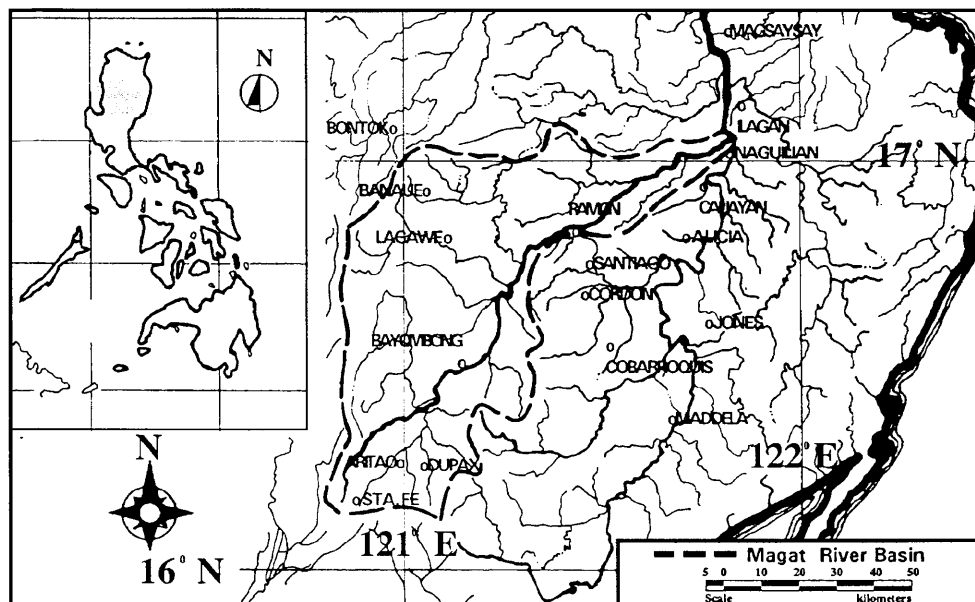


Ilog Magat

Map of River



Philippines Water Data (1972), NWRB, Philippines

Table of Basic Data

Name: Magat River (Left branch of the Cagayan River)		Serial No.: Philippines-1
Location: Central Luzon, Philippines	N 16° 09' ~ 17° 01'	E 120° 52' ~ 121° 48'
Area: 4 631 km ²	Length of main stream: 135 km	
Origin: Caraballo Mountain (1 200 m)	Highest point: Caraballo Mountain (1 200 m)	
Outlet: Cagayan River	Lowest point: Confluence at Naguilian 90 m	
Main geological features: Oligocene to Miocene; shales, limestone, wackes		
Main tributaries: Taotao River (419 km ²), Alimit River (600 km ²), Ibulao River (353 km ²), Lamut River (438 km ²), Matuno River (738 km ²) and Sta. Fe River (547 km ²)		
Main lakes: None		
Main reservoirs: Magat Multipurpose Reservoir (1 218 x 10 ⁶ m ³ , 1982)		
Mean annual precipitation: 2 406 mm (1948~1970) (basin average)		
Mean annual runoff: 254.4 m ³ /s (1959~1970)		
Population: 786 630 (1990)	Main cities: Santiago	
Land use: Forest (23.1%), Grassland (61.5%), Agricultural land (15.4%) (1983).		

