

Water and the History of China*

Li Bozhong

History Department, Peking University

水是生命之源，与人类文明之间有着密不可分的联系。但是，水在中国具有更加特别的意义，因此中国人创造出了龙这一神灵，并以此作为中国、中国人和中华文明的象征。可以说，正是中国这片土地上独特的水文条件，造就了人类历史上的三个伟大奇迹——中国、中国人和中国文明。为了有效利用水资源、防止水患，中国人民在治水和用水方面，付出了比其他任何国家人民更多的努力，取得了举世无双的成就，为上述三大奇迹奠定了基础。在今天，中国人的治水和用水面临着史无前例的严峻挑战。探究中国历史与水的关系，将为我们提供一个了解水在长期的社会发展中所起的重要作用的良机。

关键词：水 历史 中国 中国人 中华文明

Water is the source of all life, and is closely related to human civilization. It had a special significance in China, so the ancient Chinese created the dragon god as a symbol of China, the Chinese and Chinese civilization. It can be said that the unique hydrological conditions on the territory of China created three great historical miracles: China, the Chinese people, and Chinese civilization. The Chinese have dedicated more effort than people in any other countries to water control and water use in order to make effective use of water resources and prevent flooding. It is their unparalleled achievements that have laid the foundation for these three miracles. Today, the Chinese people are facing unprecedented challenges in water control and water use. Exploring the historical Chinese relationship with water offers a good opportunity to understand the important role that water plays in long-term social development.

Keywords: water, history, China, Chinese people, Chinese civilization

Jia Baoyu, the hero in *The Dream of Red Chamber*, a masterpiece of 18th century Chinese literature, said, "Women are made out of water and men out of mud." There is more truth to

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this than appears. Water has shaped the history of all peoples, but rarely has this been as well documented as in China.

I. Prelude: The Chinese Dragon Worship

Dragon culture is as old as Chinese history. The dragon was among the most important objects of worship in ancient China. The earliest images of the dragon appear on Neolithic painted pottery. The character *long* (dragon) can be found in inscriptions on oracle bones dating to the Shang dynasty (c.1600-1046 BC). It evolved into the form to which we are accustomed today. In sharp contrast to the dragon in the European tradition, which is often associated with evil, the Chinese dragon represents esteem, reverence and beneficence, and has long enjoyed a preeminent status in the spirit world of traditional China. Small wonder that the dragon was the imperial symbol in China. The emperors were known as “the real dragons” (*zhenlong tianzi*). The imperial throne was called “the dragon throne,” the emperor’s bed “the dragon bed,” and his ceremonial dress “the dragon robes.” Images of the dragon were everywhere to be seen in the imperial palace.

In more recent times, the dragon also came to symbolize the Chinese nation. The first Chinese national flag was the Dragon Flag, while the first silver dollar coins made by the Chinese government were Dragon Dollars. Even after 1949, images of the dragon have still remained on the ornamental columns erected in front of Tiananmen, the symbol of the political center of the People’s Republic of China. People in China still call themselves “the descendants of the dragon.”

The dragon is ubiquitous in Chinese popular culture. Dragon King Temples can be found all over the country. Dragon Kings play a central role in many folktales, and the Dragon dance is performed at the Chinese New Year and at other festivals. The Dragon-boat race is the most welcome of Chinese carnivals. In China, without images of dragons, no celebration would seem complete.

But what is the Chinese dragon? Historian Li Yan (1914-2008) summed it up this way: “The image of dragon, no matter how it has changed, is always related to water.”¹ In other words, the dragon is the God of Water, the governor of rain holding the power to decide where and when to have rain fall. The worship of the dragon, therefore, is the worship of the God of Water or, more probably, of water itself.

II. Three Miracles in Chinese History

Nowadays, people all over the world often speak of “the Chinese miracle”—the unprecedented rapid economic growth China has achieved in the past three decades. But historically, China created three other miracles, each of which was more significant than

1 Li Yan, “The Origin of Dragon Worship,” pp. 458-487.

the recent economic miracle. It was these great miracles that made the history of China so distinctive in world history.

