# Viet Nam

## Viet Nam-7: Chay River

## Viet Nam-8: Huong River



#### Introduction

Viet Nam is located in the inter - tropical zone, on the eastern part of the Indochina Peninsula. The total area of the country is  $331,000 \text{ km}^2$ , three quarters of which consist of mountain and hill, and the remainder alluvial plain, most of which lies in the Red River and Mekong Delta.

The country is influenced by tropical monsoon climate with two clear cut rainy (April/May to October/ November) and dry seasons. Mean annual precipitation is 1960 mm varying from 4,760 mm in Bac Quang (in the north part) to 650 mm in Phan Rang (Central Viet Nam). Annual river runoff volume in Viet Nam is 835 km<sup>3</sup> of which 525 km<sup>3</sup> is generated outside Viet Nam and only 310 km<sup>3</sup> generated in Viet Nam (or 980 mm runoff, 4,630 m<sup>3</sup> per capita). The urban flow for Vietnamese territory is 936,000 m<sup>3</sup>/year/km<sup>2</sup> or 0.030 m<sup>3</sup>/s/km<sup>2</sup>.

Most Vietnamese Rivers are of small and medium sizes except the Red River and the Mekong River. The forest cover is about 26% (1992, Ministry of Forestry). The urban population makes about 15% of the nation's total.

The two rivers, Chay and Huong, described in this volume, belong to medium rivers in Viet Nam. The Chay River is located in the northern and the Huong River in the central part of Viet Nam.

The Chay River has the basin of  $6,500 \text{ km}^2$  (of which  $1920 \text{ km}^2$  is in China); its average altitude is 858 m. The Chay River water resources are used for hydropower production, for water supply in the downstream, for aquaculture and water-borne navigation. The Thac Ba hydropower plant on the Chay River at Thac Ba started the construction in 1962 and has been operated since 1972, The main problem in the Chay River is the protection of Thac Ba reservoir environment and ecological landscape.

The Huong River is located in the region abundant of rainfall. Due to large and concentrated rainfalls and steep basin slope, the floods in the basin fluctuate very fast. Heavy rainfalls create flash floods in the upper and middle reaches and inundation in the downstream. Especially large floods also cause bank collapses and create new river mouths in the seacoast. The Hue city - township of Thua Thien Hue province is situated on the Huong River bank, with more than 300,000 populations, used to be the former Viet Nam capital and has been recognised by UNESCO as world cultural heritage.

#### Acknowledgements

The working group for the preparation of this volume of River Catalogue consists of:

Mr. Le Van Sanh, Technical Secretary of the group, Dr., Ass. Prof. Tran Thanh Xuan, Institute of Meteorology and Hydrology, Mrs. Tran Bich Nga, Mrs. Doan Thanh Hang, Mrs. Dao Thi Quy, Institute of Meteorology and Hydrology.

The organisations that have contributed to the work are: Hydro-Meteorological Data Center, and Institute of Meteorology and Hydrology (Ministry of Natural Resources).