# China's Environmental Crisis

## Domestic and Global Political Impacts and Responses

*Edited by*
*Joel Jay Kassiola*
*and Sujian Guo*

Environmental Politics and Theory

# China's Environmental Crisis

# Environmental Politics And Theory

Our current environmental crisis cannot be solved by technological innovation alone. The premise of this Series is that the environmental challenges we face today are, at their root, political crises involving political values.

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*Policy* (2008); *China in Search of a Harmonious Society* (2008); *Challenges Facing Chinese Political Development* (2007); *New Dimensions of Chinese Foreign Policy* (2007); *China in the Twenty-First Century: Challenges and Opportunities* (2007); *The Political Economy of Asian Transition from Communism* (2006); *China's 'Peaceful Rise' in the 21st Century: Domestic and International Conditions* (2006); and *Post-Mao China: From Totalitarianism to Authoritarianism?* (2000).

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Power?" *Asian Perspective*, 2008; "New Africa Policy: China's Quest for Oil and Influence," in *Harmonious World and China's New Foreign Policy,* ed. Sujian Guo and Jean-Marc F. Blanchard (Rowman & Littlefield-Lexington, 2008).

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# Introduction

# China's Environmental Crisis—A Global Crisis with Chinese Characteristics: From Confucius to Cell Phones

*Joel Jay Kassiola and Sujian Guo*

*China's environmental crisis is, at its core, a crisis of policies and perceptions.*

*Hong Jiang Desertification in China:*
*Problems with Policies and Perceptions" (51)*

*In the past decade, the combined forces of international pressure, domestic agitation, declining standards of health due to environmental degradation, and the greening of government offices to non-governmental data and influence led to an increase in the strident tenor of environmental policy critique and the public's demand of more (and, perhaps, better) administrative solutions to environmental problems . . . it is clear the alarm has been sounded and heard at the apex of the political ecosystem.*

*Sara R. Jordan "Network Public Management and*
*the Challenge of Biodiversity Management in China" (64)*

*Ordinary Chinese have started to miss blue skies, clean rivers, green forests, and birds. Heart-breaking coal mine tragedies have become regular news on TV. Pollution has made cancer China's*

> *leading cause of death. Ambient air pollution alone is blamed for hundreds of thousands of deaths every year. Nearly 500 million people lack access to safe drinking water. China is choking on its own success. The WHO found that the pollution-related death has now reached 750,000 a year. In comparison, 4,700 people died in 2006 in China's unsafe mines . . . the bottom-up consciousness on environmental protection has contributed to the redefining of what constitutes national interest by the government. Chinese leaders have developed a new way of thinking that seeks to decrease the country's so-called 'black' GDP . . . China's leaders recognize that they must change course.*
>
> *Wei Liang "Changing Climate: China's New Interest in Global Climate Change Negotiations" (99)*

It is our privilege to present this wide-ranging and pathbreaking collection of chapters on China's environmental crisis. The inspiration for this book arose at the 2007 Association of Chinese Political Science (ACPS) Annual Meeting held at San Francisco State University (SFSU). One Coeditor, Sujian Guo, Professor of Political Science at SFSU, was then President of the ACPS and Organizer of the international Conference. He asked the other Coeditor and Contributor, Joel Jay Kassiola, Dean of the College of Behavioral and Social Sciences at SFSU, to welcome the attendees and deliver the Opening Remarks at the start of the Conference.

Kassiola, an Environmental Political Theorist who has been studying the environment from a political theory perspective for about 35 years, is one of the pioneers of this field of political theory.[1] When he previewed the ACPS Conference Program, he was impressed with the large number of panels and papers on many diverse subjects about contemporary China to be addressed by the ACPS scholarly gathering, but was surprised and disappointed by the total absence of any papers or panels on the environmental crisis in China. How were the government and society responding to the severe ecological conditions experienced by the Chinese people and their biophysical environment? How could the gathering of leading scholars on contemporary China omit consideration of this crucial question for China's future, and, given the global importance of China because of its large and fast-growing economy and huge population with resulting impacts on the planet's ecosystems, the world's future as well?

Perceiving this omission as both glaring and important, Kassiola took the unusual liberty of using his Welcoming platform to note the neglect of China's environment as a theme for a Conference panel or

any papers, and, furthermore, challenged the ACPS organization and those scholars in attendance to respond to this omission in its future meetings. After all, he argued, China's environmental crisis presents an unavoidable set of threats to the Chinese government and to the stability of the Chinese society as well as to the global ecological health and stability. Therefore, the environment should constitute an issue of top priority to China analysts as well as be of vital concern to both its government and citizens. In addition, China's huge population—the largest on the planet—and its recent (post-Reform) unprecedented economic growth have had damaging environmental consequences, perhaps best signified by China becoming the largest emitter of the greenhouse gas of carbon dioxide surpassing the United States.

There is no doubt that China's environmental state is of profound global significance. Therefore, the immense global and domestic importance of China's environment should have constituted a compelling topic for the China scholars and their Conference.

Professor Guo took Dean Kassiola's message as an academic mandate. For the next Annual Meeting of the organization, he included the subject of China's environmental crisis in the Call for Papers. The response from the scholarly community conducting research on China was resounding. So many scholars came forward to deliver papers on the theme of China's environment that Professor Guo as Conference Organizer of the 2008 ACPS Annual Conference found it necessary to create three distinct panels in order to accommodate the large numbers of paper proposals. Thus, the response to Dean Kassiola's challenge of the previous year was more exciting than they had ever hoped and confirmation of the latter's view of the significance of the subject of China's environment.

The book you are holding in your hands is only a sampling of the 15 papers addressing China's environmental crisis from the subsequent ACPS Annual Conference held at the Chinese University of Hong Kong in July 2008. Both Professor Guo and Dean Kassiola would like to express their deepest appreciation to their colleagues on both sides of the Pacific (and in some cases, on the other side of the Atlantic from North America) for their participation in the 2008 ACPS Hong Kong Conference, and for permission to publish their discussions of the globally urgent problem of China's environmental crisis.

How is this volume distinctive? After all, there are several works and many reports on China's environmental crisis to be found in the popular media and scholarly literature (see Kassiola contribution for examples of both), now that the world recognizes the fact that what happens in China affects all the living inhabitants of the planet.

As mentioned, China has recently surpassed the United States as the world's greatest emitter of the greenhouse gas, carbon dioxide (see Liang contribution). This is one development, among several, to focus the world's attention on China's environmental condition and economic growth, as well as China's leadership role within the world's Developing Nations ("Group of 77") in the preparations for the post-Kyoto Climate Change Treaty Conference held in Copenhagen in December 2009 (see Liang's discussion of China's leadership role of this group of nations as well as China's important policy shifts regarding the environmental problem of climate change). There is no lack of material in the mass media and by academic researchers (some in strident prose) detailing China's dire, dangerous, and deadly environmental conditions.

The Coeditors submit what we consider to be a new approach, transcending the typical "gloom and doom" report on China's environmental crisis with its dire components and disturbing domestic and global consequences (see the Xiamen citizen protest to the building of a huge chemical plant provided in the Yu-Zeng contribution). These Chinese conditions and problems can provide environmental scholars across the world with a great opportunity: We must sound the emergency alarm about the urgency of the world's environmental state and the need for immediate action to avert environmental catastrophe for China and the planet. An alarm is obviously needed, since the publics and elites in both the Developed and Developing worlds have proven difficult to arouse and mobilize over the nearly 40-year history of the environmental movement in the West. It is time for concerted action to change the world's Industrial, economic growth-dominated thinking, acting, and social values.

What the Coeditors found while listening to the Conference papers being delivered in Hong Kong, and then in their revised written form, were some factual descriptions and analyses of the various components of the multidimensional environmental crisis in China; many are necessarily provided by the contributors to this volume (see the chapters in Part I). This kind of environmental reporting is exemplified by a recent newspaper article on China's investments in clean energy technology:

> China is at a crossroads. . . . Currently one-third of China's rivers are polluted; one-fourth of its territory is desert while another one-third suffers from severe soil erosion and drought; more than three-fourths of its forests are gone; urban residents are forced to breathe air containing lead, mercury, sulfur dioxide and other elements of coal-burning and

> tar exhaust. The number of cars is expected to grow from 33 million to 130 million in the next 12 years, and every 30 seconds a baby is born with pollution-related birth defects.[2]

However, the contributors to this collection go far beyond the well-known descriptive books and articles (see, for example, Economy's and Shapiro's book-length works cited in Kassiola's chapter as well as the former's recent *Foreign Affairs* article)[3] to analyze the state of China's environmental circumstances. Significantly, they go on to address how the Chinese political and social systems were impacted and how they responded, or should respond, to the contemporary ecological challenges confronting them, for example:

A. forming ENGOs (Environmental Non-Governmental Organizations) to influence the central and local governments (Alpermann);
B. focusing on the individual as well as nation-states in thinking cosmopolitanly about the global climate change crisis instead of the nation-state level along (Harris);
C. utilizing Network Public Management Theory to manage biodiversity loss (Jordan);
D. ceasing excessive, wasteful, and futile tree-planting in drylands (Jiang);
E. considering total carbon emitted rather than per capita emissions in climate change policy (Liang);
F. treating pollution sources and threats to food crop security as a new national budget item for the Eleventh Five-Year Plan (2006–2010) (McBeath and McBeath);
G. using new media technologies, such as cell phones, blogs, e-mail, and Web pages, to mobilize the Chinese public regarding governmental environmental decisions and policies (Yu and Zeng); and, finally,
H. using Confucian values in place of the West's flawed, modern worldview (Kassiola).

Therefore, this collection provides innovative analyses about political and social systemic impacts in China, along with Chinese responses to the global environmental crisis manifested within its borders. These chapters are not limited to ecological components alone; thereby, they significantly expand upon the usual media and scholarly reportage upon China's worsening environmental conditions and attendant threats.

In his edited book about the political nature of the global environmental crisis and the imperativeness of a response based on normative political theory, Kassiola posed several important questions. Most books on the environment, and most college courses dedicated to this subject, do not explicitly raise normative issues. This certainly applies to current scholarship on the deteriorating environmental conditions in China as well.

- What is the nature of the environmental crisis and how did it begin?
- How do human values relate to natural resource shortages and pollution problems?
- What social changes are needed to respond to scientific data about environmental problems, such as global warming or acid rain?
- How can we create an ecologically sustainable and morally just world society of 6 billion people? 8 billion? 12 billion?[4]

Kassiola's goal in raising these questions was to advance our thinking beyond the mere scientific description of environmental problems, which remains the dominant mode of analysis regarding scholarly and popular literature on the environment as well as the environmental crisis in China (see previously cited works with this approach). He sought to expose the root cause of the environmental crisis: human social values and the social institutions built upon them. Basic and controversial political values and policy issues are contained within every environmental threat existing in China and across the planet: desertification, deforestation, biodiversity loss, climate change, and food supply vulnerabilities (just to mention the problems addressed in Part I below), and underlie the panoply of natural and social impacts and responses addressed in the discussions that follow.

This is a fundamental premise behind all of the scientific reports and analyses of contemporary global environmental conditions, particularly those in contemporary China. If basic social changes are not made in our values, public policy, and behavior, a vaguely defined, but nonetheless catastrophic, environmental disaster will occur.[5] Thus, the unifying element of the chapters on China's environmental crisis that follow transcends the specific nature of the manifestations and severity of environmental conditions in one particular nation. It significantly includes the impacts and responses—both domestically and globally—of China's political and social systems encompassing its social values and ameliorative and preventative policies. What social action will be needed in the near- and long-term future in order to avoid

environmental disaster as well as to achieve environmental sustainability and social justice for the long term in China?

This volume's chapters highlight a crucial insight: fundamental social transformation will be necessary because of the multidimensional, global environmental crisis and its specific forms in China—part of the "Chinese characteristics" in the subtitle of this Introduction. This essential recognition raises profound questions about the new values, institutions, and policies that must be established in order to achieve the objectives of disaster prevention, environmental sustainability, and social justice. Furthermore, the goal of fundamental social change itself engenders the unavoidable implementation question: how will the changes that are envisioned and prescribed be realized? Also, what is the nature of this transformation, and how can it be established in a sustainable and just (Chinese) society?[6] In this regard, the development of social movements for change becomes critical to consider.

Kassiola suggests that Chinese Confucian values as a framework for social transformation in China (and for the world as a whole) may provide a philosophical pathway to the new sustainable and just Chinese society. The power of citizens to influence environmental policy-making is illustrated in the Yu and Zeng case study of the protest against a huge chemical plant in Xiamen's center city. Alpermann's chapter on Chinese ENGOs shows how they can be valuable to State agencies as the Chinese public mobilizes to influence their central and local governments to bring about environmentally inspired social and political change.

Harris's contribution on climate change justice concludes Part II, addressing questions of environmental sustainability and social justice through the obligatory inclusion of rich individuals—no matter what state they reside in—along with States' responsibilities to achieve cosmopolitan justice (versus interstate justice alone). He emphasizes the rise of the Chinese New Consumer Middle Class as the model of future Chinese development emulating the consumerist West, and whether such a model is sustainable.[7]

The chapters in this volume do not seek to demonize the Chinese Party-State structure and decision-making, nor hold it exclusively responsible for the dire environmental conditions in China (summarized by the Standaert article above), as do most reports on its environmental crisis (illustrated by the Economy *Foreign Affairs* article). Instead, these chapters explore other important aspects of this immense subject, such as the value nature of the crisis in Industrialism and its supreme value of endless economic growth,[8] and the

viability of non-Western alternatives: possible political responses to specific environmental challenges; non-State organizations' (ENGOs) contributions to policy-making; and the interrelation of the central State, local governments, and ENGOs.[9]

We embark upon this important inquiry into the nature of Chinese environmentalism in response to current ecological threats. According to the authors of the chapters contained in this anthology, this leads inevitably to the subject of Chinese environmental politics, including the fragmented structure of government in China between the central and local levels of government (Alpermann); cosmopolitan justice involving wealthy individuals (Harris); the possible role of new technologies in social communications changing the political dynamic between the Chinese people and its government (Yu and Zeng); the possible role of updated Confucian values in a new Green Chinese society (Kassiola); and the political analysis of public policies responding to several environmental challenges in China (Jiang, Jordan, Liang, and McBeath and McBeath).

We seek to turn the scholar's analytical light of inquiry upon China's environmental crisis in a deeper and more comprehensive breadth than existing literature on this subject, which is largely limited to scientific description. Let us deepen our understanding of the current environmental conditions in China so that a heightened and more effective appreciation of China's environmental predicament—and the world's—may be achieved, than by merely describing the ecological crisis in today's China. The authors of the chapters contained in this volume contend that our level of analytical and theoretical sophistication must be increased in response to the urgent, profound, and complex subject of China's environment.

Given the remarkable lack of natural resources, the tremendous scope of China in both population and land area, and the most rapid industrial growth during the past 30 years in world history and the resulting extreme ecological conditions, its environmental crisis often bewilders scientists, policy-makers, and advocates for the environment. This seems to make the social objectives of environmental sustainability and justice appear utopian and futile.

The insights of this volume's contributors help to contextualize the global importance of China's environmental conditions, including their impact on China and the world, by examining the challenges and barriers to beneficial social change. China's environmental crisis has the potential to become an instructive guide to what must be done worldwide to save our environment and planet. China is facing almost all of the ecological challenges and threats experienced by humans in

our biophysical environment: climate change, desertification, deforestation, declining water resources, inadequate energy supplies, acid rain, biodiversity loss, soil erosion, air and water pollution, and dwindling food supplies. Therefore, the subject of this volume is of urgent importance to Chinese political and social leaders, students of the Chinese political and social system, and its enormous population, as well as other Developing nations, and ultimately, the remainder of the world; a more urgent problem would be a challenge to find.

The Coeditors and Contributors hope that this collection will spark further research into China's environmental problems and threats, and, furthermore, stimulate a growing literature on this subject so that no future scholarly conference on contemporary China omits China's environmental crisis from its scholarly agenda and reflection. To these ends, we aim to inspire researchers to seek creative research goals that expand upon mere scientific description of China's grim environmental conditions—either short- or long-term. Let us regard China as the most prominent case in the world with the most severe environmental challenges. China has the potential to be a model of successful political and social response for our global community as a whole. We encourage our fellow students of China's environmental crisis to respond to the insights and prescriptions included in this volume with their owns studies. It is our fundamental belief that no student of contemporary Chinese society should ignore or dismiss the necessity to consider its environment in all future discussions.

We also hope that students of the planetary environmental crisis who may only consider China's predicament on the most general and superficial level—for example, members of American environmental organizations—will more deeply acknowledge the global importance of China as an avatar of the global environmental crisis with its own social characteristics. In addition, and perhaps even more importantly, China can become the leading model for addressing the world's daunting challenges: overpopulation, natural resource shortages, pollution absorption limits, ideological disconnection from reality, alternative and renewable energy sources, and how to live both sustainably and with social justice. China has the potential to emerge as the leading example of how to avoid environmental disaster.

On the other hand, China's environment and its many serious challenges are important subjects too profound to be addressed by China specialists alone. The planet needs an "all hands on deck" approach to the current environmental emergency as well as analysis of the environmental crisis. *Every* relevant discipline and scholar must seek to contribute to advance human understanding, valuation, remediation,

prevention, and ultimately, social transformation, in response to China's environmental crisis. In this positive spirit of encouragement and determination, we offer the following chapters to environmental and China scholars, public policy-makers, and members of the general public, both inside and outside of China.

## NOTES

1. See his "The Limits to Economic Growth: Politicizing Advanced Industrial Society," *Philosophy and Social Criticism*, Vol. 8, Spring 1981, 87–113, and *The Death of Industrial Civilization: The Limits to Economic Growth and the Repoliticization of Advanced Industrial Society* (Albany, NY: The State University of New York Press, 1990).
2. Michael Standaert, "China Turns to Clean Tech to Stimulate Its Economy," *San Francisco Chronicle*, May 10, 2009, p. A21.
3. Elizabeth C. Economy, "The Great Leap Backward? The Costs of China's Environmental Crisis," *Foreign Affairs*, Vol. 86, Sept/Oct. 2007, Issue 5, 38–47.
4. Joel Jay Kassiola, Introduction and Overview in *Explorations in Environmental Political Theory: Thinking about What We Value,* ed. Joel Jay Kassiola (Armonk, NY: M. E. Sharpe, 2003), 6.
5. See Kassiola's contribution below where he provides a critique and positive alternative to the Limits-to-Growth dystopianism. This argument has been dominant for the duration of the environmental movement since the publication of the book *Limits to Growth* that started such dystopian thinking in 1972. See Donella H. Meadows, Dennis I. Meadows, Jorgen Randers, and William W. Behrens III, *The Limits to Growth: A Report to the Club of Rome Project on the Predicament of Mankind* (New York: New American Library, 1972).
6. See Alvin Toffler's encouraging words about both the "awesome but exhilarating" nature of "designing a new civilization"; see his *The Eco-Spasm Report* (New York: Bantam Books, 1975), 104–105.
7. On the rise of the Chinese consumer, see the book by the same title: *The Rise of the Chinese Consumer: Theory and Evidence,* ed. Jonathan Garner (West Sussex, UK: John Wiley, 2005); Norman Myers and Jennifer Kent, *The New Consumers: The Influence of Affluence on the Environment* (Washington, D.C.: Island Press, 2004, especially Chapter V, "China: Awake and Roaring"), pp. 66–81.
8. For a succinct statement of this Industrial supreme value of limitless economic growth, as it pertains to the nations of East Asia (and especially pertaining to China) in what is called "The East Asian Model" democracies where, according to the author, "State legitimacy is largely performance based. The priority is on economic growth." See Randall Peerenboom, *China Modernizes: Threat to the West or Model for the Rest?* (New York: Oxford University Press, 2008), p. 245. Consistent with the hegemonic, economic growth supremacy, this work totally ignores (with one exception on p. 286) China's environmental crisis.
9. On the increasing importance of ENGOs on Chinese society and government, see Lei Xie, *Environmental Activism in China* (New York: Routledge, 2009).

# Part I

# Current Ecological Conditions and Public Policies in China: Desertification, Biodiversity, Climate Change, and Food Security

# Chapter 1

# Desertification in China: Problems with Policies and Perceptions*

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## Introduction

China's environmental crisis has attracted global concern in recent years. More international attention has been drawn to urban industrial-based water and air pollution due to their dramatic effects and their increasing contribution to the global store of greenhouse gases (Becker 2004, Choking on Growth series 2007). The information on the death of River Huai (Economy 2005) and the alarming images of algae pollution in Lake Tai cannot but make people alarmed. In comparison, rural land degradation, or "slow deaths" of the ecosystem, has not attracted as much attention, except in areas where moving sand has been swallowing human settlement (such as in Minqin of Gansu province). In reality, not only has rural environmental degradation been long standing, it has had a far-reaching effect on the livelihood and economy of China's rural residents, which accounts for about 65 percent of China's total population. The international significance of rural land degradation in dryland China cannot be overlooked either, as the dust blown from degraded dryland has contributed directly to dust storms in eastern Asia, as well as air pollution in the western part of the United States.

This chapter focuses on rural dryland degradation in northern China. In physical geographic terms, typically the dryland areas have an annual precipitation of less than 380 mm, and their natural landscape is covered by grassland, dry shrubs, and desert. Dryland areas account for about one-third of China's territory, where dryland degradation, known as *desertification*, is widespread. Of a total of 3.32 million square kilometers of dryland, 2.64 million square kilometers, or 79 percent, is affected by desertification (CCICCD 2006). In other words, 27.5 percent of China's total land area suffers from desertification, threatening the livelihood of nearly 400 million people (Chen, Dong, and Yan 1996).

Central to this chapter is a critical analysis of China's government perceptions and policies that are related to desertification. I adopt the basic thesis in political ecological studies that views environmental issues as closely related to political economic processes and discursive politics (Blaikie and Brookfield 1987; Peet and Watts 2004). While human activities have been widely recognized as having led to environmental degradation, this chapter traces human impact to its root cause in the Chinese society: the effect of government policies and their underlying perception of the human relationship with the dryland environment. Worth noting is China's authoritarian control by the Communist Party, under which top-down government policies and programs have been playing a dominant role in determining the fate of the Chinese environment (Jiang H. 1999).

This chapter calls into question China's domination over the environment, a fallacy that lies at the root of the modern global environmental crisis. Typically, human domination over nature has been a Western tradition since antiquity, continued through enlightenment philosophy and modernity (Glacken 1999; Leiss 1974). In comparison, Chinese traditional thought has provided a unifying framework for the connection of humans and their environment (Tu 1989; Brunn 1995). However, modern experience has pointed to different trends in both the West and China. While in the West (e.g., United States and Europe) environmental awareness and movements have started to address the ill consequences of human domination, China, under the control of the Communist Party, has sustained an all-out assault on the environment, an attempted domination over nature in ways more draconian than in the West (see Shapiro 2001; Jiang H. 2007). The incorporation of nature into the modern state, especially one controlled by authoritarian ideologies and practices, has resulted in severe environmental degradation. Desertification in China and the approach adopted by the Chinese government in dealing with the

dryland environment provide a case in point of such domination and its detrimental result.

This chapter proceeds as follows: it will first introduce the condition of desertification in China and analyze its human causes and economic consequences. I will then discuss dryland environmental policies in China, focusing on the key Three-North Shelterbelt Program, and examine the reasons why the program has been unsuccessful in improving China's dryland environment. Two perceptions underlying dryland environmental policies are then examined: development-environment relationships and the conception of dryland ecosystems. I demonstrate how development policies in the post-Mao era have exacerbated the stress on the dryland environment, and how ineffective environmental policies have been supported by perceptions that disregard the natural capacities of the dryland environment in the service of political and economic goals, as well as supported by ecological discourses that disregard limits, flexibility, and interconnectivity in ecological processes. This chapter concludes with a call for expanded discourses about the environment and an ecological understanding that takes dryland ecological constraints seriously; this requires a fundamental shift in China's policy orientations about the environment and politics.

The choice of my focus on the Three-North Shelterbelt program deserves a brief explanation. Not only is the program the longest among government-sponsored antidesertification efforts, its tree-planting focus has also been carried into other major programs on the dryland, such as Natural Forest Protection and Grain for Green programs, all of which suffer from certain degrees of social and ecological problems similar to the Three-North Shelterbelt program. It is important to point out here that there are successful cases of reclaiming desertified lands, such as the Shapotou area in Ningxia Region and a certain part of the Ordos region in Inner Mongolia (Mitchell, Fullen, Trueman et al. 1998; Jiang H. 1999), but these are not problem-free antidesertification programs.