The first miracle is the country. There have been many great empires in world history, each commanded large territories and populations, and many lasted for long periods of time.² But none of these outlasted China. Formed in the middle of the third century BC, the Chinese Empire endured until the early twentieth century. For the most of two millennia, China, at least China proper, was under one administration. In the broadest perspective, the Chinese Empire was the major exception in the premodern world to what would appear to be the rule that units of large territorial and demographic extent were not stable over long periods of time.³ This long-time union is unique in world history and therefore constitutes a historical problem worthy of investigation.

The second miracle is the people. As early as in the first century AD, the population of China's Han Empire reached 60 million, 10 percent more than that of the Roman Empire, which had the second largest population in the world at the time.⁴ Since 1300 AD, China has been the largest country in the world in terms of population. In the eighteenth century, one out of every three persons in the world was Chinese.⁵ Moreover, the overwhelming majority of the residents living on this land saw themselves as a single people, who shared a common language, culture and writing system, although this continent-sized country contained within its borders a considerable diversity of ethnic, religious and regional variations. As traditionally conceived in China, all the Chinese people were just members of a huge family, and China was the home of all the Chinese people.⁶

The third miracle is Chinese civilization. After a long period of evolution, by the third century BC, this civilization had taken its full form, and had become the guiding spirit to a very large proportion of humanity, not just in China, but throughout East and Southeast Asia, including what is now Japan, Korea, Vietnam, and of course such sinitic states as Singapore.

2 Among these great empires, most historians would include the Roman Empire (27 BC-395 AD), the Byzantine Empire (330-1453 AD), the Mayan Empire (c. 250-900 AD), the Arab Empire (622-750), the Mongol Empire (1206-1368), the Ottoman Empire (1299-1922), the Spanish Empire (1492-1898), the British Empire (1583-1945), and the Russian Empire (1721-1917), among others.

3 Mark Elvin, *The Pattern of the Chinese Past: A Social and Economic Interpretation*, p. 17. Jonathan Spence also exclaimed with admiration, "In the year A.D. 1600, the empire of China was the largest and most sophisticated of all the unified realms on earth. The extent of its territorial domains was unparalleled at a time when Russia was only just beginning to coalesce as a country, India was fragmented between Mughal and Hindu rulers, and a grim combination of infectious disease and Spanish conquerors had laid low the once great empires of Mexico and Peru. And China's population of some 120 million was far larger than that of all the European countries combined." Jonathan Spence, *The Search for Modern China*, p. 7.

4 The population of the Roman Empire was 54 million at the death of Augustus in 14 AD. See Angus Maddison, *Contours of the World Economy 1-2030 AD: Essays in Macro-Economic History*, p. 35.

5 James Lee and Feng Wang, *Malthusian Mythology and Chinese Reality: The Population History of One Quarter of Humanity, 1700-2000*, p. 6.

6 In the Chinese language, "country" (*guojia*) means "state" (*guo*) plus "home" (*jia*).

This civilization included a particular form of writing, a distinct technology, and characteristic conceptions of man and of the world, including ideology and political institutions. The Han and the Roman Empires that stood at the two ends of Eurasia represented two major civilizations of the world of the time. In the millennia following the collapse of the two empires in the fourth century AD, the Chinese civilization continued, but the Roman one did not. One might note that many significant features of Roman civilization were incorporated into later social formations in Europe and America. However, these practices did not persist primarily within the same geographic region, the Italian peninsula. In this sense, it is not unreasonable to say that the civilization of China is the world's longest continuous civilization.

All these miracles distinguish the history of China from those of other parts of the world and so constitute a problem of genuine historical interest, one that is sometimes labeled "China's exceptionalism." The question remains, however, that on what foundation such "exceptionalism" could have been built.

III. The Chinese Efforts in the Control and Use of Water

There is a very close link between water and the three Chinese miracles. It is this link that partly explains why people in China have worshipped water to such a degree and why they have made more efforts in water management than elsewhere.

Confucius (551-479 BC) observed that: "Water can support a boat, but it can also swallow it up."⁷ This vivid description reveals the dual nature of water: it can be beneficial as well as harmful to human beings. To exploit its potential benefits and to prevent its dangers were crucial concerns throughout China's history.

