Environmental History in China

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ABSTRACT

As a subdiscipline, environmental history appeared in the United States in the 1960s and 1970s. Since then, environmental history studies have been launched in many countries in the world, including China. Since China uses its own writing system with Chinese characters, the environmental history studies done in China have remained unknown outside China. As global environmental problems were becoming more serious and world environmentalism was developing vigorously, the trend to internationalise American environmental history studies was strengthened and there was an increasing need to understand Chinese environmental history and the state of its studies. That is why I wrote this paper, which I hope will improve understanding and co-operation between Chinese and international environmental history studies. The paper is divided into four parts: (1) The rise of environmental history studies in China; (2) The main contents of Chinese environmental history studies; (3) The principal methods and characteristics; (4) The major problems to be solved.

KEYWORDS

China, review, historical geography, historiography, environmental history

1. THE RISE OF ENVIRONMENTAL HISTORY STUDIES IN CHINA

It is well known that the term 'environmental history' was first used by the American environmental historian Roderick Nash in 1972.[1] Since then, American environmental historians have actively explored its definition, character, content, theory and method, making it a rapidly developing and more mature subdiscipline.[2] It reached full maturity as part of the development of international history studies following World War II. In comparison with the rapid development

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of international environmental history studies, Chinese environmental history studies rose later and developed more slowly than was desired.

It was only in 2000 that the term 'environmental history' appeared formally in China's sphere of learning, in a paper where I not only introduced the history, theory and methods of environmental history studies from other countries, but also offered my own interpretation of environmental history and the tentative idea of founding a Chinese school of environmental history.[3] After this, many scholars called their work environmental history or consciously included their papers in the category of environmental history. In 1999 I gave an undergraduate course on environmental history entitled 'Human development and environmental change'. Now, China People's University and Beijing Normal University are both offering courses in environmental history. This fresh subdiscipline shows a promising tendency to develop and an optimistic prospect.

Why did environmental history studies arise in the second half of the 1990s in China? First, the ongoing deterioration of the environment in China urgently demanded academic research to provide the necessary and latest knowledge for treatment. At the same time that China's economy had developed very rapidly as a result of the reform and open door policies, environmental problems had become more and more serious. Urban environmental pollution became serious, air quality declined; farmland was over-cultivated, pasture was over-grazed, and forests, grasslands and vegetation were destroyed. Toxic environmental accidents and disasters occurred in an endless stream, exemplified by frequent dust bowls and the great flood of 1998. Both political figures and the general population expected academic researchers to offer expert explanations. Unfortunately, environmental scientists, ecologists and environmental engineers couldn't offer the complete answer, because they were only concerned with the role of natural elements. Environmental ethics, environmental sociology and environmental economics lacked historical depth, although they had their own analyses. Serious environmental problems need a historian to offer an explanation. Traditional history education in China only emphasised human history, and hardly touched upon the history of the relationship between humans and the environment. This means that a traditional historian does not have the knowledge to do environmental history studies. Second, the development of historical geography in China, in some cases, laid the intellectual foundation for the rise of environmental history studies. China has a long historical tradition of geography and historical geography. The first work in geography was *YuGong* which was written in the later period of the Warring States (475–221 B.C.). *HanShu: Dilizhi*, written in the first century A.D., was the first article in historical geography. Historical geography became a lively, clearly defined discipline in the 1960s, although historical geography as a discipline had been imported to China from Japan between 1901 and 1904.[4] As a branch of modern geography, historical geography focuses mainly on changes in the geographical landscape over the course of human history and the laws of its changes. It tries to recover

the geographical landscape from the past.[5] Among many branches of historical geography, historical natural geography and studies of the relationship between humans and the earth deal with similar questions to environmental history, and the achievements of historical geography laid a foundation for environmental history studies to a certain degree. Although the two fields use the same language in some cases, historical geography is not identical to environmental history: there is a difference between these two disciplines.[6] Some young scholars who were engaged in historical geography began consciously to incorporate some aspects of ecology and environmental science. They also made many new explorations which were close to environmental history and showed their talent in traditional disciplines by taking advantage of interdisciplinary studies. Third, the reform and open door policies provided more and more opportunities for Chinese scholars to exchange with Western counterparts. Chinese scholars translated some works on environmental history into Chinese, such as *Silent Spring*; *Top Soil and Civilization*; *Human Impact – Man's Role in Environmental Change*; *The Death of Nature – Women, Ecology and the Scientific Revolution; Nature's Economy – A History of Ecological Ideas*; *A Fierce Green Fire – The American Environmental Movement; Ecological Imperialism*; *Guns, Germs and Steel; Green Politics*, etc. These works opened up a new world for Chinese scholars of environmental history. The most important change was that young Chinese scholars could study environmental history at universities in developed countries, and improve their own knowledge and absorb the latest research methods and theoretical achievements of environmental history studies. These scholars, and some historical geographers who were aware of environmental history, formed the early contingent of Chinese environmental historians. From the above description, we can see that Chinese environmental history studies resulted from an integration of knowledge from China and foreign countries. Environmental history studies have an unlimited prospect and will develop well, because they meet the needs of social development and are also connected with the mainstream of international academic development.

