



China's Major Bridges

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Maorun Feng, born in 1942, graduated from the Tangshan Railway Institute with a Master's degree, has been engaged in the design and research of bridges for 40 years. He is the Chairman of Technical Consultative Committee and the Former Chief Engineer of the State Ministry of Communications. He is also the current Chairman of China Association of Highway and Waterway Engineering Consultants.

Summary

In response to continuous economic development over the past 30 years, China has mobilized a program of large scale bridge construction. The technology of various types of bridges, including girder bridges, arch bridges, and cable-supported bridges, has been developed rapidly. Bridge spanning capacity has been continuously improved. Girder bridges with main span of 330 m, arch bridges with main span of 550 m, cable-stayed bridges with main span of 1 088 m and suspension bridges with main span of 1 650 m have already been built. Moreover, two sea-crossing bridges with overall length over 30 km have also been opened to traffic. This paper briefly introduces China's major bridges, including girder bridges with spans greater than 200 m, arch bridges with spans greater than 400 m, cable-stayed bridges with spans greater than 600 m, and suspension bridges with spans greater than 1 200 m. These bridges represent technological progress in such aspects as structural system, materials, as well as construction methods and equipment.

Keywords: girder bridge, arch bridge, cable-supported bridge, cable-stayed bridge, suspension bridge, steel-concrete composite bridge

1. Introduction

In the past thirty years, and especially during the past ten years, China has undertaken the world's largest scale highway and bridge construction program. Rapid and significant improvements to bridge construction technology have enabled breakthroughs in the design and construction of long spans. Bridge construction activity has been concentrated in the middle and lower reaches of the Yangtze River, the middle and lower reaches of the Pearl River, as well as the deltas of the Yangtze and Pearl Rivers (Fig. 1).

This paper briefly describes the development of major bridge construction in Mainland China (excluding Hong Kong, Macau, and Taiwan) in the years before and after the turn of the 21st century.

By 1978, China had 128 210 highway bridges, with a total length of 3 283 km, and 26 139 railway bridges, with a total length of 1 099 km. In the past three decades from 1979 to 2008, bridge construction averaged 16 000 bridges per year. By the end of 2008, there were 594 604 highway bridges in China, with a total length of 25 240 km, and 52 355 railway bridges, with a total length of 4 349 km.