## State of China's Desertfication

### Extent of Desertification

Desertification, the decline of vegetation cover and productivity on dryland, manifests in several forms in China. In dry subhumid and semiarid areas, both the grassland cover and the quality of soil have declined, and the land's reduced bioproductivity cannot recover in the short run or without significant human intervention. On arid land,

in addition to vegetation decline, salt may build up on areas where irrigation is mismanaged, leading to salinization and alkalization. Where the surface material is sandy, either on sandy land or desert, the decline of vegetation may be followed by the activation of moving sand, a process called *sandification*. On high land on the edge of the Qinghai-Tibetan Plateau, the freezing and melting process may also be accelerated by human activity, leading to vegetation decline (Yang, Zhang, Jia et al. 2005).

Environmental degradation has accelerated since the Communist Party took control of China in 1949. The average annual rate of desertification was 1,560 square kilometers from the 1950s to the 1970s, 2,100 square kilometers in the 1980s, and 2,460 square kilometers in the 1990s. At the turn of the twenty-first century, the annual desertification rate reached 3,436 square kilometers (Meng, Wen, and Ma 2005). Frequency of sand storms, with source material coming from degraded dryland, also increased accordingly, with the number of severe sand storms rising steadily over the years: 5 in the 1950s, 8 in the 1960s, 13 in the 1970s, 14 in the 1980s, 23 in the 1990s, and 8 in 2000 alone (Weng 2000). While some scholars trace the degradation to historical times, especially to the late Qing and the Kuomintang periods, it is commonly held that the rate of environmental degradation during the socialist period since 1949 has been markedly higher than during any previous period in Chinese history.

Since 2000, the Chinese government has increased its effort to control desertification. The State Forestry Administration (SFA) reported that desertified land has been reduced at a rate of 1,283 square kilometers per year (Wang T. 2008). But this government figure can hardly be used to demonstrate an improved dryland environment. Not only has this figure not been verified by other sources,[1] at best, it shows local improvements in key project areas. According to Shan (2009), overall greenness, an index measuring the total amount of green vegetation, has decreased in North China since 1978. Regional differences exist. Greenness remains constant on 64.6 percent of the area (deserts and Gobi areas). About 14 percent of the area, mostly in northeast China, has an increased greenness index. Much of this increase occurred in areas of high annual rainfall, including the vicinity of Beijing where a key investment focused on tree planting in order to meet the environmental target for the hosting of the Beijing Olympics. The remaining 21.36 percent of the area in northern and northwest China has seen a decrease in greenness, and these areas represent the bulk of productive dryland on which local population rely for their livelihood.

## Economic Consequences

The human and economic consequences of such severe degradation have been alarming. Desertification has deprived people (many of them minorities) living on marginal lands of their means of livelihood, forcing some to relocate to other areas. The in situ degradation also affects distant regions, as particles from exposed soil are carried by the wind and foul the air in eastern China, East Asia, and even North America.

Studies using 1999 data show that the direct economic cost of desertification amounts to 128 billion yuan[2] annually, 1.14 percent of China's annual gross domestic product (GDP). A 2006 government source indicated that desertification led to a direct economic loss of 54 billion yuan, about 2.56 percent of China's GDP (Dong 2007). For seriously desertified regions (Inner Mongolia, Gansu, Xinjiang, Qinghai, Ningxia, and Shaanxi), the loss amounts to as much as 23.16 percent of the region's annual GDP (Liu 2006).

As some of the most severely degraded dryland becomes unlivable, people have been forced from their homes. Government-sponsored relocation programs, called "ecological migration," started in 1998, and by 2005, more than 700,000 people in western China had been relocated. Inner Mongolia planned to relocate 670,000 people by the end of 2006 (Roger and Wang 2006). In the Ordos region of Inner Mongolia, 425,000 people had been relocated off the degraded grassland by 2007 (Li, Pan, Hu et al. 2008), and relocation of another 100,000 people was planned (Deng 2007). While some local people welcome the move for better economic opportunities, many suffer economic losses and social disintegration after the move (Roger and Wang 2006). Concern for the loss of cultural tradition has led some to call the migration program a "forced relocation" and a continuing cultural genocide (Togochog 2005).[3]

## The Role of Direct Human Activities

Scholars studying China's environment have long recognized the predominant role of human activities in the desertification process. Zhu Zhenda, a leading scholar in the study of China's dryland, defines "desertification" as follows:

> Desertification is an environmental degradations process created as a result of the influence of excessive human activities that, owing to the emergence of desert-like landscapes, leads to the decline of productive land.
>
> (Zhu 1991, quoted in Ding, Bao, and Ma 1998, p. 523.)

Excessive human activity has been identified as the main factor triggering the process of desertification, with natural factors acting as "background" or "potential" factors (Ding, Bao, and Ma 1998). Zhu further classified desertified land according to primary human activities as follows: 25.4 percent of desertification is led by cultivation on unsuitable land, 28.3 percent occurs because of overgrazing, 31.8 percent is due to excessive fuelwood collection, and 9 percent is due to water misuse and surface industry. Only 5.5 percent of desertification is led by wind erosion of dune sands (Zhu and Liu 1989; see also Wang T. 2007). While this assessment was made in the 1980s and proportions of the contribution from different activities have changed (e.g., fuelwood collection has subsided with the rise of other fuel sources under a better economy), human activities, especially overgrazing and cultivation on marginal land, remain the main drivers of desertification in China today (Wang T. 2003). In Inner Mongolia, according to Dalentai and colleagues (2008), destructive farming practice contributes 48 percent and overgrazing another 33 percent to grassland desertification.

Conversion of grassland to cropland has been a continuing source of desertification. In Inner Mongolia, for example, five waves of disastrous grassland conversion to cropland have occurred since 1949. In China's rush to develop the "socialist economy" preceding the Great Leap Forward, the first wave of grassland conversion occurred in 1956 and 1957. The second wave took place in 1960 and 1961, following the great famine that resulted from astounding policy errors. The more detrimental third wave came during the Cultural Revolution, when the Mongols were persecuted and their pastoral economy was suppressed. Altogether, about 9 million hectare of grassland was opened during the Mao era. Altogether, during 1949–1985, a total of 138 million mu of grassland was opened to convert to cropland.[4] The fourth and fifth waves of grassland conversion took place after 1985 in the postreform era, converting a total area of more than 100 million mu of natural grassland, nearing the total conversion during the Mao era (Dalentai, Narengaowa, and Alatenbagena 2008). Driven by policies encouraging unchecked economic growth, millions of hectares of grassland were converted into farmland from 1985 to 2000, matching the area of conversion during the entire Mao era, and cropland in Inner Mongolia increased by 22.1 percent between 1987 and 1996. Since 2000, with the government program of "ecological migration," that is, relocating people from areas of unusable grassland to other areas, the last wave of grassland conversion is taking place. As natural grassland is opened up and converted to cropland, degradation often ensues.

Overgrazing has become a serious problem in most pastoral areas in China. According to a 2003 analysis by Lester Brown, from 1950 to 2002, as grassland quality decreased, China's cattle, sheep, and goat population tripled. As of 2002, China had 106 million cattle and 298 million sheep and goats, while in comparison, the United States, a country with comparable grazing capacity, had 97 million cattle and 8 million sheep and goats. Brown's analysis referred to a 2001 U.S. embassy report titled "Grapes of Wrath in Inner Mongolia," which noted that land degradation has resulted in intensified dust storms similar to that of the Dust Bowl in the United States in the 1930s. The comparison to the dramatic environmental disaster of the twentieth century speaks to the serious condition of China's dryland environment.

## Assessing Human Dimensions of Desertification

In global environmental change studies, human drivers of degradation are separated into proximate human activities and underlying societal factors such as demographic change, technological shifts, economic conditions, institutional arrangements, and government policies (Lambin, Turner, Geist et al. 2001; Geist and Lambin 2002; Jiang H. 1999). Among the underlying factors, different levels of association with proximate activities can be identified, thus indicating various degrees of primacy. In a case study of the Ordos Plateau in Inner Mongolia, Jiang H. (1999) assigned the following factors in the order of increasing primacy: population change, environmental attitudes and behavior, economic factors (including poverty), resource use institutions, and government policy. The higher the primacy, the more fundamental the factor is in driving other societal factors as well as environmental change.

On China's dryland, extensive research has been conducted on proximate activities driving desertification, such as unsuitable land conversion, overgrazing, and excessive collection of fuelwood (Wang T. 2003; Chen and Tang 2005). Among the underlying human drivers, population pressure and poverty have received the most attention (Zhu and Liu 1984; Chen and Tang 2005; CCICCD 2006). While these studies help identify physical processes, technical solutions, and certain socioeconomic factors related to desertification, several unfortunate consequences have resulted.

First, the local people have often been blamed for the problem. Not only have they been characterized as of low "quality" and bad environmental stewards (Yeh 2007), they have been the very victims

of desertification (Zhang 2004). True, local residents have been the executors of damaging land use activities, but they have been, over decades of authoritarian control, subjected to economic and policy factors that are beyond their own control. If these underlying socioeconomic factors are not addressed, proximate drivers of desertification cannot be adequately abated. Second, population control and economic growth have been promoted as ways to fix the problem, leaving out more fundamental human drivers. The focus on economic growth itself has generated more intensive use and environmental degradation, making the rate of desertification even higher in post-Mao China than the devastating Mao era. Third, the Chinese government has focused on technical solutions to address desertification, putting in place aggressive antidesertification programs with mixed results that suffer from ecological or management failures (details to be discussed later).

These problems have been related to the unwillingness of the Chinese authoritarian government to address the root issues of desertification: government policies and the perception of the environment underlying these policies. This article examines these two related issues, with a focus on a major tree-planting program on China's dryland in an attempt to understand why it has failed to fix the desertification problem. I acknowledge the role of other societal factors such as population pressure and poverty, but regard them as corollary factors born largely out of government policies. In a review of various cases of land changes worldwide, Lambin and colleagues (2001) find that population and economic factors are usually mediated through other societal factors, such as markets and policies, in their effects on environmental change.

## PROBLEMS WITH GOVERNMENT POLICIES

### How Political-Economic Policies Led to Desertification

While this chapter focuses on government programs directly targeting the dryland environment, it is important to recognize that political-economic policies often have far more important impact on the rural environment, especially in driving land degradation, than environmental programs alone (such as tree planting and shelterbelt construction). Take, for example, waves of grassland conversion in Inner Mongolia that have led to grassland degradation: each wave was driven by economic policies. During the Mao era, these policies came from the program of socialist construction in the 1950s,

postfamine emphasis on grain production in the early 1960s, and the "Grain First" rural policy during the Culture Revolution, all of which negated the Mongolian traditional economy of grassland-based animal husbandry. During the post-Mao era, the government emphasis on economic growth and the recent relocation of people from degraded grassland have led to further grassland degradation and conversion.

It is widely acknowledged that the current environmental problem in China is led by unchecked economic growth (e.g., Choking on Growth series 2007). Such growth can be traced further to government reform policies. In dryland, one of the most important policies affecting the rural environment is the household responsibility system, under which livestock and grassland were distributed to individual households in the 1980s. Subsequently, in many pastoral areas, especially in Inner Mongolia, grassland has been fenced into enclosures.

Grassland enclosure has created a detrimental effect on the grassland. Dalintai and Alatenbagena (2005) point out that it is grassland enclosure (along with other intensified management), not primarily large number of livestock, that has led to grassland degradation. China's grassland demonstrates features of nonequilibrium ecology (ibid.; Behnke, Scoones, and Kerven 1993), whereby the relationship between grassland and livestock numbers does not demonstrate an often assumed notion of balance. The relationship is dynamic and dependent on local microecological conditions. For example, in drought, sandy areas may show signs of degradation while lowland grass may still grow well for livestock grazing, and in abundant rain, vegetation may flourish in sandy areas while lowland grass may become inundated. The key to sustainable use is rotational use, a tradition long practiced in nomadic societies. Enclosures and grassland privatization render such flexible use impossible because rotational use requires access to large areas of pastureland. Furthermore, grazing intensity inside enclosures has drastically increased. In the Ordos region, for example, enclosures are often used continuously for entire seasons (2–3 months), during which much grass was grazed to the ground (Jiang H. 2000). Suttie and colleagues (2005, p. 44) call this the "tragedy of privatization," taking after Hardin's "tragedy of commons," a theory of degradation of communal resources that some scholars incorrectly applied in assessing grassland degradation in Inner Mongolia (Williams 2001).

Government focus on economic growth and integration with the market has led to a further increase of livestock. Even though local

governments have been charged with the responsibility of improving the local environment, economic growth has been the ultimate measure of government achievements. In addition, as fiscal responsibility became decentralized, local governments were under pressure to increase their tax revenue. This has led to the governments' preference of large livestock numbers. "Illegal livestock," a term referring to livestock owned by outsiders, which graze on rented pastures, has become a new phenomenon in pastoral regions, and can add up to 30 percent of total livestock grazed on the grassland of Inner Mongolia (Dalentai, Narengaowa, and Alatenbagena 2008). Official policy limited grassland rental, but in reality, rented grassland has been used, unfortunately leading to the most severe degradation as renters often have less concern for sustainable use. But the economic power and political connections of these outsiders have led local officials to look the other way as part of the system's corruption and (tax) revenue seeking preference (Jiang G. 2007a). At the same time, land degradation worsens.

Worth mentioning is the historical legacy of the Mao era that has created cumulative effects of environmental destruction, population pressure, and ineffective economic management. Desertification and land misuse escalated after the Communist Party took over control of China in 1949, and postreform degradation is but a continuation of environmental abuse. Mao's population policy created the lasting effect of heavy population density on the dryland, thus intensifying pressure on the environment. Take Minqin oasis of Gansu province for example. As water has been reduced from irrigation on the upper reaches of Shiyang River since the 1950s, and as population tripled and the livestock number increased sixfold since 1949, the oasis has been drying up with people being forced to abandon their homes (Zhang, Zhang, and Zhang 2007).

## FAILURE OF ENVIRONMENTAL PROGRAMS—EXAMPLE OF THREE-NORTH SHELTERBELT PROGRAM

During the post-Mao era, the Chinese government has implemented various policies and programs to improve the degraded dryland, especially because land degradation has impeded further economic growth. These programs include Sandy Source Control in Beijing and Vicinity; Natural Forest Protection; and Grain for Green, the largest in scale, longest lasting, and the most consistent dryland improvement program is the Three-North Shelterbelt program (*san bei fang*

*hu lin gong cheng*). "Three-North" refers to northeast, north, and northwest China, most of which is dryland.

The Three-North China Shelterbelt program, also referred to as the Great Green Wall program, is the Chinese government's effort to establish 35.6 million hectares of protective forests spanning 4,480 km long and 560–1,460 km wide in north China, raising forest cover in the project area from 5 percent to 15 percent (SFA 2008). The purpose of the program has been ecological in terms of improving vegetation cover, reducing sandification, and preventing water runoff and soil erosion. The program started in 1978 and is scheduled to run until 2050. By late 2008, the agency in charge of the program, the SFA, claimed to have established over 24 million hectares of forests, raising forest cover from 5.05 percent to over 10.51 percent in northern China and improving significantly the dryland environment. Internationally, the program is considered the largest tree-planting effort in the world.

Successful stories of land improvement through tree panting abound in the Chinese media, including Chinese scientific writings. For example, the Ordos region of Inner Mongolia, a key project area in dryland improvement, is reported to have increased vegetation cover from 30 percent in 2000 to over 75 percent in 2008 through the planting of trees and shrubs (Li, Pan, Hu et al. 2008). While it is difficult to believe the drastic increase, as quoted above, in vegetation cover, no doubt desertified land has become controlled in certain areas, mostly key project areas and experimental sites. How large are these areas? They account for only 10 percent of China's dryland, and can in no way represent the majority of the dryland, where overall, desertification has continued and tree-planting programs have failed to improve the environment.

In general, the Three-North Shelterbelt program has produced only limited local improvement, while not stopping large-scale degradation. Stories of continuing degradation are more widespread. In Minqin county of Gansu province, where annual precipitation is 115 mm, 800,000 mu of trees were planted in the past few decades, but 200,000 mu have died and the rest are dwarf trees. The groundwater level dropped by 12–19 m, and in some cases, even 40 m. Tens of thousands of people have left the area. Located between Tengger and Badain Jaran deserts, Minqin is expected to be swallowed by desert in the next decade (Bennett 2008). In Kushile City of Xinjiang, 40,000 mu of trees were planned, but actual planting was only 2,000 mu at the cost of over 1,000 yuan/mu (Ding, Xiao, and Jiang 2006). In Hunshandak Sandy Land of Inner Mongolia, despite tree-planting attempts, moving sand cover increased to 50–70 percent in the 2000s from a mere 2 percent in the 1950s (Jiang G. 2006b).

There are sound ecological explanations for the failure of dryland tree planting. As early as the 1980s, Huang (1981, 1982) questioned the overestimation of forestry's function to conserve water, and since then empirical studies in northern China have pointed out the problem of soil desiccation and groundwater depletion led by aggressive land improvement projects and tree planting (Chen, Wang, and Shao 2005; Yang, Liang, Han et al. 2004; Jiang H. 2004). Dryland tree planting, when implemented on a large scale, usually fails because of the natural environmental constraint due to limited rainfall.

The ecological problem of large-scale tree planting on dryland has only been exacerbated by the practice of single species forestry that has been practiced in China. For example, in Ningxia, 70 percent of the trees planted are poplar and willow trees. In 2000, 1 billion poplar trees were lost to a disease (*Anoplophora*), wiping out 20 years of planting effort (Yu, Li, and He 2008). Single species forests have been called "green deserts" (Jiang G. 2008a). While they help increase the government figure in trees, they fail to improve the environment.

Despite ecological problems, the Great Green Wall program continues. Tree planting has been costly, and survival rates are low. According to Wang Man, the head of the Forest Bureau in Zhangbei of Hebei province, "planted trees absolutely cannot be guaranteed to survive; they must be replanted in 3–4 years. At maximum of 2 in 5 trees can survive the first year. Continuous replanting requires more input." Of all the trees planted in dryland since 1949, only 15 percent survived (Cao 2008). Persistence in the tree-planting program has meant high cost. Weng (2000) gives an example of investment profile in tree planting between 1978 and 2000. The central government invested 1.3 billion yuan to plant 300 million mu of trees, for which local government supplemented 2–3 billion yuan, foreign donation and loans added 0.9 billion yuan, and local free labor costs supplied 30 billion yuan in 3 billion labor days. In general, it has cost 150–1,000 yuan/mu for tree planting, and the central government's project investment has only accounted for 5–10 percent of this.

Astounding failure in dryland tree planting has been found in several large-scale programs in the world. The most famous has to be Stalin's "Great Plan for Transformation of Nature" in 1948, in which over 30,000 square km of trees were planted on the steppe; by the 1960s only 2 percent remained (Jiang G. 2006b). In North Africa, tree-planting programs such as "green dam" and "green wall" have been initiated, but with limited success. In 1971, Algeria planned to plant 3 million ha of trees in a belt 20 km wide and 1,500 km long. By 2003, only 100,000 ha had been planted, mainly single species

*Pinus halepensis* (Belaaz 2003). Roosevelt's "shelterbelt" program in the United States after the dust bowl had to scale down, and Israel's Yatir Forest program, where over 3,000 ha of rainfed *Pinus halepensis* were planted in the early 1960s, has been debated over its ineffective use of water in favor of small-scale farm plot planting and its use of precious water in agriculture to better alleviate poverty (Rueff and Schwartz 2007).

Alternatives to aggressive and ineffective tree planting have been studied in dryland environmental recovery. Jiang Gaoming, an ecologist from the Chinese Academy of Sciences, led a team of scientists in an experiment of grassland recovery on the Hunshandak Sandy Land in 2000 and concluded that natural recovery of degraded land (through the removal of human use) is the most cost-effective and ecologically sound approach. Not only did the grassland recover quickly and increase biomass by nine times in two years, grass layer has also served to better protect the soil surface than planted trees. The cost was only 20 yuan/mu, in comparison with hundreds to a thousand yuan per mu in tree planting (Jiang G. 2006a). Gao Yuchuan, the Forest Bureau head of Jingbian County, Shaanxi, stated from practical experience that "planting for 10 years is not as good as enclosing for one year" (Ding 2006, p. 40). Both scientific research and empirical data offer strong support for natural recovery of indigenous grass over a tree-focused improvement scheme. However, natural recovery has not been adopted as a main approach in dryland recovery but only used as a last recourse when the environment has been so degraded and improvement has failed so miserably that people have to be relocated.

Why such a fixation on trees? Trees align better with political power and control. Of the three vegetation types that can assist with dryland recovery—trees, shrubs, and grass—trees have been the most sought-after choice of modern states, even though shrubs and grasses have been the natural vegetation that fits the ecological conditions better (Cao 2008). Trees are countable and their numbers can be more easily reported as indicators of political achievement. This makes trees a natural alliance with modern states' proclivity toward power and resource control (Scott 1990). As ecological improvement has become a measure of political performance for government leaders in China, trees become an easy political choice. Elsewhere, trees have been used as a form of political control (e.g., Rocheleau and Ross1995; Peluso and Vandergeest 2001).

The tree-planting program has served a political means. The Three-North Shelterbelt program was initiated in 1978, as China's

environment was severely degraded after decades of assault by Mao's aggressive policies. As the economic reform has deepened, China's environment has become even more degraded than the state left by the Mao era, making it not only an issue of a livelihood threat for people who live on degraded land but also a concern of the international community. The environmental threat has become a question of political legitimacy for the Chinese Communist Party (Choking on Growth series 2007). The tree-planting program, although having not stopped desertification, has been used by the government as evidence of its commitment to improving China's environment. On the official Website of the program, it states,

> The Three North Shelterbelt program is a grand ecological construction project, representing an unprecedented great effort in the history of forestry in China. It is the great act of nature improvement, largest in scale and longest in time in the history of human kind . . . the Three North Shelterbelt program is a great project benefiting people today as well as future generations to come . . . so great is its scale, so fast is its speed, and so high is its efficiency, that it has surpassed Roosevelt's shelterbelt program in the U.S., Stalin's "nature transformation" plan, and the "Green Dam" project in North Africa. It has been called "China's Great Green Wall" and is the largest ecological project in the world.
>
> (Chinese official Website: http://www.3northforest.com/gcjj.htm, accessed on Dec. 1, 2008)

Institutional trap is another related political aspect of tree planting that has perpetuated the problematic program in dryland improvement. In rural China, environmental governance has been segmented, with various departments competing for funds and achievements. The forestry department is concerned with tree planting, the grassland department deals with grassland management, and the hydrological department promotes the planting of shrubs. Overall landscape-level management is nonexistent (Jiang H. 2002). The SFA, formerly the Ministry of Forestry in charge of logging activities, has been put in charge of tree planning and conservation programs, including desertification control (Yang H. 2004). The SFA houses the National Desertification Controls Office and the National Monitoring Center for Desertification, but its preferential focus on trees remains.

The SFA has become a key advocate for tree planting in dryland and has been resistant to criticisms of the Three-North Shelterbelt program (Jiang G. 2007b). Facing the high cost of tree planting in dryland, the SFA has been advocating for more central government

funding, and has argued that lack of funding is a key impediment to the success of the Three-North Shelterbelt program. To be fair, the SFA is caught in between the Chinese state's aggressive approach to dryland improvement and the dryland's tenacious natural resistance to tree growing.

Having funding, however inadequate, the SFA is among the more powerful government agencies. In 2004, for example, the central government invested 30 billion yuan in forestry but only 2 billion yuan in grassland (Wang L. 2007). To the degree that SFA has power, it is the power of trees over shrubs and grass. As the central government agency extends to the local government, whichever agency or program carries funding will receive the attention of the local government. As one local official stated, "The upper government has thousands of thread but local government has one needle. At the local level, things will be worked on where there is funding" (Weng 2000). In a discussion on the ineffective Three-North Shelterbelt program, Ge (2005) criticizes the local people for engaging in tree planting for economic gain. The criticism has to be shifted up to the local government and the SFA. The local people have no choice, as tree-planting tasks and labor requirements come down from the government, and those who refuse to engage in tree planting are required to pay for unfulfilled labor days (Jiang H. 2000).

## Problem with Perceptions of the Environment

Why has the Chinese government not come up with more effective policies to deal with dryland desertification? Another way to ask the same question is what has driven the ineffective environmental policies of the Chinese government? Scholars in human-environmental studies assert that environmental perceptions and landscape change are mutually constituted (Escobar 1999; Peet and Watts 2004; Zimmerer 2000), and that meanings ascribed to the environment actively shape environmental policies and resource use (Fairhead and Leach 1998; Worster 1994). To understand environmental policies, therefore, we must explore the underlying perceptions of the environment and relationships with nature. Given the modern history of the ruling Chinese Communist Party to control the Chinese people and the landscape, China's environmental policies have also to be viewed from ideological and political lights.

This section examines China's official ideologies toward nature and perceptions of the dryland environment. In particular, I consider the

following perceptions and discourses: development-driven priority that casts aside environmental concerns, willful misunderstanding of the dryland's ecological limits, and aggressive approach to ecological improvements. These factors serve as the underlying forces of China's problematic environmental policies on the dryland.