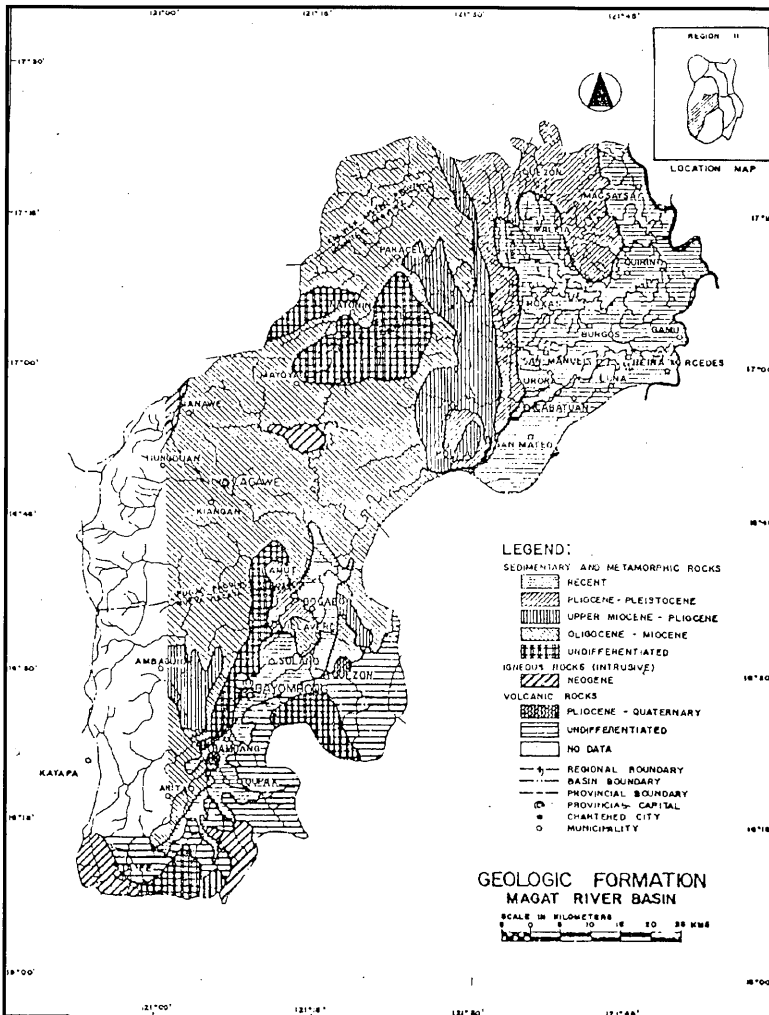
1. General Description

The Magat River Basin comprises the south western part of the Cagayan Water Resources Region in Luzon Island. It covers the province of Ifugao and parts of the provinces Nueva Vizcaya and Isabela. The river originates from the Caraballo Mountain and flows in a north-easterly direction for about 135 km and joins the Cagayan River at Naguilian, Isabela. The Cordillera Mountains in the western part of the watershed is steep, well-forested and rises to over 2 000 m along the western divide. Major tributaries of the Magat River include Lamut, Ibulao and Alimit Rivers in Ifugao and the Matuno and Sta. Fe Rivers in Nueva Vizcaya. The basin has a drainage area of 4 631 km² and an average annual precipitation of 2 406 mm.