2. THE MAIN CONTENTS OF CHINESE ENVIRONMENTAL HISTORY STUDIES

Although environmental history studies started in the late 1990s, and was a newcomer to Chinese historiography, the achievements of environmental history studies were not limited to this period. Its antecedents go back well into the past, although they were not called environmental history at that time. They included not only research on China's environmental history, but also studies on world environmental history by Chinese environmental historians. These were theoretical explorations and concrete case studies.

As to the theory of environmental history, I have proposed my own definition and intepretive framework of environmental history, based on the conclusions of foreign scholars. My concept of environmental history is as follows: environmental history studies the interaction of humans, society and the rest of nature in the past by means of interdisciplinary methods under the guidance of contemporary environmentalism based on environmental science and ecology. A new orientation, called ecocentrism, will arise for the endangered earth and human civilisation through fighting against geographical environmental determinism and a rethinking of anthropocentrism. World environmental history can be divided by two epochs, namely Columbus's discovery of America in 1492 and man landing on the moon in 1969, and into three stages: (1) essential harmony between humans and the environment – environment and pre-modern civilisation; (2) anthropocentrism – the conquest of modernism over the environment; (3) toward ecocentrism – new civilisation beyond modernity. The theoretical development of environmental history might change the principle of world history from progress to sustainable development; furthermore, the traditional world history, which placed humans at its centre, will decline; a new world history will be formed which will emphasise the variety of creatures. Of course, this new world history should insist on a historical narrative that harmonises discourse relations between globalisation and localisation. The development of Chinese environmental history should critically assimilate the experience of international environmental history studies. I have also published a series of papers on the historiography of world environmental history which introduced and evaluated the viewpoints and research methods of environmental history, not only in developed countries, but also in developing countries. These are definitely useful for Chinese environmental historians to set up their own system of environmental history.[7] Recently, I have interviewed renowned environmental historians, such as Donald Worster, Mark Elvin, Alfred Crosby, Donald Hughes, John McNeill, Joel Tarr, Douglas Weiner, Joachim Radkau, Ian G. Simmons, Libby Robin, Stephen Dovers, Alexei Karimov, Verena Winiwarter, Fiona Watson, Genevieve Massard-Guilbaud, and Mahesh Rangarajan. These interviews will help my Chinese colleagues understand the latest developments in international environmental history studies, clearing up some controversies and focusing questions within the sphere of international environmental history. These will also help incorporate Chinese environmental history into international environmental history studies.

As for environmental history in foreign countries, there are some Chinese environmental historians who are exploring these areas. Prof. Hou Wenhui's field is the history of American environmentalism. She has translated many classical works of American environmentalism and published a book on the evolution of American ideas about the environment.[8] Prof. Mei Xueqin has focused on British environmental history. She directs a programme funded by the State foundation of Social Science. I have concentrated on some key

subjects in world environmental history, such as environmental racism, sustainable development, environmental destruction in socialist countries, regional environmental co-operation, and green colonialism.[9] Researchers at the Sino-Japanese Center for Studies in Environmental Protection analysed the evolution of Japanese environmental protection policy and the social, economic and political structure which supports its development in order to help the formulation of Chinese environmental policy.[10] Prof. Liu Dachun, together with some Japanese scholars, has explored environmental deterioration and its effective treatment in Japan and some newly industrialising states and zones, and also environmental co-operation and development between China and Japan.[11] Studies on the environmental history of foreign countries have widened the outlook of Chinese environmental history studies and provided the possibility of doing international comparative research.

Chinese scholars have also made many advances in Chinese environmental history studies. For convenience, I shall divide these into three stages: ancient, modern and contemporary environmental history. In each period, I shall point out the special subjects.

2.1. Ancient environmental history in China (from times of legend to the late imperial period, 1840)

The ancient environmental idea in China.
The key questions studied were the ecological and environmental elements in Confucianism, Daoism and Buddhism, especially the rise, formation and development of the idea of 'Harmony of heaven and humankind'. In this field, Chinese scholars compared Chinese traditional environmental ideas with Christian environmental ethics to show that there was an element of respect for nature in Chinese traditional culture; furthermore, they wanted to promote Chinese traditional culture, which had been in a weak position since the Opium War. They also wanted to provide an inspiration for theories and ideas to solve contemporary global environmental problems.[12]

The general history of Chinese ancient environmental protection.
Such works combined the framework of Chinese ancient environmental history, which divided time into different successive dynasties (longitudinal lines), with chapters divided into different environmental sectors (latitudinal lines). They analysed in detail environmental change, the development of an environmental protection consciousness, and the implementation of environmental protection policies and measures in Chinese history from 'the separation of mankind from the apes' to the late imperial period. They also tried to find out the law of evolution of interaction between humans and the environment in ancient China, and provided historical experience for contemporary Chinese to deal with relation between humans and nature. This method of writing Chinese environmental history was stamped with the brand of Chinese traditional history writing.[13]