## MAO'S AGGRESSION TOWARD THE ENVIRONMENT CONTINUES

China's dryland tree-planting program and its implementation betray an aggressive attitude toward the environment that has its root in recent Chinese political history. During the Mao era (1949–1976), under the ideology of "battling with heaven and earth," the environment was blatantly ignored, abused, and destroyed by the policies of the communist government in the stated attempt to build socialism (Shapiro 2001). One example is the "Grain First" policy during the 1960s, under which trees were felled, lakes filled, and grassland in northern China was opened and converted to cropland, leading to severe land degradation. In Inner Mongolia, with the fall of the Inner Mongolia leader Ulanhu, all those who followed his policy of animal husbandry, including planting grass, were persecuted. In 1967, patches of planted fodder in the Ordos were removed as a way to "uproot" Ulanhu's influence, and fields were turned into cropland (Jiang H. 2007).

In post-Mao China since 1976, more attention seems to be paid to the environment. The government has implemented many programs to improve the environment, but in reality environmental degradation has only worsened. As far back as 1978 when the Three-North Shelterbelt program was first initiated, the Chinese government recognized serious degradation of the dryland environment and improper conversion of grassland. But even as the tree-planting program attempted to improve degraded dryland, new assaults continued unabated. Take grassland conversion for example. In the past three decades, in government documents and in scholarly studies of desertification, grassland conversion and improper Maoist policy have often been cited as reasons for degradation. At the same time, more than ever, new grassland was opened up—now in areas that are even more vulnerable, as grassland with more favorable conditions had been converted in the past. A common phrase, "improvement effort goes along with further degradation," has been used to describe China's environmental reality.

Not only does land degradation continue, Mao's aggressive attitude toward the environment continues, and it has been carried into environmental improvement programs, with the Three-North

Shelterbelt program serving as an excellent example. If the Maoist aggression was expressed in brute destruction and coercive politics, the post-Mao Chinese government has switched its focus on economic development, abandoning politics as an overt weapon. But economic development has become a new "weapon" of aggression toward the environment. Seen from the increasing rate of desertification, this new weapon is even more "effective."

"Development is the first urgent task," said Qin Dahe, former Director of the China Meteorological Administration, in arguing for China's refusal to reduce greenhouse gas emissions. "It's a firm principle and, moreover, we need good and fast development. Only then will we be able to step by step solve the problem" of climate change (Economy 2007). China's high growth rate, measured at least 8 percent of China's GDP (Pei 2007a), has come at the cost of environmental damage. The single-minded pursuit of economic growth makes the Chinese government blind to its own detriment, as short-term economic gain has come at the cost of long-term sustainability.[5]

In his book *Development as Freedom*, the Nobel Prize winning economist Amartya Sen argues that a basic constituent of development is freedom in participation of processes and access to opportunities. As China's dryland is home to several major ethnic groups (Mongols, Uyghurs, Kazaks, the Hui), some have argued for development paths that are more sensitive to ethnic cultural traditions (Zhang, Borjigin, and Zhang 2007). This broad view of development considers the basic welfare of the public. The Chinese government's deliberate narrowing of the concept of development, equating it to economic growth, is what I call "discursive narrowing," and it helps solidify the Communist Party's control more than it serves the long-term interest of the Chinese people. According to Minxin Pei, Director for the China program of the Carnegie Endowment for International Peace, the Chinese Communist Party "has pursued a single-minded strategy that relies on rapid economic growth to maintain its legitimacy and power" (Pei 2007b).

Under this general mentality of subordinating the environment under economic development, it is easy to see why the Chinese official discourse on the dryland has effectively undermined the ecological limitations of the dryland.

## Dryland Ecology Misconceived

Ecological concerns have occupied the agenda of the Chinese government in the reform era. In addition to the Three-North Shelterbelt program, more programs have been added to address the issue of

desertification. In 1999, China launched a Western Region Development program in order to develop the vast western inlands that had been lagging behind the eastern seaboard. Other than investment policies and infrastructure buildup, the program also involved ecological improvement, such as "grain for green" (grain subsidized for tree planting) and a logging ban.

As part of the environmental effort, the Inner Mongolia government started to make official "ecological plans." In a 2000 plan of a banner located on the Mu Us Sandy Land, it projected that by 2005, 2015, and 2050, tree cover would increase from the then current 19 percent to 27.13, 43.47, and 49.85 percent, and vegetation cover from 55 percent to 59.92, 79.23, and 89.03 percent. Furthermore, key locations of tree planting were also identified (Jiang 2006). The goals projected for linear growth also resemble those of China's five-year economic plans that started in 1953. This "planning mentality" reflects the central tenet of the Chinese government's relationship with the environment: it treats the environment as if it can be altered at will by human action.

To the extent that the local government has tried to implement the plan by planting more trees, they have continued Mao's "battle with heaven and earth." In reality, these ecological plans have been unrealistic for a dry sandy land with an annual precipitation of only 330–360 mm. Water constraints have kept the vegetation cover below a certain percentage regardless of past efforts in planting and seeding. Of course there is one scenario in which this ecological plan would work: heaven must be defeated and bestow more rainfall to this piece of land, or perform other such miracles.

The planning mentality of the Chinese government has reduced dryland improvement to the planting of trees; shrubs and grasses were only added to the list in recent years as secondary choices. In the Ordos area of Inner Mongolia, for example, the tree preference is shown clearly in the following subsidy schedule: with trees planted on degraded cropland in the "Grain for Green" project, subsidy is offered for a total of 16 years, while for grasses planted, it is for only 10 years (Yang M. 2008).

The tree-focused dryland environmental policy has effectively disregarded the natural limit of the dryland ecosystem. The treeless dryland is a result of long-term adaptation of the natural environment in all its key elements: climate (water and heat regime), soil, and vegetation. Even though small-scale tree planting can be successful, especially through focused funding, large-scale planting not only suffers from a high failure rate, as discussed above, it also deteriorates the dryland environment through overuse of limited water resources. Jiang H. (2004) points out that landscape polarization has been a key feature

of dryland environmental change, as improved land use such as trees have increased alongside continuing degradation—improvement in tree planting and irrigated cropping have partly *caused* the continuing degradation due to the connectivity of the landscape through groundwater. Dryland desiccation resulted from similar planting has been reported in soil drying up in the Loess Plateau (Chen, Wang, and Shao 2005) and in the depletion of groundwater in Minqin (Ding, Xiao, and Jiang 2006; Bennett 2008).

Dryland environment fluctuates, as seasonal and annual rainfall varies greatly. The natural variation, typical of a nonequilibrium ecosystem, defies the Chinese state's planning mentality. In years of drought, which occurs more frequently with the influence of global warming, planting fails easily. Even if planted trees survive the initial years, subsequent drought and desiccation of the environment will lead to their dwarfed form or their death. Instead of seeing these as natural results of improper planting and thus changing policy directions, the Chinese government has viewed them as obstacles to overcome. The SFA's policy documents call for more funding and better management to ensure the survival of planted trees. This is like trying to defend geocentric theory with increasingly complicated computations instead of considering Heliocentricity during Kepler's time.

To be sure, China's misreading of dryland ecology, as described above, has come under the influence of the global discourses of desertification. Dryland, where desertification has been widespread, occupies about one-third of the world's land area and is home to 1 billion people. Human activities, including degradation of tree and shrub formations, have been recognized as the major causes of desertification (Malagnoux, Sène, and Atzmon 2007). This recognition of "human impact" has served as a double-edged sword for the dryland environment. On the one hand, it cautions excessive human use, and on the other hand, it encourages a notion of human ability to improve the dryland environment through aggressive means. Tree planting has been promoted as a method of dryland improvement by the United Nations Convention to Combat Desertification (UNCCD) and the Food and Agriculture Organization (FAO) in their reports, training manuals, and environmental projects.

## Crisis of Ecological Consciousness—False Perception

Since the 1990s, a catchall notion for rural environmental endeavors is "ecological construction (*shengtai jianshe*)," another expression

with Chinese characteristics. The idea is to rebuild nature and the landscape through planting and engineering efforts, with a focus on establishing productive landscapes. Instead of attention to local species or the recovery of native ecosystems, these projects aim primarily to bring up the numbers in the project area: number of trees planted, areas developed, and percentage covered by vegetation. This is in stark contrast with the concept of ecological restoration, the recovery of past ecosystems, which has been a key principle guiding environmental conservation in the United States in recent years.

Around 1999, the notion of "ecological construction" took on a new height with the policy of "opening the west (*xibu kafa*)" that aimed to develop the economy of China's western inland regions. The degraded environment in Western China had become a hindrance to economic growth, and development programs mandated ecological repair. Three-North Shelterbelt Program became a model for ecological construction, and other similar projects in the dry North and Northwest China include sandy land control, conversion of cropland into forests, and various other efforts to plant trees, shrubs, and grass. In Inner Mongolia, for example, the cropland conversion program, also known as the Grain for Green program, had converted 35 million mu of cropland into forests by 2007 (Luu Fengyuan Net 2007). Earlier in 2009, Cao Wenzhong, Deputy Director of the Forestry Bureau in Inner Mongolia, emphasized the focus on "ecological construction" as he announced the region's forest development tasks at 14 million mu in 2009 (Zhongguang Net 2009).[6]

The approach of "ecological construction" betrays a Maoist attitude of human domination over nature. The word "construction" comes from the "socialist construction" movement of the early 1950s, which aimed to transform the Chinese people into new persons of socialist ideology (Jiang H. 2006). Also transformed were the Chinese landscapes—for the worse (Shapiro 2001). In the post-Mao era, the Maoist notion of human reformation and domination has now been carried over into "ecological construction" projects, degrading the environment in the ostentatious programs to improve nature. While ecological projects can "construct" trees in constrained locations on the landscape, they have not stopped continuing environmental degradation. Although ecological science has been used to support "ecological construction" projects, ecology's essential concepts, that is, connectivity and limit, have been cast away, as seen in the previous section on the violation of tree-planting programs against ecological principles.

Government programs and state-controlled media have unequivocally promoted ecological construction the same way they have promoted "development." Without open debates or discussions about what the concept means and how ecological improvement should be carried out, the government started to promote "ecological construction" in the media and to invest in related projects, effectively linking the "ecological" with funding. In the habitual way, the official media reported one success after another of the ecological projects. Ge (2005) argues that local governments and people engage in the fruitless tree-planting projects not because they believe in their validity but because of funding.

The Chinese government has used the concept "ecological construction" to frame the ecological consciousness of the Chinese people. To the extent the governmental effort is successful, the Chinese people's mind has been effectively narrowed regarding the meaning of "ecology." Residents in central Inner Mongolia, for example, connect "ecology" with the planting of trees and shrubs; their information sources have come from government projects and state-controlled media (Jiang H. 2000).

The government has blamed the local people for environmental problems, seeing them as "ignorant and backward" (Williams 1997, p. 335) or "low quality" (Yeh 2007, p. 598). Even some Chinese scholars are following this logic to "blame the victims." Since local residents have been blamed for being ecologically ignorant, the state's education mission becomes "natural" and "necessary." In reality, the socialist project has been, from the start, a project of reforming people's consciousness. During the Mao era, the Party forcefully instilled political ideology in the minds of the Chinese people, destroying traditional cultural values. In the reform era, while political ideology education has failed miserably, other educations, such as in market consciousness and ecological consciousness, have continued to mould the Chinese mind.

Political pressure makes sure that alternative notions of ecology do not have space to grow. As ecologist Jiang Gaoming states,

> "Grassland does not have trees, and this is natural law." Ecologists often take this position firmly in private discussions. But strangely, in front of reporters, especially facing the camera of the Chinese Central Television, their voices suddenly become weak. No one wanted to speak the truth to offend the forestry department. At the time, "Three-North Shelterbelt" program and "Beijing-Tianjin Sandy Source Control" project were already moving to their heights.
>
> (Jiang G. 2008b, Preface)

In order for dryland policies to produce effective results, official perceptions of the environment have to be tempered, replacing aggressive attitudes with a respect for nature and ecological processes.

## CONCLUSION

Desertification has been one of the most serious environmental problems in China. As desertification hinders economic development, the Chinese government has made efforts in recent decades to improve the environment, but these efforts have not been based on a fundamental respect for nature and the environment, nor a redirection in policy orientations from Mao's aggression against nature. Draconian methods and combat mentality have continued, and have only met with failure in dryland improvement.

This chapter locates the root cause of the problem of desertification in government policies and their underlying conception of the human-environment relationship. Not only have ill-informed policies constituted the major driving force of desertification, even programs ostentatiously to improve the dryland environment suffer from astounding failure. Focusing on one particular government program, the Three-North Shelterbelt program, I explained why the program is not suitable as its tree-planting focus defies dryland ecological limits. Because of limited water resources, not only is the survival rate of planted trees low, but many die, and groundwater recourses are drained, further deteriorating the vulnerable dryland environment.

The problem with China's desertification control is not a matter of lacking sound science. In fact, several well-known Chinese scientists have issued criticisms of China's dryland polices. For example, ecologist Jiang Gaoming of Chinese Academy of Sciences has written articles opposing tree planting in favor of natural recovery (Jiang G. 2005, 2006a, 2006b, 2008b) and academician Shi Yuanchun (2002) has criticized China's desertification control for failing to improve the dryland environment while evading its root cause (such as overgrazing and extensive farming). As early as the 1980s, China's renowned geographer Huang Bingwei (1981, 1982) questioned the rationale of tree planting in dryland. Existing scientific knowledge and empirical studies have provided enough information to attest the ill fit of China's dryland policies.

Why has the problematic tree-planting policy continued and still persists? Is not the Chinese government aware that the policy is detrimental to the environment and economy in the long run? This

chapter attributes the fundamental source of the policy error to the Chinese official attitude toward the environment. The post-Mao Chinese government has, in essence, continued the Maoist aggression toward nature in favor of economic development. Such aggression has been carried into programs to ostensibly "improve" the degraded environment. Under the official rubric of "ecological construction" in the draconian effort to remake nature, ecological limitations are disregarded. The pressure of economic drive, along with short-term and localized successes of tree planting, further blinds the policy-makers from seeing the fundamental problems in government policies.

A more fundamental issue with China's environmental policies is that they often serve political means rather than realistic environmental or long-term economic ends. As China's environmental crisis deepens, environmental issues have become ones of political legitimacy. The fact that Three-North Shelterbelt Program has produced limited improvements of planted trees to show the state's "achievements," plus the SFA's power and tree preference, have helped perpetuate the tree-planting program despite its overall wastefulness and its unsuitability to the dryland environment. These problems cannot be resolved with the status quo political system and top-down decision-making process.

China's environmental crisis is, at its core, a crisis of policies and perceptions. While the Chinese state is not alone in making detrimental environmental policies, China's top-down authoritarian control, by limiting alternatives discourse and management options, has only been more detrimental to environmental sustainability. For China's desertification problem to be mitigated, the aggressive approach to the environment has to be replaced with ones that are more sensitive to environmental constrains and ecological processes; development has to be defined not by mere arithmetic economic growth but by a broad set of measures that considers environmental sustainability an integral part. New values of respect for nature have to be (re-)established, inspired by both traditional Chinese culture, with its roots in Confucianism, Daoism, and Buddhism (see Kassiola 2008, and contribution to this volume; Tu 1989; Shapiro 2001), as well as by modern ecological sciences (e.g., Jiang G. 2008b). Environmental policies have to be established and assessed for their human-environmental effectiveness rather than their political ideologies and expediency. For this to happen—for desertification to be checked and reversed—the political ideology of the Chinese Communist Party, along with its authoritarian system of control, will have to be abandoned.

## NOTES

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1. At the end of 2004, the State Forestry Administration published the rate of annual increase in desertification at 3,436 square kilometers; half a year later, the figure changed to 1,283 square kilometers of annual reduction. Jiang G. (2005) questions how could 4,719 square kilometers of desertified land be controlled in such a short period of time.
2. Conversion rate as of May 2009 is $1 = 6.82 yuan. In 1999, the conversion rate was about 8.27, accordingly, 128 billion yuan equaled to $15.5 billion.
3. China's Dryland area is the home to several minority groups, especially Mongols, Tibetans, Uyghurs, and Kazaks who are traditionally nomadic peoples. In part, the problem of desertification is caused by land-use practices that depart drastically from their traditional nomadic practices of extensive land use and rotational grazing. Drawing on minority land-use traditions is not just an issue of environmental sustainability, but it also concerns cultural survival. Unfortunately, the Chinese government's tree planting and aggressive land improvement methods have not shown respect for minority cultures.
4. Mu is a measurement unit for area, 1 mu = 1/15 hectare.
5. The measure of "green GDP" would take into consideration environmental damages. The Chinese central government made an attempt to calculate green GDP but resistance from provincial governments doomed it.
6. In addition to tree planting, "ecological construction" projects also include natural forests protection and nature preservation. Most of these projects, however, are located in more humid areas in North and Northeast China.

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# Chapter 2

# Network Public Management and the Challenge of Biodiversity Management in China

*Sara R. Jordan*

International and domestic observers alike critique the Chinese government for lapses in overall public management as well as lapses in environmental stewardship. Although the government of the People's Republic of China (PRC) may invite strident critique on these two fronts, the veracity of such criticism may be questionable if examined from a theoretical perspective. When we examine the comparability between China's overall public management enterprise, its environmental management efforts, and the theories supporting both of these ideas, some questions arise about the validity of the criticisms. By theoretical validity, I mean the extent to which the PRC government crafts policies and engages in actions that are consonant with the practices recommended by theoreticians of general and biodiversity management.

In this chapter, I assess the consonance between the arrangement of institutions and practices in the Chinese government's efforts to manage its rich biodiversity and a theory of networked biodiversity management. Specifically, I ask whether the PRC's efforts of the past two decades are not, at least theoretically, creating infrastructure to promote the environmental outcomes so ardently hoped for in the nation and elsewhere. The chapter will proceed according to the following course: first I will briefly discuss the status of biodiversity in

China, second I will discuss the governance mechanisms currently in place for managing the rich biodiversity of China, third I will discuss the theory of network public management (NPM), fourth I will discuss the application of NPM to managing biodiversity in order to advocate a model of network biodiversity management, and finally I will argue that, theoretically speaking, China is on the right track to improve its biodiversity management efforts in the near future.

## BIODIVERSITY IN CHINA

Ecological evidence marshaled by academic researchers, non-governmental environmental organizations (NGEOs), and China's state ministries all point to the status of China as a "megadiverse" nation. Megadiversity, as Mittermeier, Mittermeier, Gil and Wilson (2005) suggest, is the presence of a comparatively remarkable number of species of plants and animals (that is, genetic and aesthetic diversity) concentrated in a particular area. The 17 "megadiverse" nations (Williams et al. 2001), of which China is part, account for an estimated 60 percent to 80 percent of all life on earth.[1] According to the International Union for the Conservation of Nature (IUCN), China is home to 816 threatened species, many of which are plants (IUCN 2008).[2] Quantified according to measures of beauty or "cold hard numbers," few can deny the importance of China as an environmental treasure trove. To get a complete picture of the importance of this issue, it is necessary to describe the diverse biomes covered under the description "megadiverse." For the sake of simplicity, it is easiest to categorize the biodiversity of China into four broad kinds—marine, [wild terrestrial] mammalian, [wild terrestrial] botanical, and agricultural.

### Marine and Freshwater Biodiversity

Covering the southeastern side of the Asian continent, seas lap the shores of China to the east, northeast, and southeast, while mountains and steppes dominate the horizon to the west, north, and southwest. Many of China's most biologically diverse areas lie alongside the fertile south and southeastern coastal areas. Unsurprisingly, this fertile, tropical to temperate area is also home to a significant percentage of the nation's human population.

The lengthy, 14,500 kilometer coast of China includes the East China Sea, the Yellow Sea, and the South China Sea, all of which mix into the Philippine Sea and the greater Pacific Ocean (CIA 2008). In the upper reaches of the nation, the seas and parts of deltas may

partially freeze, while in the south, the coastal sea temperature is steady between 16 and 28 degrees Celsius (CCAR 1997). Beneath the waves, there are vast continental shelves, home to (dwindling) schools of pelagic sea-life (e.g., fish) as well as a wealth of benthic creatures (e.g., mollusks) and some (threatened) coral reefs. Feeding this vast coastline are a number of large and small rivers.

As revealed in the Biodiversity Conservation Action Plan (NEPA1994), Chinese inland and coastal waters house approximately 12.1 percent of the total number of known fish species in the world. Inland, China's major rivers include such well-known wonders as the Yangtze River, the Yellow River, the Mekong River, and the Pearl River. The Yangtze, the Yellow, and the Pearl Rivers open into large deltas near such similarly well-known cities as Hong Kong and Shanghai. These inland rivers, home to such unique and rare creatures as the "Yangtze Turtle," the "Yangtze River Dolphin (baiji)," and the "Chinese Alligator," are under threat from a variety of sources, including industrial dumping and agricultural run-off. As Economy (2004) points out in her highly influential book, the dumping of industrial waste—the by products of an economy sprinting toward "success"—is a serious problem threatening not only the rivers but the people, plants, and animals whose lives and livelihoods depend on a clean waters system. As human encroachment into upstream river headlands and human exploitation of rivers and coastal regions exploded in China, the diversity of sea and river life declined. The Yangtze turtle provides an emblematic case of such crushing forces' impact on fragile but genetically unique species. Pushed out of its habitat, hunted, and starved when fish populations similarly suffered, the remaining two confirmed Yangtze turtles are the last hope for this unique species (Yardley 2007). Marine and freshwater biomes are but one of the important, threatened areas of genetic, aesthetic, and useful biodiversity in the country.

### Diversity of Wild, Terrestrial Mammals and Birds

Although maintaining genetic biodiversity of China's coastal treasures is of keen importance to the mission of biodiversity management, even if that means captive breeding (such as with the Yangtze turtles), it is generally agreed that "wild is best." Allowed to prosper in their natural habitat and live "as nature intended," animals will be part of an open future that includes the important freedom to create offspring according to their own naturally assortative mating habits. In threatened areas like China, however, the possibility for preserving species while

adhering to a "wild is best" principle is quite limited, particularly for terrestrial mammals who compete directly with humans for habitable spaces.

Ecological surveys of species diversity in China suggest that approximately 1,500 species of mammals and birds are native to the nation and its semiautonomous regions. Of these, a number are well-known symbols, like the Panda, used to emphasize the importance of environmental conservation (to include biodiversity preservation) in China and around the world. Most well known of these are the Chinese Giant Pandas, a family of two closely related subspecies, the Giant Panda and the Qinling Panda. Currently classified as endangered, with an estimated 1,600 pandas living in either captivity or in the wild, the Panda is a well-known example of an endangered, unique species whose numbers have partly rebounded due to more care and attention to the species itself and its role in the biomes in which it dwells (WWF 2008). The fate of the Panda is a success story, but one that highlights the problems associated with preservation of mammals and birds in China.

The Panda and other mammals, large and small, in China are threatened by development and encroachment on their native habitats, cutting off access to important migratory routes for feeding and breeding, and destroying necessary spaces and resources for life. Similarly, many mammals and birds, such as the "Red Crowned Crane" or "Manchurian Crane" are endangered, their numbers dwindling due to habitat destruction. For these wild mammals and birds, threats to their native habitat, including destruction for development and pollution, endanger their continued, free existence in the biome. For domesticated animals, for whom there is an evolving concern for "genetic pollution" or insufficiency of genetic diversity, the matter of biodiversity is just as pressing.

> Because of its long history of animal husbandry and diversified geographical conditions, China has many species and strains of domesticated animals and birds. According to 1989 statistics, China has 590 varieties of domesticated animals and poultry, among which there are 66 for horse, 20 for ass, 73 for ox and cow, 20 for water buffalo, 50 for yak, 4 for camel, 79 for sheep, 43 for goat, 113 for pig, 109 for chicken, 21 for goose, and 3 for turkey. All these fine varieties constitute very valuable gene pools.
>
> (NEPA 1994)

In total, there is a notable threat to the unique mammals and birds, wild and domestic, of China. Faced with habitat destruction, genetic contamination, competition from invasive species, and unsustainable

management, the diversity conservation of such a valuable population is of paramount importance.

### Diversity of Wild, Terrestrial Plants

As the IUCN data suggests, 446 varieties of plants are under threat in China (IUCN 2008: Table 5). Decomposed into more refined categories, the number of plants under threat is even more alarming. Four species are either extinct or extinct in the wild, while 174 and 198 are endangered or vulnerable, respectively (IUCN 2008: Table 6b). The threat of biodiversity loss in plant species is particularly troublesome as a number of mammals, birds, invertebrates, and even other plants depend on a narrow range of plants for their primary nutrition or other needs. Similarly, humans depend upon a wide variety of plant life to sustain agriculture and the stability of the landscape. In a country with such varied and often difficult terrain as China, the loss of trees, shrubs, and grasses can mean more environmental damage and ecologically "inconvenient" occurrences as the dreaded dust storms and desert encroachments that threaten Beijing and other western and northern cities (Danfeng, Dawson, and Baoguo 2006; Zha and Gao 1997).