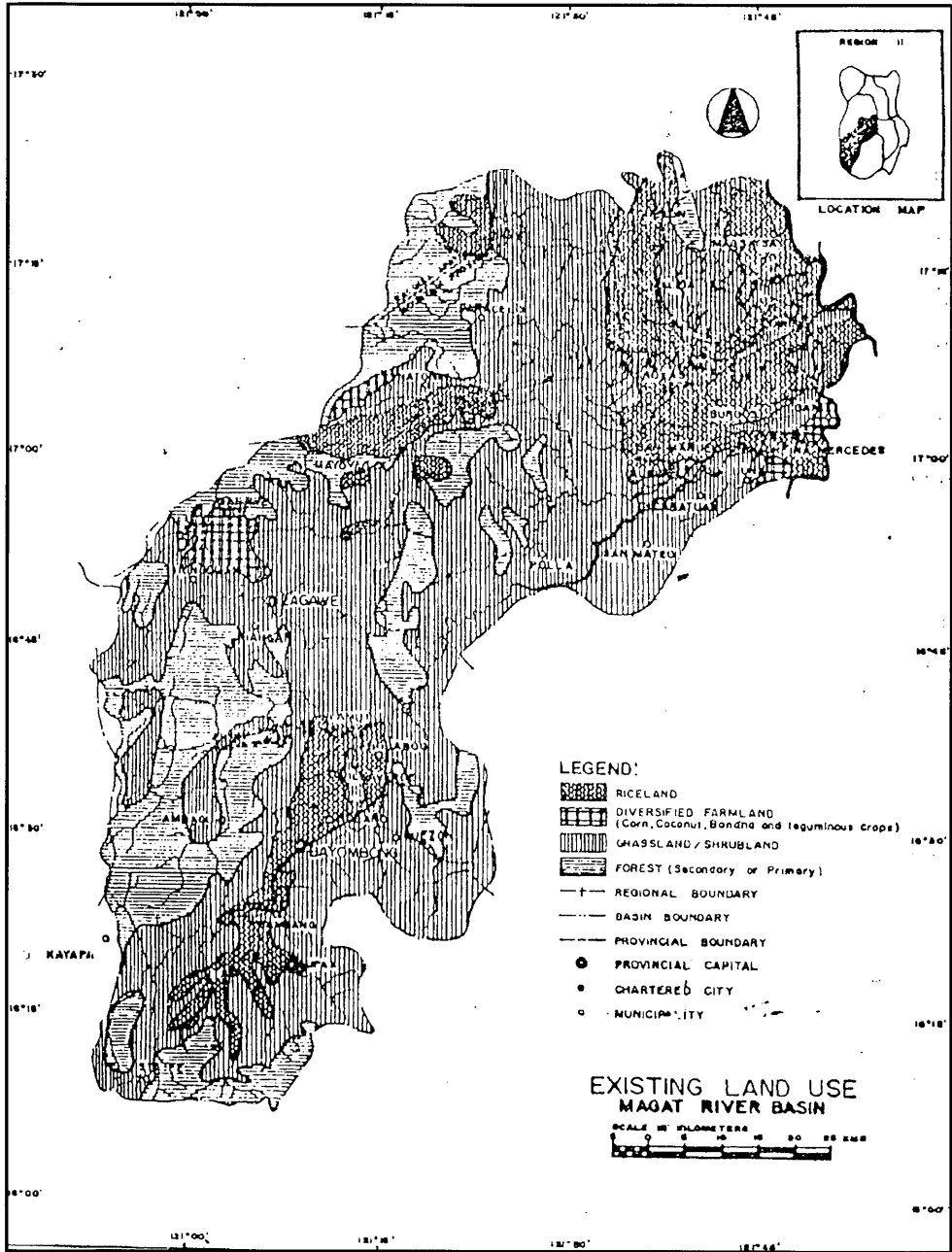
The basin is relatively underdeveloped and offers a large potential for agricultural development as well as human settlements. The construction of the Magat Multipurpose reservoir in 1982 was intended for irrigation and hydropower generation in the area.

