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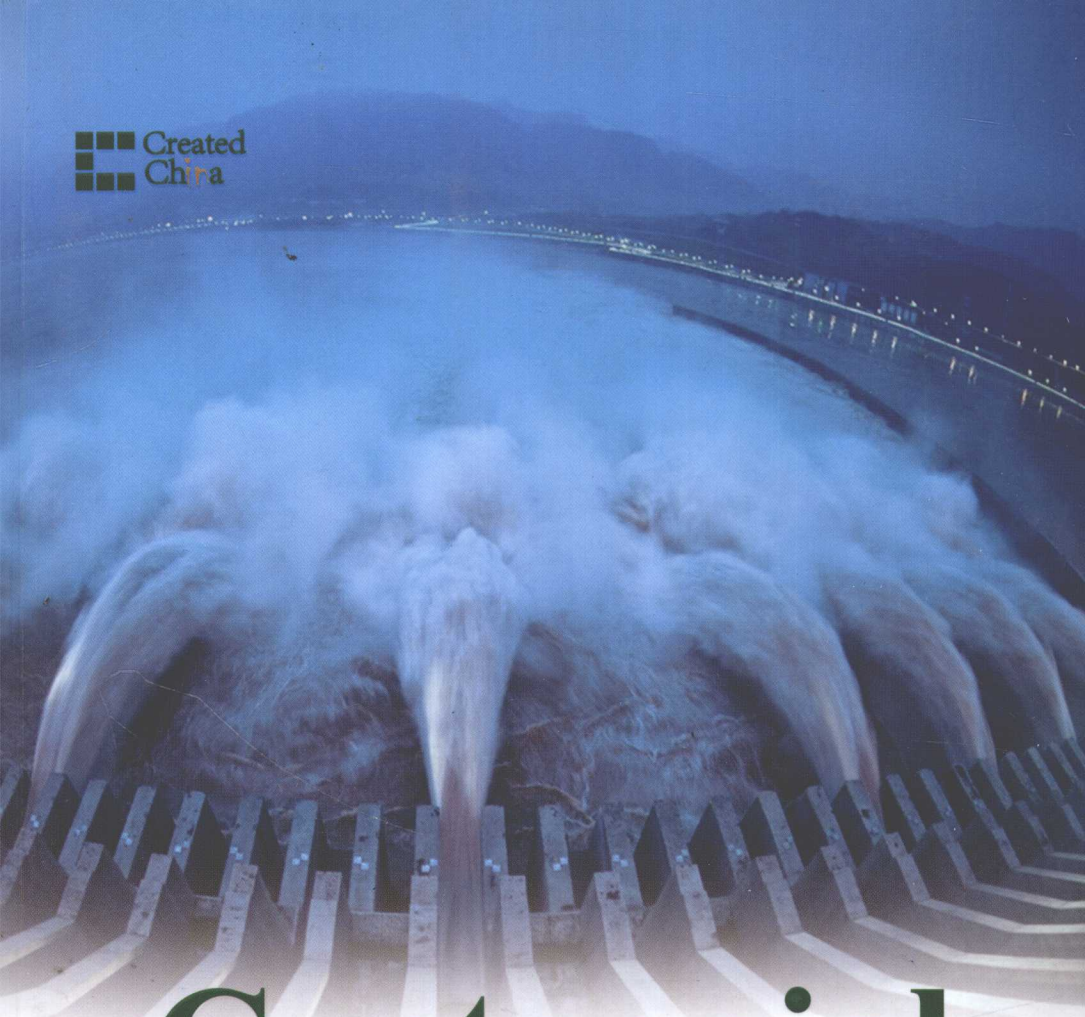

Centennial Hydraulic Project

South-North Water Diversion

Zhao Hongliang

China Intercontinental Press

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Contents

Foreword

Water resources in China are unevenly distributed between South and North China: South China receives far more water than it needs every year while North China has been suffering from drought and water scarcity for years. In particular, water shortage on the North China Plain has seriously affected industrial and agricultural production there. Meanwhile, poor attitudes to water conservation from people also results in a low water resource utilization rate and severe water pollution.

The South-North Water Diversion Project is a project to divert part of the surplus water of the Yangtze River to northern and northwestern China. It is a significant strategic project aimed at both changing the propensity to flood in South China and changing the risk of drought and serious water scarcity in North China, thus promoting coordinated development of the economy, society, population, resources and the environment of South and North China.