The traditional Chinese narrative of its history reflects the significance of water engineering.⁸ The founder of the first dynasty, the Xia, was Yu the Great, an outstanding

7 Originally in *The School Sayings of Confucius*, vol. 5, "Yijie," cited in Fan Ye, *History of the Later Han*, vol. 65, "Biography of Huangfu Gui." *The School Sayings of Confucius* has long been ignored as an apocryphal text. The discovery and study of excavated manuscripts now allows a reconsideration of its compilation and reliability. According to *The School Sayings*, Confucius's disciples arranged and recorded the text while the master was teaching; after hearing Confucius deliver a lesson, they would always "withdraw and record it." After Confucius passed away, his descendent Zi Si (483-402 BC) compiled both the *Analects* and his *School Sayings*.

8 This relationship was first observed by Karl A. Wittfogel (1896-1988). He argued that a "hydraulic empire" (also known as a "hydraulic despotism" or a "water monopoly empire") arose through the need for flood control and irrigation, which required central coordination and thus gave rise to a specialized bureaucracy. In Wittfogel's view, China was a major representative of this kind of "hydraulic empire." He maintained that China was ruled by force and that, though a dynasty might be overthrown by force, the new regime would differ very little from the old one. Wittfogel may have been right about the importance of water engineering, but his theory generally has been discredited because he tied that to an argument using an intuitive analogy linking hydraulic engineering and "despotism." See J.M. Blaut, *The Colonizer's Model of the World: Geographical Diffusionism and Eurocentric History*, pp. 83-90. In

engineer and organizer of hydraulic works. Early histories maintain he was selected as King because of his achievements in the taming of the unruly Yellow River.⁹ This story and its ideals have been repeated without a break throughout Chinese history. After China's unification in 211 BC, large-scale water management projects became a top concern for the imperial state.¹⁰

Over two millennia, engineers in China developed three types of large-scale water works: water control projects, irrigation systems, and water transportation networks.

It is well known that the Chinese built the Great Wall to guard their northern borders from attacks from bellicose nomadic tribes. The Wall is one of the largest construction projects in human history. It is less well known, however, that two other "great walls" were built from water. The first was the Yellow River Dikes. The Yellow River is called the "Mother River" in China, but though it nurtured Chinese civilization, it also wreaked disaster among the residents of the North China Plain.¹¹ To hold the river water within its banks, dikes were fashioned which, over time, eventually formed the Yellow River Dikes, extending 1,500 kilometers.¹² In the middle of the Yangzi River, another Chinese "Mother River," the second "great wall," the 180 kilometer-long Jingjiang Dikes were built and re-built several times over the past millennium and a half, protecting the surrounding area of 18,000 square kilometers

fact, in imperial China, in particular late imperial China, though the central government took the major responsibility in the construction and management of large-scale water projects such as the Yellow River Dikes and the Grand Canal, most water conservancy projects were initiated, sponsored and carried out by the local authorities, autonomous communities and non-governmental organizations of different kinds, not by the central government of a "despotic state."

9 Yu the Great, allegedly born in 2059 BC, was one of the legendary Three Sage Kings at the dawn of Chinese civilization. According to legend, under the leadership of Yu the Great, the people living in the North China Plain succeeded in excavating the Longmen Gorge, which warded off disastrous floods of the Yellow River.

10 Large-scale water activities, often organized and coordinated by the state, continued through the entire imperial period. For example, in 109 BC, Emperor Wudi (156-87 BC) of the Former Han dynasty sent tens of thousands of troops to shore up the banks of the Yellow River following a flood. The emperor himself arrived at the site and also ordered officials to carry construction materials as needed. In 69 AD, Emperor Mingdi (28-75 AD) of the Later Han dynasty sent hundreds of thousands of troops to dredge the Yellow River, at a cost of billions of copper coins. In the construction of the Grand Canal, Emperor Yangdi (569-618 AD) of the Sui dynasty drafted millions of laborers to dig the canal. The Ming and Qing states created two special high positions for maintaining the Yellow River and for the administration of the Grand Canal transportation; they handled vast amounts of money.