2. Geographical Information

2.1 Geological Map



2.2 Land Use Map



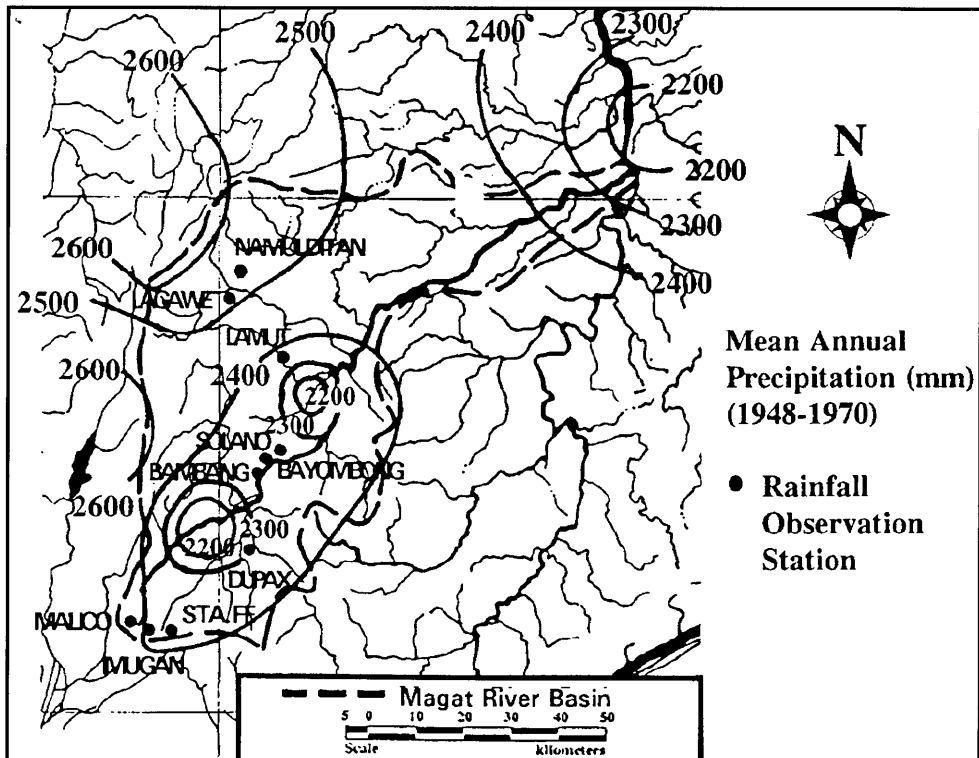
2.3 Characteristics of River and Main Tributaries

No.	Name of river	Length [km] Catchment area [km ²]	Highest peak [m] Lowest point [m]	Cities Population (1990)	Land use [%] (1983)
1	Magat (Main river)	135 4 631	1 200 -----	786 630	DC (4.7) F (23.1) G (61.5) P (9.8) TF (0.9)
2	Ibulao (Tributary)	50 353	500 -----	39 922	
3	Taotao (Tributary)	38 419	500 -----	35 898	
4	Lamut (Tributary)	28 438	1 000 -----	17 533	
5	Sta. Fe (Tributary)	60 547	1 000 -----	83 890	
6	Alimit (Tributary)	55 600	1 000 -----	66 929	
7	Matuno (Tributary)	67 738	1 000 -----	57 221	

DC: Diversified crops F: Forest G: Grassland P: Paddy field TF: Tree farms

3. Climatological Information

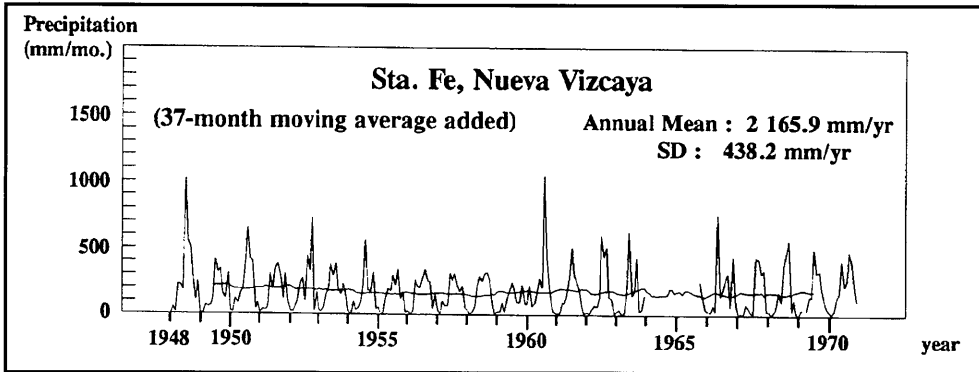
3.1 Annual Isohyetal Map and Observation Stations