Since Chairman Mao proposed that "Southern water is plentiful, and northern water scarce...if at all possible, it could be good to borrow some water" on October 30th, 1952, the Ministry of Water Resources had convened many meetings to discuss the feasibility of the proposal and organized experts for comprehensive consultation. After decades of studies, the general layout of the South-North Water Diversion Project was finalized: water was to be diverted from the upstream, midstream and downstream of the Yangtze River, which are now the eastern, central and western routes respectively.

The South-North Water Diversion Project involves three water diversion routes, namely, the eastern, central and western, and represents a total investment of RMB 500 billion. Nowadays, the project is in full flow.

The South-North Water Diversion Project is a great pioneering undertaking in the water control history of the Chinese nation. With the unremitting efforts of several generations of Chinese people, the South-North Water Diversion Project was commenced in 2002. The first stage of the eastern route will begin to supply water in 2013, and the first stage of the central route is scheduled to supply water in 2014.

2013 sees the South-North Water Diversion Project enter the final construction stages. With concerted efforts from the Chinese government and numerous different constructors, and after ten years of construction, the South-North Water Diversion Project has gradually shown its social, economic and ecological benefits in water supply, drought resistance, shipping navigation and water logging control.

The South-North Water Diversion Project is an important piece of strategic infrastructure not only for China to alleviate water shortage and ecological environment deterioration in North China and promote optimized allocation of water resources, but also for China to realize the objective of building a prosperous society with a secure infrastructure that can become a harmonious socialist society. It plays a vital role in enhancing the overall economic development and implementing the basic national policies on resource conservation and environmental protection.

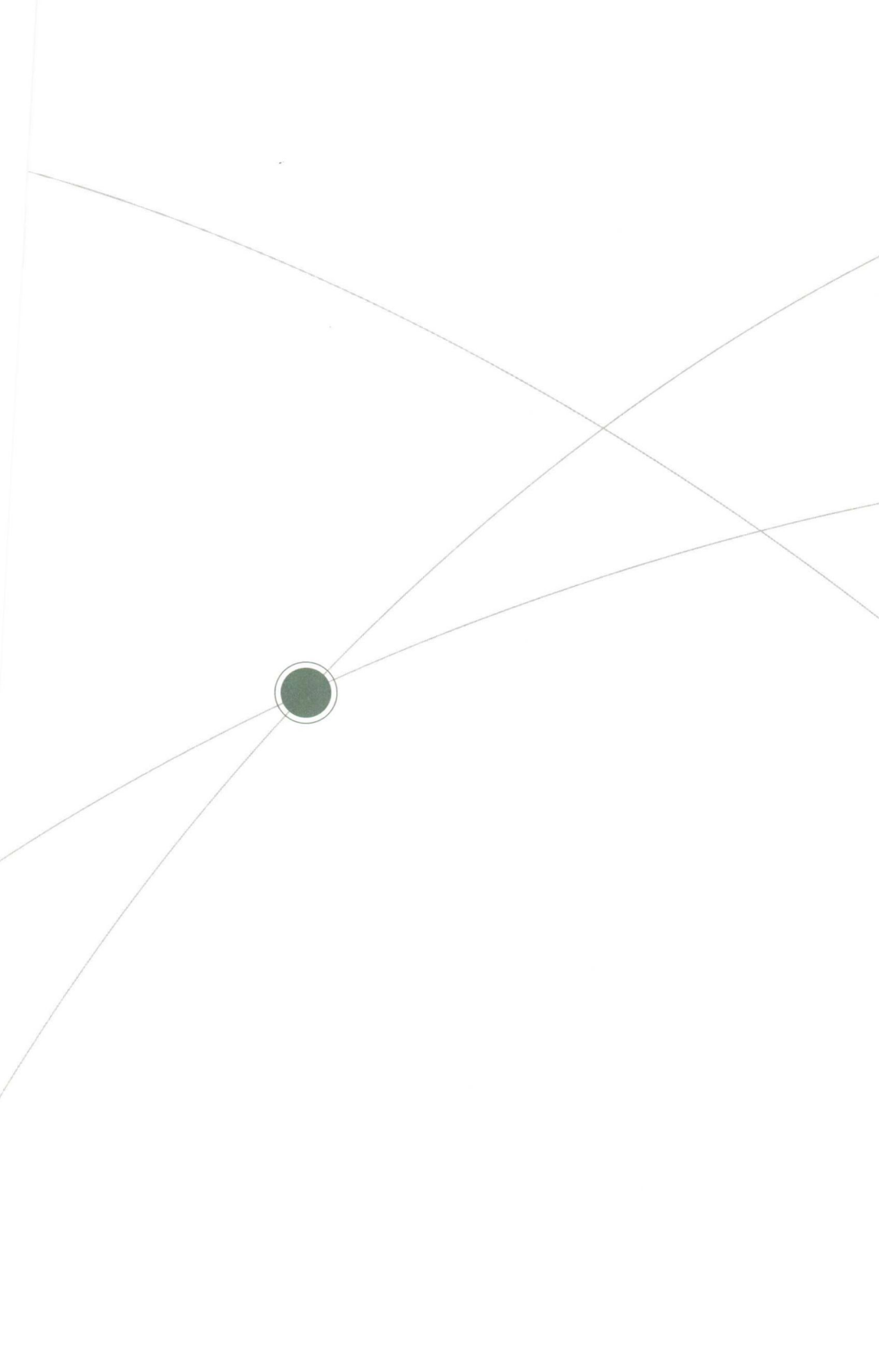
After completion of its construction, the South-North Water Diversion Project with an annual water diversion amount equal to the amount of water in the Yellow River, will effectively alleviate water deficiency in northern China and be of immense significance in safeguarding China's grain safety, restoring and improving the ecological environment and promoting the development of the western regions.