Whether we speak of the species residing beneath the waves or along side the cities and towns that dot the vast Chinese landscape, the importance of each for all others cannot be underestimated. Ensuring the continuation of each is a matter of public goods conservation and management. Thus, management of biodiversity is likely to be a theoretically and practically troubling enterprise. Having elaborated briefly on the "megadiversity" of China's environment, I now turn to the uniquely complex problem of ensuring the continuation of [mega] diversity in the nation.

## Biodiversity and Environmental Management in China

The well-worn trope of environmentalist criticism in China is that it is a zero sum conflict between economic progress and environmental protection, with the economy consistently winning the battle. Yet, the degree to which this judgment is apt in all cases is questionable. While it is reasonable to agree that economic progress, particularly as measured by the increases in construction, intensive agriculture, and extractive industries (e.g., coal mining), takes some priority over environmental protection in the setting of national goals, it is not

always clear that this is the case. In the past decade, the combined forces of international pressure, domestic agitation, declining standards of health due to environmental degradation, and the opening of government offices to nongovernmental data and influence led to an increase in the strident tenor of environmental policy critique and the public's demand of more (and, perhaps, better) administrative solutions to environmental problems. For example, despite the clear grip that the Chinese Communist Party has on political messages here, the drafting and implementation of Agenda 21, the program for sustainable development in China, signals an emerging concern for environmentally conscious politics. What this means for biodiversity management is not fully clear given the recent thrust for environmentalism in Chinese politics, but it is clear the alarm has been sounded and heard at the apex of the political ecosystem.

Undoubtedly, much of the direction of biodiversity management in China emanates from the National People's Congress, the State Planning Committee, and other high-level bodies, often in the form of regularized plans implemented by provincial governments using strictly governmental and nongovernmental tools. These factors suggest a course for Chinese biodiversity management that involves creating a system of top-down but multisectoral (i.e., networked) political-economic management institutions built to preserve or resurrect threatened environments. For example, in the ninth 5-Year plan, biodiversity was highlighted as an important objective for the nation, with the emphasis on preservation of biodiversity by distinct offices and units for state interests. Minimizing environmental crime, improving the administration of environmental policies and law, and maximizing intersectoral coordination are all elements of the biodiversity initiative in this 5-Year plan and Agenda 21.[3] Agenda 21, the national initiative on sustainable development framed in the "China's Agenda 21—A White Paper on Population, Environment and Development in the 21st Century," puts forward a number of sustainable development goals including population sustainability, health and the sustainability of Chinese medicine, and, in chapter 15, the conservation of biodiversity. In this chapter, there are a number of general policies offered, including "overall planning, active conservation, scientific management, and sustainable use," "strengthening resource conservation, actively domesticating and breeding, and rationally developing and utilizing [wild animals]," and "laying equal stress on both the development and utilization and the conservation and protection of natural resources" (China's Agenda 21 2008: "Chapter 15: Conservation of Biodiversity"). These general policies are without precedent and are not left underspecified.

The following section describes well the contours of the biodiversity management system in the Chinese context.

In this section of the Agenda 21 White Paper, as well as in the "Biodiversity Conservation Action Plan for China" and "China's National Report on Implementation of the Convention on Biological Diversity," both part of China's obligations to the United Nation's Convention on Biological Diversity (UNCED), the emphasis is on the importance of the National[4] Environmental Protection Agency (NEPA, now the Ministry of Environmental Protection- MEP[5]) as the major administrative body responsible for overseeing the biodiversity management efforts. As revealed in section 15.4 of the White Paper,

> The National Environmental Protection Agency (NEPA) is the lead organization in implementing a unified supervision and management system for the coordination of national efforts for environmental protection and the conservation of biodiversity nation-wide. The Ministry of Forestry, the Ministry of Agriculture, the State Administration of Oceanography and the Ministry of Construction are responsible for providing management in their respective areas. The State Planning Commission and the State Science and Technology Commission also have responsibilities for the conservation of biodiversity.
>
> (China's Agenda 21 2008: "Chapter 15: Conservation of Biodiversity")

The emphasis on MEP coordination is clear throughout this and related documents, but while the MEP is a strong coordinating body with top-down policy-making and managerial power, it is but the apex of an entire governmental ecosystem of bodies interacting to make biodiversity management effective. In other words, the MEP is a network node not constitutive of the full network itself. For example, within multiple chapters of the White Paper, and as echoed in the "Executive Summary" of "China's National Report on Implementation of the Convention on Biological Diversity" and the section "Institutional Measures" of Chapter IV of the "Biodiversity Conservation Action Plan," there is a role delineated for local governments and nongovernmental, professional organizations. In the White Paper, it suggests that

> [l]ocal governments have agencies similar to those in the central government, which have been established to address local issues in the conservation of biodiversity. Non-governmental organizations (NGOs), such as the Chinese Society of Environmental Sciences, the

> Chinese Ecological Society, the Chinese Society for Forestry, the Chinese Society of Agronomy, the Chinese Society of Oceanography, the Chinese Society of Botany, the Chinese Society of Zoology, and the Chinese Association of Wildlife Conservation, play an active role in promoting biodiversity conservation in coordination with the governmental agencies.
>
> (China's Agenda 21 2008: Chapter 15)

The role of local governments, NGOs, and academic institutions is also specified in Chapters 20a and b, "Public Participation in Sustainable Development," of the Agenda 21 White Paper. Chapter 20a describes the participation of women, children, and youth, while Chapter 20b describes a role for "Minority Nationalities," "Labor Unions," and "Science and Technology" in creating sustainable development. Interestingly, in Chapter 20b, there is substantial discussion of the role of minority national groups in consultative activities on sustainable environmental practices in minority autonomous regions (China's Agenda 21 2008: Chapters 20a and 20b).

In addition, in the "Biodiversity Conservation Action Plan," these roles are clarified. In this document, each of these institutional types—local governments, NGOs, and academic institutions—plays an important functional role in creating the optimal conditions for biodiversity preservation. State level agencies (NEPA, SEPC, SPC) are meant to "coordinate all ministries," "be responsible for drafting relevant policies, laws and regulations . . . and should supervise and the enforcement of policies laws and regulations," and "approve large scale projects and [allocation of] funds." Other state-level entities such as universities and agencies of public security provide research, guidance and training, and law and regulatory enforcement. The task of local governments is to adhere dutifully to the directions of the state-level agencies and to ensure that coordination of state-directed programs runs smoothly and efficiently. NGOs play two sanctioned roles: helping gather data and generate publicity for academic and other research institutions, and mobilizing public groups to support biodiversity conservation efforts. If we are to believe, and this seems reasonable given the continuity of recommendations offered in the earlier "Biodiversity Conservation Action Plan," the intermediate "China's National Report on Implementation of the Convention on Biological Diversity," and the "Agenda 21 White Paper," that China's ideal biodiversity management model follows this plan of functional integration of groups, then it also seems reasonable to expect that the goal of cross-sectoral integration for biodiversity management is currently implemented as national policy.

To summarize the information given above, China's efforts to manage its "megadiverse" ecosystems entail creation of an "ecosystem of governing bodies" that protects all corners of the greater China biome. According to the *Oxford English Dictionary*, an ecosystem is "a biological system composed of all the organisms found in a particular physical environment, interacting with it and with each other" (OED 2008, see ecology). An ecosystem of governing bodies then is a governance system composed of all of the agencies found in a particular national environment, interacting with it and with each other. In this case, given the vastness of the Agenda 21 plan, and the multiplicity of agencies involved in the implementation of the Convention on Biological Diversity, it seems sufficient to use the phrase "all" agencies and is similarly acceptable to assume a degree of institutional interdependency and interaction.[6] In the subsequent sections, I will further elaborate upon this notion of the "ecosystem of governing bodies," NPM, and China's biodiversity management endeavor.

## Describing Network Public Management

No longer merely a matter of state-driven politics and administration, government is now *governance*. Compelling this change from government to governance, NPM is a theory describing a reorientation of the relationships between organizations of state, society, and administration. More than mere reshuffling of the previous players, NPM entails changing the way that these actors work alongside each other to achieve a set of common-good goals. In order to fully capture the idea of NPM, in this section I will describe the rise of networks as managerial tools, how this rise led to the important institutional and normative change from government to governance, and how the idea and practice of NPM represents a normative shift in the orientation of states to their citizens and green environment.

To understand NPM, it is helpful to articulate its active term—management. In the context of public management, management means "the direction of resources or human effort towards the achievement of desired goals" (Hood 2005: 7–26). We can augment this bland definition by adding other commonly known as well as scientifically validated aspects of the management enterprise. Specifically, professionals with a set of design, organization, and administrative skills that allow them to lead—to govern—their organizations' means to reach ends, are engaged in management. Defining these skills further, we can rely on the continued salience of the POSDCORB

acronym for skills of administration and management—Planning, Organization, Staffing, Directing, Coordinating, Reporting, and Budgeting (Gulick 1937). Effective management is the skillful deployment of these means to achieve ends, defined either by the managers, as in the case of private management, or defined by public policy-makers, as in the case of public management, in the most efficient and rational manner possible.

The term "network," as described by Klijn (2005: 260–263), who borrows extensively from the theory of network developed by Castells, means a set of horizontally coordinate alliances between firms, other networks (of firms), and non-firm (civil society and governmental) actors who interact in a supportive, mutually dependent way to solve problems that neither actor could solve themselves. Networks are diffuse organizations of other units and organizations. They have ontology different from that of their component parts; they are a different and contingent category of organization. While individual firms or organizations have a particular way of being—actively producing something consumed by others and thus reproducing themselves, networks must first reproduce themselves before any one single unit of the network can be productive in the way intended by the norms of the network qua network. This is in part due to the epistemic nature of networks. While organizations share epistemic frames and vocabulary through which to access the world, networks may have only a diffuse set of shared vocabulary constructed by the referent organization and not shared amongst each of the partners. Thus, in order to produce network goods, networks must rely on a communal epistemology, pulling together techniques and vocabulary across firms in order to produce materials and reproduce the network itself. The significance of the term "network" is that it indicates a form of being and knowing that is contingent upon the composition of the network itself. When attached to management, the network modifier indicates that individual managerial skills are incomplete for the complex task the network evolved to solve. In sum, the term "network" suggests dependency and contingency.

The modifier "public" indicates that the ends (telos, goals) of the organization are bracketed by the demands of a group with some normative-prescriptive and/or legal power over the designation of those ends. In the realm of the public management literature, the public is the electorate or citizenry who authorizes (tacitly, as in the PRC, or explicitly, as in democratic regimes) policies and state action. Further, the public may also mean a critical public or one that is not often heard in the normalized discourses of politics in a nation.

As Dobel (2005) and others point out,[7] the ideal public manager is also a representative bureaucrat, ideally expressing the views of the least well-off in society. In the present case, this may mean the representation of environmental values in the political sphere. Thus, the modifier public in public management indicates a preoccupation among managers with values and ends determined to be normative among a defined set of persons (e.g., citizens).

Taken together, NPM means the skilled, professional, and justice-oriented application of multiple tools and methods to a set of problems that are complex and contingent by a loosely coupled organization of managers who, using coordinated action, mutually solve these problems and perpetuate the firms' alliance as valuable for addressing the indeterminacy of modern governance tasks.

## Matching Network Public Management and Biodiversity Management

Whether form follows function or vice versa, the similarity in form between the ecosystems of government and the green ecosystem reveals a resemblance of function that is important for an exercise describing the present practice of biodiversity management in China. How these two forms map on to one another reveals quickly a similar function—to create a stable and self-sustaining system that maximizes individual and collective goals while conserving important, collective resources. In this section, I address the practice of biodiversity management, offer a description of the similarities between NPM and biodiversity management and attempt to clarify the relationship between biodiversity and NPM. These steps set the stage for the further elaboration of the primary argumentative thesis on the theoretical appropriateness of Chinese biodiversity management techniques thus far.

It would be a unique person who would argue that maximum preservation of biodiversity is an undesirable end for political and scientific leaders. The major arguments for biodiversity preservation take two ends as ideal. These ends, though not always mutually exclusive, are in tension with one another. The first argues that biodiversity preservation mitigates the damage that the human species commits against the stable and natural order of nonhuman species' generation and decline. Through extractive industries and agriculture, humans disrupt the natural flow of the environment. Some scholars' deployment of this "nature first" perspective is associated with both "in-situ" preservation and "fragility management" efforts in the biodiversity conservation literature.

In-situ preservation often involves creation of nature preserves and wildlife reserves designed to allow plants and animals the opportunity to flourish unmolested by human industry or interaction. Fragility of ecosystems is an estimate of the inability of ecosystems, forests for example, to return to and hold steady in their normal state after a severe disruption (Lugo 1995: 956–957). In order to minimize fragility in ecosystems management, including biodiversity preservation, we must protect biomes from severe, specifically human, disruptions. Fragility management and in-situ preservation are used to protect the natural world as a sensitive object of considerable value independent of its utility to human endeavors.

The second perspective, the " humans first" view, places the needs of humans for nature and natural products above the needs or goods of the natural world. Under this view, the purpose of biodiversity management is to ensure maximum biodiversity in order to maximize the range of human uses. This view is more consonant with an ex-situ preservation and resilience management technique than the "nature first" view. Ex-situ preservation, marked by the presence of institutions dedicated to conservation of one or more species, such as botanical gardens, breeding centers, zoos, and rehabilitation centers, is a human-nature collaborative effort to preserve species with human-defined value. For example, whether for aesthetic, agricultural, or pharmaceutical research uses, botanical gardens and seed banks are established to ensure preservation of a range of plant genomes of some value to humanity. Resilience or resiliency "determines the persistence of relationships within a system and is defined as the ability to absorb changes in state variables (such as populations, species, or nutrients), driving variables (such as inputs of water or sunlight), and parameters (such as temperature), and still persist" (Lugo 1995: 957). Resilience management, then, are attempts to "assist" ecosystems to absorb these changes, such as preventing population declines through artificial breeding and release programs.

Complete programs of biodiversity management require incorporation of both techniques—in-situ/fragility management and ex-situ/resilience management—in order to be viable. But, the presence of both methods of biodiversity management is necessary but not sufficient for truly effective biological diversity conservation. The institutions and endeavors associated with these two forms need to be fully integrated, networked, and part of a minimum shared consensus on the value and purpose of their conservation efforts. As Westley and Vredenburg make quite clear in their survey of the efforts of the Conservation Breeding Specialist Group, a collaborative relationship

between organizations, held together by a powerful, yet not overbearing, leader is essential if complex goals of biodiversity conservation are to be achieved. The network of organizations (zoos and breeding centers in their case study) must have a shared sense of problems to be solved, traveling in what directions and using what range of techniques and activities (Westley and Vredenburg 1997: 393–394). These shared perceptions need not be rigidly institutionalized, but must be part of the shared culture, technology and skills, tasks, and leadership symbols and personnel (Westley and Vredenburg 1997: 397–398). In sum, there must be a supraorganization or network of allied organizations for biodiversity conservation to be effective. Biodiversity management depends on networking and the techniques of network management to be as efficacious as possible.

## The Theory of Network Public Management and the Practice of Biodiversity Management in China

The theoretical relationship of network management to biodiversity management seems clear enough—the latter needs the former. Yet, what does this tell us about the trajectory of the practice of networked biodiversity management in China? We know from the well-known surveys of the environmental tragedies in parts of China that historic efforts to preserve biological diversity in the nation have failed. There may be litany reasons for the failure—weak governmental regulation and regulatory enforcement, a persistent choice of economic goods over nature and natural preservation as a good, poor, or inconsistent analysis of the state of the Chinese environment, and a seemingly boundless level of public and private *akrasia*[8] when confronted with arguments for the importance of biodiversity preservation—but none is a sufficiently explanatory variable to offer a complete answer to the question "why is it so bad?" As other chapters in this volume and other monographs and reports are much better suited to the job of cataloging the important variables in biodiversity policy failure in China, I will not answer the "why" question here. Instead, I will discuss the practice of biodiversity management in recent years, using network biodiversity management as a lens.

As described in the above sections, the PRC has implemented a number of policies through its efforts to comply with the Convention on Biodiversity and the Agenda 21 efforts for sustainable development that create a network framework for biodiversity management. For example, the MEP and the State Planning Committee (SPC) together

form a referent organization to which other, provincial, county, and nongovernmental, organizations may look for policy and normative guidance. Referent organizations, as a centralized body that serves the role of:

> "social shaping of boundaries" and "internal structure" to the domain, to formalize the interdependence and the "surrender of sovereignty" that ongoing organization seems to imply. This involves (1) the regulation, through ground rules, of the criteria for membership (boundary regulation), the establishment of base values of the organization, the resolution of conflict, and the allocation of power; (2) the establishment of a planning and scanning function to 'appreciate' future trends and work out relationships with organizations outside the domain; and (3) systematic and formal mobilization of resources. Once such an organization is set up, "purposeful action can be undertaken in the name of a domain."
>
> (Trist 1983, quoted in Westley and Vredenburg 1997: 382)

As suggested in the three documents surveyed above, the status of the MEP and SPC as referent organizations seems clear. The MEP coordinates the relationship between the multiple committees under its jurisdiction through the delegation of policy-making and policy-coordination power from the SPC. Though the exact relationship between the SPC and the MEP is unknown, the importance of their role for the coordination of the remainder of the organizations subordinate to the MEP is clear. (See Appendix 1, "Organizational chart of the MEP and Subsidiary Departments and Offices.")

The role of the MEP as coordinating body for other governmental organizations is not surprising in itself, and should not be underplayed as part of this defense of the theoretical soundness of China's biodiversity conservation network. Despite the constant iteration that networks of public organizations are optimal when they include public-private partnerships, intergovernmental coordination and networking is of continuing importance. Indeed, continued coordination of government departments, whether between state-level and provisional-level agencies, and between these various governmental bodies and civil society actors, is essential for making networked public management "work."

If the promises of the Convention on Biological Diversity plan and reaction paper hold true, as seems to be the case in part in the eleventh 5-Year Plan, then civil society organizations, private enterprises, and academic and scientific-technical organizations have a clear part to play in biodiversity conservation.[9] In the case of China, the

role of NGOs is one of assistance and promotion rather than critique, thus looking for a critical environmental civil society to play a partnership role with the government is futile. However, acknowledging the actualities of Chinese politics, one could argue that the openness of the government to civil society organizations and private enterprises amounts to an evolving public-private partnership elementary to NPM. For example, as related in the eleventh 5-Year plan,

> China will vigorously popularize the knowledge about environmental science and implement the 'environmental science popularization initiative in 10.000 villages of [*sic*] 1,000 towns.' . . . It will extensively carry out such activities as the development of green communities, green schools, and green household and bring the roles of trade union, Chinese Communist Youth League and women federation, communities, various environmental NGOs and environmental volunteers into full play. It will enhance the work on public complaints by letters and visits, bring the role of environmental hotline of '12369' into play and expand public complaint & report channels.
>
> (MEP 2008b: 6)

Similar sentiments are echoed about the role of private industry and the evolution of an "environmental protection industry:"

> Focusing on key environmental protection projects and guided by standardization, product series, assimilation of foreign technology and modernization, China will vigorously develop manufacturing industry of environmental protection equipment based on environmental protection demonstration projects with the combination of self innovation with the introduction and absorption of foreign technologies. Focusing on EIA (Environmental Impact Assessment), environmental engineering service, research & development of environmental technology and consultation as well as environmental venture investment, China will actively develop environmental protection service industry facilitated by market force [*sic*].
>
> (MEP 2008b: 6)

It remains to be seen what this environmental protection industry will bring about, yet the extent of international observation of China's environmental problem ought to lead to larger and more reliable data sets from which to make a judgment.

The theory of NPM, often described in the context of one nation, also must include a globalized dimension when addressing problems such as biodiversity management, which transcend borders. Not only the MEP but also subsidiary organizations to this larger ministry are

party to various international environmental protection treaties. For example, the MEP actively participates in international campaigns for environmental awareness, such as World Biodiversity Day (May 22).[10] However, China's level of compliance with these treaties may hinder its participatory role in these international environmental networks. As the 5-Year plan clearly states,

> Adhering to the principle of "common but differentiated responsibilities," China will actively participate in international environmental conventions and WTO environment and trade negotiations, and safeguard environmental rights & interests of China as well as developing countries.
>
> (MEP 2008a: 6)

"Differentiated" participation by China may upset some international network partners, but such differentiated responsibilities are not beyond the purview of network management partnerships. Yet, a strident insistence on the differentiation of responsibilities may provoke hostilities and lead to questions about the nation's commitment to an overall environmental protection scheme, including substantial protection of endangered species and meaningful conservation of biological diversity among international network partners, though this remains to be seen.

## CONCLUSION

The story of biodiversity management in China is one mired in complexity. The strength of the commitment to an overall package of environmental goods, including biodiversity management remains to be seen. Nevertheless, the sheer level of biodiversity, in terms of species numbers, habitat variety, human-biome interactions, and even now, difficulties in cataloging the extent of the true diversity of China, are problems that cannot be ignored easily. Crushed between the imperatives of economy and environment, China appears to be struggling mightily with the difficulty the previous failures of environmental stewardship present to them.

The level of failure is not indicative, however, of failure to use the best available methods. If the argument of the above pages holds true, then it appears that while the outcomes have not yet been optimal, the methods have been sound. Whether the failures are an indictment of biodiversity and environmental management practice in China or the theories of network and biodiversity management or are merely a

matter of public *akrasia* remains to be seen. Yet, if we, inside and outside of China, are concerned about the overall trajectory of China's biodiversity future, we may take some comfort that, at least theoretically, they are doing the best possible.

## Notes

1. As determined by the World Conservation Monitoring Center, the "megadiverse" nations are, in alphabetical order: Australia, Brazil, China, Colombia, Democratic Republic of Congo, Ecuador, India, Indonesia, Madagascar, Malaysia, Mexico, Papua New Guinea, Peru, the Philippines, South Africa, the United States of America, and Venezuela (Williams et al. 2001).
2. The International Union for the Conservation of Nature (IUCN) numbers of threatened species in China breaks down as follows: 74 mammals, 85 birds, 30 reptiles, 90 amphibians, 70 fishes, 1 molluscs, 20 other invertebrates, and 446 plants (IUCN 2008, Table 5).
3. Information and copies of China's Agenda 21 paper and program can be found through the "China's Agenda 21" Website (http://www.acca21.org.cn/english/index.html) and the Economic and Social Commission for Asia and the Pacific (ESCAP) Virtual Conference, found at (http://www.unescap.org/drpad/vc/conference/bg_cn_1_ca21.htm). Last accessed November 24, 2008.
4. Also the State Environmental Protection Agency. The documents used in this chapter are English language translations of these reports found at http://bpsp-neca.brim.ac.cn/books/actpln_cn/index.html, which translate the first character as "National" rather than "State."
5. For the purposes of this paper, I will refer to the National or State Environmental Protection Agency by its contemporary name, the Ministry of Environmental Protection (MEP) unless quoting from another source.
6. It seems scarcely any agency is left out of the description of government interrelations described in the Agenda 21 plan. For example, the list of "Leading Members" and "Members" of Agenda 21 include (by convenience sample): "State Planning Commission", "Ministry of Foreign Trade and Economic Cooperation," "State Nationalities Affairs Commission," "Ministry of Radio, Film, and Television," "Ministry of Public Health," "People's Bank of China," "State Administration of Traditional Chinese Medicine," "Chinese National Textile Council," "All China Women's Federation," "Central Committee of the Communist Youth League of China," "National Patriotic Public Health Campaign Committee," and "China National Committee for the International Decade for Natural Disaster Reduction." (China's Agenda 21 2008.)
7. In this case, "others" include scholars of representative bureaucracy, such as Lloyd Nigro, Kenneth J. Meier, and Sally Coleman Selden.
8. *Akrasia* is a Greek term that means, roughly, weakness of will, particularly a weakness of will to do a morally right thing.
9. Information on the mobilization of Social Forces is found in multiple places throughout "The National Eleventh Five-year Plan for Environmental Protection" (MEP 2008b, detailed descriptions 5–7).
10. A number of events and information pamphlets were prepared and distributed by the MEP in honor of Biodiversity Day 2008. Transcripts of some of these are available on the MEP Website (MEP 2008a).

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# Chapter 3

# Changing Climate? China's New Interest in Global Climate Change Negotiations

*Wei Liang*

## Introduction

Global warming (hereafter interchangeable with climate change), caused by anthropogenic emissions of greenhouse gases (GHGs) released into the atmosphere, has gained an increasing salience in the international arena. The position taken by major emitters in the ongoing United Nations Framework Convention on Climate Change (UNFCCC) negotiation has direct impacts on tackling climate change. After the United States retreated from the Kyoto process in 2001and Australia rejected the protocol in 2002, the UN negotiations entered a deadlock. Within the context of this stagnation and fragmentation of international efforts to deal with climate change, it has become increasingly important to analyze the evolving positions and strategies taken by China, another key player in global climate talks.