The history of landscape change on the Loess Plateau

Prof. Shi Nianhai and his followers concentrated on this area for many years. After much work, they found that the Loess Plateau, which had dense forests and rich vegetation in ancient times, had been over-cultivated and overgrazed, resulting in soil erosion and a criss-cross network of gullies, following the development of civilisation in the Yellow River valley. The way of managing environmental degradation on the Loess Plateau was to turn extensive agriculture into intensive agriculture, planting trees and grass to stabilise the soil and retain water. The conclusion of this historical experience provided the historical evidence and theoretical base for the Chinese government to implement the policy of 'recreating the beautiful landscape' in the Great West Development Strategy.[14] Research in this field is being deepened, especially by some scholars who deal with the relationship between natural environmental change and the selection of agricultural technology.[15] They have shown how productive forces and environment interacted directly, and in this way, they added a theoretical element to their narratives.

The history of the formation of desert landscapes

Prof. Hou Renzhi was the pioneer in this field. His conclusion was that some deserts in Inner Mongolia were once grasslands with rivers. Why these phenomena changed was that overgrazing resulted in a reduction in the vegetation, exposing the soil and intensifying desertification, in addition to the natural climatic desiccation.[16] There are oases in the desert. Historical research on the formation and utilisation of oases is an integral part of desert history studies. Prof. Huang Shengzhang was in charge of the programme called 'The economic development and environmental change in oases in the Xinjiang Uygur Autonomous Region', funded by the National Natural Science Foundation. He pointed out that an oasis was the result of human development of a special natural environment. The important factor in the formation of oases is the development of irrigated agriculture, which was suitable for arid areas; the natural factors included mainly long and strong sunshine, low rainfall, high evapotranspiration, big differences in temperature, and strong winds.[17] This research has strong implications for the control of recently increasingly serious dust bowls.

The history of water control in China

Water control has had a very important significance in China illustrated by the fact that Wittefogel once called Chinese society a 'hydraulic society'.[18] The Yellow River has been the focus of research, because it has overflowed 1,775 times. How the river course changed was clear. The fundamental reason why this river overflowed frequently was the destruction of vegetation in the upper and middle reaches of the river, which brought about serious soil erosion.[19] Research on the Yangtze River meanwhile focused on the plains along the middle and lower reaches where it often overflowed. Research on the relationship between the change in the dimensions of the Dongting Lake and the Boyang Lake, and

the area for local agricultural development, showed that the practice of 'creating farmland by circling the lake' shrank the area of the lakes and reduced the function which adjusted the volume of the water. This was the important reason why the flooding on the Yangtze River was exacerbated.[20] Studies on the relationship between vegetation change in the upper reaches of the Yangtze River and flooding have became a hot topic since the Three Georges project recently became well-known worldwide. Over-development in the upper reaches brought about soil erosion and an increase of silt in the water. Furthermore, the rise in the river-bed affected the ecological security of the Yangtze River.[21] Chinese scholars have also studied the Pearl River, the Liao River, the Hai River, the Songhua River, the Qiantang River, the Talimu River, Luobu Lake, Baiyang Lake, Tai Lake, Xi Lake, Jian Lake, and Juyan Lake.[22] I shall not describe these studies because of the limit on the length of this paper.

The history of the formation of seashore and land formation on the coast
Studies on land formation of the east coast of China are helpful not only for understanding the environmental change of the east coast, but also for the economic and social development in the east coast area. Although some geology was incorporated, environmental historians emphasised more the tremendous impact of human activity on land formation processes and the constraints posed by the coastal environment to the formation of cities and the distribution of settlement. Particularly, research on the changes of sea and land in the Shanghai coastal area and the west bank of the Bohai Gulf provided historical information and theoretical evidence for the industrial distribution and urban planning in some coast cities, such as Shanghai and Tianjin.[23]

Environmental history studies in southwest China
In contrast to the north and northwest of China, Southwest China is a basin on a plateau. It has a subtropical climate and many minority peoples live there. Prof. Lan Yong has done systematic research on changes in plants, animals, the climate, and the hydrology, in different niches of this area. He has also analysed the environmental consciousness and environmental protection behaviour of various minorities. He has brought to light the relationship between economic development and ecological change over time.[24] Research on environmental history in the Southwest was helpful for the great strategy of the western development, and laid the foundation for writing an environmental history of China as a whole by comparing the environmental histories of various areas.

Ancient urban environmental history
Research on the ancient urban environment and its relationship with the surrounding plains mainly focused on ancient capitals such as XiAn, Beijing and Hangzhou. Scholars inquired into the favourable ecological environment of the Guanzhong Plain, the North China Plain and the areas of Hangzhou, Jiaxing and Huzhou that provided material resources for economic development, circulation of commodities, and urban construction. In turn, the policy issued by the

central government played an active role in local environmental protection or lack of protection. Damage to the environment around ancient capitals in some cases caused the transfer of the core of national economy, politics and culture. Municipal administration was also concerned about environmental protection. Afforestation, protecting sources of water, air quality and environmental sanitation in urban areas became the focuses of research.[25] These achievements in historical research have actually guided the remaking of ancient capitals and urban landscape design.

