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Perspectives from Environmental History



*Edited by Ts'ui-jung Liu
and James Beattie*



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Environment, Modernization and Development in East Asia

Perspectives from Environmental History

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To our families, for their patience and love

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Introduction—Environment, Modernization, and Development in East Asia: Perspectives from Environmental History

James Beattie and Ts'ui-jung Liu

Across East Asia, modernization and development projects continue to have great environmental and human impacts. Serious health problems resulting from pollution affect many Chinese, including those living in Beijing, whose 'airpocalypse' has attracted worldwide attention.¹ As a measure of its significance, in 2013, Premier Li Keqiang declared that only through 'the concerted effort of the whole society' could the problem be addressed.² Since then, government has made improvements to air quality, but sometimes at the expense of moving the problem elsewhere, through relocating heavy-polluting industries away from the capital, although recent efforts have also been directed at cutting pollution and restricting the number of registered cars.³

As well as health problems, pollution has major economic implications for such a rapidly industrializing country. China's 'staggering mistreatment of the environment', noted a perceptive commentator in 2004, 'may well be the most fundamental check on [the country's] ... reach toward prosperity'. A decade ago, pollution was cutting an estimated ten per cent from China's annual gross domestic product (GDP) growth.⁴ In 2010, even official estimates placed the cost to GDP of pollution at 3.5 per cent.⁵ Pollution also provides a flashpoint for social unrest, as a result of which Xi Jinping's government has cracked down on both polluters and protestors against pollution.⁶

Nor is pollution by China simply China's problem. Pollution knows no political boundaries. In its rush for modernization, China—as the West did before it—is consuming ever more of the globe's scarce resources, whether minerals, animals, or agricultural products. It is buying up more and more agricultural land overseas, investing in new technologies, and trying to squeeze ever-greater productivity from ever-diminishing areas of cultivable land, which are being reduced by

environmental degradation. Despite impressive growth in the use of renewables over the last decade, China's environmental footprint is still spreading because of incredibly rapid economic growth. China's modernization is, in short, having a planetary effect. 'Since 2000 China alone has accounted for two-thirds of the global growth in carbon-dioxide emissions'.⁷ As the recent G20 meeting in Brisbane (2014) demonstrated, without China, any hope of meaningfully addressing climate change, let alone successfully checking it, is ultimately doomed.

One of the particularly pressing issues of our age, then, is how China, but so too Japan and the Koreas more generally, will continue to industrialize. Will resource use and pollution in East Asia continue to accelerate? If so, China—and the world—will soon run out of resources. Or, will China and North and South Korea take a 'greener' path, reliant more on non-carbon-emitting energy sources which may enable these countries to mitigate the many environmental issues they face today? And what of Japan? If it chooses a non-nuclear path, what alternative energy sources can it utilize in the future, and how can it reduce emissions and its citizens' environmental footprints as it transitions to a post-industrial future?

Environmental history offers important long-term perspectives from which to understand the pressing ecological crises of today. The chapters in this volume examine East Asian modernization and development within the framework of environmental history. They place recent environmental and social impacts of development in a longer historical trajectory—from the 1700s to the early 2000s—than most studies on current environmental issues. *Environment, Modernization and Development in East Asia's* longer-term perspective challenges the misapprehension—still apparent in some quarters—that development and an ethos supporting it only occurred in East Asia following the region's adoption and adaptation of various aspects of Western technology and manufacturing techniques. It also challenges the view that, if East Asian experiences differed from the West, they were somehow aberrant.⁸ Instead, in taking its cue from recent debates on East Asian development,⁹ this volume highlights Japan and China's often divergent paths of development from Europe and North America, including their often contrasting environmental outcomes, and the implications of these divergent paths for the region's human and environmental histories.