Nowadays, the design works of the central route which directly relate to water supply have been completed, migrant relocation and resettlement has been comprehensively accomplished and ecological

pollution control and established works of the eastern route have begun to show their benefits. All this is turning the magnificent blueprint of the South-North Water Diversion Project into a reality.

As the South-North Water Diversion Project pushes ahead, the Yangtze River is going to moisten the vast northern land with its water as a river of life. At that point, South and North China will be connected with one river. The dream that has been lingering in the minds of generations of Chinese people over the past half a century is about to come true.

The theory of "water as the source of life, a must for production and the basis of ecology" is being put into practice in the South-North Water Diversion Project and the project is playing its part in helping the Chinese nation to fulfill its dream of a great rejuvenation.



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Water Resource Situations in China: North China with Water Scarcity vs. South China with Water Surplus

Water serves as the source of life, is essential for production and is the basis of ecology. Humankind can never live without water, either in ancient times when they migrated to wherever water and grass were available to nowadays where they live and work in peace and contentment.

Those who are sophisticated in running a country also pay great attention to water control. Success and failure of water control also decides to a great extent the rise and fall of a country or nation, which is true at all times and in all lands.

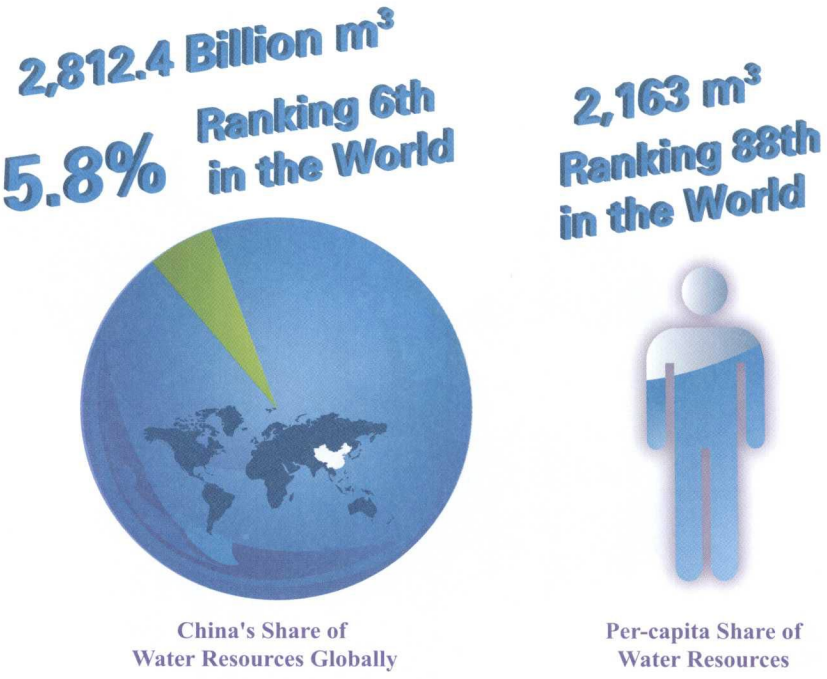
In view of the increasingly serious situations of scarcity of water resources, the Chinese government made the important and well-timed decision to carry out the South-North Water Diversion Project.