History of climate

Climate change is an important aspect of environmental history studies. The paper 'The initial research on climatic change in China over 5000 years', which was published in *Academic journal of Archaeology* by Prof. Zhu Kezhen in 1972, was a classic article which set up the theoretical system and methodology of Chinese climatic history studies. On this base, scholars subsequently researched the phenomenon of climatic variation in Chinese environmental history and its cultural impact, and the relationship of climatic change to biological distribution and agricultural harvest.[26] Research on climatic history was not only helpful for understanding other environmental changes over time, but also led to an understanding of the history of economic development, political change and political conflict.

The history of the relationship between population and environment

Although the change of population (humans as an important biological species) was noted by historians long ago, only in the 1980s did scholars relate the change of population distribution, density, birth-rate and mortality to the environment. Prof. Ge Jianxiong attempted this when he researched population in the Western Han dynasty. Additionally, a large scale migration appeared following environmental change. The migration promoted local economic development and brought about a new wave of migration; this further resulted in a change in the core population, which affected national politics and the economy.[27]

History of species in China

The evolution of fauna and flora is an important part of environmental history. China has many species. Some economically valuable species, such as rice and wheat, were widely dispersed; while some rare and valuable animals were hunted to extinction. With the opening of sea and land routes, other species were imported to China, such as corn and the sweet potato. These species changed Chinese nutrition and fashion.[28]I n some cases, this research contributes to our understanding of the history of changes in world species from a Chinese perspective, and brings a re-interpretation of the effects of Columbus and Magellan on the east.

History of famine

China is vast in territory and has great variations in climate and landscape. There have been many natural disasters. Some of them were caused by natural environmental changes, some by man-made factors. These disasters usually resulted in migration and death of humans and other species. They also resulted in social unrest. In order to maintain national stability and loyalty, rulers devised an official system for sending famine relief and generous donations by the gentry to surmount this difficulty.[29]

The general history of change of natural environment

Above are descriptions of studies of ancient Chinese environmental history based on various environmental elements. Chinese scholars also undertook studies from the perspective of the natural environment as a whole. The programme 'The historical natural geography of China', led by Tan Qixiang, Shi Nianhai and Chen Qiaoyi, started in 1973. Following long investigations and fieldwork, and much discussion, *The Natural Geography of China: Historical Natural Geography* was published in 1982.[30] This book reflected the highest ranking academic achievement, since all the contributors were the best scholars in their fields. The book was divided into five subjects: changes in climate, vegetation, river system, coasts, and deserts. Environmental change and its dynamic mechanism during historical periods were analysed in detail. The main thesis was that changes in nature itself brought about environmental change, but human activity was changing the face of nature more and more broadly. Human activity becomes the leading impetus for environmental change. Human greed and the scope of human activity cause changes that are faster and larger than those in the geological cycles in nature. The changes of various elements of the environment are not isolated, but are related to each other and are developing continuously. The process of environmental change is not linear, but is a tortuous process with complicated interactions. Over-exploitation of the environment results in the revenge of nature. As Engels pointed out: 'We should not be intoxicated with our victory over nature too much. For every victory, nature retaliates. For every victory, we obtained the expected achievements in first step, but completely different and unimagined results came in the second and third steps, which often offset the significance of the first result.'[31]This theoretical framework already went beyond the extreme left thinking of Stalin and Mao Zedong.[32] The breakthrough in theory laid a more promising theoretical foundation and opened up a new prospect for the development of environmental history in the future.

2.2 Modern environmental history in China (1840–1949)

The opium war of 1840 pulled China into the modern age by force. During the next hundred years, Chinese society changed in many ways as a result of conflicts between Chinese culture and western culture, and the difficult replacement of new and old modes of production. The environmental history of modern

China (1840–1949) is not an exceptional one. Research mainly focused on the following subjects.

Modern history of famine

The leading research on this topic was done by the team led by Prof. Li Wenhai. They sorted through the available materials on the famines in modern history and also organised these materials chronologically. They explored the relationships between famine, the local environment, political prospects and the state of the economy.[33] Prof. Xia Mingfang went further and examined famines in the early modernisation of China. He argued that in the second half of the nineteenth century there occurred a 'period of disasters' with increases of frequency and extent of a combination of floods, drought, earthquakes and plagues of locusts. The reasons for these disasters included natural changes and human social development. Since the natural changes during the late Qing dynasty were not great, natural change by itself was not enough to explain the causes of famine during this period. Social development played an important role. Basically, the increase in population during the Qing dynasty intensified the conflict between population and land, bringing about over-cultivation and an unlimited extension in cultivation. This process degraded the ecological environment, and not having enough food and clothing weakened people's ability to withstand disaster. The inequitable ownership of resources and the underlying political system strengthened the impacts of disasters. Famine decreased the revenue of the central government and further reduced official and private investments in modern enterprises. Famine had not produced a large free labour force separated from the land because those who migrated after famine returned home after the famine was over. Some people who worked in industrial and mining enterprises became seasonal migrant labour. The market force for the development of modern industry in China was obviously insufficient. Purchasing power and market demand were not robust during the famine. Some foreign goods took over a large share of the market due to their low price. In short, famine stagnated and delayed the early industrialisation of China. The westernising group of leaders transformed the traditional fatalist attitude of 'astronomical phenomena show alarm' (Tianxiang Shijing) to a pragmatic view of disaster (Zaixiang Huofu). This reform included modern natural science in order to open the road for industrialisation, but the conservative diehards among the leadership fought against new ideas by raising the idea of 'Fengshui' which they said contained the viewpoint of 'Zaixiang Huofu'. Christian missionaries from the West, who took part in famine relief, brought China modern tools and a new consciousness of relieving the people in stricken areas. Meanwhile, by taking advantage of people in famine conditions, the theory of the gospel spread and complete westernisation developed rapidly.[34] This showed that there was a close and complicated relationship between famine and the early modernisation of China.