11 Flowing eastward from its sources in the mountains and plateaus in the west, the Yellow River picked up a large amount of sand and silt along the way. The river's rate of flow slows as it enters the plain and, as it does so, its capacity for carrying the silt thus acquired declines. The sand deposits come to form a "hanging river," where the riverbed is higher than the surrounding land beyond the raised banks. During the past three millennia, the river changed its course twenty-six times and broke its banks more than 1,500 times, each time causing serious loss of life and property.

12 The contemporary Yellow River Dikes, most of which were re-built between the fifteenth and nineteenth centuries, consist of the 605-kilometer-long southern dikes, the 719 kilometer-long northern dikes, as well as other dikes totaling 174 kilometers in length. The total length of the dikes is 1,498 kilometers. The dikes are 3-5 meters higher than the surrounding land.

from flooding. The magnificent Jiangsu-Zhejiang seawalls, which were built along the coasts of East China, formed a 600-kilometer-long fortification.¹³ This engineering work was designed to save the Yangzi Delta, the richest area of the country, from encroachment by the sea.

The earliest existing irrigation project in the world is the Dujiangyan irrigation project near Chengdu in Southwest China.¹⁴ It was initiated in 256 BC and is still in use today, irrigating over 5,300 square kilometers of fertile land. More irrigation projects were built during imperial times.¹⁵ Thanks to these irrigation systems, about 30 percent of China's cultivated land was being irrigated by 1400 AD, and this proportion was sustained during the following five centuries, although the total of China's cultivated land increased threefold in this period.¹⁶ Compared with the proportions in other large regions such as India, or Europe, the proportion of irrigated land in China was extremely high.¹⁷

Among all of China's rivers, the Yangzi River, the Yellow River and the Pearl River are the largest in terms of length and area of watershed. All three great rivers originate in the west and flow east. In order to connect the north and south, Chinese engineers excavated a north-south "man-made Mississippi," or the Grand Canal. The canal, 1,794 kilometers long today and about 2,500 kilometers long until the 13th century, is the largest artificial transport waterway ever built in world history and was one of the mankind's stellar engineering achievements.¹⁸ It connects the Yangzi River, the Yellow River and three major rivers in northern China.¹⁹ Another less well-known but very important north-south canal, the Lingqu Canal, was built in 214 BC and is the oldest existing canal in the world. This canal, located near Guilin in Guangxi, connects the Xiang and Li Rivers, two branches of the Yangzi and the Pearl Rivers. These canals, with numerous flash-locks, dams, artificial reservoirs, piers, wharfs, docks and storehouses, connect the three great rivers and other major rivers, including the Gan, Xiang, Han, Xijiang, Huai, Hai and others. In addition, through sea routes, the entire coast of the country is linked together. As a result, a water transportation network based on three great

13 The seawalls were built with stone and earth, 4.5 meters high, 12 meters wide in the bottom and 3-6 meters at the top.

14 The Dujiangyan project became a UNESCO World Heritage Site in 2000.

15 These include the elaborate irrigation systems built in the Yangzi Delta, the Pearl River Delta, the Dongting Lake region, the Jiang-Han Plain and so on.

16 Angus Maddison, *Chinese Economic Performance in the Long Run* (Second edition, revised and updated: 960-2030 AD), p. 15.

17 In India only about 3.5% of the cultivated area was irrigated in 1850. In Europe, aggregate figures are not available, but the average was probably much nearer to that of India than to that of China. Maddison, *Chinese Economic Performance in the Long Run*, p. 15.

18 The length of the Grand Canal is respectively 16 times and 33 times the lengths of the Suez Canal and Panama Canal.

19 These rivers include the Qiantang, Huai and Hai Rivers and the silted up Daqing River, all of which flow west-east.

T-shaped networks had been formed well before the nineteenth century.²⁰

In short, as Joseph Needham observed in his classic *Science and Civilization in China*, the Chinese people have been outstanding among the nations of the world in their control and use of water.