3.3 Monthly Climate Data

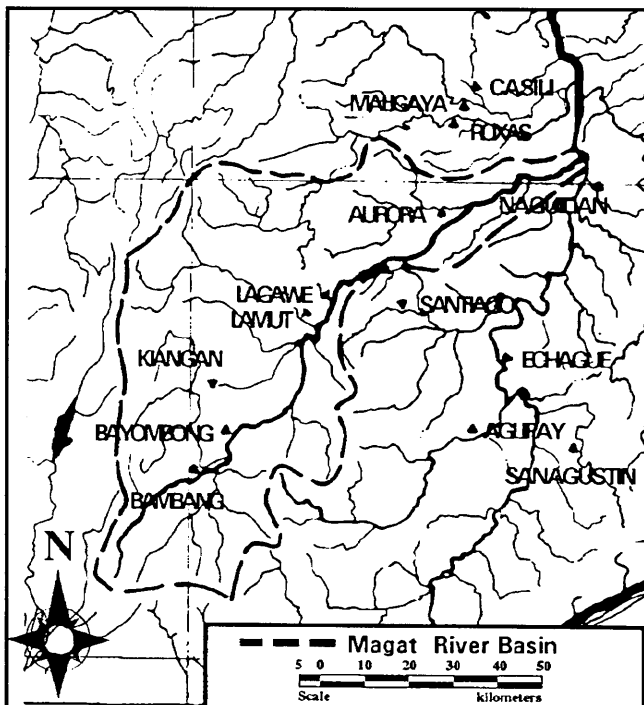
Observation item	Observation station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Period for the mean
Temperature [°C]	Sta. Fe	22.5	22.5	25.2	25.5	25.6	24.7	24.2	21.7	22.9	23.7	22.7	22.4	23.6	1948~1960
Precipitation[mm]	Sta. Fe	26.0	27.6	52.3	87.8	185.5	220.4	374.3	405.7	301.2	214.1	179.2	87.8	2 165.9	1948~1970
Evaporation [mm]	Ramon	100	131	185	218	202	158	164	140	120	119	97	103	1 737	1957~1971