The environment and society in modern north China

Prof. Wang Jiange recently focused on the historical development of the relationship between environment and society in the north. This subject had already been analysed by older scholars, but he used local records and the reports written by 'Japanese Mantie group for regular investigations in rural China' (Riben Mantie Zhongguo Nongcun Guanxing Diaochaban). Prof. Wang argued that the management model of Yuhua canal, which had some characteristics of a modern share-holding system, arose as an older rural water control organisation. They used a combination of sluice gates (Zhahui), a form of water control still used in the Republic of China (1912–1949). In arid areas and on the upper reaches of the river, local organisations were mainly in charge of the initial construction of water control projects and the resolution of conflicts over water rights, even though the national regime also played a role. In places where it was necessary to prevent water-logging and resist drought, such as in Weitian and Yingtian, a centralised model of water control was usually adopted. Although Yingtian in north China was thought to imitate Weitian in south China, the water control system in South China, which was based on the private ownership of land and managed by a combination of government and local organisers, was different from that in Yingtian. In north China, the system was based on the public ownership of land and was controlled directly by the government. Private ownership of water occurred in the upper reaches of the river in north China because of the uniformity of water control and private ownership of the land. However, in south China, because there was more water and less land, the organisation of water rights did not occur, and local water control organisations took common responsibility.[35] Research on the history of water control in China contrasts with case studies in American environmental history. Comparative studies in this field would be worth doing.[36]

Conservation of forest and biological resource in modern China

Since the open door policy, forests and biological resources were stolen in various ways for their commercial value by imperialist states. Western colonisers wantonly hunted for animals and horticultural plants, exported furs and feathers from rare birds, stole large amounts of animal and plant specimens, and cut primary forests. All of these activities resulted in the rapid loss of biological and forest resources in China and degraded the ecological environment in forests. Some fair-minded westerners in China and Chinese intellectuals who accepted modern western biology were concerned about this situation. In order to promote the sustainable use of biological and forest resources, they attacked the draining of ponds to get all the fish. They asked the government to formulate laws and regulations for the protection of natural resources, and managed to improve the national environmental consciousness. The government of the Republic of China promulgated laws related to forests, hunting, and fisheries. For example, the 'Detailed rules and regulations for implementation of the forest law' and the 'Regulations of awards for afforestation' prohibited hunting animals and

birds except for scientific research, encouraged tree planting and water and soil conservation. These laws improved local practices and increased national political power. The central government explicitly prohibited stealing and exporting pandas, and established the 'China committee of metasequoia conservation'. Some modern botanic gardens were founded for importing, maintaining and reproducing valuable and rare plants. One example is the Botanic garden at the Sun Yat-sen Mausoleum, which covers 3600 *mu* (15 mu = 1 ha) and contains over 2500 plants. For afforestation, the government decided that every 'Qingming Festival' should be an 'Afforestation Day'. The name was later changed to 'Afforestation Day in Memory of the Premier'. All levels of governments and local people were mobilised to take part in extensive tree planting. The army set up a national defence forestry centre with local organisations; Colleges and universities set up teaching forests; water-source forests were established in order to protect watersheds; forests for controlling the Yellow River were planted in flood areas; and wind and sand forests were planted in the northwest. The government organised afforestation by means of 'relieving people in famine by labour'; some people spontaneously planted trees to improve their lives. However, the expected goals of environmental conservation were not achieved because of the invasion of the great powers and national unrest.[37]

2.3 Contemporary environmental history in China (1949 to the present)

After the People's Republic of China was set up in 1949, Chinese history entered a new stage. The cause of socialist construction was promoted continuously and the state paid more and more attention to environmental problems. The means of managing environmental problems became more powerful and laws and regulations for the environment were improved. However, research on environmental history during this period was extremely poor for various reasons. What remains from that time are mainly some statistics, speeches by leaders, reports of countermeasures, and memoirs of persons concerned.

Prof. Li Zhou and Sun Ruomei have recounted environmental history as a whole since 1949; Prof. Lan Yong examined systematically the origin and development of the Three Georges Project and the arguments surrounding it; while Prof. Jing Ai and Han Maoli analysed the contemporary origins of the dust bowl.[38] Such research was extremely limited and superficial, but the studies were extremely difficult to do and deserve more credit.

