CHAPTER 8

GEOGRAPHICAL AND ECONOMICAL SETTING OF THE PEARL RIVER ESTUARY

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1. INTRODUCTION

As shown in Figures 1 and 2, the Pearl River discharges into the South China Sea (SCS) through eight distributaries, locally called “the eight Gates” (or distributaries). The four western Gates (distributaries), the Modaomen Gate, Jitimen Gate, Hutiaomen Gate and Yamen Gate, discharge directly into the SCS. The four eastern gates, Humen Gate, Jiaomen Gate, Hongqimen Gate, and Hengmen Gate, discharge their waters into the “Lingdingyan”, which will be called the “Pearl River Estuary” (PRE) in subsequent discussions.

The PRE has an area of over 2,000 km², varying in width between 15 km at the northern end and about 35 km at the southern end, with a length of about 70 km. There are two deep channels, which are used for shipping. The western channel connects the SCS via the Lantau Channel (Figure 2) through the southeast side of the estuary mouth. The eastern channel leads to the SCS through Hong Kong waters. The water depth increases from north to south and, in the southern part of the estuary, the water depth decreases from east to west. Except for the deep channels and the areas around the two outer islands, Wansham Islands and Dangan Islands (Figure 2), where the water depth ranges from 20 to 30 m, most of the PRE is quite shallow with a water depth between 2 and 10 m.

The annual average discharge of the Pearl River is around 10,000 m³ s⁻¹, 53% of which flows through the four eastern gates. Eighty percent of the total discharge occurs in wet season between April and September, the ratio of maximum to minimum discharges in a year varying between 3 and 6 times (Chen and Heinke, 2002).
Figure 1. Schematic diagram of the Pearl River estuary (adapted from Chen and Heinke, 2002).

Figure 2. The Pearl River estuary (PRE).