This volume also seeks to demonstrate the heterogeneity of local responses in Japan and China to development schemes and their environmental impacts. This means that it examines processes of adaptation, rejection, and accommodation to Western ideas of modernization. It also analyses the myriad of actors—elites, peasants, states, or

imperialist powers—and the myriad of influences—cultures, environments, philosophies—that have shaped East Asia’s particular development paths and resulting environmental and social impacts. Not least, the volume recognizes environmental systems and human institutions as interlinked phenomena; that development cannot be understood without environment or environment without development.

In recognizing the heterogeneity of environment–development interactions, this volume forms an important reminder that, as imperial historian C. A. Bayly showed in *The Birth of the Modern World, 1780–1914: Global Connections and Comparisons*, the last two hundred years or more have been a period of increasing globalization, but not necessarily of uniformity, or, indeed, of the erasure of difference across the world.¹⁰ *Environment, Modernization and Development in East Asia* shows that globalization has brought people together but also, through such factors as nationalism and localism, placed into starker relief differences both within East Asia and between this region and other areas of the globe.

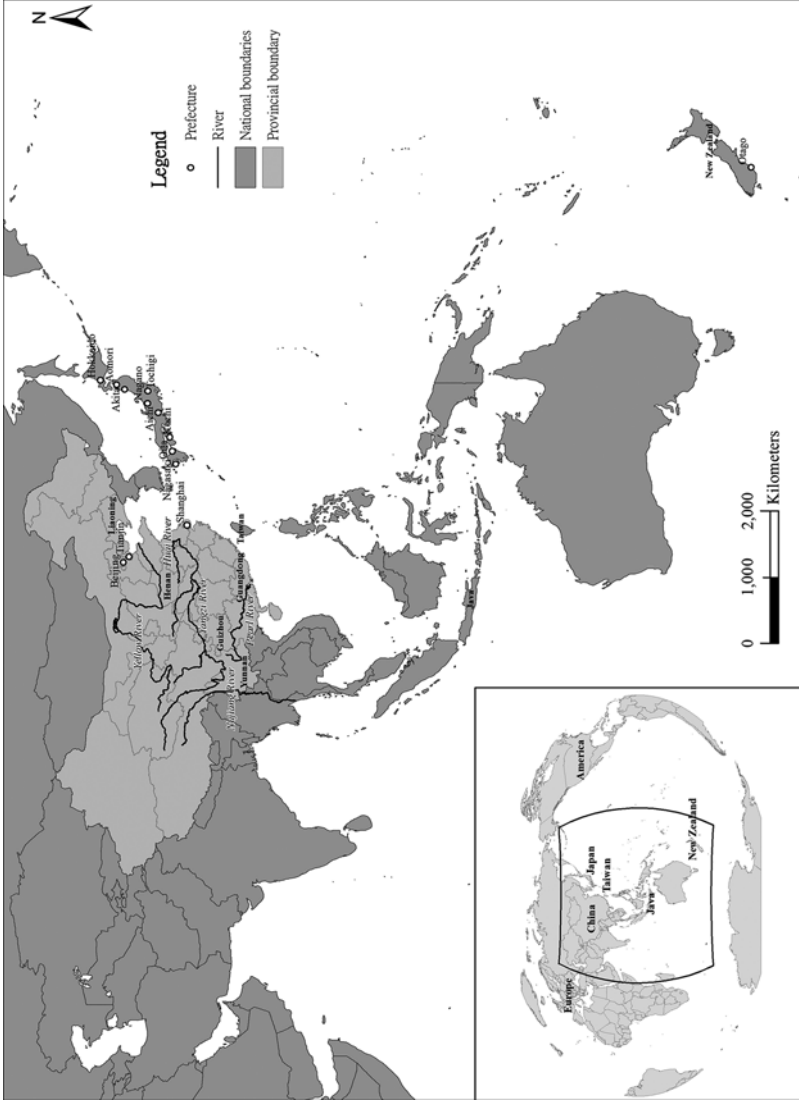
Environment, Modernization and Development in East Asia also brings leading up-and-coming researchers, together with established scholars of East Asian environmental history, to present to an English-speaking readership the latest scholarship on environment and modernization drawn from Chinese- and Japanese-language sources. (Korean environmental history barely exists, and we were unable to secure a scholar to contribute work on this region to our volume.)