There is a wealth of materials on contemporary environmental history, which includes: (1) *Yearbook on the Environment of China* (*Zhongguo Huanjing Nianjian*), *Report on the State of the Environment in China* (*Zhongguo Huanjing Zhuangkuang Gongbao*) and *Bulletin of National Environmental Statistics* (*Quanguo Huanjing Tongji Gongbao*) compiled by the national Environmental Protection Agency; (2) *Collections of International Agreements Concluded and Signed by China* (*Zhongguo Dijie he Qianshu de Guoji Huanjing Tiaoyueji*)

compiled by the National EPA and the committee on environment and resources of the National People's Congress; (3) collections of speeches by leaders of the Communist Party and the state, such as *Collections of Important Literature on Environmental Protection Since 1978* (*Xinshiqi Huanjing Baohu Zhongyao Wenxian Xuanbian*), *On Environmental Protection by Wan Li* (*Wan Li Lun Huanjing Baohu*); (4) collections of laws and regulations on environment compiled by the national EPA, such as *Twenty Years of the Administration of Environmental Protection in China* (*Zhongguo Huanjing Baohu Xingzheng Ershinian*). There is also (5) the popularisation of environmental knowledge by some scholars and writers and propaganda about environmental problems, such as alarmist works by He Bochuan, Hu Angang, Zheng Yi, Xu Gang and the 'Friends of Nature';[39] (6) newspapers and magazines, such as *Environmental Science of China* (*Zhongguo Huanjing Kexue*), *Environmental Protection* (*Huangjing Baohu*) and *China Environmental Newspaper* (*Zhongguo Huanjing Bao*), etc.; (7) resources on the internet, mainly two websites, 'China environmental protection net' (Zhongguo Huanjing Baohuwang)(http://www.zhb.gov.cn) published by the information centre of the national EPA, and 'National EPA net' (Guojia Huanjing Baohu Zongjuwang)(http://www.zhb.gov.cn/sepa/) published by the national EPA. Finally, (8) there are collections of documents at subnational EPAs. All these documents provide a more accurate basis for historical evidence, even though they are not comprehensive. To fill in the evidence requires fieldwork to investigate the concrete changes, obtaining oral histories from the people concerned, and the gathering of more detailed and richer materials.

3. THE PRINCIPAL METHODS AND CHARACTERISTICS OF ENVIRONMENTAL HISTORY STUDIES IN CHINA

The reason why environmental history studies has made so many achievements despite its late start is mainly that Chinese environmental scholars used propitious research methods.

Interdisciplinary research is the main method used in Chinese environmental history studies. The earliest Chinese environmental historians in the twentieth century engaged in studies on 'Doubting the old' (Yi Gu). They carried forward the tradition of textual research from schools during the Qian and Jia empires (Qianjia Xuepai). They hoped to recover evidence on the historical environment based on accurate and credible historical evidence through review of literature and documents. Since the development of archaeology in China, environmental historians have quickly understood the significance of archaeological materials, actively using the reports of archaeology and its material heritage. They have also added written materials to make it more accurate and true. Since the 1960s, Chinese environmental historians have accepted the method of doing fieldwork, which was previously used by geographers and geologists. Prof. Hou Renzhi and

Shi Nianhai were the foremost among those who went out to study nature. Prof. Hou went to the north desert of China several times from 1960 to 1964 and found some historical evidence there. He opened up a new field of the environmental history of deserts, which showed the history of desert changes through combining historical evidence with written evidence and archaeological materials. Prof. Shi has done fieldwork several times in the middle and lower reaches of the Yellow River and the Loess Plateau since the 1970s. During fieldwork, some difficult problems that could not be solved using the literature were solved easily on the spot. This breakthrough in research methods brought about a change in environmental history studies and made environmental change studies possible and fashionable.[40] Following the introduction of new technology, environmental historians also actively learned to use the analysis of spore-pollen and deposits, C14 radiocarbon dating, remote sensing technology, and geographical information systems (GIS). The application of these methods supplemented the defects of written material analysis, archaeological methods and fieldwork, and solved problems which had not been solved before. These methods also widened the scope of research and improved the quality by making the research more scientific.[41] The application of interdisciplinary methods promoted the development of environmental history studies because through a change of themes, it also gave methodological inspiration to traditional historical studies.

Chinese environmental history studies maintained the traditional narrative method used in Chinese history studies. China is one of the major centres in the world in history studies. Since Si Maqian wrote 'Records of History' (Shiji), writers of Chinese history have followed the narrative method. After modern western histories were imported into China, Chinese historians formulated a new system which combined chronology with the use of chapters and sections. Chinese environmental history studies inherited this system. This allowed historians to place changes in the relationship between humans and the environment in the framework of dynasties and the characteristics of the times. The main function of Chinese environmental history studies is to recover the environment through time and offer people some historical wisdom in the present. This is done by demythologising myths about the relationship between humans and the environment. In this way, the writing of environmental history contains a moral claim and value judgement to enable society to make harmony between humans and the environment. This realisation ensured that the writing of environmental history should adopt the narrative method, which could be true to historical evidence and give full play to its popular educational function. Compared to other subdisciplines that adopted interdisciplinary methods, the writing of Chinese environmental history not only has a strong logical analysis, but also has rich and bright flavours that leave a lasting and pleasant aftertaste.

