



| STORIES FROM CHINA |

BY SUN RONGGANG

THE THREE GORGES HYDROPOWER-COMPLEX PROJECT

Flood Reduction and Power Supply

Translated by Li Rong & Wang Li

CHINA
INTERCONTINENTAL
PRESS

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藏书章

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Introduction

One of the largest hydropower-complex projects in the world, the China Yangtze Three Gorges Project (TGP) is a key project needed for improving and developing the use of Yangtze River's waterpower. Once completed, the project will bring many benefits to Chinese people, including increased flood control, power generation, navigation, tourism and water supply.

The TGP is located in the middle section of the Xiling Gorge, one of three gorges on the Yangtze River. It is composed of three parts: the dam, power plant and navigation structure. Of them, the dam is situated in the Sandouping Town of Yichang county, Hubei province. The TGP has been following a construction plan that aims to have all three phases completed in 17 years. During Phase I, from 1993 to 1997, the Yangtze River was cut off. After Phase II, from 1998 to 2003, the water level of the TGP reservoir increased by 135 m, and the double-way and five-step ship lock was open to



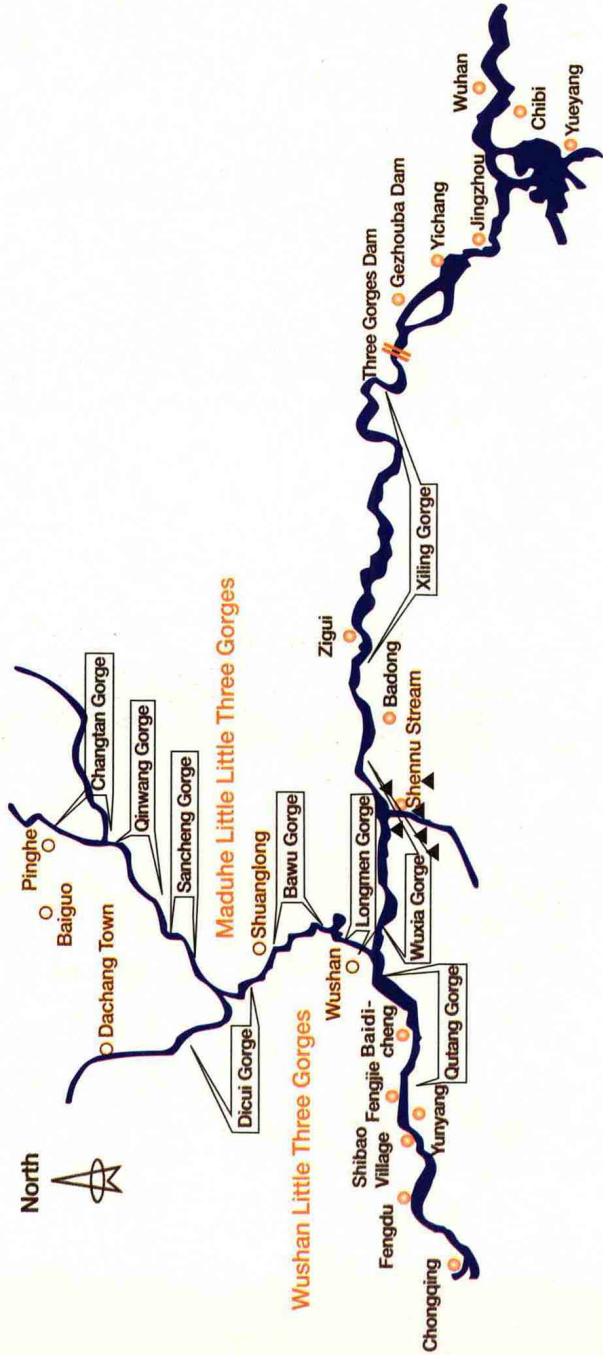
Impoundment line of the Three Gorges Project (TGP) Reservoir Area.

navigation. The first batch of generator units was also put into operation. Phase III, from 2004 to 2009, the water level will increase to 175 m and the whole project will be completed when all 26 generator-units are set up at both banks and begin producing power.