Through its focus on development’s environmental dimensions, this volume adds significant new perspectives to Chinese, Japanese, and global environmental history, as well as world history and development studies.¹¹ In doing so, it suggests new frameworks for understanding as interrelated processes environmental, social, and economic change. Also, it opens up new points of comparison within East Asia and among East Asia, Europe, and North America (Map I.1).

Before examining our particular approach and contribution, we first situate this volume in relation to English-, Japanese-, and Chinese-language environmental histories of East Asia. Our aim in doing this is twofold: first, to introduce readers to the very different trajectories and approaches of environmental history in East Asia, which is one of the key themes of this book, and, second, to make clearer the particular contribution of this volume to those debates.

East Asian environmental history in English

As world environmental historian John R. McNeill pointed out in 2010, Western scholars predominate in the writing of East Asian environmental



history.¹² Over the last decade or more, Western-trained scholars have written many environmental histories of China and to a lesser extent Japan, but almost none on either North or South Korea. Dozens of new books have enriched the pioneering works on China written by Mark Elvin and Robert B. Marks, among others of the first generation of environmental historians of this country. Many of these early first works examined the environmental impacts of development—especially state growth and intensification of economic and agricultural activity consequent on market development. For example, Elvin's works demonstrate, as he most famously titled one of his articles, China's experience of 'two thousand years of unsustainable growth'.¹³ Marks has, likewise, traced the linkages between marketization, economic development, and environmental change in South China over the *longue durée*.¹⁴

In contrast to these long-term perspectives, in 2010 McNeill claimed that despite the unprecedented ecological changes resulting from post-1960s industrialization, the period had failed to attract a great deal of attention from environmental historians of East Asia.¹⁵ A number of exceptions come to mind of pre-2010 works which address this theme. Among several are Judith Shapiro's *Mao's War Against Nature ...* (2001), on the subjugation of nature and people in China from 1949 until 1976, and Elizabeth Economy's study of water pollution, *The River Runs Black ...* (2004). Since 2010, several other works have appeared on modernization and the environment, written both by established scholars and by what one may term the second generation of environmental historians of China. For example, Shapiro's *China's Environmental Challenge* (2012) examined, among several topics, state and citizen action, and offers a sober assessment of possible future trends.¹⁶ Robert Marks' *China: Its Environment and Society* (2012), spanning ten thousand years of China's history, argues that many of the country's mid-twentieth century problems of modernization cannot be understood without reference to earlier challenges of development and environmental decline. A representative of the second generation of scholars, Micah Muscolino's *Fishing Wars ...* (2009) examined piscine exploitation in late imperial and Republican (from 1912) China, while another of his books has considered wartime mobilization of people and resources as interlinked flows of energy, material, and organisms.¹⁷

Despite the richness of these recent works, there remains much truth in McNeill's characterization of the neglect of the post-1960 period by environmental historians. Writing on environment and development in China—and, indeed, Japan—in this post-1960 period has largely been undertaken by writers other than historians. While often

well-researched, lively, and provocative, their work often fails to place either Japan or China's experiences of development and environmental change within longer-term historical trajectories. Instead, most resolutely focuses on contemporary dimensions of issues like human-caused climate change, industrial pollution, or environmental protest.¹⁸

Such a lack of historical awareness can risk presenting certain phenomena—such as the idea of development or twentieth-century industrialization—as exceptional or without precedent, creating the impression of a marked break with prior trends or attitudes.¹⁹ While this volume argues that the means, pace, and scale of modernization and its environmental and human impacts irrevocably changed in the twentieth century, it recognizes that there were nevertheless also both important continuities with past experiences of development and significant adaptations, as well as notable local differences, across East Asia.