IV. Water Management and the “Chinese Miracles”

The efforts made toward water management in China surpassed those in all other countries.²¹ These efforts were rewarded generously and their achievements constituted the basis of the three “Chinese miracles.” The Yellow River Dikes allowed this region to avoid the fate that many other ancient civilizations suffered. Moreover, with its efficient irrigation systems, the river creates a green band when it enters the arid interior of China, with less than 300 mm (12 in.) of rain a year, in particular where it crosses the desert of Inner Mongolia.²² The water control projects made available sources of wealth in China,²³ contributing to the expansion and prosperity of the Chinese civilization.

The land in China accounts for only 8.6 percent of the world’s total acreage, but feeds 20 percent of the world’s population today.²⁴ Furthermore, the increase in cultivated land has been much slower in China than in the rest of the world.²⁵ Yet the high productivity of cropland in China was even more important in the past than it is today. Moreover, compared

20 The common leg of these T-shaped networks was the Yangzi River, while the two arms of the three Ts were (1) the Han River in the north and the Xiang River in the south, (2) the Grand Canal in the north and the Gan River in the south and (3) the northern and southern coastal lines. Both the Gan and the Xiang Rivers were connected with the offshoots of the Pearl River through the Linqiu Canal and the short Dayuling land road.

21 Steven Solomon, *Water: The Epic Structure for Wealth, Power, and Civilization*, p. 96.

22 Robert Kandel, *Water from Heaven: The Story of Water from the Big Bang to the Rise of Civilization, and Beyond*, p. 179.

23 The Dujiangyan Project made the Chengdu Plain “the land of abundance” as a Chinese saying has it. The irrigation systems built in the Yangzi Delta, the Pearl River Delta, the Dongting Lake area and the Jiang-Han Plain have earned these regions such accolades as the “land of rice and fish,” “rice basket” and “grain granary.”

24 China’s proportion of the world’s cultivated land today was thought to be 7%, but a new estimate is 8.6%. See Feng Zhiming, Liu Baoqin and Yang Yanzhao, “A Study of the Changing Trend in the Amount of Chinese Cultivated Land and Data Reconstruction, 1949-2003.” The world’s population was 6.7 billion in 2008, while the Chinese population was 1.32 billion. See Population Reference Bureau, *2009 World Population Data Sheet*, http://www.prb.org/pdf08/08WPDS_Eng.pdf.

25 For example, the share of the Chinese population in the world’s total population was about 29% in 1700 and 37% in 1820 (Maddison, *Chinese Economic Performance in the Long Run*, p. 24). In contrast, between 1700 and 1980, the total area of cultivated land worldwide increased 466% (D. Tilman, *et al.*, “Agricultural Sustainability and Intensive Production Practices,” pp. 671-677. In China, however, cultivated land increased only 177% between 1770 and 1957, from 950 million *mu* to 1,678 million *mu*. See Dwight Perkins, *Agricultural Development in China, 1368-1968*, p. 16. The 1957 figure marks the peak in the statistics of cultivated land in China. See Feng Zhiming, *et al.*, “A Study of the Changing Trend in the Amount of Chinese Cultivated Land and Data Reconstruction, 1949-2003.”

with residents of other parts of the world, people in China enjoyed a better standard of living for most of the past millennia.²⁶ This achievement may be attributed largely to China's efficient irrigation systems that made the high productivity of farmland possible.²⁷

The water transportation network based on the three T-shaped waterways penetrated both the population and the economy of China. This network constituted the country's lifeline. China is a continent-sized country with great diversity in ecological environment as well as natural resources;²⁸ thanks to its unusual water system, this diversity of ecological zones, along with their multiple natural resources, was united into a single network. The areas