Regional studies are another effective tool in Chinese environmental history studies. China is vast in territory and has a long history. There are large differences among natural environments, and among relations between humans and

the earth in different areas. In accordance with national plans, studies of Chinese environmental history worked at various regions. The 'Centre for studies of historical environmental change and social economic development in northwest China' at Shaanxi Normal University concentrated on the environmental history of the Loess Plateau and the Yellow River valley. The 'Institute of historical geography' at Southwest Normal University concentrated on the environmental history of the southwest and the Three Georges area. This distribution pattern allowed deeper and more detailed research on historical changes in local niches. Since local scholars can take advantage of local written records, and are familiar with the local society and environment, their research achievements are naturally close to reality and are full of moral care. These studies are easily brought to the local government and people's attention. Additionally, regional studies which point out local features have laid the foundation for comparative studies and comprehensive studies as a whole.

In short, although Chinese environmental history studies started later, scholars had the 'advantage of backwardness'. They suited measures to local conditions that promoted the rapid development of environmental history studies in China. The field also insisted on the best of traditional history writing methods and absorbed new methods and advanced technology of other disciplines.

In comparison with other related subdisciplines and environmental history studies in foreign countries, the environmental history studies in China have their own characteristics, which include practicality and a stress on the past, not the present.

Generally speaking, environmental history itself was a newly rising subdiscipline which was hastened in its growth by contemporary environmentalism. In turn, it continuously provided wisdom and pointed the direction for the development of environmentalism. Environmental history studies in China served real social demands. For example, the construction of the Three Georges dam demanded the study of changing relations between economic development and environmental change during the historical period. To solve the dust bowl demanded studies of desertification in north China to provide historical lessons; to solve flooding demanded studies of the histories of the overflowing of the Yangtze and Yellow Rivers; to govern soil erosion demanded historical studies of changing vegetation and surface of the Loess Plateau. Real environmental deterioration and management pushed forward the development of environmental history studies. Actually, environmental history studies in China really provided some concrete countermeasures and policy inspiration for environmental management. For example, some research achievements on the Loess Plateau by Prof. Shi Nianhai influenced the ecological construction policy during the process of western development. He offered a concrete policy suggestion about solving the problem of water in XiAn city to the government of Shaanxi province. He proposed re-establishing the forest vegetation on the northern hillside of the Qinling mountains as soon as possible in order to protect the watershed

forests. The adoption of this research result means that environmental history is practical knowledge. Therefore, environmental history in China has not only resulted in the development of the discipline, but also the creation of a discipline which plays a practical role.[42]

Chinese environmental history studies also showed strongly the characteristic of stressing the past, not the present. One tradition of writing history in China is for the later dynasty to write the history of the former dynasty and to make the final judgement only after its end. Chinese traditional historians thought this method was advantageous to detach themselves and to be objective. Chinese environmental history studies are not an exception. Objectively, contemporary environmental history does not have any relationship to the study of politics over time, and was not involved in it directly. Some fields were self-evident forbidden zones, that nobody dared to touch. Studies on these aspects would not be done, because the relevant materials could not be read. While Chinese historians painstakingly strove to escape political risks in their academic research, they went in a wrong direction by ignoring historians who specialise in contemporary history. More scholars researched older and older questions. All these forces combined to make Chinese environmental historians emphasise ancient environmental history. The further development of ancient environmental history studies was helpful for understanding the traditional environmental ideas and practices in ancient China, and provided deep historical knowledge that helped modern and contemporary environmental history studies. This helped to give people wisdom through increasing the historical depth of Chinese environmental history.

There seems to be a contradiction between these two characteristics. In common thinking, It would be best to research the modern and contemporary environmental history that is close to the present. Then the practical benefit of environmental history would be realised. Actually, these two characteristics were combined in the national situation of contemporary China. The practicality of environmental history could enable it to develop more rapidly by getting the attention of officials and the population. Meanwhile, stressing the past allowed it to escape the orientation toward just serving practical needs. This allowed environmental history studies to develop on an academic basis because it not only provided an inspiration for reality, but also kept a distance from reality.

IV THE MAJOR PROBLEMS IN CHINESE ENVIRONMENTAL HISTORY STUDIES

Although great achievements have been made in Chinese environmental history studies and some methodologies and features with Chinese characteristics have been developed, there are still many problems to be solved, especially compared to the advanced studies of environmental history in some other countries. The problems include the following.