Twentieth-century modernization schemes, especially post-1960, were often the means of establishing or shoring up nation-states and enhancing the power of elites through 'national development schemes'. Accordingly, many studies of modernization and environment have critically examined development and nation-building. Like most other works of environmental history, they use the nation as a framework of analysis.²⁰ Where *Environment, Modernization and Development in East Asia* differs from such approaches is in tracing regional interconnections and variations at a local level. A focus on locality highlights the complexity of modernization schemes and their environmental impacts, even within the same polity. This approach allows contributors to compare and contrast similar attempts at development, often involving the same personnel or models. It also enables them to discern when and to explain why local experiences bucked global or national trends (see the final section).

In contrast to Chinese scholarship, Japanese environmental history is of a much more recent date, and has benefited from the contribution of two remarkably prolific authors in particular. Until the 2014 publication of his environmental history of Japan, Conrad Totman had mainly worked on forestry, especially in the pre-industrial period.²¹ He is also one of the few academics to have written on Korean environmental history.²² Brett L. Walker is the leading scholar of the second generation of environmental historians of Japan. His first book on wolves in Japan contributed at once to agricultural history, identity politics, and animal studies. Another focussed on the social and environmental tensions of Japan's northward expansion from the late sixteenth to the early nineteenth century.²³ Walker's more recent, *Toxic Archipelago: A History*

of *Industrial Disease in Japan* (2011), sombrely chronicled the effects of Japan's industrialization over the last two hundred years.²⁴

The current strength, breadth, and diversity of the field in Japan is evidenced by the ground-breaking volume, *Japan at Nature's Edge: The Environmental Context of a Global Power* (2013). Among several topics explored are maritime environmental history, pollution and health, animal history and urban history, literature, policy, and risk.²⁵ Yet, in contrast to both China and Japan, to our knowledge, aside from Totman, environmental history has hardly registered in North or South Korea. This lacuna remains a weakness of this volume, but also, we hope, a challenge for scholars of Korea to take up.

Chinese- and Japanese-language environmental history

We believe that understanding differences in the historical experiences of development in Japan and China enables us to better highlight several of the key themes of this book: first, that there were—and are—significant differences within each country's own particular environmental histories of development that can best be understood at a local scale; second, that Chinese and Japanese trajectories of development differ from experiences in North America and Europe; third, that interactions and comparisons across East Asia and beyond can usefully be examined at the local scale; fourth, that we need to understand Chinese and Japanese experiences of development and environmental change on their own terms—not necessarily by using the West as a referent.

As elsewhere, environmental history in China and Japan emerged partly in response to industrialization's very serious environmental impacts in the region, allied to a growing ecological and scientific awareness of these processes. Important political, social, economic, and environmental factors also contributed to differences in the character, focus, and approach of environmental history in both countries.

Environmental history in China written in Chinese has burgeoned in the last decade or more. For instance, in 2010 alone Chinese-language journals published some 280 articles on this topic. Most have focussed on environmental change and economic development, as well as animal and plant distribution and disappearance. Other popular topics include agriculture, water and land use, climate change and environmental ideas, and histories of diseases and disasters.²⁶ Several special journal issues have also appeared on the topic, along with some specially compiled volumes. For example, the collected volume *Environmental History: A Discourse of the History of Interrelationships Between Humans and*

Nature republished 28 articles from the journal *Academic Research*. The volume examined: environmental history, theory, and methodology (12 chapters); Chinese civilization viewed from an environmental history perspective (12 chapters); and the environmental history of world civilizations (four chapters). Most authors were Chinese scholars, except for J. Donald Hughes and John R. McNeill, whose articles were translated into Chinese.²⁷ Such a slew of publications indicates the growing popularity of environmental history in the Chinese-speaking world.