26 Angus Maddison argues that, already in the tenth century, China was the world's leading economy in terms of per capita income and this leadership lasted until the fifteenth century (Maddison, *Chinese Economic Performance in the Long Run*, 15). After the fifteenth century, the Chinese still lived pretty well until the late nineteenth century. Jacques Gernet suggested that the Chinese peasant of the Yongzheng (1723-1735) and the first half of the Qianlong (1736-1765) eras was in general better nourished and more comfortable than his French counterpart in the reign of Louis XV. *A History of Chinese Civilization*, pp. 420-421. Ping-ti Ho also argued that the peasants of eighteenth-century China lived better than their counterparts in eighteenth-century France, or early nineteenth century Prussia, or Tokugawa Japan. *Studies on the Population of China, 1368-1953*, p. 194. Paul Bairoch estimated per capita GNP for China in 1800 as \$228 (1960 US\$). The number compares rather well with his estimates for various years in the eighteenth century for England and France, which ranged from \$150 to \$200. Cited in Paul Bairoch and Fernand Braudel, *The Perspective of the World, Civilization & Capitalism, 15th-18th Century*, vol. 3, p. 534. No wonder that Adam Smith believed that "China has been long one of the richest, that is, one of the most fertile, best cultivated, most industrious, and most populous, countries in the world." Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, p. 30.

27 The quality of China's natural environment is not very good, compared with many other parts of the world. The case in the north and northwest, long under the threat of desertification, is particularly bad. According to recent statistics, an estimated 331 million hectares—roughly a third of China's total area—is prone to desertification. Of this total, desertification is actually occurring on about 262 million hectares. This is believed to be the highest ratio of actual-to-potential desertification of any country in the world. The World Bank, *China: Air, Land, and Water: Environmental Priorities for a New Millennium*, p. 18. Without irrigation, a good part of cultivated land of China would have become desert.

28 John McNeil draws a global analogy for the two major Chinese rivers and the Grand Canal: Like the Nile before the Aswan Dam was built, the Yellow River carries irrigation water and fertile silt through an arid land. It floods seasonally. It is navigable to about 600 to 800 kilometers inland—as far from the sea as the first cataract of the Nile. The Yangzi River has flowed through China's "rice basket" since the middle of the Tang dynasty, providing irrigation water and cheap transport, as the Ganges does in India. The Yangzi is navigable 2,700 kilometers upstream as far as Chongqing. But because of the difficulties of sailing through the Three Gorges, large traffic on the Yangzi goes only to as far as Wuhan, about 1,100 kilometers from the sea, or about as far as the upstream limit for large ships on the Ganges (Allahabad). The Grand Canal is seen as a "man-made Mississippi." See John McNeil, "China's Environmental History in World Perspective," in Mark Elvin and Liu Ts'ui-jung, eds., *Sediments of Time: Environment and Society in Chinese History*, pp. 31-52. To his statement, I would like to add: like the Congo River in West Africa, the Pearl River flows through a tropical region with rich natural resources, especially timber, minerals and fruits, and with great potential for rice and sugarcane cultivation, though these potentials had largely not been exploited before the Ming dynasty. To a lesser extent, like the Volga in Russia, the Liao River, 1,390 kilometers long, flows through a sub-temperate zone with huge grassland and forests, which were largely untapped before the Qing dynasty.

so connected covered a span of thirty degrees of latitude, with ecologies ranging from the tropical to the subarctic. The network made available a great range of livestock and wide varieties of timber, grains, fish, fibers, salt, metals, building stone, and other resources. Therefore, the waterway system created in China a far more united polity and society than existed over comparably large and rich spaces elsewhere in the world (McNeil 1998).

In sum, none of the three “Chinese miracles” mentioned above could have occurred without successful water management efforts on this scale. The close relationship between water and the history of China is one of the major factors that support, to some degree, theories of “China’s exceptionalism.” In this sense, water is really a key to understanding Chinese history.

V. Epilogue: Continuity of the Past and Challenge in the Present

China has changed greatly in the last three decades. But China’s history still clearly illuminates its present. China’s present is in dialogue with its past.

As in the past, the Chinese people are devoting themselves to building more irrigation systems. In 1995, 52 percent of cultivated land in China was irrigated, in a sharp contrast to about 10 percent in the United States.²⁹ With the help of modern technology and massive investment, people in China are building water management projects on major rivers at an unprecedented scale and speed. The recently completed Three Gorges Dam ranks No. 1 among all the dams built in world history. But it is only part of an ambitious “South-to-North Water Diversion Project.” This massive scheme is expected to eventually divert 44.8 billion cubic meters of water annually to the thirsty north. The scheme includes the construction of canals such as the world has never seen, stretching south-to-north across the eastern, central and western parts of the country.³⁰ When completed, the work will more tightly link China’s major regions hydraulically.