This was an enormous inter-basin water diversion project that was organized and implemented in the time after the founding of New China. It was a project relating to the water resource situation, put in place to safeguard people's livelihoods which had the support of common people. It was also a strategic piece of infrastructure which will benefit not only present, but also future generations.

Three Basic Features of China's Water Resources

China's "water" is faced with two major problems: first, shortage of water resources, and second, serious water pollution. Sources suggest that China is a drought country with severe water scarcity. With its per-capita share of freshwater resources just one quarter of the world's

Two Major "Water Problems" of China

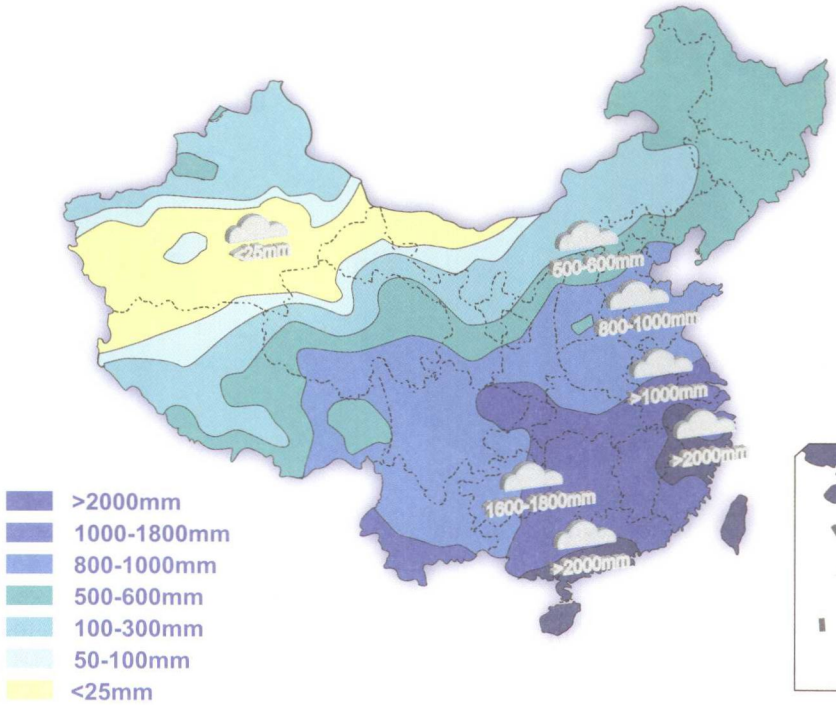


China's Share of
Water Resources Globally

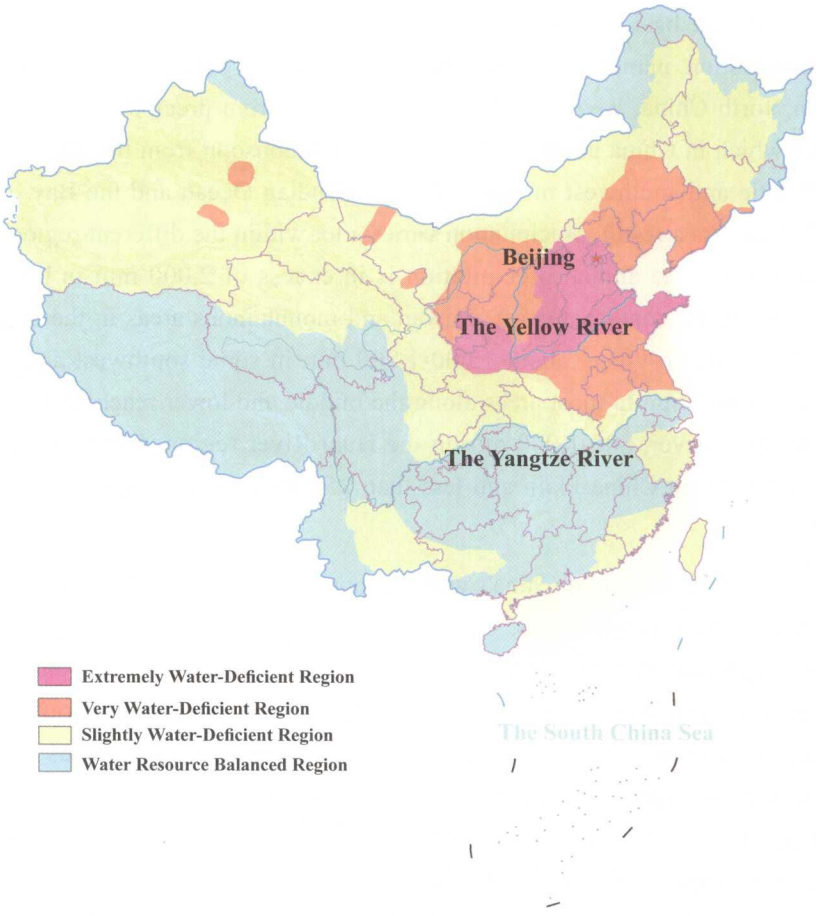
Per-capita Share of
Water Resources

average, it ranks 110th in the world and amongst the countries with the lowest per-capita share of water resources. China's per-capita share of available water resources is only 900 m^3, which is also extremely unevenly distributed.

China's gross multi-year average amount of water resources is 2,812.4 billion m^3, accounting for about 5.8% of the world's gross amount of water resources and ranking 6th in the world. However, since China is the most populous country in the world, its per-capita share of water resources is only 2,163 m^3, amounting to one quarter of the world's average and leading to drop of its rank in terms of the per-capita share of water resources to 88th among the 153 countries worldwide according to the statistics of the World



▶ Basic Features of China's Water Resource Distribution



Water Scarcity Situations in China

Bank in 1998. Therefore, water resources are also a precious natural resource in China, and research on the development and utilization of China's water resources should take account of the fact that China is particularly poor in the per-capita share of water resources despite its large gross amount of water resources.

Another basic feature of China's water resources is uneven spatial distribution, namely, water scarcity in South China versus water surplus in North China. River runoff generally comes from precipitation, most of which in China is affected by a southeast monsoon from the Western Pacific and southwest monsoon from the Indian Ocean and the Bay of Bengal. As a result, precipitation varies a lot within the different regions of China. The annual precipitation is in excess of 2,000 mm in hilly areas on the southeast coast, Taiwan and mountainous areas in the east of Hainan Province, about 1,600-1,800 mm in some southwest areas, over 1,000 mm in most areas along the middle and lower reaches of the Yangtze River, 800-1,000 mm in the Huai River region, 500-600 mm on the North China Plain and less than 25 mm in desert areas in West China.