Modernization and development have also been popular topics of book-length investigations. For example, Wang Xingguang's long-term overview of China's agricultural and environmental history traced the origins of agriculture, farming, crops, tools, and technologies, right through to the Holocene warm period, and examines agricultural development in the Yellow River's middle and lower reaches.²⁸ For Taiwan, for example, in *Three Hundred Years of the Zhoushui River* (2014), Chang Su-Bing has analysed social and environmental changes alongside issues of development, such as water-control and flood-prevention engineering from 1898 to 1945. As well, the work examines social movements and struggles over water, and recent debates over whether to prioritize agriculture or industry.²⁹

An insightful discussion illustrating some of the differences between environmental history in East Asia and North America, and within East Asia more generally, is Bao Maohong's Chinese-language work, *The Origins of Environmental History and its Development* (2012). Bao's perceptive worldwide overview of environmental history sought to introduce Chinese readers to environmental history's methodology and diversity. In it, Bao contrasted Western and Chinese approaches to environmental history, contending that, even though they have adopted an interdisciplinary approach as their primary methodology, Chinese environmental historians have insisted on applying a traditional narrative form of writing which tends to highlight the practical application of knowledge, rather than applying to or drawing from evidence any theoretical insights. To strengthen the field, he suggested that Chinese environmental historians needed to gain a better understanding of environmental science, pay more attention to contemporary environmental problems, and engage more with Western environmental scholarship, including taking up academic exchanges.³⁰

Other scholars writing in Chinese have also raised methodological issues with Chinese environmental history. Notably, they have stressed the need for scholars to have a more thorough grounding in ecological sciences to enable them to assess the ecological plausibility of historical

facts; several other scholars have pointed out the need to convince the wider historical profession of the relevance of environmental history.³¹ With regard to the latter, within the Chinese historical profession, modernization might well have been the burning focus of attention since the 1990s. And the topics of class struggle, revolution, and historical materialism might well have given way to vigorous debates on modernization and the need for modernization theory to account for China's unique experiences.³² But, by and large, this great historiographical shift in China has focussed on social, political—and obviously economic—issues, with a corresponding neglect of the environmental dimensions of modernization, an oversight this volume begins to address.

In particular, many scholars writing in Chinese have suggested the need to develop new paradigms for Chinese environmental history.³³ Not all have agreed with this assessment. In 2013, Peter C. Perdue contended that Chinese environmental historians would be better served by standardizing methods to help forge comparisons between China and other countries to increase awareness of the dangers of continued environmental deterioration.³⁴ Other suggestions for broadening Chinese environmental history include developing regional environmental history,³⁵ or promoting examination of non-Chinese environmental histories, including accessing Manchu sources as part of the new Qing history.³⁶

Like Chinese scholarship, Japanese-language environmental history has developed in leaps and bounds over the past decade or so. As in China, Japanese scholars, too, have attempted to define the field and encourage interdisciplinary collaboration. But unlike Chinese academics, who have favoured journal articles, Japanese scholars have tended to present their work in multi-volume overviews, a reflection of the different publishing cultures of the two countries.

In 2011, an important six-volume series covering the past 35,000 years of Japanese environmental history appeared. The first volume addressed the field of environmental history, and examined such topics as Japan's changing biodiversity, the wisdom of utilizing natural resources, and the feasibility of sustainability. The series' remaining five volumes presented a themed chronological discussion of, respectively: wilderness and plain areas; villages and forests; islands and seas; mountains and forests; and techniques for conducting environmental history research. Using environment as its organizing principle represented a novel departure from conventional approaches to Japan's history, which generally centre on periodization defined by particular governments or different forms of socio-political organization. Commonly,

Japanese history is divided into the categories of ancient, medieval, early modern, modern, and contemporary.