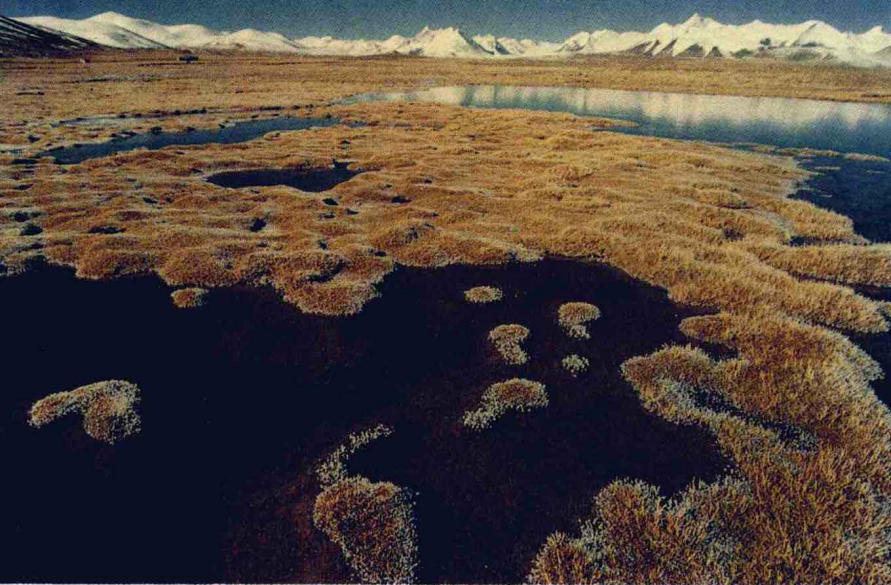
The TGP has been among the country's most important projects since China began carrying out its cross-century economic development strategy. The project is of great significance to build the Yangtze River economic belt, speed up the development of China's economy and enhance the country's comprehensive national strength. The TGP is not only expected to bring about great economic benefits to China, but also provide beneficial contributions to the development of water conservancy and hydropower technologies worldwide.

I Circumspect Decision-making





A map of the Three Gorges.



Headstream of the Yangtze River.

The Yangtze River is China's longest river. Its upper reaches stretch as far as Qinghai together with the Yellow River in northwestern China. The river is 6,300-km long and runs through 10 provinces, autonomous regions and municipalities in China, covering a drainage area of more than 1.8 million square km. Known as the "Mother River", the Yangtze River, along with the Yellow River, provides water for about 400 million people in its basin. The Mother River of the Chinese nation, however, presented both benefits and disasters in the old days. From 185 BC to 1911 AD, it overflowed 214 times in the nearly 2,100 years, once every decade on average. The interval between floods later became shorter.



A flood hit Wuhan in the 1930s.

From 1499 to 1949, the Hubei Section of the Yangtze River flooded over its banks 186 times in the 450 years, overrunning once every two or three years on average. Within the century, between 1788 and 1870, three catastrophic floods occurred in the upper stretches of the Yangtze River. In the 20th century, large floods struck the Chinese nation in 1931, 1935, 1949, 1954, 1998 and 1999.

The Three Gorges, 192 km long, starts from Baidicheng of Fengjie County in Chongqing, and ends at Nanjin'guan Pass of Yichang, Hubei. It is composed of the Qutang Gorge, the Wuxia Gorge and the Xiling Gorge. The Three Gorges together are known as the "throat" of the Yangtze River.