China is identified as a key actor in global climate talks first and foremost because of the size of the country's GHG emissions. In 2007, China surpassed the United States as the largest emitter of GHGs, according to a report released in June 2008 by the Netherlands Environmental Assessment Agency (MNP 2008, http://g8live.org/2007/06/30/china-now-the-worlds-biggest-carbon-dioxide-emitter-will-play-crucial-climate-role/). Many in the West look at

China's emissions, note how rapidly they have grown in the past five years, and are aware of the forecasts showing that a large proportion of the world's expected increase in energy-related and carbon dioxide emissions will come from China. For those who are concerned about the adverse impacts of global climate change, emissions from China are a cause of grave concern. Over the past two decades, China has risen to become the third largest economy and second largest trading nation in the world. As China's economy goes, so go the country's GHG emissions.

In addition to the sheer size of Chinese GHG emissions, China can also be identified as a key player in climate change negotiations due to its leading position in the "Group of 77 and China." The Group of 77 was established during the first UN Conference on Trade and Development (UNCTAD) in Geneva in 1964 to further the economic interest of developing countries. Currently the number of members has grown to 130 countries. In order to maintain an influential and visible position in multilateral negotiations vis-a-vis Industrialized countries, it is crucial for these less-developed countries to build coalitions through coordinating and aggregating the viewpoints of its members. As the largest developing country in the world and the only developing country which is also a permanent member of the UN Security Council, China has played a pivotal role coordinating and representing the interests and positions of the developing world in the current round of global climate negotiations.

More importantly, as China has been singled out by the United States as a key player, China's serious commitment to fighting climate change has become a necessary precondition for meaningful participation of the United States in the UN climate change talks. The absence of U.S. involvement directly caused the failure of the Kyoto Protocol. The reality is that multilateral negotiation cannot begin in earnest until the United States is prepared to negotiate a binding commitment. However, the current U.S. position is that the United States will not make any binding commitments unless other emerging powers, most particularly China, are included in a compulsory reduction plan. In the words of U.S. negotiator Harlan Watson: "We're willing to take on international binding targets as long as other major economies—both developed and developing—do so" (Bloomberg 2008). Thus, the evolving policies and changing interests of China are crucial to the overall success of post-Kyoto international climate change negotiations.

Taking action to curb GHG emissions is both economically costly and politically difficult. In particular, the Beijing government finds it

critical to maintain high economic growth in order to provide jobs, social stability, and legitimacy to the country's one-party rule. Beijing's position at previous international negotiations (including the Kyoto Protocol) emphasized that the main responsibility for global warming lies with developed countries, and consequently they should take the lead in mitigating GHG emissions, and absolutely no restrictions should be imposed on the continuous emissions of the developing countries. Surprisingly, beginning from the 2007 UN Bali Climate talks, China switched from its previous hardliner position to become a more proactive and engaged player. China and other developing countries for the first time agreed to discuss nationally appropriate mitigation actions in the context of sustainable development that are supported and enabled by measurable, reportable, and verifiable technology, financing, and capacity building. In the UN climate change summit in New York in September 22, 2009, Chinese President Hu Jintao further announced very ambitious national climate-change plans. Hu pledged to cut carbon dioxide (CO2) emissions per unit of GDP by a notable margin by 2020 from the 2005 level, reiterated his pledge to make 15 percent of China's energy renewable by 2020 and committed to increase China's national forest coverage by 40 million hectares by 2020 (Watts 2009). According to UNFCCC Executive Secretary Yvo de Boer, the commitment was "so ambitious that China could well become the front-runner in the fight to address climate change" (AP 2009).

What are the factors that account for China's policy change? Is the change domestically driven or the result of international pressure? Does it reflect a true shift in policy or is it simply smart diplomatic posturing? What are the possible implications of China's position change in multilateral negotiations? All these questions will be considered in this chapter. Based on intensive interviews with Chinese negotiators and relevant policy-makers from various government agencies, this chapter provides a thorough review of the evolution of China's policy toward the issue of global warming and the domestic changes in recent years that are contributing to China's new stance at the UN Bali Climate talks and following negotiations in 2007–08.

The ambition of this chapter is twofold. First, I examine the evolution of China's position in global climate change negotiations and the dynamics behind the emergence of these positions. I also explore the factors that have contributed to China's position shift and the underlying changes in interest that motivate such change. Second, I discuss how recent trends in economic growth, environmental degradation, so-called energy wars, and global image-building of China

have shaped and transformed the country's new climate change initiative and, although still at the preliminary stage, how this shift in thinking domestically will translate into a changed negotiation position globally.

This chapter proceeds as follows: Section 2 provides a brief summary of the global climate change regime. Section 3 discusses the evolution of China's position in global climate change negotiations. Section 4 analyzes the domestic driving forces that are contributing to China's recent policy preference change. Section 5 predicts what possible concessions China is likely to make if other major players will make their due commitments and effectively engage with China. Section 6 concludes the chapter by focusing on the policy implications of China's participation in global climate talks.

## GLOBAL CLIMATE CHANGE NEGOTIATIONS

In 1988, as a result of the cumulative efforts made by the international epistemic community and environmentalists regarding the creation and collection of scientific evidence that man-made emissions of certain gases were contributing to global warming, the United Nations Environment Program (UNEP) established an Intergovernmental Panel on Climate Change (IPCC). In 1990, the UN established the Intergovernmental Negotiating Committee (INC) to establish procedural and substantive means for taking political action in averting global warming. The outcome of their work was the drafting of the UNFCCC. The FCCC was finalized and opened for signing at the 1992 UN Conference on Development and the Environment in Rio de Janeiro, Brazil (the so-called Earth Summit).

The goals of the FCCC are to stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous interference with the global climate system and to enable economic development to continue in a sustainable manner (UN 1992). All signatories committed themselves to cooperate in reducing GHG emissions. Beginning in 1995, every year the signatories of FCCC have gathered together to hold a Conference of the Parties (COP) in order to design and negotiate an international climate regime. A major breakthrough in the negotiations was achieved with the drafting of the Kyoto Protocol at COP-3 in 1997. Annex 1 countries (developed countries) agreed to legally binding emissions limits negotiated at the conference. Though it was a product of compromise and bargaining among the developed countries, the agreement represents an important step in the course of international efforts to build effective global governance

on climate change as it marked the first time Annex 1 countries agreed to a binding commitment.

The landmark Kyoto Protocol is largely symbolic. It shows that countries should and can work together to address this critical global issue. But it failed to yield the expected result as the United States did not ratify the agreement, and other developed countries also lacked the incentive to fully fulfill their commitments. Its effect on actually reducing global GHG emissions is minimal. The rise in global GHG emissions has continued on an even path since 1997. More importantly, Kyoto Protocol expires in 2012. Hence it is crucial for the global community to start working on a post-Kyoto climate regime. In late 2007, the COP was held in Bali, Indonesia, and the Bali Roadmap was adopted. A major sticking point in the Bali negotiations was the proposed inclusion in the ministerial declaration that developed countries would have to cut GHG emissions by between 25 and 40 percent by 2020. The IPCC's latest report states that such cuts were needed to stop temperatures rising globally by two degrees centigrade. The United States was "not willing to accept" language calling on Industrialized nations to deliver "measurable, reportable and verifiable" assistance. Japan and Canada also preferred less specific commitments (NGLS 2008). In particular, negotiators disagreed on the actions that developing countries, and especially large emerging economies such as China and India, should take. The Bali Roadmap provides guidance and direction for a series of meetings over the next two years under both the Convention and Protocol, with the aim of concluding a comprehensive framework for the post-2012 period at COP15 in Copenhagen in 2009. This has brought new urgency to the governments to identify their national interest and frame their negotiating position in the coming round of international bargaining.

## China's Role in Global Climate Change Negotiations: Continuities and Changes

While climate change is widely recognized as one of the world's greatest crises, the consensus on how to tackle it is often seen through the lens of national interest, with a divide between developed and developing countries on common or differentiated responsibilities. As such, negotiations have proved to be protracted, difficult, and tense, with many countries seeking to protect their own domestic interests at the expense of building an international consensus. Similar to other

developing countries, China's overwhelming concerns have been economic development, poverty alleviation, and social stability. Climate change is one area where the conflict between poverty reduction and sustainable development is most apparent, as it is closely linked to economic development, resource management, poverty alleviation, and energy use.

China has actively participated in climate change negotiations since the 1990s. China's position has been mainly expressed through the "G77 and China" group. Two central elements of China's strategic position have been consistent throughout the negotiation. First, China has consistently supported the UN Convention framework and the Kyoto Protocol framework and the underlying principle of "common but differentiated" slated in Article 3.1 of the UNFCCC. To China, the foremost concern in the negotiation is the principle of equity, which is reflected in both the responsibility for historical emissions of the developed countries and the future emissions rights of the developing countries, including China (NRDC 2008a). This is an important question as it involves burden-sharing, fairness, justice, and development rights. Equity is a critical theme in environmental negotiations. Developing countries claim that present-day changes in global temperature are due to the total accumulated emissions of GHGs (or historical emissions) since the Industrial Revolution. Therefore, though total annual emissions of CO2 from developing countries will equal that of the developed world within two or three decades, the impact of developing countries' emissions to increasing global temperatures will not be equal until 2162 (Johnson 2001: 189). Thus, developing countries' commitment to emission reductions justifiably should not equal that of Annex 1 countries until then.

This notion of historical emissions has several important policy implications for developing countries including China. First, it is a "delay" strategy and if adopted, developing countries can win themselves some time to pursue their economic development agenda without worry about the costly adjustments to meet short- and medium-term emission-reduction goals. Second, if developed countries accept this notion, they will have to bear more of the burden for reducing climate change and undertake most of the effort—by helping developing countries financially and technologically to develop more sustainable means for achieving economic growth. Third, the immediate effect is that developed countries are required to take the initiative in reducing GHG emissions in their own countries. Actions being taken by developed countries will not only effectively

mitigate the adverse effects caused by global warming but also save some "emissions quota" for the late Industrialization of developing countries.

Apparently, the existing UN Convention framework and Protocol framework can best serve the concerns and interests of the developing countries by emphasizing the responsibility, technological and financial capacity, and urgency of the Industrialized countries. For the exact same reason, Industrialized countries have been seeking alternative paths/approaches to negotiation. For example, the EU proposed meetings among G8+5 large developing countries. At the recent Bangkok meeting, Japan campaigned for industry-based emission caps. Under its plan, global industries such as steel or cement would set international guidelines for GHG emissions.

Proponents, including the United States, argue that industry-based emission caps would help set a level playing field for competitive industries. Critics, however, worry sectoral caps could be used to favor industries in richer countries with access to more advanced technology, while those in less developed nations would suffer. President George W. Bush launched a separate set of talks among the world's 17 largest emitting nations (G17) and the 8 largest emitting nations (E8) (Clapp 2007). The United States holds the strongest view that the exemption granted to the developing countries under the Kyoto Protocol is no longer sustainable for the more advanced developing countries such as China and India (Stern and Antholis 2007). The seven nations and one organization, including the United States, EU, China, Japan, India, South Africa, Russia, and Brazil, account for more than 70 percent of total global emissions. The new U.S. Special Climate Change Envoy believes that it will be more effective to have regular meetings among these eight developed and developing countries, even though global environmental issues have typically been addressed in broad UN conventions (Stern and Antholis 2007). China participated in all these meetings but insists that the UN framework should continue to serve as the primary platform for global climate change talks, and other alternatives can only be adopted as supplementary approaches. As iterated by China's Special Climate Change Envoy, Ambassador Yu Qingtai, "the Convention and the Protocol are the foundation for the future agreement in this area."[1]

On a related note, China has always opposed any binding commitment to GHG emission reduction for developing countries. This position was illustrated through the Berlin Mandate, which was developed at the Berlin COP, slating that developing countries should not be included in emissions reductions until the developed countries have

taken steps to reduce their own emissions. The implicit understanding associated with this mandate is that the continuous increase of emissions made by developing countries associated with their domestic Industrialization process should be tolerated. At the Rio Earth Summit in 1992, the international community agreed that "the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations." Polluting states were to be held accountable for the transboundary consequences of their pollution (the "polluter pays" principle) However, the United States and a few other developed countries have been pressuring large developing countries (China, India, and Brazil) to assume emissions-reduction commitments immediately, because they are already large GHG emitters (annual emission). At COP4, the United States called for "meaningful participation" by large developing countries on emissions reduction before it would agree to sign the Kyoto Protocol. The government in Beijing has consistently opposed this view, citing development rights and needs of developing countries. Besides the notion of historical responsibility, China also cites its low per capita emissions as a basis for arguing this point. Currently, the average Chinese still emits about one-fourth as much carbon per person as the average American (AP 2008).

China does not intend to modify and has strongly opposed any country's efforts to modify, in the near future, any of the above two fundamental principles it (together with other G77 members) has supported since the beginning of global climate change negotiations. This fundamental position is also reiterated in China's most recent submission to the UNFCCC of "its position on the Copenhagen climate change conference" (NDRC 2009). What has changed in recent years is China's position on specific negotiation issues. Generally speaking, since the Bali conference, China has become more proactive, more engaged, and more flexible in negotiations.

Throughout the 1990s, China adopted a hardliner position to defend its interests in global climate negotiation. For example, Sen. John Kerry recalls meeting with the Chinese in the early days of negotiations in the 1990s: "Usually, we just stared at each other. They just wouldn't hear of anything. They saw this effort as a Western conspiracy to prevent them from growing" (Max 2008). Benjamin Gilman, Chairman of the U.S. House of Representatives' Committee on International Relations, summarized China's position on climate change at the Kyoto Conference as "a policy of 'Three NOs': no obligations on China, no voluntary commitments by China, no future negotiations to bind China" (U.S. House 1998).

The watershed in Bali was that developing countries came to the table willing to discuss emissions reductions of their own for the first time. Though G77/China rejected an earlier draft calling for measurable, reportable, and verifiable nationally appropriate mitigation commitments or actions by developing countries, as a group, the developing countries agreed on language that emerging economies should make "nationally appropriate mitigations . . . in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner" (U.S. House 1998). Chinese compromise broke a long-standing deadlock between the United States and developing countries on sharing a burden that has been shouldered until now only by industrial nations.

## New Interests in China's Policy Configuration

Many Neoliberal institutionalists believe that with China's more extensive participation in intergovernmental organizations (IGOs) such as the World Bank and the World Trade Organization (WTO), the regime constraints and experience of institutional learning will facilitate changes in preference of the Chinese government that gradually result in a more internationally accommodating attitude toward climate change negotiations (Hemposon-Jones 2005). Apparently, all countries, particularly developing countries, have gathered considerable scientific and technical knowledge and norms through their interaction with other governmental and nongovernmental actors in global climate change negotiations. But there exists considerable discrepancy in terms of institutional constraints toward members between the major IGOs mentioned above and the climate change regime, as the latter is still under negotiation regarding its institutional structure and enforcement capacity. In addition, no major power has been willing to take on the leadership and responsibility to serve as a hegemon and provide public goods. The United States is reluctant even to meaningfully participate (take due share as one of the Annex 1 countries). The EU has been proactive and has built a more solid domestic ground to support the global effort. But it has not shown any obvious interest in becoming the leader when the United States is not fully committed. Finally, unlike the issues covered and governed by other IGOs, global warming has had direct and severe effects on human beings, yet many governments, including both developing and developed countries, have no tangible incentives to address the

crisis, and the problem of free-riding is unavoidable compared with other global issues.

It is true that China is under increasing pressure from the United States and others to take concrete actions to tackle climate change, but we should not exaggerate the role played by international pressure for the simple reason that China's per capita emission (ranked ninety-second in the world) is still about world average and only one-fourth of the level of Industrialized countries. Furthermore, cumulative emission is another index that has been widely applied by developing countries in global negotiations. Both the Framework Convention and the Berlin Mandate of 1995 recognized that developed nations had generated the vast majority of GHGs now accumulated in the atmosphere. Europe (32 percent of world total) and the United States (29 percent of world total), which began coal- and oil-fired Industrialization in the nineteenth century, are together responsible for over 60 percent of today's man-made GHG concentrations. Late Industrializing countries, including Japan, Russia, Canada, and Australia, have together contributed 15 percent of today's concentrations. In comparison, newly Industrialized countries, such as China (8.1 percent) and India (2.5 percent), have generated only about 10 percent of today's concentrations. All others—more than 175 nations—together are responsible for just 13 percent of increased concentrations since the 1750s (Clapp 2007).

The recent change in China's position in global climate change negotiations is largely domestic-driven. The tangible incentives for Beijing to address climate change problems are derived more from the adverse social, economic, environmental, and foreign policy impacts of 30 years' unprecedented economic growth instead of the narrow negative impacts of global warming. The remarkable economic growth of China in the past two decades has generated both concerns and the capability for China to redefine its aggregate interest in climate change policy.

First and foremost is China's great thirst for oil and the complications resulting from China's global oil hunt (deLisle 2007). China's high levels of GHG emissions are caused by heavy reliance on fossil fuels in the modernization and urbanization process. China's climate policy is therefore closely linked to the country's energy policy (Economy 2007). The scarcity of domestic natural resources, especially energy and raw materials, to support its 1.4 billion people and rapid economic growth is an increasingly serious problem for China. As an emerging world factory, China's hunger for energy and commodities has soared. Twenty years ago, China was East Asia's largest

oil exporter. Today, China, now the world's second largest consumer of oil, accounts for 31percent of global growth in oil demand. China's oil consumption surpassed Japan's in 2003 and now stands at 6.5 million barrels per day, compared to 20 million barrels per day for the United States.

Driven by its energy thirst, Beijing has adopted a global strategy of securing energy and natural resources. For example, in Africa, China spent billions securing drilling rights in Nigeria, Sudan, and Angola and has exploration or extraction deals with Chad, Gabon, Mauritania, Kenya, the Republic of Congo, Equatorial Guinea, and Ethiopia. Following China's impact on the developing world in its global quest for oil and other natural resources, China now faces an image crisis in the West. Increasingly Chinese find themselves labeled the "New Imperialists" and "Resources-takers." Fully aware of this criticism, Beijing has been courting the governments of these states extensively, spreading goodwill by strengthening bilateral trade relations, awarding aid, forgiving national debt, and helping build infrastructure. In addition, this high demand for energy trade has led to direct competition with the United States and EU in terms of both energy security and value crash. Western countries argue that China's growing presence has negatively affected Africa in terms of democratization, anticorruption, human rights improvement, sustainable development, and environmental protection (Swan 2007; Brookes and Shin 2006). Chinese leaders in turn realize that current practices may not be sustainable in the long run (Interview 2008).

Additionally, China's resource endowments combined with its rapid and highly globalized growth have caused increasing trade friction with its partners, both developed and developing countries. Since its economic reform in 1978, China has adopted export-driven development strategy, following Japan and South Korea's development path. In 1978, China's total foreign trade was only $20.6 billion, while in 2006 it reached $1.76 trillion, exceeded only by that of the United States and Japan (PRC 2007). Perhaps even more significantly, China's share of global trade in GDP in 2005 was an astonishing 64 percent, extraordinary for an economy of its size (World Bank 2007). Since 1990, China has been the largest recipient of foreign direct investments (FDI) among all developing countries. Transnational corporations from major powers and neighboring countries have increasingly been moving their labor-intensive activities to China, earning China the title of World's Workshop (Rosen and Houser 2007). China has not just become the world factory, but also its smokestack (Kahn and Landler 2007). In 1996, China and the United States each accounted

for 13 percent of global steel production. By 2005, the U.S. share had dropped to 8 percent, while China's share had risen to 35 percent. Similarly, China now makes half of the world's cement and flat glass, and about a third of its aluminum (Kahn and Yardley 2007). In 2006, China overtook Japan as the second-largest producer of cars and trucks after the United States.

This particular trade profile creates a new mode of pollution transfer. For example, when the UK's carbon emissions include imports from China, the average UK citizen's carbon emission increased by 10 percent based on a report by the World Development Movement (WDM 2007). Germany is also China's mirror image. Polluting factories have migrated abroad. Coal mining domestically has withered. Since 1990, Germany has reduced its annual carbon emissions by 19 percent (Kahn and Landler 2007). This trade leakage is best explained by the "pollution heaven" hypothesis, which refers to the practice of developing countries competing to attract foreign investment by disregarding environmental standards. Consequently, pollution-intensive investments tend to concentrate in what become known as "pollution heavens." Nor Mohamed Yakcop, Malaysia's Deputy Finance Minister argued that this was "green imperialism" (Knickerbocker 2007). In 2004, China's net exports accounted for 23 percent of China's total CO2 emissions. China's export-driven strategy has not only brought problems of environmental degradation, energy and water exhaustion, and carbon emission increases, its large trade surplus is a constant source of trade conflicts and trade retaliation. China, more frequently than any other country, finds itself the target of antidumping investigations made by both developed and developing WTO members.

Being a world factory for low-end and cheap electric and chemical products no longer serves China's fundamental political and economic interests. As a result, export subsidies for polluting industries have been phased out. In 2006 and 2007, the primary job of the Ministry of Commerce (MOC), for the first time, was not to promote export but cut trade surplus through export tax being charged on products such as textiles and apparel (MOC 2008).

Third, the societal perception that has held for half a century in Mao's and Deng's China that economic growth should be pursued at any cost is transforming due to severe environmental degradation in China.

Since the foundation of the PRC in 1949, the ultimate goal of the Communist Party is to modernize and Industrialize China. In 1950, Mao Zedong made it clear that his plan was to build factories with

smokestacks all around Beijing and China. In its rush to get rich, China has absorbed most of the major industries that once made the West polluted. During the early years of reform, Chinese leaders embraced the growth-first philosophy, which was best reflected by a famous saying of Deng Xiaoping that "no matter if it is a white cat or a black cat; as long as it can catch mice, it is a good cat."

In recent years, severe environmental problems occur regularly. Ordinary Chinese have started to miss blue skies, clean rivers, green forests, and birds. Heartbreaking coal mine tragedies have become regular news on TV. Pollution has made cancer China's leading cause of death. Ambient air pollution alone is blamed for hundreds of thousands of deaths each year. Nearly 500 million people lack access to safe drinking water. China is choking on its own success. The WHO found that the pollution-related death toll has now reached 750,000 a year. In comparison, 4,700 people died in 2006 in China's unsafe mines (Kahn and Yardley 2007).

Not all environmental problems are directly related to global warming but the bottom-up consciousness on environmental protection has contributed to the redefining of what constitutes national interest by the government. Chinese leaders have developed a new-way thinking that seeks to decrease the country's so-called black GDP. A number of government decrees and regulations have been carried out to restrict foreign and domestic investment in those sectors and products that are either energy consuming or without effective pollution control. China's leaders recognize that they must change course. The goal of "building a resource-efficient and environment-friendly society" is prominent in China's current five-year plan. In other words, even if the "black cat" still can catch mice, it is no longer a "good cat" and should be restricted.

More importantly, this perception change is not just another upside-down phenomenon. There is a growing consensus among the youth, middle class, and urban population to pursue more environmentally friendly lifestyle. According to one survey conducted by Beijing Consumer Association and Beijing Climate Center on 1,000 consumers in 16 major Chinese cities including Beijing and Shanghai, up to 69 percent of Chinese consumers surveyed are willing to change their lifestyles so as to help with global efforts to slow down the climate change (Xinhua 2008). This new force of influence is also emphasized in Harris's chapter (Chapter 6) of this book when he argues about global justice from transnational and cosmopolitan perspectives, in particular the rise of Chinese new consumer middle class.

## China's New Thinking in Climate Change Negotiations

Negotiations so far have taught China a lesson that ultimately the terms of agreement will most likely be determined by the political considerations of the major players than by calculations of state capacity or historical fairness (MOFA 2008). For example, in March 1997, EU environment ministers adopted a common position that Industrialized countries should reduce GHG emissions to 15 percent below the 1990 baselines by 2010 (Coghlan 2007). But given the reluctance of other players such as the United States to agree to mandatory limits at all, the resulting compromise was that EU agreed to commit to 8 percent emissions reduction. In addition, Industrialized countries chose to take a set of differentiated targets and timetables. More importantly, the nature of environmental negotiation differs from other types of negotiation such as trade or arms control negotiation. It is largely a public good problem. With immediately costly domestic adjustment, intangible long-term benefits, and a weak global regime in terms of oversight and enforcement, managing states tend to have little incentive to push forward the negotiation agenda. Thus, domestic consensus in terms of interest identification is crucial for any country to make serious commitments in climate change negotiation.