Another characteristic Japanese scholarship shares with Chinese environmental history is its multidisciplinary nature. For example, the 2011 series, mentioned above, drew on experts from biology, ecology, forestry, archaeology, environmental history, economic history, cultural anthropology, environmental anthropology, ancient history, and botany.³⁷

A second collection on Japanese environmental history, consisting of a five-volume series, published across 2012–13, underlines the field's developing strength. Unlike the 2011 volumes, the more recent series adopted a more traditional chronological structure. The first volume employs modern scientific methodologies to interpret environmental change. Its chapters also explore historical concepts of nature drawn from agricultural production, resource exploitation of 'mountains, plains, rivers, and seas' (*san-ya-ka-kai*), traditional thought and religion, and ancient maps. As Volume 1's editor points out, understanding human–environment relations in Japan's history is necessary given the present environmental crisis. The four other volumes use more conventional periodization: ancient, medieval, early modern, modern, and contemporary. The last volume's thematic focus is modernization in relation to environmental destruction, production activities, changing concepts of value, and the societal impacts of the great earthquakes.³⁸

Translating environmental history in Japan and China: pitfalls and potential

For environmental historians of Japan and China, translating Western concepts and ideas drawn from very different historical, social, and linguistic contexts into another language is a major challenge. Issues of translation from one European language or another into Chinese were thoughtfully considered by the extraordinary literary scholar, Qian Zhongshu (1910–98). Qian characterized

both the language of the nation of the original work as point of departure and the language of the nation into which the work is translated as point of arrival. The path that leads between these two points is an exceedingly tortuous one and the original, buffeted by hardships and encountering every sort of peril along the way, will inevitably suffer loss or damage.

To this extent then, he wrote that: 'All translations ... are, in part, untrue to their originals and serve to distort them. They either violate [both] the meaning and tone of these originals, or, at the very least, fail to quite match them'.³⁹

Do difficulties in translating key terms from environmental history distort or even violate the meaning of the originals, as Qian suggests is commonplace with translation? Environmental history's terms and concepts differ markedly in East Asia and the West. To illustrate this and some of the problems which arise with translations, we discuss Chinese and Western constructions of 'nature'. In the West, the meanings accruing to 'nature' reflect very particular historical experiences: from ancient philosophical divisions between nature and culture onwards to evolving Christian thought about the role of humans and nature, and, more recently, to the particular interlinked developments of science, industrialization, and imperialism experienced from the nineteenth century. As Raymond Williams succinctly stated, nature is 'perhaps the most complex word in the [English] language'.⁴⁰

Robert Weller has examined the pitfalls awaiting translators of terms such as 'nature' into Chinese.⁴¹ As he notes, in the twentieth century an existing Chinese word—*ziran* 自然 or *da ziran* 大自然 (*da* means 'great'); in Japanese, *shizen* 自然—came to gloss 'nature'. While the meaning of its two characters—'spontaneously' or 'self-evidently'—overlaps with the secondary meaning of the English word 'nature', the Chinese (and Japanese) word

does not touch on much of what 'nature' has come to mean in the West: the essential quality of something; the inherent force directing the world or humanity; the material world itself. Nor does it capture the opposition between nature and culture that has been so important in Western uses, especially since the Enlightenment.⁴²

Other translators have chosen to gloss 'nature' as 'heaven and earth' (*tiandi* 天地). This means 'all aspects of the world apart from humanity', and recalls 'the modern Western distinction between nature and culture'. Yet, even then, Weller points out, *tian* 天 retains its original meaning pertaining to ethical order. Still other words—such as *shanshui* 山水 ('mountain and river')—for 'landscape' appear to offer better approximations in Chinese for Western understandings of landscape. But *shanshui*, too, is underpinned by a very different worldview than that expressed by the word landscape: *shanshui* reflects Chinese belief in the cosmic unity of things rather than differences between culture and

nature.⁴³ (Chapter 10 explores these different philosophical dimensions in greater detail.)

