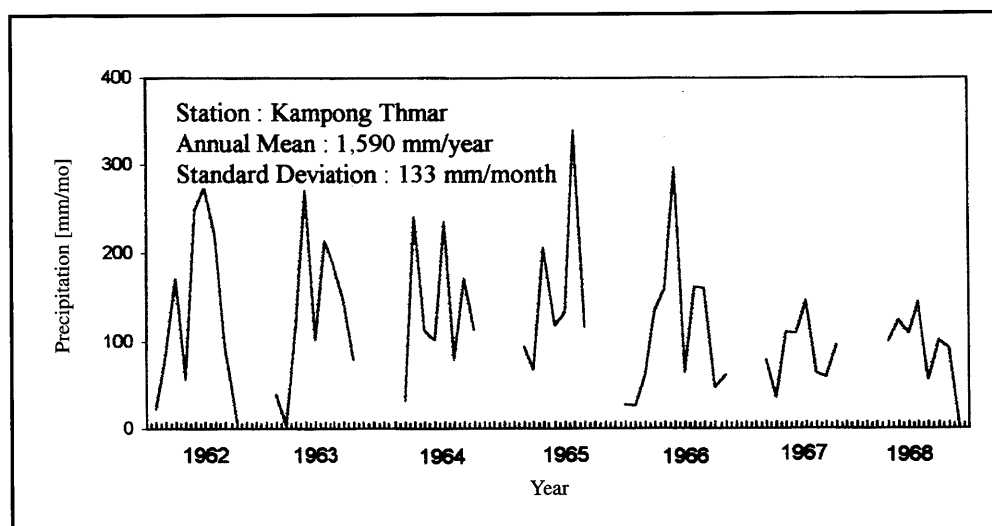
Station: Kampong Cham

Observation item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Period for the mean
Temperature [°C]	26.3	27.4	29.8	29.8	29.1	28.2	27.7	27.8	27.5	27.3	26.9	26.2	27.8	1981-1991
Precipitation [mm]	7.1	8.6	34.4	71.6	192	225	225	219	263	231	93.6	19.8	1,590	1917-1963
Evaporation [mm]*	174	157	189	168	105	84.0	80.6	83.7	66.0	80.6	111	146	1,445	1929-1960
Solar radiation [MJ/m <sup>2</sup> /day]	20.1	21.6	22.2	22.2	20.3	18.8	18.0	18.1	17.1	18.1	18.4	18.9	19.5	**
Duration of sunshine [hr/day]	9.1	9.1	8.5	8.2	7.2	6.4	5.8	5.7	5.2	6.5	7.7	8.6	7.3	**

\*: Source: Hydrologic Yearbook, Mekong Committee

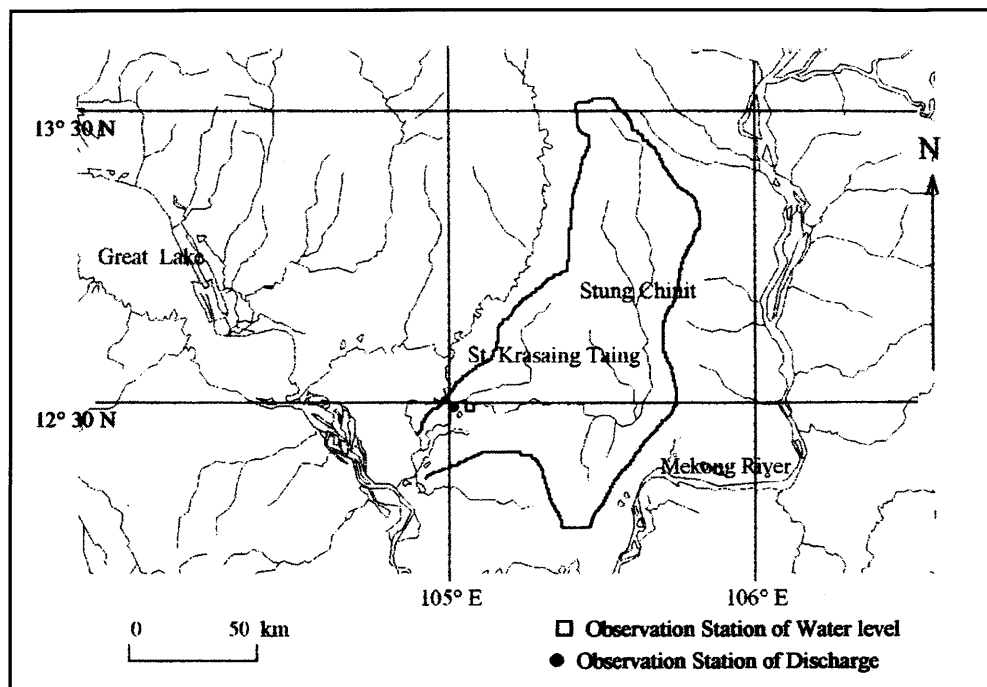
\*\* : Source: Agrometeorological Group of the FAO Research and Technology Development Division, 1991