In the beginning, China took a defensive position based on the deep fear that any policy adjustment required for mitigating global warming would be too politically and economically costly for China and, consequently, was not an option for Chinese government in the near future. So a new common understanding domestically is crucial for China to frame its new negotiation position. However, though the change in interest and perception is not so dramatic that we should expect a policy U-turn from Beijing, we can still identify a few elements of a new line of thinking in the government's global climate change negotiation policy.

First, a closer look at the institutional changes in Chinese climate change policy-making is one way to help understand how the government has approached this issue over time. Starting in the 1980s, China treated climate change as a scientific issue and gave the State Meteorological Administration the responsibility of advising the government on relevant policy choices in UNFCCC. In 1998, China established the National Coordination Committee on Climate Change (NCCCC). As the Chinese leadership began focusing more attention on climate change, responsibility and authority was shifted

to the most powerful government agency, the National Development and Reform Commission (NDRC). The NDRC sets the agenda on domestic development issues and is in charge of coordinating climate change works as well as energy policy. China established a National Climate Change Leading Group (NCCLG) under China's National Climate Change Program in June 2007. The office of the National Leading Group was also located within the NDRC. The group is headed by Premier Wen Jiabao, an indication of increased seriousness with which the government views the climate change issue. The NCCLG replaced the previous National Climate Change Policy Coordination Group, led by the NDRC. In other words, this new supraministeral policy-making organ will guarantee more effective coordination among ministries and other government agencies than the previous interministerial one (NRDC 2008b). During the institutional reform in 2008, the number of member agencies of the National Leading Group increased from 18 to 20. Furthermore, in the circular released by the State Council (2007, No. 18), externally, this same institution can be called either the Leading Group of National Reponses to Climate Change Mitigation or the Leading Group of State Council Energy Conservation ("One Institution, two names"). This unique institutional arrangement reveals that climate change is subordinated to other top policy priorities such as economic development, and the issue will not be addressed by sacrificing the priority of economic development. In negotiations, the Ministry of Foreign Affairs (MoFA) exercises great influence over which specific positions China should take. MoFA ensures that China's political interest and foreign policy goals are served in the international arena. As one of the most important foreign policy issues, China's participation in climate change negotiation has been seen and used to expand its soft diplomacy and status, assert leadership in the developing world, and bargain with Industrialized counterparts. The Ministry of Science and Technology (MOST) also plays an important role in terms of technical support and expertise views, particularly in the areas of clean development mechanism (CDM) and other technology transfer areas.

Second, China will continue its long-time stance that China, as a developing country, should not make any binding commitment to reduce absolute GHG emissions. China is facing serious challenges in tackling climate change, and these challenges significantly constrain Beijing's room for maneuvering in multinational negotiations. Although domestic interest has been redefined to lean more toward sustainable development (instead of sustained development) and against

the "black" GDP, climate change has by no means surpassed economic development as a policy priority. Climate change is one area where the conflict between poverty reduction and sustainable development is most apparent, as it is closely linked to economic development, resource management, poverty alleviation, and energy use.

In the past 30 years, China has achieved an average of over 10 percent economic growth. As a direct result, the number of people living in poverty dropped from 648 million in 1981 to 218 million in 2001, the greatest reduction in poverty in history (Brown 2006). Still, China's GDP per capita in 2007 was $2,461 according to the statistics from the IMF, ranking a hundred and sixth among 181 countries and regions. A new position China has recently taken since the Bali conference is the emphasis on a cumulative per capita emissions index instead of the previously widely used historical responsibility and/or current per capita emissions. From 1904 to 2004, CO2 emissions in China from burning fossil fuel made up only 8 percent and cumulative emissions per capita ranked ninety-second (State Council 2008). As a developing country, China has a long way to go in its Industrialization, urbanization, and modernization. Its coal-dominated energy mix cannot be substantially changed in the near future, thus making the control of GHG emissions rather difficult. Chinese President Hu Jintao made the remark at the dialogue between the G8 leaders and those of the five largest developing countries that "like many other developing countries, China is currently actively developing its economy as this is the most urgent task for them, so the energy consumption is bound to increase" (*People's Daily* 2005). In other words, China's absolute GHG emissions will increase in keeping with the country's economic development. Chinese leaders believe that the Chinese economy will not grow forever, and the window of opportunity for China before its economy slows down will be the next 20 years. Hence it is crucial for the government to take advantage of this precious 20-year period to achieve as much economic growth as possible. As predicted by Lu Xuedu, Deputy Director of the Office of the Global Environment in MOST, China will not consider binding targets to reduce its absolute GHG emissions, at least before 2030 (Zhao and Li 2007).

In addition, Chinese leaders have realized a large gap between the policy-making at the central-government level and the policy-implementation at the local-government level. After all, Beijing's new initiative is a top-down process and has yet to be wholeheartedly endorsed by local-level government officials. This has led to serious implementation problems for many environmental protection plans implemented by the central government. The most notable example

is the strong pressure from the local governments to publicize the results of "comprehensive environmental and economic accounting" (green GDP), a project proposed by President Hu Jintao in 2004. It recalculated GDP to reflect the cost of pollution. But the result was so sobering—in some provinces the pollution-adjusted growth rates were reduced almost to zero or negative—that the project was abandoned. The first report estimated that pollution in 2004 cost just over 3 percent of the GDP, meaning that the pollution-adjusted growth rate that year would drop to about 7 percent from 10 percent. The group's second report, originally scheduled for release in March 2007, never materialized due to strong local-level resistance (Zhou 2007).

Third, in future global climate talks, China is more likely to consider adopting policies and methods to cut its relative emissions. Compared with absolute emissions reduction, China is more interested in addressing the problem of energy inefficiency, pollution control, and the development of alternative energy instead of a cap on its total GHG emissions. China's high levels of GHG emissions are caused by heavy reliance on fossil fuels in the modernization process. China's climate policy is therefore closely linked to the country's energy policy (Economy 2007). China relies on coal for more than two-thirds of its energy needs, including 80 percent of its electricity needs. The six highest energy-consuming and polluting industries—electricity, steel, nonferrous metals, construction materials, oil processing, and chemicals—account for nearly 70 percent of all energy consumption and sulfur dioxide discharges of the entire industrial sector. In 2006, China consumed 2.8 billion metric tons of coal, mostly for power plants and industry. China's coal power use is expected to more than double by 2030, representing an additional carbon load in the atmosphere of about 86 billion tons (EIA 2007). Energy intensity refers to the ratio of energy consumption to the GDP, and similarly, the emissions intensity refers to the ratio of CO2 emissions to the GDP. China emits 35 percent more CO2 per dollar of output than the United States and 100 percent more than the EU (Lewis 2007: 156). China uses seven times the resources to produce $10,000 worth of goods as Japan does, six times as much as the United States, and almost three times as much as India (Stern and Antholis 2007). If China can improve its energy intensity index, then this will contribute to its current policy goal of pursuing a cut in relative emissions. In 2007, annual emissions of sulfur dioxide and chemical oxygen demand in China decreased by 4.66 percent and 3.14 percent, respectively. There was also a 3.27 percent drop in energy intensity from the year before, equal to saving 89.8 million

tons of standard coal (State Council 2008). In recent years, China has closed 11,200 small coal mines and 2,000 inefficient and heavily polluting paper and dyeing mills and chemical plants. In June 2007, Beijing unveiled its first national plan on climate change after two years of preparation by 17 government ministries. Rather than setting a concrete target for the reduction or avoidance of GHG emissions, it now aims to reduce energy consumption per unit of GDP by 20 percent by 2010 and to increase the share of renewable energy to 10 percent, as well as to cover roughly 20 percent of the nation's land with forest.

Furthermore, major initiatives are under way to develop clean energy sources like solar and wind power. China today is already the top manufacturer of wind turbines and biogas fermenters in the world. It is also projected to become the top manufacturer of solar photovoltaics by 2010. In fact, as the Climate Group outlined in an August report, China is a global leader in environmental technology. It is the world's largest manufacturer of electric bicycles, and may dominate production of electric cars. Chinese factories churn out 30 percent of the world's solar panels and the country is doubling its wind-power capacity annually (Ramzy 2009).

Fourth, China will continue to stick to the G77, which still offers China international legitimacy to receive all the special treatment granted to the developing countries in climate change negotiation, while in the meantime, China is preparing to take on more nonbinding responsibility in the negotiation process. Keeping one foot firmly placed in the G77 seems to benefit China, and China has no plans to leave the group in the near future, as China still regards itself as a developing country and belonging to the group (Kasa, Gullberg, and Heggelund 2008). It is in China's best interest to align itself with other developing countries and not be singled out. From the beginning of the climate change negotiations, China has been viewed as the hardliner in the developing world (Hayes and Smith 1993).

The G77 has managed to maintain itself as a group in spite of internal heterogeneity along such key variables as prosperity, emissions, and vulnerability to climate change, et cetera. However, the solidarity of G77 (totally 130 developing countries) is problematic for future negotiations. There are at least three main G77 groups with divergent views and priorities in global climate negotiations.

The first group consists of the new emerging economies of regional or global economic and political stature, including China and India. They are energy consuming, major developing emitters. The second group is the hardliner OPEC countries, which object to potential

market shrinkage and trade impacts. The third group is the Alliance of Small Island States (AOSIS) and the least developed countries, which view climate change as a major threat to their national existence but lack the resources and capacity to take necessary actions. In recent years, a breakaway group of 24 (G24) proposed that developing countries consider acting on greenhouse issues while awaiting action by the OECD and the AOSIS, which joined the European Community, Australia, Canada, and New Zealand in calling for a strong convention. The members of AOSIS believe that the dilatory and ideological stance of the hardliner, big poor states in G24 jeopardize their chance of obtaining any resources from the OECD countries. Many developing countries, Brazil as an example, have already taken steps in making significant reductions in GHG emissions despite the absence of commitments.

At COP-4, Argentina submitted a proposal for "voluntary commitments" on the part of developing countries (Johnson 2001: 192). However, China and the majority of developing countries argue against voluntary commitments (Anderson, Morgenstern, and Toman 1999). Furthermore, as the largest developing country and the largest emitter in the world, China is afraid of being singled out of the G77 due to its economic might, energy consumption, and ever-growing GHG emissions. Recently, several developing countries have already created a category of "developing countries with rapidly growing economies and emissions" to identify the three largest developing countries—China, India, and Brazil (Chayes and Kim 1998: 525; Tangen, Heggelund, and Buen 2001). China is facing increasing global pressure since the United States specified its negotiation stance that it would not "meaningfully participate" until these large developing countries are on board. China's delay tactic will be very difficult to maintain once it faces mounting pressures from both camps. Thus, Beijing is prepared to be more flexible in negotiation. On the one hand, though binding commitment is not an option for Beijing yet, other policy commitments are negotiable. In June 2005, then SEPA Director Xie Zhenhua, now a Vice Minister of the NDRC, stated that "on the Chinese side, the Chinese government would make its own decision after making some assessments of the implementation by other states" (Lewis 2007: 162). In this statement, he was signaling that China was waiting to see whether the developed countries would follow through on their UNFCCC obligations. Some progress would include a greater willingness to address energy intensity instead of absolute targets, a sectoral focus instead of national focus, policy commitment instead of binding commitment, et cetera.

On the other hand, China has recently started working on alternatives outside the Kyoto system to satisfy its new national interest in addressing climate change without making binding commitment on emission reduction. The Asian Pacific Partnership on Clean Development and Climate is one example. It is a coalition of six developing and developed countries (the United States, South Korea, the People's Republic of China, India, Australia, and Japan) launched in January 2006 (AP6). Focusing on the development of less carbon-intensive technologies instead of Kyoto's "cap and trade," the Partnership's inaugural Ministerial Meeting established eight government and business taskforces on cleaner fossil energy, renewable energy and distributed generation, power generation and transmission, steel, aluminum, cement, coal mining, and buildings and appliances. For China, this is only one in a series of other agreements targeting energy technology transfers as a supplement to the Kyoto Protocol. Other examples of such agreements are the Australia-China Partnership (initiated in 2003) on climate change and the more recent (September 2005) EU and China Partnership on Climate Change. These are main examples of a general trend in which China enters into bilateral and multilateral agreements running parallel to or even competing with Kyoto.

The ascendancy of the AP6 and other alternative or supplementary agreements may offer China additional security against having to accept commitments, as with its lucrative market potential, the options of receiving technological transfer and capital inflow from the developed countries outside the UNFCCC process are expanding. However, the Convention framework and the Protocol negotiations are still the most important avenues for China as it is more transparent and comprehensive to tackle climate change challenges while bilateral/regional agreements are much more narrowly focused on either CDM or other tech transfer projects driven by the market.

Fifth, more financial support and technology transfer from the developed countries will be the key to engage China in the coming negotiation. Members of the Group of 77 developing countries and China made the request that funding from developed countries should equate to 1 percent of their GDP (*China Daily* 2008). Experts and government officials in China believe that compared with capital, China has a greater need for advanced environmental technologies such as clean energy, pollution control, and alternative energies (*Beijing* 2009). According to an expert of the country's climate change negotiation panel, nearly two-thirds of the key technologies that China needs to mitigate global warming should be imported from the developed economies. Zou Ji, Environment Policy Professor with

Beijing-based, Renmin University of China, said China badly needs 62 key technologies in nuclear electricity, biofuel, carbon capture, wind power turbines, and smart grid to realize its goal of energy efficiency and sustainable development in key industrial sectors. "However, we found that we need to transfer 43 of them on the key technology list from the developed economies such as the U.S., Japan, and EU" (Jing 2009). The lack of technology is a common challenge faced by all developing countries to tackle climate change. It is more so for China as China today has a relative abundant capital that has been accumulated through its 30 years' fast economic growth, but it still lags in some key technology innovations. Thus, effective engagement with Beijing will require concessions from the developed countries regarding how to provide technological support. Without commitments to such support, the negotiations ahead will prove very difficult.

## Conclusion: Post Copenhagen Outlook: What's Next?

After the conclusion of the Copenhagen meeting at the end of 2009, views are still divided. Some developing nations think the accord overlooks their interests and fails to set clear targets for carbon reductions. China criticized the United States and the European Union blamed China for "systematically wrecking the negotiating process" (Watts, 2009). With the support of some emerging economies including India and Brazil, China rejected all attempts to make emissions cuts legally binding at the meeting. Therefore there is new urgency for main emitters to jointly make their efforts to wrap up a final agreement that will serve the post-Kyoto climate change regime. As the largest emitter of GHGs in the world and a key actor in the group G77+China coalition, China's position is crucial for the future success of the global efforts to combat climate change. When it comes to taking actions against climate change, China is in a special category by itself. Thus, both China's emphasis on cumulative emissions, per capita emissions, and the most recent historical per capita emissions and the emphasis of United States on current total emissions and predictable increase in the future are biased and will not help the conclusion of a new post-Kyoto global climate deal. China's role in post-Copenhagen climate change negotiations cannot be overstated. Chinese leaders have to face the domestic tensions between aggregate long-run national interest and local short-term economic development ambition, developed coastal region and underdeveloped Western provinces, urban and rural areas, and rich and poor individuals.

As China continues to transform itself into the largest emitter in the world, it will be more difficult for China to continue to use G77+China as a firewall against more specific commitment on emissions reduction.

On the one hand, the 30 years' economic development also empowered China with the financial capacity and political willingness to seriously face the challenges of its environmental problems. China's national interest in climate policy is no longer purely negative. China's perceived benefits of climate policy appear to be rising and its perceived costs appear to be falling. On the other hand, while more flexible than in the past, China will not sacrifice development to convert speedily to a low-carbon economy. Therefore, China is not ready to commit on binding reduction targets but will be more likely to pledge on nonbinding targets or future binding targets in a decade or two decades.

## NOTE

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# Chapter 4

# Environmental Degradation and Food Security Policies in China*

*Jerry McBeath and Jenifer Huang McBeath*

## The Problem of Food Security and Environmental Change

Food is the material basis to human survival, and in each nation-state, providing a system for the development, production, and distribution of food and its security is a primary national objective. Many forces have influenced the food security of peoples since ancient times, with particular challenges from natural disasters (floods, famines, drought, and pestilence) and growing populations globally. From the late twentieth century to the early twenty-first, however, analysts have riveted their attention on environmental change and crises, for example, pollution of arable land and water, insufficiency of water, deforestation, desertification, and over-fishing among others. Our focus is on the food security of the world's most populous nation, China, and the impact on food security of vast environmental change in the past 50 years. First, however, we explain why China must be considered in any global discussion of food security.

China has 22 percent of the global population but just 7 percent of the world's arable land. Food security has been a chief mission of the Chinese state since early in the dynastic era. It remains a primary state objective in the early twenty-first century. China in 2010 is

largely self-reliant in food supplies, and its farmers produce about 95 percent of the staples consumed. Yet, any large disturbance in supply would have global ramifications, for example, by increasing world food prices.

China's environmental conditions directly impinge on its food security. Many observers believe China's environment is in crisis (for early studies Ross 1988; Smil 1993). Population increases reduce arable land and water sufficiency; indirectly, population stress increases deforestation and desertification as well as over-fishing. New environmental stress such as climate warming has an impact on plant diseases, pests, and invasive species too. (Lying behind these factors is the pattern of elite and mass anthropocentric thought that subjects nature to perceived human needs. This is discussed in the Introduction and Ch. 8 of this volume.)

China is a developing country, and its food security and environmental protection regimes are relatively new and untested. It was this combination of factors—a huge population with limited agricultural land, severe environmental challenges, and political, social, and economic systems in the process of modernizing—which prompted Lester Brown's 1995 book *Who Will Feed China?*

## Loss of Arable Land

Brown's prediction that China would have to import 200 million tons of grain by 2030[1] initiated a debate among scholars as well as government officials on grain sufficiency. This debate focused on the amount of arable land in China, and whether it was sufficient to sustain agricultural production of staples. In the late 1990s, the official government estimate (now revised upward) was approximately 95 million hectares; on a per capita basis, this would equal 0.08 hectares per person, making China's land availability about one-fourth of the global average (WRI 1999).

The major critic of the Brown hypothesis has been Vaclav Smil, a geographer at the University of Manitoba. Smil (1999) makes a convincing argument that grain sufficiency pessimists underestimate the amount of China's arable land by at least 50 percent. He points out the several reasons why official statistics are wrong: (1) a nonstandard accounting unit is used for the areal measurement of land—the *mu* (there are about 15 mu to the hectare[2]); (2) there were large incentives to underreport land in the Maoist era, for underreporting reduced land taxes and also allowed peasants (and collective leaders) to claim higher harvests per mu; and (3) under the somewhat more

privatized system of land use in China today, underreporting land allowed fairer apportionment of marginal, less productive land, it reduced the quotas required for delivery to the state at fixed prices, and it reduced taxes as well (Smil 1999: 417; China Development Brief 2006).

In the past two decades, analysts have made two improvements in land measurement: remote sensing and detailed land surveys. These have produced a consensus among researchers that the range of arable land is between 131 and 137 million hectares (Smil 1999: 419; Wu 1987; Heilig 1997). (As we note below, government officials in 2008 used the figure of 121.8 million hectares.) Smil finds confirmation for the recent estimates of Chinese researchers and officials in results of the MEDEA study, a multidisciplinary scientific program using U.S. intelligence satellites and a methodology employing stratified, multistage area estimation (Smil 1999: 419–420).

Even this approach is too conservative, in the view of Smil, because it omits measurement of nontraditional land uses, which nevertheless produce goods serving nutritional needs of modern Chinese. Specifically, traditional land measurement does not include fishponds and orchards, and both farmed fish and fruits play an increasingly important role in Chinese nutrition. By adding these surfaces, Smil estimated that land devoted to intensive food production was in the range 146 to 160 million hectares in 1997—an average of 153 million hectares or 63 percent higher than official estimates (and on a per capita basis higher than figures for Japan, South Korea, or Taiwan) (Smil 1999: 423–424).

In 2007, China listed the area of cultivated land as 130,039,200 hectares. This is based on the situation surveyed as of late 1996. Estimates of the National Bureau of Statistics for 2001 show 127,082,000 hectares. Of this amount, "regularly cultivated land" comprised 105,826,020 hectares and "temporarily cultivated land" was 21,256,000 (NBS 2007: 464). As mentioned throughout this article, attention focuses both on loss of arable land to other purposes and attempts to increase arable land. For example, in 2006 China lost 307,000 hectares, mostly for new construction (Li 2007b: 3). In the National Agricultural and Rural Economic Development Program for the Eleventh Five-Year Plan (2006–10), the Ministry of Land and Resources predicted that grain-producing land would decline by 0.18 percent annually (based on loss of 8 million hectares of arable land from 1999 to 2005). It estimated the need for at least 103.33 million hectares in 2010 to reach a target production of 500 million tons of grain (Zhao 2006: 1). Simultaneously, the Ministry of Land and

Resources announced that between 1999 and 2006, China gained 2.4 million hectares of arable land (and during this period, grain production increased by 10 to 20 percent in pilot areas) (Xie 2007a: 2).

As we note below, this information does not close the debate, which has refocused on the ways to increase production of both plant and animal foods. Moreover, it is abundantly clear that whatever the real measurement of China's land in 1949, since the late 1970s, China has lost lands formerly used for production of food crops. We now seek an explanation for this loss.

## Causes of Arable Land Loss

Three interrelated factors are the source of pressure on arable land in China: population, urbanization, and economic development. As Ho and Lin (2004: 776) note, these explain about three-fourths of the variation in the share of land employed for nonagricultural uses. We treat each in turn.

### Population Growth and Pressure

China is the world's most populated nation-state and has been so since the dynastic era. Table 4.1 reports the growth of population, in selected years:

**Table 4.1** China's Population, Selected Years

| Year | Population (in millions) |
|---|---|
| 1949 | 541.67 |
| 1954 | 602.66 |
| 1959 | 672.07 |
| 1964 | 704.99 |
| 1969 | 806.71 |
| 1974 | 908.59 |
| 1979 | 975.42 |
| 1984 | 1,043.57 |
| 1989 | 1,127.04 |
| 1994 | 1,198.50 |
| 1999 | 1,257.86 |
| 2004 | 1,299.88 |
| 2006 | 1,314.48 |

*Source*: *China Statistical Yearbook*, 2007, 105

China's population more than doubled in the 50-year period from 1949 to 1999. Only since 1979 has a clear population limitation strategy been in effect. It was obvious from the results of the first national census in 1953, when population increases clearly exceeded rises in agricultural productivity, that some form of national birth control planning effort would be needed. However, Mao Zedong was at best ambiguous on the subject of birth control (Greenhalgh and Winckler 2005: 74). He made several statements to the effect that he favored birth control, but he also said (in 1958) that a population of more than 1 billion would be "no cause for alarm" (Greenhalgh and Winckler 2005: 74).

Mao's actions on population questions, however, sent a clear message. In 1957, demographer and Peking University President Ma Yinchu warned, based on the 1953 census, that China's rapid population growth would jeopardize development if not checked. For his forthright views, which contradicted state policy and Mao's many statements that China's strength lay in her huge and growing population, Ma was silenced, forced to resign from the university, and stripped of his academic and government posts (Shapiro 2001: 37).

The size of China's population, which is now expected to peak at 1.6 billion in 2030,[3] puts immense pressure on the land, but this pressure is uneven. In the deserts of Western China, population pressures are slight; Tibet, too, is lightly populated. The eastern coastal provinces, however, while occupying only 15 percent of China's expanse have 41 percent of China's total population.

Growth of China's population brings a corresponding increase in use of land for housing and human settlements. Although population growth has slowed, it is still increasing. Moreover, the improvement in economic conditions has released a pent-up demand for more, better, and larger housing. The housing construction boom, noticeable in cities as well as in the countryside, has used a large amount of land, including cultivated land (Ho and Lin 2004: 762).

## Urbanization

The fast pace of urbanization in China has swallowed up huge areas of arable land. In the first 20 years of economic reforms, the number of cities in China increased from 193 to 666 (Wang 1995: 4). In 1995, the rural population of China peaked at about 750 million, while the urban population continued to grow. By the early twenty-first century, China's urban population was greater than 500 million. As cities became more populous, they expanded into the countryside,

consuming land once used for agricultural purposes. One estimate is that urban sprawl and transportation networks took up 1.4 million hectares annually, just in the period of the Eighth Five-Year Plan (1991–95) (Di 2004: 19).

Urban residents have more disposable income than most rural residents in China (a global pattern). Members of China's growing middle class expect to be able to use their leisure time in recreational activities. Much farmland near cities and towns has been converted into golf courses, parks, and other recreational uses. Yet, critics of conventional wisdom regarding urbanization's adverse impact on cultivated areas suggest that under certain conditions, urbanization may save arable land and produce more efficient land uses than if rural residents were left in rural areas (or if the central government promoted development of small cities and towns, with less concentrated populations) (Huang et al. 2005).

## Economic Development

There were large pressures of people on the land during the Great Leap Forward and Cultural Revolution. These events had disastrous consequences for China's environment, but they were of limited duration. The economic reforms unfolding since 1978 have spurred economic development in all parts of China, at the cost of China's arable land.