3.4 Long-term Variation of Monthly Precipitation

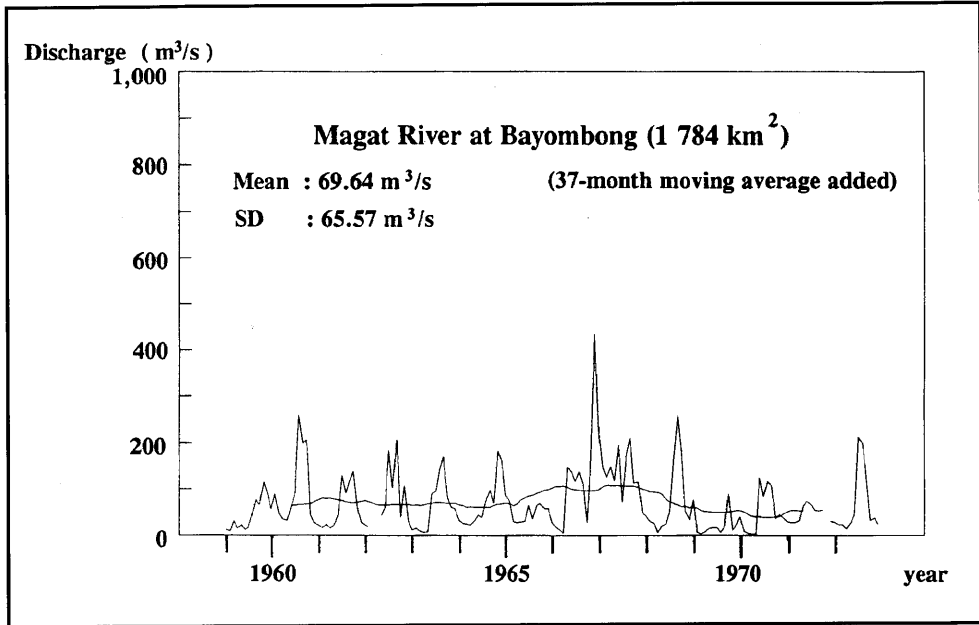


4. Hydrological Information

4.1 Map of Streamflow Observation Stations



4.3 Long-term Variation of Monthly Discharge

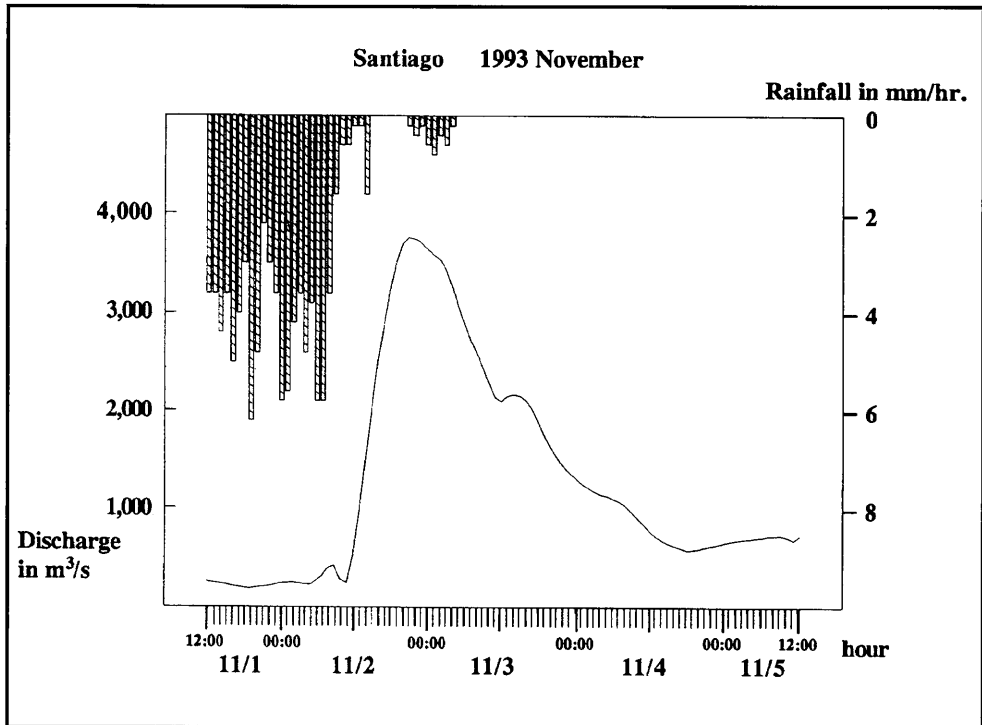


4.6 Annual Maximum and Minimum Discharges

At Bayombong, Nueva Vizcaya [1 784 km²]

Year	Maximum		Minimum		Year	Maximum		Minimum	
	Date	[m ³ /s]	Month	[m ³ /s]		Date	[m ³ /s]	Month	[m ³ /s]
1959	11.18	1 154	2	6.1	1970	9.11	1 176	5	1.4
1960	10.14	1 541	4	16.6	1971	10.10	251	11	6.0
1961	7.14	410			1972	7.11	359	4	2.6
1962	11.06	712	11	5.2	1973				
1963	8.15	440	5	5.1	1974	6.11	436	4	16.0
1964	12.15	1 114	11	7.6	1975	1.01	179	7	23.1
1965	7.14	567	4	22.8	1976	6.01	723	1	22.7
1966	5.02	1 114	5	4.5	1977				
1967	11.05	1 053	7	37.6	1978				
1968	9.29	614	5	11.1	1979	9.03	51	11	7.9
1969	1.01	218	3	2.8					

