

CHAPTER II

GENERAL PHYSICAL CHARACTERISTICS OF THE MAE KLONG BASIN

2.1 Location

The Mae Klong basin is located in the western part of Thailand. It projects south-eastward between the Chao Phaya Plain and the Petchburi basin, and lies between the latitude 13° 15' and 16° 15' North and between the longitude 98° 12' and 100° East. It extends from the Thai-Burma border in the west to the Gulf of Thailand with the cities of Karnchanaburi, Rajburi and Samuthsongkram located in its lower portion as shown in Fig 1. The Basin can be divided into two parts: above Karnchanaburi comprising 25,590 square kilometres in area, containing rugged mountainous area and the low lying flood plain below Karnchanaburi.

The basin has two main tributaries, the Kwae Yai and Kwae Noi rivers which merge together at Karnchanaburi to form the Mae Klong river.

2.2 The Kwae Yai River

The Kwae Yai river is about 450 km. long and the catchment area above the confluence with the Kwae Noi river is about 14,680 square kilometres. Most rock in the basin are composed of quartzite and limestones. It flows through a mountainous and rugged area which is covered mostly with a dense jungle and bamboo forests. The upper-most reaches slope of river is about 2.5% and about 0.14% near the confluence of Huey Kha Khaeng (220 kilometres from head water). About 60 kilometres above Karnchanaburi the river

emerges from the rugged mountainous limy quartzite terrain into the open valley plain. At this point the bed slope is about 0.0625% - 0.0500%. About 27 kilometres before reaching Karnchanaburi the river unites with the Lam Taphoen river, its largest tributary flowing from the north. The bed slope of river at the lower end is about 0.033%. The average annual flow is 4,600 million cubic metres or about 42 percent of flow of the Mae Klong river.

2.3 The Lam Taphoen River

The Lam Taphoen river has a catchment area of about 2650 square kilometres and 188 km. in total length. The basin is relatively even and open, and covered by shrubs with paddy fields and scattering upland crops.

2.4 The Kwaie Noi River

The Kwaie Noi river has the catchment area of about 10,960 square kilometres, including 2,580 square kilometres of the Lam Pachee river, the main tributary of the Kwaie Noi river. The basin is uneven and mountainous and covered with jungle and bamboo forest. Most of the rock in basin is limestone. The Kwaie Noi river, 320 km. in length, rises in the west of the Kwaie Yai river. The head water slope is about 1%, decreasing to 0.143% at the Sangkhla Buri district and to 0.05% near Tong Phaphum. Approximately 38 kilometres above Karnchanaburi, the Kwaie Noi river meets its largest tributary in the south, the Lam Pachee river. The average annual runoff is 6,700 million cubic metres or 58 percent of the Mae Klong river.

2.5 The Lam Pachee River

The Lam Pachee river is 165 km. in total length and an area of 2,580 square kilometres. The western part of the Lam Pachee river is rugged and mountainous and covered by dense forest while the eastern portion is less rolling and covered by shrubs.

2.6 The Mae Klong River

The Mae Klong river, 143 kilometres long, starts at Karnchanaburi where the Kwae Yai and the Kwae Noi rivers join together at latitude $14^{\circ} 1' N$. and longitude $99^{\circ} 32' E$ and flows through Tha Muang district, Tha Maka district, Rajburi, Samuthsongkram and empties into the Gulf of Thailand at the Latitude $13^{\circ} 21' N$ and longitude $100^{\circ} E$. The bed slope of river is 0.020% between Karnchanaburi and the Tha Maka and decreases to 0.014% between Tha Maka and the Gulf. The Mae Klong basin is a flood plain area of 7,020 square kilometres (excluding the Kwae Yai and Kwae Noi basins). The Mae Klong river starts to rise in June or July following the Southwest Monsoon rain and reaches flood peaks in August and September. The river begins to recede following the withdrawal of the Southwest Monsoon during October and November and reaches its lowest in April.

2.7 Temperature

The temperature in the Mae Klong basin ranges from $37.5^{\circ} C$ in April to $17^{\circ} C$ in December and January. The highest and lowest recorded temperature at Karnchanaburi are $42.5^{\circ} C$ in April and $5.5^{\circ} C$ in January respectively.

2.8 Rainfall

The Southwest Monsoon brings rain to the Mae Klong basin. The rain increases gradually about mid May and reaches its peak about September and drops again in October and November. The Southwest Monsoon ends in November and the Northeast Monsoon begins. Because of the Northeast Monsoon air is cool and dry so the rain in December, January, February, March and April is negligible. The average annual rainfall on the Mae Klong basin is about 1,050 m.m, but on the Kwae Noi and Kwae Yai basins are about 1,785 m.m and 1,323 m.m respectively.