Investigating nature–culture interactions is of course a central focus of environmental history. As a discipline, it developed in the West amidst the crucible of the 1960s' and 1970s' protest movements, sparked in part by the work of ecologists in raising awareness of the interconnection of living and non-living things, and of the impacts of human activities on environments.⁴⁴ Environmental history relies on Western scientific models—especially from the ecological sciences—to explain and measure historical change. But Western science is a relatively recent introduction into China and Japan. In China, it only really gained traction from the later nineteenth century, and often through Chinese reliance on Japanese interlocutors to translate and understand Western scientific terms.⁴⁵ Even aside from issues of translation, very different political contexts have shaped its subsequent trajectory in China. In the 1960s, when ecological understandings were coming to the fore in the West and helping to play a crucial role in the development of the protest movement out of which environmental history emerged, Chinese intellectuals were suffering under the Cultural Revolution (1966–76).⁴⁶ As a result, until recently, ecological ideas were nowhere near as widely known in China as in the West.

How, then, has the term 'environmental history' been translated into Chinese and Japanese? Generally speaking, in Chinese and Japanese the same characters (though differently pronounced) are used to express the term 'environment'—*huanjing* 環境 in Chinese and *kankyō* 環境 in Japanese—and these have been applied to 'environmental history': *huanjingshi* 環境史 in Chinese and *kankyōshi* 環境史 in Japanese. These are all modern usages of terms for English counterparts. For example, traditional Chinese documents seldom employ the term *huanjing* to convey the modern meaning of 'environment'. Instead, ancient Chinese used 'mountains, forests, rivers, and marshes' (*shan-lin-chuan-ze* 山林川澤) to refer to what in English might now be termed the natural environment and resource utilization.⁴⁷ An additional challenge of translating 'environment' is that among Western environmental historians, the term itself is under-theorized and has only recently been subject to historical examination of its modern meanings.⁴⁸ As Libby Robin, Sverker Sörlin, and Paul Warde note: 'The idea of "the environment", and the prediction of a whole global system falling into degradation, emerged together', in the years following World War II.⁴⁹

Other differences also characterize the practice of environmental history in China and North America. The crusading zeal with which

environmental historians have sometimes been tasked—especially in the United States—to expose environmental problems or to help change environmental policy is more difficult to realize in China. As Fei Sheng (Chapter 8) and others have noted, political sensitivities to criticism of state environmental politics—especially the risk of them spilling over into calls for reform of other areas of government—means that many Chinese environmental historians have focussed on ancient history. This is by no means a new approach among Chinese historians, but the political dimension does present particular challenges for those wanting to examine what the Chinese classify as recent Chinese history—that is, history of the last three or four hundred years. Political factors make it challenging for scholars in Taiwan and China to work on certain contemporary projects, too, but of course it does not preclude them from doing so, as this volume demonstrates.

National differences have also shaped the trajectory of environmental history in China and Japan. The dominance since 1949 of Marxist thought in China has meant that much environmental history in that country focuses on material and class relations.⁵⁰ While such a focus, as we note below, is now changing, environmental historians in China still tend to study as separate spheres—usually within national boundaries—the intellectual and material dimensions of their polity’s environmental history.

In Japan, Bao Maohong has pointed out that environmental history there has transitioned from a history focussed on *kogai* 公害 (pollution and environmental degradation) to agriculture-focussed environmental history, and subsequently to an environmental history that emphasizes *bunmeiron* 文明論 (civilization discourse). This transition, he argues, reveals a changing environmental consciousness within Japanese society and reflects an academic adjustment to Japan’s rising international position. Yet Japanese environmental history has also placed special emphasis on exploring the continuity and superiority of its own traditions of environmental culture, as a kind of national environmental exceptionalism.⁵¹

Aside from national differences, linguistic challenges throw up practical problems, sometimes precluding access to foreign-language texts and hence the latest Western scholarship on environmental history. A challenge particular to the People’s Republic of China (PRC) is the relative lack of spending power of many of its universities compared to the West. This can often preclude travel and intellectual communication with other scholars in China, as well as with scholars overseas. It is pleasing to note that this is changing, through scholarships offered by