4.7 Hyetographs and Hydrographs of Major Floods



5. Water Resources

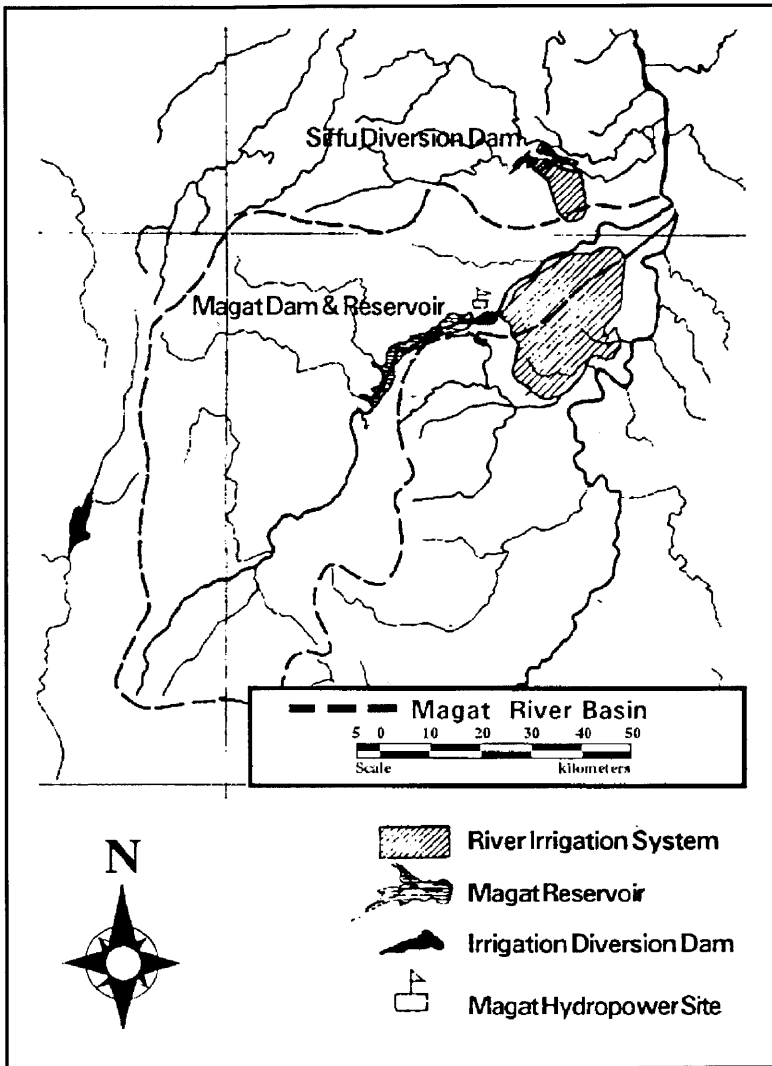
5.1 General Description

The Magat River Basin is generally an agricultural area. The water resource is utilized mainly for paddy irrigation. Irrigation systems have tapped surface water through diversion weirs and pumps while waterworks utilities for domestic water supply abstracted mainly groundwater through deepwells. At present there are 4563 existing irrigation systems in the area comprising of national, communal and private pump systems.

Floods in the basin usually occur during the period from June to November corresponding to the typhoon season. The month of October has the highest frequency of flood occurrences with the provinces of Isabela and Nueva Viscaya affected most. Existing flood control facilities consist of revetments, cut-off channels and spur dikes.

The Magat Multipurpose Dam is the only existing impounding reservoir in the basin. It is provided with a flood control space. Since its commission in 1983, it has substantially contributed to flood peak reduction in the area. A peak inflow to the reservoir of about 7700 m³/s can be regulated to peak outflow of 4500 m³/s.

5.2 Map of Water Resources Systems



7. References

Department of Public Works and Highways (1991): *Philippine Water Resources Summary Data*, Volume II, Report No. 1, Bureau of Research & Standards, June 1991. (Section 4.6)

National Irrigation Administration (1973): *Magat River Project Feasibility Report*, Volume II, Appendix A & B, June 1973. (Sections 3.3 and 5.2)

National Water Resources Board (1972): *Philippines Water Data 1972*, Surface Water Records No. 15. (Sections 3.4 and 4.3)

National Water Resources Board (1976): *Principal River Basins of the Philippines*, Report No. 4, October 1976. (Section 3.3)

National Water Resources Board (1980): *Philippine Water Resources Summary Data*, Volume I, Report No. 9, January 1980. (Sections 4.3 and 4.6)

National Water Resources Board (1981): *Framework Plan: Magat River Basin*, Report No. 24 - 26, December 1981. (Sections 1.1, 3.1, and 4.1)