### 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

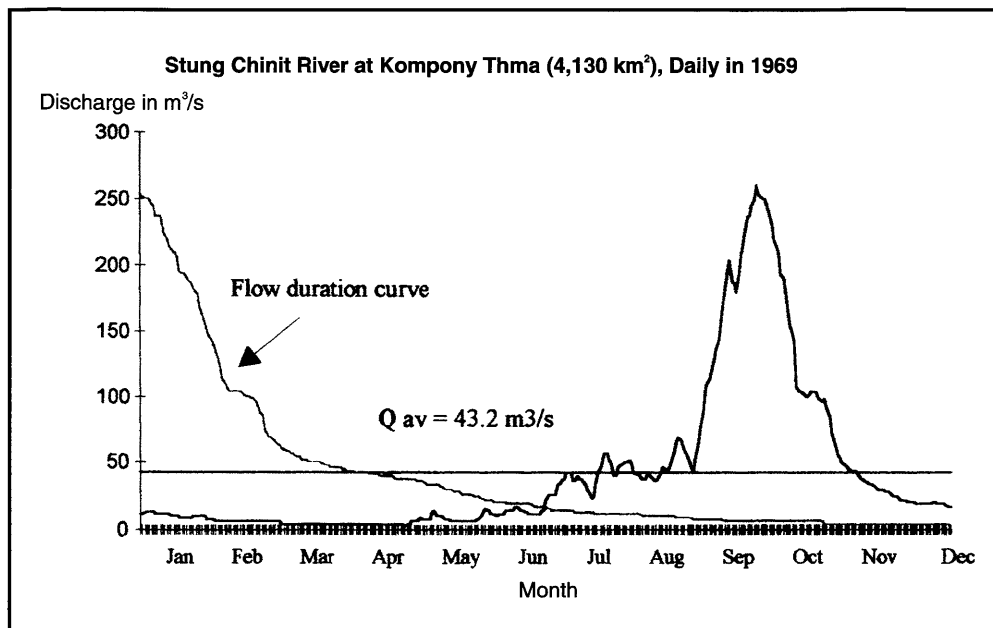
Station	Location	Elevation [m]	Catchment area (A) [km <sup>2</sup> ]	Observation period	Observation items <sup>1)</sup> (frequency)
Kampong Thmar	N 12° 29' 45" E 105° 07' 33"	-	4,130	1962-1968	H, Q

$\bar{Q}$ <sup>2)</sup> [m <sup>3</sup> /s]	$Q_{max}$ <sup>3)</sup> [m <sup>3</sup> /s]	$\bar{Q}_{max}$ <sup>4)</sup> [m <sup>3</sup> /s]	$\bar{Q}_{min}$ <sup>5)</sup> [m <sup>3</sup> /s]	$\bar{Q} / A$ [m <sup>3</sup> /s/100 km <sup>2</sup> ]	$Q_{max} / A$ [m <sup>3</sup> /s/100 km <sup>2</sup> ]	Period of statistics
44.1	329	210	3.34	1.07	8.0	1962-1968

1) H: water level  
Q: discharge

2) mean annual discharge  
3) maximum discharge  
4) mean annual maximum discharge  
5) mean annual minimum discharge

### 4.3 Long-term Variation of Monthly Discharge



### 4.6 Annual Maximum and Minimum Discharge

At Kampong Thmar [4,130 km<sup>2</sup>]

Year	Maximum <sup>1)</sup>		Minimum <sup>2)</sup>		Year	Maximum <sup>1)</sup>		Minimum <sup>2)</sup>	
	Date	[m <sup>3</sup> /s]	Month	[m <sup>3</sup> /s]		Date	[m <sup>3</sup> /s]	Month	[m <sup>3</sup> /s]
1962	9.29	329.0	4	2.6	1966		218.0		4.4
1963		163.6		2.8	1967		241.2		4.7
1964		130.6		2.0	1968		146.5		4.3
1965		242.0		2.6	1969	10.05	260	4	3.3

1), 2): Instantaneous observation by recording chart

## 5. Water Resources

### 5.1 General Description

A feasibility study of the Stung Chinit Multipurpose Development Project was carried out in 1971 on soil, farm management, water utilization, power demand, fishery etc. covering an area of some 48,000 ha.