Factories, office buildings, hotels and resorts, and shopping centers consume space in China's cities and suburbs. They are as important as human settlements in accounting for loss of arable land. One estimate is that loss of agricultural land to Industrial development has been underreported by as much as 61 percent (Yeh and Li 1997). Perhaps the clearest example of land loss is to what is called "development zone fever (*kaifa qu re*)."

At the outset of reform, central planning authorities established experimental special economic zones (SEZ) on the south coast of China.The state gave SEZs several privileges and advantages in order to spur rapid development, and high officials visited them, such as in Deng Xiaoping's highly publicized "Southern Tour" of 1992.

An unintended consequence of the SEZ model was widespread copying of the concept in rural counties and towns (Yang 1997: 54–55).

The chief force has been the Township and Village Enterprise (TVE, *siangjen qiye*). Most of the TVEs are small factories, and they have taken up land once used for farming in rural areas. A large number of TVE factories sit in industrial parks covering more than

a hectare of land. We discuss the effects of these and other types of economic development in the next section.

Illegal land acquisition, which implicates local governments throughout China, is perhaps the gravest threat to China's diminishing arable land. Gan Zangchun, the Deputy State Land Inspector General of the Ministry of Land and Resources stated, "Violations of land laws and regulations have cropped up recently in some areas." He directly accused local governments, remarking that "[s]ome local governments have arbitrarily expanded development zones in violation of the master plan for land use, and encroached on land using various pretexts" (Li 2007d: 1). The root of the problem is the lack of a property right to land of farmers. Local governments illegally lease land, the prices of which have become inflated due to a booming land and property market, which makes land sales and leases a lucrative business for local governments. Corruption has become rampant through officials' siphoning off land sale proceeds and abusing land use powers to improperly allot land. Xu Shaoshi, Minister of Land and Resources, said, "The illegal acquisition of arable land (for purposes other than agriculture) has endangered food safety and social stability both." He emphasized in a pessimistic voice: "Given the growing population and fast industrialization and urbanization, illegal land acquisition will probably continue" (Wu 2007b: 1).

Senior researcher Li Guoxiang of the CASS (The Chinese Academy of Social Sciences) Rural Development Institute said: "Local governments don't get any incentive for protecting arable land, even though the central government wants them to do so." Establishing Industrial units produces higher revenues than what could be derived from agriculture. Local officials see urbanization and industrial production as a solution to poverty, low rates of literacy, economic backwardness, and the other ills of rural life.

## Effects of Socioeconomic Change

Increased population, urbanization, and economic development have had some benign effects on food production in China. Certainly, rapid economic development has pushed China to the rank of the world's third largest economic power, and earned it the foreign exchange to purchase whatever food it cannot produce to sustain the population. But our focus is on domestic food security in China, and economic development and industrialization in particular have had mostly adverse impacts on food production. Our two large topics here are degradation of land and of water.

## Land Degradation

By degradation of the land, we mean reducing or eliminating its ability to generate plant life and sustain humans and nonhuman animals. The immediate causes of such despoilation are erosion, changes to the nutrient balance of soils, and pollution of the land with toxic substances. Erosion occurs naturally in most ecosystems, but our concern is with erosion caused by human actions, such as through deforestation. Changes in nutrient balance of soils occur through weather and climate changes but also through excessive use of chemical fertilizers and other poor farming practices. Pollution of soils occurs primarily through human action.

Several reports in 2006 pointed out the serious extent of land degradation. The Ministry of Water Resources (MWR) stated that 37 percent of China's total territory suffered from land degradation. This despoliation included soil erosion, deforestation, salinity, reduced fertility, and sand storms, affecting 3.56 million square kilometers (Guan 2006: 2). The study *China Ecological Protection* issued by SEPA in this year reported continued deterioration of China's ecology. Major problems included excessive logging, degradation of natural pastureland, shrinking wetlands, overuse of pesticides and fertilizers in farmland, and contaminated coastal areas. The study reported these specific findings:

- The ecology of 60 percent of China's territory was considered fragile;
- About 90 percent of natural pasture land (accounting for more than 40 percent of China's territory) faced degradation and desertification; desertified pastures had become major sources of sand and dust storms;
- Only about 40 percent of China's wetlands were under effective protection (Li 2006: 1).

We treat erosion, deforestation, desertification, and land pollution, giving examples of each form. (Air pollution and particularly acid rain are somewhat less important factors in agricultural production, and for this reason we make only passing reference to them.)[4]

*Erosion*

Erosion of soils is a general problem of ecological degradation in China. We provide examples from three regions: the Northeast, the Northwest, and the South. Northeast China—including the provinces

of Heilongjiang, Liaoning, Jilin, and part of the Inner Mongolia Autonomous Region—is China's breadbasket. It is an area of black soil, covering more than 35 million hectares, and one of the world's three largest black soil regions (the others being the Ukraine and the United States). The black soil belt accounts for 30 percent of China's total grain output, and its yields feed 10 percent of the population. Research institutes of the Chinese Academy of Sciences in Harbin and Shenyang recently demonstrated that the thickness of the soil had dropped radically from more than 80 centimeters to less than 30 centimeters in the past six decades. The density of organic substances in the soil declined from 12 percent in the 1940s to less than 2 percent; about 85 percent of the soils lacked sufficient nutrients. Causes of soil erosion and degradation included excessive farming, overuse of fertilizers, and excessive logging. Soil erosion, in turn, has brought about more frequent drought, floods, and sandstorms. Zhang Xudong, an expert with the Shenyang-based Institute of Applied Ecology, commented that "[s]oil erosion and degeneration will jeopardize the nation's grain security" (Xinhua 2007b: 2).

Soil erosion has become a large problem in northwestern China's Xinjiang Uygur Autonomous Region as excessive herding and farming have outpaced state conservation efforts. Remote sensing surveys show 1.03 million square kilometers of land degraded by soil erosion. Xinjiang itself accounts for about 30 percent of China's total acreage of soil erosion. A local soil conservation official remarked: "The region has a vulnerable ecology. Besides natural factors, human activities (excessive herding on pastureland and farming along the Tarim River) are largely to blame for the deteriorating soil erosion" (Xinhua 2007a: 4). Soil erosion is even a problem in prosperous Guangdong province, ranking second on the mainland for this form of land degradation. The provincial water conservancy bureau reported that more than 2,200 square kilometers of soil had eroded during the Tenth Five-Year Plan period (2001–05) alone, with expected worsening during the next plan period. In the case of this province, industrial developments have been the primary factor damaging soils (Zheng 2007: 4).

*Deforestation*

Population growth and the timber industry are the major factors causing a substantial reduction in forests. About half of China's forests have been destroyed since 1949. Today, forests cover 134 million hectares, 14 percent of the land area, but few virgin forests remain. In recent years, they have decreased at an annual rate of 5,000 square

kilometers. Mining and logging have deforested mountains, which cause erosion, reduced water storage capabilities, and severe sandstorms in northern China.

Agricultural development and housing settlements have also reduced forest and vegetative cover. As will be noted below, government policies of afforestation, reforestation, and converting cropland to grassland and forests have ameliorated some of the deleterious effects of deforestation, but because they replace natural forests, they have "altered the variety, quality, and the pattern of delivery of plant and wildlife habitats that had been provided previously" (Rozelle, Huang, and Benziger 2003: 20). The massive reforestation and afforestation programs have not yet curbed soil erosion, which as discussed threatens more than one-third of China's territory (Liang 2005a: 2). (See first chapter in this volume on this point.)

Starting in the late 1980s, the central government developed a natural forest protection program (also known as the National Greening Campaign). After massive flooding of the Yangtze River in 1998, this program was strengthened. It included a complete logging ban in the upper reaches of the Yangtze River and the upper and middle reaches of the Yellow River. Also, the program called for a reduction or adjustment of timber output in state-owned forest farms of the Northeast and Inner Mongolia, as well as rehabilitation and development of natural forests in other regions.

However, illegal logging continues, notwithstanding the ban. One of our respondents, a forest ecologist, estimated that one-third of industrial wood in China is harvested illegally. Most of this timber was harvested above the official quota level (Personal Interview 2004).

In a highly publicized case of 2004–05, the environmental NGO Greenpeace attacked Asia Pulp & Paper (APP), a multinational pulp and paper production giant, for illegal logging in Yunnan Province. Greenpeace charged the firm with logging a large section of natural forests, violating the state's Forest Law as well as the national natural forest protection program (Greenpeace China 2004). The firm then replanted 183,000 hectares with eucalyptus plantations. Local farmers claimed their land had been requisitioned at yearly rents of only $1.45 per hectare. In this case, Greenpeace enlisted the collaboration of the Zhejiang Hotels Association in a boycott of APP products, which led the corporation to modify its actions (China Development Brief 2005; also Chao and Ning 2005: 2). (For discussion of the increasingly important role that NGOs play in addressing environmental degradation, see Chapters 2 and 5 of this volume.)

*Desertification*

Sand and desert cover about 27 percent of China's land area. The expanse of deserts has increased dramatically in the contemporary period. Desertification annually claims an additional 3,400 square kilometers (Cao 2004: 2). Desertification has dried up rivers and lakes (leading to salinization of the soil, which then cannot be used for growing crops), shriveled plants and vegetative cover, and led to dropping levels of ground water, posing a direct threat to more than 100 million people. Specifically, it degrades farmland and pastures, and leads to the reduction of crop production (Yang and Wang 2004). Desertification also has threatened national treasures such as the Great Wall (Ma 2007b: 5) and the Mogao grottoes (Wang 2007: 3).[5]

There is consensus that some of the causes of erosion should be addressed, and several mitigation strategies have been employed to reduce desertification. The regime's re- and afforestation policy was the original strategy to reduce soil erosion and desertification, but lack of water in desert regions frustrated this policy (as Jiang has discussed in his chapter above.) A major recent method has been fencing in grasslands to protect vegetative cover against advancing deserts. While this has been superior to planting trees, which require more water resources than available in most desert areas, it has a large impact on the ecosystem. Migratory species are then restricted in their movement (NGO Interview 2007). Another mitigation strategy used in Inner Mongolia has been erecting sand barriers and planting soil-stabilizing shrubs. (For more detailed analysis of desertification causes and failed ameliorative policies, see Chapter 1 above.)

*Land Pollution*

Three types of pollution afflict agricultural lands in China: industrial plant waste, mining operations, and use of chemical fertilizers and pesticides. Chemical and other industrial facilities pollute land with toxic contaminants, diminishing or exterminating plant growth. Pollution caused by rural industries is far more severe than that caused by urban industries. Second, China has a large number of small-scale mining operations, particularly coal mines, for China is reliant on coal for nearly 70 percent of its energy needs. Mine waste dumps including sulfides as well as other toxic chemicals have had adverse impacts on the soil microbial communities in adjacent areas (Liao and Wu 2005). A third cause of land pollution is from excessive use of chemical fertilizers and pesticides by farmers, which degrades soils.

Reports from the Ministry of Land and Resources in 2007 indicated that about 12.3 million hectares—more than 10 percent of China's arable land by current government estimates—is contaminated by pollution, and the situation is worsening (Li 2008a: 1; Xinhua 2008a: 3). Land pollution concerns prompted the State Environmental Protection Administration (SEPA) to conduct the first soil survey of China's farmlands to insure food safety, beginning in mid-2006. The survey has focused on main grain-producing and industrial areas: Jiangsu and Zhejiang provinces in the Yangtze River Delta and Guangdong Province in the Pearl River Delta and also Liaoning Province in the Northeast and Hunan in central China. In addition to pollution of grain production regions by wastewater, solid waste, and other pollutants, vegetables and fruits have also been polluted by excessive nitrates in the soils (Sun 2008: 3).

*Air Pollution*

Some 2,000 tons of mercury, from more than 2 billion tons of coal burned every year, enter the soil and pose threats to agricultural production and human health (Sun 2007b: 1), and this is one indication of the serious impact air pollution has on agricultural land. In 2005, one-third of China's land mass was affected by acid rain; in some regions of the nation, all rainfall was acidic. With 26 million tons of sulfur dioxide discharged in 2005—27 percent greater than in 2000—China became the world's largest sulfur dioxide polluter (Liu 2006: 2).[6] Coking plants and coal-burning power stations were primarily responsible for these emissions.

Air-borne pollution particles have cut rainfall in many regions of China, particularly in the Northeast and Northwest. Scientists studying mountain regions have noted a particular kind of precipitation called orographic, which occurs when moist air is deflected upwards by a topographic feature such as a mountain, which cools the air and causes cloud droplets and then raindrops to fall. Polluted air carries more particles that divide cloud droplets into smaller ones. The smaller cloud droplets are slower to combine into raindrops, reducing precipitation (Wu 2007a: 3).

Air pollution is a major cause of lung cancer, as harmful particulates enter the lungs and cannot be discharged. As noted below, water pollution also is a cause of cancer, which in recent years has been the most lethal disease for China's residents. In China, a 2007 survey administered by the Ministry of Health (of 30 cities and 78 counties) indicated that death rates from cancer had risen to 19 percent in cities and 23 percent in rural areas (Li 2007c: 4). In recent years, reports on

"cancer villages," where residents describe high rates of deaths from cancer, have increased. The World Bank reports that deaths resulting from water-related pollutants and bad air reach 750,000 a year (Kahn and Yardley 2007: A13). (See Chapter 7 below for a discussion of the first successful large-scale [and Internet-based] protest to chemical plant construction.)

## Degradation of China's Waters

While degradation to China's land is serious and worsening, water degradation, in the view of many observers, has reached crisis proportions. We consider first the issue of water sufficiency in China, and then treat respectively pollution to fresh waters and to the oceans off China's coasts.

### *Water Sufficiency*

Lester Brown directly connected the nature of China's water system with global food security when, in 1998, he commented: "As rivers run dry and aquifers are depleted, the emerging water shortages could sharply raise the country's demand for grain imports, pushing the world's total import needs beyond exportable supplies" (Brown 1998; China Development Brief 2001).[7] As in his previous critique of China's loss of arable land, he maintained that if China were not to address this problem, world grain prices would rise, creating instability in Third World cities.

China ranks fifth in the total water resources of nations in the world, but on a per capita basis, China's water supply is 25 percent below the global average. Future projections are more troubling. By 2030, per capita supply is expected to drop from 2,200 cubic meters to below 1,700 cubic meters, and at this level would meet the World Bank's definition of a water-scarce country (Turner and Otsuka 2006: 1). Agriculture consumes from 70 to 80 percent of China's water resources, but as supplies tighten, agricultural use of water is threatened by rising industrial and household consumption. However, most observers of China's water sufficiency believe that shortage of water has not yet led to a substantial loss of irrigated area or industrial production (Lohmar et al. 2003: 1).

Thus, on a national basis, China's water resources currently seem to be sufficient; however, water is not evenly distributed throughout China. It is relatively scarce in the North and West, and is abundant in the humid South. Although the dry North produces more than 40 percent of China's grain supplies, it has less than a quarter of

China's water resources, and parts have been subject to drought conditions, for example Shaanxi in 2007 (Ma 2007a: 50). The North China Plain (*Huabei pingyuan*) is the heartland of Chinese civilization, and is traversed by three major rivers: the Yellow, the Hai, and the Huai. The Yellow River (affectionately dubbed the "mother river") is the most obvious example of water scarcity in the North. In 1972, for the first time in Chinese history, the Yellow River dried up before water could reach the sea. In 1997, for 330 days of the year, water from the Yellow River did not reach the ocean (Ma 2004: vii). Causes of water loss included extensive upriver exploitation of water as China rapidly industrialized; future threats include melting of glaciers and depletion of underground water systems feeding the river (Yardley 2006). Both the Hai and Huai rivers suffer from depleted flow, leaving entire valleys short of water, notwithstanding construction of thousands of large- and small-scale reservoirs.[8]

With less available water (and because most water from rivers is polluted), the people of the North and West have turned to use of ground water. In recent years, however, the ground water tables through most of North China and parts of the South have dropped, making it necessary to drill deeper wells. A recent survey indicated that the water tables beneath much of the North China Plain have fallen an average of 1.5 meters per year in the past five years (Brown 1998: 2). The dropping water tables have caused large areas of subsidence.

Not only is water in limited supply in China, but it is also used inefficiently. One estimate suggests that only 43 percent of the water used in agriculture is used efficiently, as compared to 70–80 percent of irrigated water in developed countries. Moreover, about 25 percent of the water transmitted through pipes is lost through leakage, much higher than the 9 percent lost in this way in Japan, and 10 percent in the United States (Turner and Otsuka 2006: 3). In China's irrigation systems overall, much water is lost through evaporation.

A final factor affecting water supply is the pricing system for water use. Until recently, prices for commercial, industrial, and household use were not well differentiated. Moreover, prices for water in most of China's regions and cities did not vary in proportion to the amount of water used (Personal Interview 2007). In a country that remains communist, with clear policy goals of egalitarianism, the transition to a market-based system for water use is especially difficult. Only in 2007, did the regime gingerly begin planning to deregulate prices of water, to reflect its scarcity (Fu 2007a: 2). For these reasons, the water use system encourages overuse of water instead of careful conservation.

*Water Pollution*

The consensus of water specialists is that water sufficiency currently is less of a problem in China than water pollution.[9] One obvious indicator is that 16 of the world's 20 most polluted rivers are in China. Moreover, air and water pollution combined with widespread use of food additives and pesticides have made cancer the leading cause of death in China. Chen Zhizhou, a health expert with the cancer research institute of the Ministry of Health noted: "The main reason behind the rising number of cancer cases is that pollution of the environment, water and air, is getting worse day by day." He continued, "Many chemical and industrial enterprises are built along rivers so that they can dump the waste into water easily. Excessive use of fertilizers and pesticides also pollute underground water. The contaminated water has directly affected soil, crops and food" (Xie 2007b).[10]

There are three major sources of water pollution: industrial contaminants spewed into rivers and lakes, chemical pesticide and insecticide run-off from crop fields, and human waste and garbage disposed into waterways. A 2006 study examined 30 of China's major rivers carrying processed water to the sea, accounting for 82 percent of the total run-off volume. Results showed a large increase over the previous year in levels of pollutants discharged via the Yangtze, Pearl, Yellow, Minjiang, and several other rivers.

Industrial pollution events hit the news repeatedly in 2006 and 2007. In late 2006, a chemical spill caused by an explosion at the Jilin Petrochemical Corporation (in the Northeast, China's rustbelt), created a toxic slick on the Songhua River, forcing downstream cities in Heilongjiang to suspend their normal water supplies (Li 2007c). In fact, the MWR labeled water quality at level 5 the poorest, equivalent to raw sewage. The basin of the 1,900-kilometer Songhua River spreads to Jilin and Heilongjiang provinces and Inner Mongolia, and it flows into Russia (and its level of pollution nearly created an international incident). This event prompted the resignation of the minister. Government officials planned to let the river "rest in peace and rehabilitate itself" for 10 years (Li 2007a), but experts were not sanguine about the prospects of full recovery in this period, given lack of clean-up success in other rivers, such as the Huai.

Pollution levels in the Yellow River have increased rapidly during the reform era. Much of this pollution has been caused by industrial enterprises, which produce large amounts of sewage, but untreated household waste also has been released in the river. Tributaries of the Yellow River are similarly affected. For example, the Weihe River, the

largest tributary, is seriously polluted. Cities along the Weihe such as Baoji, Xianyang, and Weinan dump sewage into it daily; Xian, capital of Shaanxi Province, dumps nearly 1 million tons of sewage into the Zaohe River, a tributary of the Weihe.

Pollution levels also have increased enormously in the Yangtze River, which (including its tributaries) accounts for about one-third of China's total fresh water resources. In a 2007 report, the Yangtze River Water Resource Commission stated that one-tenth of the 6,211 kilometer main course of the river was in critical condition. In addition, about 30 percent of the major tributaries of the Yangtze—including the Minjiang, Tuojiang, Xiangjiang, and Huangpu rivers—were heavily polluted by excessive ammonia, nitrogen, phosphorous, and other pollutants (Sun 2007a).

Both the Yangtze and Pearl River estuaries were listed as "dead zones" in a study released in late 2006 by the United Nations Environment Programme (UNEP) (Sun 2006). Dead zones are water areas where nutrients from fertilizer runoff, sewage, human and animal waste, and the burning of fossil fuels trigger algae blooms. The blooms require oxygen and remove it from the water, a condition called eutrophication, which endangers all water life.

In the summer of 2007, many lakes in China experienced major algae outbreaks. High concentrations of nitrogen and phosphorus in the waters caused spurts of blue-green algae that threatened the safety of the water supply of Wuxi in Jiangsu Province, a city with a population of nearly 6 million (Zhang 2000).[11]

Pollution has increasingly affected groundwater supplies throughout China. A recent report found that 90 percent of the groundwater of China's cities is polluted to some extent, which poses huge problems because nearly three-quarters of the population of China relies on ground water for drinking (Turner and Otsuka 2006; also see Jiang 2006). SEPA Vice-Minister Pan Yue reported in 2007 that the quality of potable water in key cities had dropped by 5 percentage points as compared to the previous year; only 66 cities had source water meeting national environmental standards (Sun 2007c).

Most of these reports come from urban areas in China, but the situation in rural areas doubtless is worse. Primary pollutants in rural areas are poisonous fertilizers and discharge of untreated sewage water. China uses more than 360 kilograms of fertilizer per hectare, much higher than developed nations' usage rates, and fertilizer is used inefficiently. Fertilizer runoff after rains causes contamination of water and water life. Most of the 280 million tons of sewage generated each year is untreated and directly discharged into rivers. Some

9 billion tons of sewage water is discharged every year. Overall, about one-third billion rural Chinese use unsafe drinking water (Wu and Li 2007).

Government officials, particularly in the national SEPA and MWR, as well as provincial and local environmental protection bureaus, have addressed these problems by tightening regulations and increasing inspections.[12] Yet the problems persist and are increasing in frequency and severity.[13] A senior engineer working in an institute affiliated with the MWR commented, "The water environment is not good, and this influences the quality and quantity of cereals production in China" (Senior Engineer 2007).

*Ocean Pollution*

China's coastline extends 18,400 kilometers and abuts four seas: the Bo Hai (considered an "inland" sea), the Yellow Sea, the East China Sea, and the South China Sea. In 2006, China's seas generated $270 billion or just over 10 percent of GDP (Sun 2007d), yet development of a booming regional economy along this coastline is jeopardized by increased degradation of the ocean. Threats to China's oceans include overfishing, destructive fishing methods, pollution, and the reclamation of coastal lands. Marine fisheries are nearly 75 percent of China's total fisheries, and overfishing has resulted in a serious decline of take in recent years. The mariculture industry has caused degradation of water quality as well as put pressure on fish fry, small crustacea, and shellfish (Mackinnon et al. n.d.: 495). Moreover, the use of dynamite and poison fishing has damaged coral reefs and mangrove forests. At least 50 percent of the coral reefs off China's coasts have disappeared in the past 20 years. Loss of coral reefs in turn increases the risk of typhoon damage to China's coasts.

Pollution from industries, agriculture, domestic sewage, oil and gas exploration, and fish farming has degraded China's ocean environment, as has extensive runoff of silt from rivers and seabed dredging. As one NGO representative remarked: "All the coastal cities of China dump their wastes in the sea" (NGO Interview 2005). A State Oceans Administration official stated: "The coastal marine ecosystem is worsening, the quality of ocean water is deteriorating, and large amounts of pollutants are infiltrating from land to sea" (SOA 2006).[14] The loss of coastal wetlands to agriculture, aquaculture, and reclamation projects has devastated both wildlife and marine resources. Several species already have become extinct; sea cows, species of kelp, and the habitat of sea turtles have been threatened. Enforcement of existing regulations and laws on pollution remains problematical.

Problems of ocean pollution have attracted less attention even than those of land and freshwater systems in China. In 2008, Director of the State Oceanic Administration, Sun Jhihui, pledged to address these concerns. However, the agency is small and not well regarded for its enforcement capability.

## State Responses to Environmental Degradation

The environmental challenges to China's food producing lands and waters have been huge, and the state has responded in kind with standard bureaucratic routines as well as large-scale projects. Space limitations prohibit our consideration of pests and plant diseases, the food safety system, and implementation issues—all of relevance to China's food security. Here, we examine six different examples of state responses: policy restricting arable land conversion, China's one-child policy, investment in irrigation systems, the South-North Water Diversion Project (SNWDP), large-scale afforestation and reforestation campaigns, and the program to convert marginal agricultural lands to forests and grasslands.