But this is only part of today’s story of water. While these gigantic projects are underway, water availability and quality will remain a critical problem in China, and in fact the situation is likely to deteriorate over the coming decades.

The recent rapid economic growth in China has been accompanied by a substantial increase in the demand for water,³¹ but China’s per capita quantity of fresh water is only a quarter of the world average. As demand increases, so too have problems with water shortages,

29 Angus Maddison, *Chinese Economic Performance in the Long Run*, p. 15.

30 The scheme consists of three long diversion routes to divert water from the Yangzi River and its northern branches. The first one, the East Diversion Route channel, 1,466 kilometers long, is mainly the Grand Canal. But the Middle and West Diversion Route channels will be new. The Middle route will be 1,432 kilometers long, stretching from the Danjiangkou Reservoir to Tianjin City. The Western route will be hundreds of kilometers, running through some most difficult topographical areas in the world.

31 Between 1980 and 1993, urban water consumption increased by 350% and industrial water consumption doubled in China. The World Bank, *China: Air, Land, and Water*, p. 47.

pollution, falling groundwater tables, and damage from flood and drought. These problems are rapidly approaching crisis proportions, at least in some parts of the country.³² Moreover, there are no signs of improvement in China's most threatened freshwater lakes, and there are indications that groundwater pollution may be increasing.³³ China's unprecedented economic growth over the past 30 years has come at a huge cost to the country's resources. China needs to balance water protection with continued industrialization, urbanization, and improved agricultural productivity, so as to improve significantly the fit between development and water sustainability.

Emperor Taizong (599-649 AD) of the Tang dynasty, often considered one of the wise rulers in Chinese history, once noted: "If you treat history as a mirror, you can learn how societies rise and fall." Sir Francis Bacon (1561-1626 AD), the father of inductive reasoning, made a similar point: "Histories make men wise." A review of the relationship between water and the history in China will provide us with an opportunity to learn how crucial water is to social development over long periods of time. We should treat water with respect. Since all people living on this planet are made mostly out of water, to be concerned about water is to be concerned about ourselves. Confucius' teaching that "water can support a boat, but it can also swallow it up" is universally true. This points the truth that there is no "exceptionalism" of any kind.

Notes on Author

Li Bozhong is Chair Professor of Humanities at Peking University, China. He received his Ph.D. degree in 1985 and was one of the first few persons to have earned a Ph.D. in history in the PRC after 1949. He has worked in a variety of academic institutions, including the Chinese Academy of Social Sciences, Tsinghua University, Hong Kong University of Science and Technology, University of Michigan, University of California at Los Angeles, California Institute of Technology, Massachusetts Institute of Technology, Harvard University, The Woodrow Wilson International Center for Scholars, the National Humanities Center, the University of Cambridge, the London School of Economics and Political Science, L'Ecole des Hautes Etudes en Sciences Sociales, the University of Tokyo, Keio University, Academia Sinica, etc. Professor Li has been working in Chinese economic history, but his research interests also cover Chinese social, demographic, environmental, technological, cultural, educational and military history as well as global history. He has published ten monographs and more than sixty articles on the China's mainland and in Hong Kong Special Administrative Region and Taiwan region, the US, the UK, Japan and South Korea. The

32 The problems are particularly acute in North China and even more so in the catchments of the Huai, Hai, and Yellow Rivers. The catchments account for about 35% of total GDP and include the economically and politically important Beijing-Tianjin region. In these areas, water per capita is only 1/5 of the national average and the quality of water is already severely degraded. Wang Yuan *et al.*, "Analysis of the Present Situation of Water Resources and Countermeasures for Sustainable Development in China"; The World Bank, *China: Air, Land, and Water*, p. 47.

33 The World Bank, *China: Air, Land, and Water*, p. 47.

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—Revised by Sally Borthwick