The third feature of China's water resource distribution is large annual or inter-annual variations. Variations in the frequency of occurrence, strength and moisture content of monsoons often result in extremely uneven distribution of annual and inter-annual rainfall and runoff and finally give rise to continuous rainy seasons and continuous dry seasons, or continuous drought years and continuous high flow years. In particular, occurrence of consecutive drought years badly hampers the development of the national economy and causes deterioration of the ecological environment, especially for regions already suffering from shortage of water resources.

The aforementioned three basic features are also three major problems to be solved in developing and utilizing water resources and safeguarding the sustainable and healthy development of the national

economy. The South-North Water Diversion Project is a large-scale project committed to optimizing the allocation of water resources by advanced engineering and technological means.

Water Resources as a Bottleneck for Economic and Social Development of North China

The Huang-Huai-Hai region in North China sees the most astonishing contradiction between the bearing capacity of water resources and economic and social development. Both the population and the gross domestic product (GDP) of North China account for about 35% of the country's total population and GDP. With a large population density and containing many large and medium-sized cities, it occupies an important position in China's economic structure. Nevertheless, the amount of its water resources is only 7.2% of the gross amount throughout China, and its per-capita share of water resources is just 450 m^3, only 22% of the nation's average.

In North China, the Huang-Huai-Hai region is the region poorest in water resources, with its per-capita share of water resources being only 272 m^3, lower than 1/8 of the per-capita level of China as a whole. Since the 1980s, the Huang-Huai-Hai plain has been suffering from continuous drought leading to a steady decline of its water resources. Currently, the water deficit in the region has reached 31.3 billion m^3, with the water shortage in the Yellow River basin (corresponding to "Huang" in the Huang-Huai-Hai region), the Huai River basin and the Hai River basin being 9.4 billion m^3, 9.5 billion m^3 and 12.4 billion m^3 respectively. With the development of the local economy and a growing demand for water,