First, The theoretical basis of Chinese environmental history studies is weak. The chief editor of the journal *Historical Geography*, Prof. Alan Baker, complained that 'Chinese historical geographers hardly paid any attention to theoretical analysis in their research' after he examined Chinese historical geography studies.[43] This situation has not been improved. The theoretical level remains almost at the level of Karl Marx and Friedrich Engels. The reasons for this theoretical stagnation and backwardness are that Chinese environmental historians were satisfied with staying within the given framework of historical analysis and didn't attempt to do creative comprehensive studies. Getting deeply engrossed in fragmented research and a lack of interest in synthetical studies resulted in not creating new theory. The emphasis on positive studies also stifled enthusiasm for theoretical exploration. Additionally, there was an informal habit among Chinese academic circles that scholars should pay more attention to concrete research and accumulating concrete knowledge when they were younger, and they could begin to synthesise knowledge when their beards became white. Actually, this tradition not only stopped the theoretical creativity of young scholars, but also prevented older scholars from getting training in theoretical thinking. They stayed at the level of Marxism which they were forced to learn during the movement to remake intellectuals. Without the strong guidance of theory, it will be very difficult for Chinese environmental history studies to make great strides. Is it now feasible for us to import the advanced theory of environmental history from foreign countries directly? My argument is that doing such theoretical exploration can activate the interest and enthusiasm of Chinese environmental historians, but it is a mistake to copy other theories indiscriminately. Chinese environmental history needs a theory of environmental history with Chinese characteristics, which will only be produced on the basis of a combination of positive study and advanced theory. It will also require a combination of new concrete exploration and consistent synthesis. It is necessary to create conditions in which environmental historians can have enough awareness and encouragement to do theoretical exploration.

Second, most Chinese environmental historians are short on specific knowledge of ecology and environmental science and the moral concerns of contemporary environmentalism. By comparison with environmental historians in Europe, the U.S.A., Australia and India, Chinese environmental historians are too passive and lack enthusiasm. Chinese environmental history studies have been triggered by the urgent demands of environmental deterioration, but environmental historians did not have enough knowledge and lacked the experience of environmental activists. Environmental history studies and environmentalism hardly affected each other because they remained almost different activities. The main motivation that promoted the rapid development of environmental history studies in Europe and the U.S.A. was hardly seen in China. This is the main obstacle to the development of environmental history in China. To remove

this obstacle depends on the opening up of Chinese politics and the construction of civil society.[44]

Third, research on modern and contemporary environmental history in China urgently needs to be strengthened. Although there is a long history in ancient China, it was basically an agricultural society in which the relationship between humans and the environment didn't change much. Since the seeds of capitalism appeared in the Ming and Qing dynasties, especially when foreign capitalism was introduced after the Opium War, the relationship between humans and the environment in China changed fundamentally. The foremost of these changes was the commercialisation of the natural environment, which resulted in environmental elements being completely incorporated into the capitalist world system. Human society was increasingly exploiting the environment and affecting it. The environment played a more important role in the national economy and security; but meanwhile, environmental deterioration affected humans more and more seriously. Since the People's Republic of China was founded in 1949, the socialist government declared that everything, including environment, was publicly-owned. Thus the relationship between humans and the environment was changed once again. In order to surpass Britain and catch up with the U.S.A., China conducted socialist construction under a high degree of the command-and-control system which resulted in intensive industrialisation of resources in industry and an attitude of 'man must conquer the heavens' in the countryside. This led to a kind of destruction that had no regard for the laws of nature and remade nature at will. Since the reform and open door policy began in 1978, the socialist market economy has transformed the relationship between humans and the environment once more. The spirit of the times which encouraged people to get rich rapidly stimulated people to over-exploit the environment regardless of its carrying capacity and limitation. The final result was massive environmental damage in China. However, grassroots environmentalism didn't really develop. Several unprecedented and tremendous changes have taken place over the past 100 years in Chinese environmental history. We cannot deny that there were only a few research studies on such significant subjects. I believe that research on modern (1912–1949) and contemporary (1949–present) environmental history will develop rapidly following up the acceleration of China's democratisation. This is the basic prerequisite for the formation of a school of Chinese environmental history and the contribution to world environmental history by Chinese environmental history studies.

Fourth, research on the environmental history of other countries and academic exchanges with foreign counterparts urgently need to be strengthened. Environmental history study truly has the characteristic of regionalism, but the environment is also a whole in which different regional environments relate to each other. This demands that both regional studies and overall studies should be emphasised. The overall studies include not only Chinese environmental history as a whole, but also world or global environmental history. Chinese environmen-

tal history studies need the perspective of world environmental history; world environmental history can't do without Chinese environmental history studies.[45] At present in China, studies of foreign countries is still very weak and cannot provide a point of reference for Chinese environmental history studies. Also the current level of knowledge doesn't satisfy the demand for understanding international environmental problems and environmentalism. Academic exchanges with foreign counterparts are very rare. Even if an international symposium were held in China, most of the foreign scholars we would invite would specialise in Chinese environmental history. When Chinese environmental historians go abroad and mount the international academic platform, they face problems such as funds and foreign languages. According to my experience and practice, the best way to cooperate is to do collaborative research which can take advantage of the strengths of both parties. We can learn from others' strong points to offset our own weaknesses. This will lead to the deepening of understanding and the development of world environmental history. After further developments in China's economy, foreign scholars will be more and more interested in Chinese environmental history, the research conditions for Chinese scholars will improve, and the moment will arrive when equal exchange and dialogue between Chinese and foreign environmental historians can take place.

NOTES

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