In 1894, Sun Yat-sen, the great democratic revolution

pioneer of China, suggested the TGP. In 1924, he gave a lecture in Guangzhou, saying: "The Kuixia Gorge, in the upper reaches of the Yangtze River, has great waterpower. A survey shows the waterpower from Yichang to Wanxian is large enough to produce 30 million HP of electric power, much larger than the power generated in any country. The power can not only be used for trains, trolleybuses and plants nationwide, but also be used to make fertilizers." However, Sun's idea could not come true in such a warlord-hit and poverty-stricken China.

In the summer of 1931, a catastrophic flood occurred



The beautiful landscape of the Wuxia Gorge.



A scenic view of the Xiling Gorge.

in the Yangtze River. Subsequently, experts made proposals to the government to conduct a survey to the Three Gorges with the aim to develop the TGP. In 1944, Dr. John Lucian Sovage, general engineer of the Bureau of Reclamation of the US and a famous American expert in dam construction, together with other Chinese and American experts from the Resource Committee of the then Nanjing National Government, went deep into the Xiling Gorge on sampans for a 10-day field survey. As soon as returning from the survey, Sovage began working tirelessly on the *Proposal on the Three Gorges Project of the Yangtze River*. This proposal covered all details including reservoir, dam, flush weir, scour outlet, head race, powerhouse, tail race and ship lock. The TGP is designed to play integrated roles such as power generation, flood control, irrigation and navigation. Sovage was quoted as saying: "The Three Gorges has a unique and natural condition in China and even in the world. The dam is sited in Yichang, the center of China, and we are so blessed for the ideal location." However, his proposal was forced to end under such a historic background. In 1963, Xu Huaiyun, a Chinese engineer, made a special visit to the 84-year-old Sovage. Seeing Xu, Sovage was so glad and said: "The dam will be built up for sure. China has numerous intellectuals, and they won't lay the treasure aside.



But to me, it is only a sweet and bitter dream."

On February 19, 1953, Chairman Mao Zedong got on the "Changjiang" Ship in Wuhan and began his inspection to the middle and lower reaches of the Yangtze River. When listening to a report on flood control, water conservancy, irrigation and power generation of the Yangtze River by Lin Yishan, director of Changjiang Water Resources Commission, he reaffirmed the need to construct the TGP. In January 1958, the TGP was included in the agenda of the Nanjing Conference of the CPC. At the conference, Mao Zedong listened to reports on the TGP made by the Ministry of Water Resources of RPC and Lin Yishan in earnest and instructed them "to make active, sufficient and reliable preparations". After the conference, Mao Zedong talked about preparations for the TGP with Lin Yishan alone and also asked Zhou Enlai, the then Prime Minister of the State Council, to take charge of the project.

In August 1959, Zhou listened to the report regarding preparations for the TGP made by Lin Yishan and head of the support-China expert group of the Soviet Union. In 1960, the Yangtze Valley Planning Office (YVPO) finished the preliminary designs and made plans to start the TGP the following year. Due to the economic difficulty in China and the international situation then, however, the central



The Gezhouba Water Control Project.

government decided to delay the construction of the TGP. At the Yangtze River Planning Work Conference held in Beidaihe, Hebei, in August 1960, Zhou Enlai came up with the guideline of “accomplishing the great goal through intensifying scientific research and civil defense”. Preparations for the TGP were then put on hold.

When the TGP was laid aside, the Gezhouba Project, another project on the Yangtze River near the Three Gorges, was started on December 30, 1970.

The Gezhouba Water Control Project is 2.3 km away from Nanjin’guan of Yichang, Hubei. It is named after the Gezhouba Island, over which the

dam's axis spans. In the plan of the Yangtze River basin, it acts as a counter-regulation reservoir of TGP. The aim of the project was to improve the waterway between the two dams, store tail water from the TGP power plant and generate power from the 20-meter head water between both dams. The project, however, only lasted two years before it, too, was put on hold because its design and construction needed improvement. After its plan was modified, the project was resumed in October 1974.

On January 4, 1981, the Yangtze River, the third



The Three Gorges prior to the project. The small island, Zhongbao Island, is the site of the TGP.