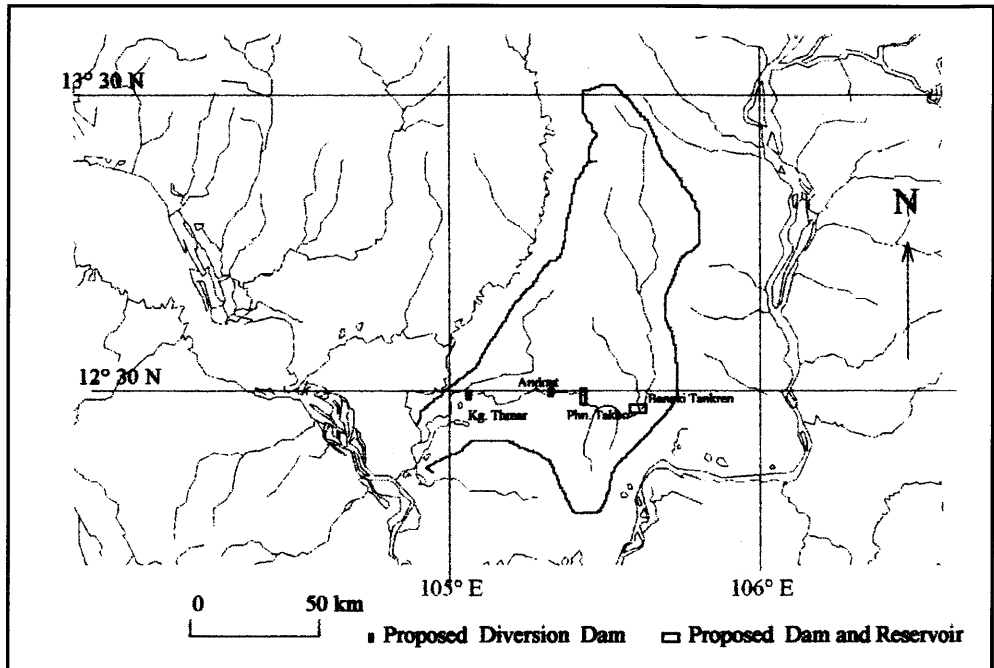
A multipurpose dam to be constructed at Phnom Takho will provide a total storage capacity of  $458 \times 10^6$  m<sup>3</sup> for irrigation and power generation. In utilizing the reservoir water, the irrigable area is classified into the left bank and the right bank areas.

A pumping station will be constructed for the purpose of supplying water to an area of 7,600 ha. at Kampong Thmar. It will be equipped with two mixed flow pumps of 1,700 mm diameter each. The construction cost of the pumping station will be less than that of a conveyance canal from the main dam for gravity irrigation.

The main purpose of power generation is rural electrification including agricultural use in operating irrigation and drainage pumps. A 4,500 kW hydro-power station will be installed on the main dam site utilizing the effective reservoir capacity of  $391 \times 10^6 \text{ m}^3$  and the maximum available head of 16.3 m. Maximum discharge flow for power generation is  $35.5 \text{ m}^3/\text{s}$ .

The construction of the main dam will bring about a great influence to the fish production in both the upper and lower reaches of the river.

### 5.2 Map of Water Resources Systems



### 5.3 List of Major Water Resources Facilities

#### Major Reservoirs

Name of river	Name of dam (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 *	Year of completion
Stung Chinit	Phnom Takho	3,770	500	391	A, F, P	**

\*: A: Agricultural use, F: Flood control, P: Hydro-power

\*\* : Under study



## 5.4 Major Floods and Droughts

Date	Peak discharge [m <sup>3</sup> /s]	Rainfall [mm] Duration	Meteorological cause	Dead and Missing	Major damages (Districts affected)
09.1962	329	79.7 over 7 days	Tropical depression	----	-----
09.1991	----	206.2 over 9 days	Tropical depression	----	-----

## 6. Socio-cultural Characteristics

Most of the inhabitants in the Chinit basin are farmers who cultivate rice only during the rainy season. The main reason for practicing wet season cultivation of rice is due to lack of irrigation facilities. Seasonal rice and floating rice are cultivated during the rainy season. There are also some semi-seasonal rice cultivated. The semi-seasonal rice comes in between the other two types of rice and its cultivation occupies only 10 per cent of the area. The main agricultural product is rice which farmers depend a great deal upon. The main upland products in the province of Kampong Thom are white corn, green beans, sesame and tobacco. Agricultural products are the main sources of income for farmers. According to a fact-finding survey of the village, farmers get only a small amount of income from non-agricultural activities such as being employed as coolies or fuel collectors.

## 7. References, Databooks and Bibliography

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 Final Report: *Review and assessment of water resources for Hydropower and identification of priority projects Cambodia*, Main Report, June 1995.  
*Irrigation Rehabilitation Study in Cambodia*. Annex A: HYDROLOGY, 1994.  
*Lower Mekong Hydrologic Yearbook* (1968).  
*Rehabilitation and development of the hydrometeorological network in Cambodia*, Final report, 1993.