### Restriction on Arable Land Conversion

In the 1980s and early 1990s, the central government employed a hierarchical system to regulate conversion of agricultural lands to other purposes—primary industrial, commercial, and residential. The regulatory system had several loopholes, however. Moreover, local-level officials had large incentives to bend the rules because of the benefit to provinces, counties, and municipalities of the conversion of collective land to commercial and industrial purposes. The most recent change to policy was through adoption of a revised Land Management Law, promulgated in 1998.[15] [79]

Under the revised law, the central government resumed decision-making control on land conversions from agricultural to other uses. The land utilization plan for the period 1996 to 2010 called for a reduction in land allocated to human settlements and industrial sites, and specified that very little agricultural land would be converted for any purpose in the coastal provinces. Also, the central government imported sophisticated remote sensing technology from France, which made it less dependent on provincial and local governments for information on land use.

These measures did not reduce pressures on arable land, which reached a high point by the end of the Tenth Five-Year Plan in 2005. To curtail conversion and safeguard future food security, the regime responded in three ways: (1) it set a limit on the minimum amount of cultivatable land, (2) it tightened regulations on land conversion, and (3) it sought ways to increase the amount of arable land. We discuss each in turn.

At the seventeenth Congress of the CCP, Premier Wen Jiabao announced that China could not have less than 120 million hectares (about 1.8 billion mu) of arable land. Reiterating this point, Minister of Land and Resources Xu Shaoshi stated: "The red line of 120 million hectares of arable land cannot be crossed" (Zhao 2007a). (At the end of 2006, official accounts reported that the arable land total was 121.8 million hectares, compared to 122 million hectares in 2005.)

In 2006, the Ministry of Land and Resources established a new classification system for lands. It strictly barred any construction of villas, golf courses, or racetracks taking up large amounts of arable land (Li 2007f). Then, it initiated a process to define lands into four different regions: those where urbanization was "prioritized," "encouraged," "limited," and "forbidden." At the completion of this national blueprint, provincial governments would be given greater freedom to plan their own development projects in accord with the national plan (Fu 2007b).

The land approval process was tightened in 2007 to force local governments to make better use of their available land and spur disposal of land already approved for use. In mid-2007, the Ministry of Land and Resources began a three-year national land-use survey, to ascertain changes in land utilization and management. A previous survey had been done from 1984 to 1996, but a number of local officials camouflaged land status or fabricated data during the inspection, leading to many cases of illegal land acquisition, as mentioned above. The ministry planned random checks and strict penalties for manipulation of land data (Li 2008b).[16]

The ministry also increased fees and penalties for illegal conversions. It doubled the land-use fee for arable land for new construction projects, which reduced the incentive for local governments to sell land (as they would receive less income for doing so). The ministry also set a minimum pricing standard for land sales for industrial use, as a means to stop local governments from attempting to attract investors with heavily discounted land prices (Li 2007g). Finally, the ministry announced a campaign to check land law enforcement, and

to hold provincial governments responsible for diverting farmland to other uses in excess of quotas (Li 2007h).[17]

China's land authorities also have made efforts to increase the amount of arable land. From 1999 to 2006, China added 2.4 million hectares of arable land, which was a greater amount than land made available for construction projects. In the expanded, pilot areas, grain production increased by 10 to 20 percent.[18] A second plan, announced in mid-2007, was to convert at least 5.5 million hectares into cultivable land through two forms of consolidation: (1) replanning of random, scattered, and small plots, and (2) merging villages and returning land used to build houses and other structures to farming (Xie 2007c).

Altogether, these measures were designed to insure sufficient arable lands for production of staples in the near-term. They seemed to be having some effect, as the rate of arable land loss in 2007, a reduction of 40,700 hectares to a total of 121.73 million hectares, was the smallest annual decrease since 2001 (Wu 2008b).

## China's One-Child Policy

Population pressures figure in each of the environmental stressors discussed above, and this is a problem to which the regime responded radically. In 1979, China introduced the one-child family policy, which is the single most important reduction of environmental stress to have occurred globally in the past generation. The policy was designed primarily for urban areas, where there were incentives for residents to have small families. In rural areas, the policy effectively was a "one child with exceptions" policy. The army of enforcement officials (at least 1 million) usually tolerated families with two, and sometimes three, children. The policy also was not applied to minority households at all. Recently, an additional exception to the policy has allowed married couples both of whom are single children to have two children. The onus of policy implementation fell on women and led to horrible abuses such as forced abortions and sterilizations (Saich 2004).[19] Preference for male offspring resulted in cases of female infanticide and underreporting of births, as well as skewed sex ratios and large future problems as millions of men lack marriage partners.

Notwithstanding these serious defects, the policy has sharply reduced the rate of growth in China's population as compared to relatively unconstrained population growth in other large developing countries such as India and Indonesia. Demographic experts estimate

that the population would have reached 1.7 billion instead of the current 1.3 billion had the policy not been implemented (Xie 2007d).

## State Investments in Irrigation Systems

One of the factors typically used to explain China's ability to achieve food self-sufficiency is the huge investment the state has made in irrigation infrastructure. In the 1960s and 1970s particularly, spending on water control played a very important role in rural development. Fan et al. note that government spending on irrigation was 30 percent of total expenditures in rural China in 2000 (Fan, Zhang, and Zhang 2004). Whether in poor or rich areas, spending on irrigation systems has been the most important form of agricultural investment. They mention that the state invests more than 10 times as much in irrigation as it does in agricultural research.

Approximately 51 percent of the cultivated area in China is irrigated; nearly two-thirds of the irrigated areas used surface water, while the rest is irrigated with groundwater (NSB 2007). Several studies of the impact of irrigation on crop yields as well as household incomes report positive findings. For example, Huang et al. (2006) point out the "strong and robust" effect of irrigation on agricultural performance.

## The South-North Water Diversion Project

Another very large-scale project, which if continued would be one of the world's largest, is the plan of the central government to address water scarcity in northern and western regions by transferring water there from the South. Mao Zedong proposed the grand plan in 1952, and it has been in the discussion stage for decades.

The SNWDP includes three water transfer routes—east, central, and west—that will link the Yangtze River of central China to the Huai, Yellow, and Hai Rivers of North China. The project plan includes "four latitude and three longitudinal water courses regulating and distributing water not only from south to north but also from east to west" (State Council 2004: 15). Construction began on the first (eastern) phase in late 2002 and is scheduled for completion in 2012. This section is the easiest to construct, as it can take advantage of existing rivers and lakes, including the Grand Canal and its parallel rivers. However, it has required construction of nearly two dozen new, upgraded, and expanded pumping stations, many reservoirs, and extensive water treatment facilities for polluted water (State Council

2004: 21).[20] The cost for just the first, eastern section is estimated to be $6 billion (with the cost of the total project running to $72 billion in 2007 dollars).

The second phase is not expected to be completed so quickly, as the route is longer and more new construction will be required. The Western route project is still in the design stage, and many observers believe it will not be built. The plan to divert Qinghai-Tibet plateau water resources away from the Mekong and other international rivers is extremely controversial (Cheng 2007). The size of the projects is gargantuan. Objections come from provinces losing water to the North and the West, particularly Hunan and Hubei; from scientists who question whether at the time of greatest need for water (in winter months of the North), there will be sufficient water to transfer; from those fearing the disruptive displacement effects on people along the proposed routing; from environmentalists; and from China's neighbors to the southwest who object to loss of water resources from their rivers (Economy 2004: 126).

### Large-Scale Afforestation and Reforestation Projects

We discussed one of the largest afforestation programs above, in the context of the Yangtze flooding of 1998. This was one of seven different afforestation programs since the 1970s. The others include:

1. The "Three Norths" Shelterbelt program involves establishing plantations in North, Northeast, and Northwest China (from 1978 to 2050) with the objective of afforestation of 35 million hectares (discussed at length in Chapter 1 above);
2. Protective afforestation in the upper and middle reaches of the Yangtze (1989–2000) involved planting and restoration of 6.8 million hectares;
3. Coastal shelterbelt (1991–2000) led to planting trees in 3.6 million hectares;
4. Cropland protection and agroforestry in the plains (1988–2000) covered nearly 1,000 counties in 4 provinces;
5. Afforestation of the Taihang Mountain (1990–2010) involved planting trees on 4 million hectares; and
6. Combating desertification (1991–2000) had as its objective control of desertification in over 7.2 million hectares (Yin et al. 2005).

In 1998, *China Daily* proudly announced: "China now ranks first in the world in both the speed and scale of afforestation" (*China Daily*

1998). A 2007 report proclaimed that 20 percent of China would be forested by 2020.[21] Nevertheless, Harkness (1998) commented that "increases in forest cover have coincided with decreases in the actual amount of wood available for harvesting," which has pushed Chinese logging firms abroad.

Several problems have been identified in the afforestation programs, particularly the development of monocultural plantations, which limit species diversification. Yin et al. point out additional difficulties. They object to the top-down nature of campaigns and insufficient attention paid to local interests and conditions. Often those who have lost access to forests and logging have been inadequately compensated. Finally, the lack of long-range planning and development of good practices may increase other problems, such as erosion and introduction of invasive species (Yin et al. 2005: 28–30). Notwithstanding the criticism, the afforestation and reforestation programs have brought about a significant reduction in erosion, which benefits agricultural productivity.

### Restoration of Forests and Grasslands

The final state program is also the most recent, launched just in 1999–2000. With an overall budget of more than $40 billion, the sloping lands conversion program is perhaps China's most ambitious environmental initiative; without a doubt it is one of the world's largest land conservation programs (Xu et al. 2004). It was designed after the Yangtze flooding to deal directly with erosion, which is particularly serious on sloped lands. Many of these lands in the Yangtze and Yellow River basins were originally forested, but in previous campaigns of the Maoist era were converted to farmlands. With slopes of 25 degrees or greater, they were especially subject to erosion, and for this reason, the original plan was to convert 5.3 million hectares of croplands on steep slopes to forest and grass coverage.

The program began with trials in Sichuan, Gansu, and Shaanxi provinces in 1999, and was then formally inaugurated in 2000 as the Slope Land Conversion Program (SLCP, also known as "Grain to Green"; in Chinese *Tuigeng huanlin (cao)*). The goal of SLCP expanded to convert about 14.7 million hectares of fragile cropland to forests (or grasslands) by the completion date of 2010. Under the SLCP plan, the state provided extensive benefits to participating farmers. They received 1.5 to 2.55 tons of grain per year (depending on location) for retiring 1 hectare of cropland. Also, they received a one-time cash subsidy of $750 yuan per hectare to purchase seedlings or seeds, and

$300 yuan per year for miscellaneous expenses for the duration of the program (Xu and Cao n.d.).[22] By 2004, some 7.2 million hectares of land had been converted, the result of a very rapid expansion of the program from 2001 to 2003 (Xu et al. 2004: 117).

These incentives made the project quite popular with participating farmers, some of whom received more in food subsidies than they would have through their own productive work. The costs to the state, however, have been in the neighborhood of $1.4 billion per year, making this one of the most expensive major environmental programs in China. The program has been effective in increasing the value of marginal lands, but its sustainability is in question because of the high cost and continuing questions about its effects on rural household income (see Xu, Tao, and Xu 2004). [106]

The most penetrating (and obvious) criticism of the SLCP has been that it has reduced arable land and led to lowered grain productivity and increased grain prices. In late 2003 and 2004, grain prices rose sharply in response to falling grain production, and the Ministry of Land and Resources and several researchers hypothesized that the SLCP was responsible for this price rise (MLR 2004). The ministry successfully argued for a slowing of the conversion program.

Researchers have found a covariance between the SLCP reductions and a reduction in land area sown with grain. However, most findings indicate that SLCP has had a relatively small effect, particularly given that most of the converted land was sloped and of poor quality. Xu et al. attribute just about 1 percent of the price increase in cereals to SLCP, also noting the large impact it has had in reduction of the build up of silt in irrigation networks and reservoirs and reduction in downstream flooding (Xu et al. 2006).[23] In other words, there does not appear to have been a trade-off between land conversion and agricultural productivity. Nevertheless, the policy is an expensive one and has created new dependencies. Said a policy analyst with the Chinese Academy of Sciences: "Investment in *Tuigeng huanlin* means a reduction of investment elsewhere. As to people's income, what happens after the policy ends? Now, about 50 percent of the people in affected areas are reliant on government subsidies" (CAS Interview 2007).

By 2007, the SLCP had returned 24 million hectares to forest and grass cover, accounting for about 60 percent of China's new forest area and benefiting 124 million farmers. However, as arable land neared the 120 million hectare threshold, official attention focused again on SLCP, and the government suspended a plan to convert 1.07 million hectares into forest (Wu, Y. 2007). Agriculture ministry

officials said the program curtailment was solely for the purpose of making adjustments in it, and the project seems likely to continue, but at a reduced level (see Sun 2007g and Sun 2007h).

## Other Policies to Ensure Food Security

Of the six state responses, controls on population growth and conversion of arable land, as well as accelerated investment in irrigation systems, probably have had the greatest positive impact on food production. The recent focus of attention in China has been on increasing the efficiency in use and productivity of available arable land. This entails the improvement of cultural practices of farmers and more efficient utilization of crop enhancements such as fertilizers, and the like (see, for example, Zheng et al. 2004; Tan and Peng 2003). Indeed, in mid-2007, a coordination group of four ministries—Science and Technology, Agriculture, Finance, and the State Administration of Grain—signed responsibility contracts with 12 major grain-producing provinces, pledging to make greater efforts to increase crop yields through science and technology (Wang, Y. 2007a).

Second, the Ministry of Agriculture has invested heavily in "super rice." Yuan Longping, a researcher in the Chinese Academy of Sciences developed a strain of hybrid rice in the early 1970s. Supporters of his work claim that the hybrid he developed "boosted the country's rice output over the ensuing 25 years by a combined 400 million tons" (see Wang, Y. 2007b). However, release of new high-yield cultivars and hybrids has not been accompanied by much improvement in the eating and cooking quality of the products. In fact Zhang comments: "[M]ost of the widely used cultivars and hybrids have poor cooking and eating qualities, and thus are disfavored by producers and consumers" (Zhang 2000).

Third, and of greatest potential importance, is biotechnological development. In this area, China has focused intense effort and spent more money than any other developing country. (China's expenditures on agricultural biotechnology are nearly equal to those of the U.S. government.) And the state has played virtually every role in biotechnological development.

In 1997, China approved the commercialization of Bt cotton, and it has been the major success of the agbiotech effort. In 2008, nearly 70 percent of China's cotton was grown from Bt cultivars. Bt cotton has increased cotton yields while significantly reducing pesticide spraying (and associated labor efforts). Because China has been the world's largest user of chemical pesticides, with all the accompanying

costs to human health and environmental degradation, a two-thirds reduction in pesticide use in cotton-growing areas must be regarded as a significant accomplishment. However, continued use of Bt cotton has revealed a rise in incidence of secondary pests, making it necessary to curb enthusiastic praise for this GMO (Huang et al. 2002).

In addition to Bt cotton, the central government also approved another half-dozen GMOs: transgenic varieties of tomatoes, bell peppers, petunias, and insect-resistant poplars and papayas. Of far greater importance to food productivity has been development of genetically modified rice varieties, because rice remains China's major food crop. A relatively long period of field and environmental testing brought four varieties (three with insect-resistant properties) to the penultimate stage in the state's new biosafety regime—precommercial clearance. Bt rice has remained in this stage of limbo since 2002, because of growing resistance globally and locally to GM products. Areas of resistance include concerns about the potential impact of transgenic products on human health, on the environment, and on biodiversity, particularly of wild rice species. While market acceptance for GMO products seems high in China, the current need for Bt commercialization has been questioned (Lin et al. 2006).

## Conclusions: Overall Impacts on Current Food Security

During China's reform era (from 1978 to the present), arable land has declined, due to pressures of population growth, urbanization, and exceedingly rapid economic development. These pressures have increased erosion; deforestation; desertification; pollution to land, air, and fresh water; and China's marine coastal environment. Nevertheless, through improvements in agricultural technology and practices, China has been able to feed her 1.3 billion inhabitants. (In 2007, China produced 500 million tons of staples (Xinhua 2007g),[24] more than sufficient to provide food nationwide.) Yet the regime pays close attention to the amount of arable land, and particularly to grain sufficiency. At the 2007 meetings of the National People's Congress, Premier Wen Jiabao announced that China must maintain 120 million hectares of arable land.[25] [119]

Some Chinese scientists and policy elites are worried about the reduction of arable land; a number of foreign observers, such as Lester Brown, have made predictions, suggesting China will not be able to feed itself in the future. Our sense from a reading of the large literature on this topic and interviewing agricultural scientists, land

resources experts, and policy-makers is that the amount of arable land is sufficient for the present, and with appropriate changes in policy (see Huang 2004; Wu 2007d; Fu 2007c), grain security can be assured in the near-term. However, without significant changes, land resources will not sustain food production if the population increases to 1.6 billion in 2030 and when demand for food will rise among China's increasingly well-off population (see Chapter 6 below). Space does not permit consideration of climate change as well as plant and animal diseases here, but they may adversely affect food production, too.

We have discussed several strategies adopted by the regime to counter environmental stressors and their impact on food security. Based on our research, to the present and into the near-term, China has been successful in feeding its large and growing population, notwithstanding large-scale environmental degradation.

## Notes

* This is a revised and expanded version of our article "Environmental Stressors and Food Security in China," in *Journal of Chinese Political Science*, Vol. 14, no. 1 (March 2009), 49–80.

1. Brown focused on what he believed was stagnating grain production in China of the early 1990s because of reduced arable land, lack of significant productivity gains, and environmental problems such as water insufficiency and large-scale soil erosion. He contended that China would need to import massive quantities of grain in future years to feed its population.
2. The hectare is approximately 2.47 English acres. The *mu* (also spelled *mou*) is approximately one-fifteenth of a hectare. However, historically the mu has not been standardized. See Pannell and Yin 2004.
3. This is an estimate only. Several sources predict that population will not peak at the 1.6 billion level until 2050.
4. One example of a recent study is Huang et al. 2007: 60–65.
5. The Mogao caves are located in Dunhuang, Gansu province, and are famous for their 1,000-year-old Buddhist statutes and wall paintings. They are threatened by the encroaching Kumutage desert, China's sixth largest.
6. In Guangzhou, 8 out of every 10 rainfalls was acidic in 2007; see Chen 2008: 4. China is a major source of transboundary air pollution reaching its neighbors. Even in Los Angeles, city officials estimate that on some days, one-quarter of the city's smog comes from China. See Struck 2008:10.
7. For a generic response to Brown's argument, see Xu, Zhang, and Liu (2005) and Lohmar and Wang (2003: 41–43).
8. As a number of studies have indicated, the crop structure of regions in the North China Plain, affecting the amount of water consumed through irrigation systems, strongly influences water sufficiency prospects. See, for example, Liao and Huang (2004).
9. Based on personal interviews with officials of the Ministry of Water Resources, professors of hydrology, and NGO representatives, Beijing, March 15, 22 and May 18, 22, 30, 2007.

10. Environmental degradation also has been linked to birth defects, which increased by nearly 40 percent between 2001 and 2007. See Hu 2007. The health effects of contaminated water are both direct and indirect. Farmed fish raised in contaminated waters may lead to higher rates of cancer as well as liver disease and other afflictions. See Barboza 2007. Eel farmers called the *Times* accusation that fish farmers had mixed illegal veterinary drugs and pesticides into fish feed "totally groundless." Local environmental protection bureau officials said strict regulations since 2003 had made drug use illegal, and "the major pollutants in eel breeding are nitrogen, phosphorous and excrement which are found naturally," and that 97 percent of aquatic products met standards during random tests. See Hu and Wu 2008.
11. Also see Li (2007e) and He (2007) for a report of an outbreak of blue algae in the water supply of Changchun in Northeast China.
12. For example, in 2007 SEPA announced that it was launching an automated system to closely monitor key polluters, who account for 65 percent of the country's industrial waste (to respond to environmental activists who complain that many industrial plants shut off expensive sewage disposal facilities after SEPA inspections and resume dumping wastes into rivers). The agency claimed it had reached a "turning point" in this year because the rate of increase in pollutant discharges increased at a slower rate than in the previous year. See: Xinhua (2007c) and Wu (2007c).
13. In 2007, SEPA reported that despite an increase in funding on pollution control, amounting to 1.23 percent of China's GDP, "China is under increasing pressure to cope with environmental pollution." Of 842 pollution accidents reported for 2006, more than half were water-related. Moreover, half the country's population lived in an environment where sewage was not treated. Orders from SEPA to reduce pollution routinely were disregarded by some cities. See Xinhua (2007d) and Xin (2007).
14. An SOA report issued in August 2007 and based on more than 500 pollution outlets monitored by the agency found that 77 percent of the outlets were discharging more pollutants than permitted, some 18 percent more than in the previous year. See Sun (2007e).
15. This discussion follows Ho and Lin (2004: 776–778).
16. A State Council regulation of 2008 required greater cooperation among land survey participants and further tightened penalties for falsifying or distorting information. See Xin (2008).
17. Nearly half of the rural protests in China were triggered by illegal land seizures or expropriations. The State Council ordered local governments to raise compensation for farmers losing land to development projects as one means to address protests; increasing enforcement of land law violators including local government officials is another. See Zhao (2007b). Some 22,000 cases of illegal land use covering more than 328,720 hectares were reported between January 2005 and September 2006. Late in the following year, land inspectors in the Ministry of Land and Resources ran a 100-day campaign to detect major rule violators, catching a few local government officials. See Wu (2007d). The ministry promised to station inspectors in every province as part of a pilot project to curb illegal land acquisitions involving local authorities. See Wu (2008a). During 2007, about 2,700 local officials were arrested; they either failed to seek permission before developing land or ignored rules on expansion of development zones.

18. For example, authorities in Jilin Province expected to increase rice output through converting large areas of salina lands to paddy fields. The plan was to make the salt-encrusted land arable by flooding it with nearby river water. See Xinhua (2007e).
19. For a critical perspective, see Greenhalgh (2005) and Greenhalgh and Winkler (2005). Also, party officials, celebrities, and the rich have ignored the policy, and enforcement has had little effect in deterring this in recent years. See Xinhua (2008b).
20. For example, pollution in the Huahi River poses a threat to diversion of water from the South to the North. See Sun (2007f).
21. China has planted 53.3 million hectares of forests since 1949, more than any other country in the world, with forest coverage rising from 8.6 percent to 18.2 percent. See Sun (2007i) and Liang (2005b).
22. Also see Yin, Xu, Li, and Liu (2005: 22–23). The importance of economic compensation for farmers' support of the SLCP is presented in Zhi et al. (2004).
23. See also Deng et al. (2006). For a study of the impact of converting cropland to grassland, see Su and Su (2006). Also, personal interview with former staff member, Chinese Academy of Forestry, Beijing, May 21, 2007.
24. This was the fourth consecutive year of increase in grain output, and it allowed China to meet 95 percent of domestic demand. A shortage in production was not expected until 2010. See Wang (2007c). However, rising global grain prices and shortages of corn and soybeans spurred grain officials to eliminate the export tax rebates on major grains. Also, the State Council enacted an export tax on grains both to ensure adequacy of domestic supply and curb food price inflation. See Diao (2007); Diao (2008); and Wu (2008c).
25. An official of the Ministry of Land and Resources indicated that Wen's statement did not reflect policy of the State Council, which did not believe that the cited amount of land needed to be retained in the arable land category (personal interview, Beijing, May 27, 2007). A land resources researcher at a university land management institute opined that Wen's statement was "a slogan," designed to outline a conservative approach (personal interview, Beijing, May 23, 2007).

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# Part II

# The Formation and Policy Influences of ENGOs (Environmental Non-Governmental Organizations) in China

# Chapter 5

# State and Society in China's Environmental Politics*

*Björn Alpermann*

Over the past two decades, the proliferation of new forms of social organizations in China has engendered a lively debate among Chinese and foreign observers about their role in politics and their relations with the party-state. Environmental groups in particular have been a focus of interest. The Chinese Communist Party (CCP) still aims at maintaining a monopoly on organization and therefore places restrictions on the growth of independent associations. Nevertheless, there has been an undeniable expansion of social organizations.

Over the course of the debate on social activism in China, different concepts have been advanced to explain the emergence of new social organizations within the context of an authoritarian one-party state. The next section will briefly review the major contending perspectives on relations between the party-state on the one hand and social organizations on the other. It will argue that neither society-centered nor state-centered approaches can satisfactorily explain the current politics of social activism in China. Instead, it will propose a third perspective building on Joel Migdal's "state-in-society" approach to reconcile the perplexing ambiguity of this relationship. This chapter will contend that if we are to make sense of seemingly contradictory trends in state-society relations, we need to fully recognize the fragmentation of both the party-state and the emergent civil society.

The rest of this chapter is organized as follows: the next section will discuss the fragmentation of state and society. It first addresses

progress and limits of state environmental politics before turning to the legal and political constraints imposed on social organizations in China. Thus, it demonstrates that the nascent environmental movement has to be understood in the context of both fragmented authoritarianism and fragmented civil society. In the latter case, fragmentation means that it is not enough to look at environmental nongovernmental organizations (ENGOs) exclusively. Instead, the environmental movement consists of numerous different actors that are so far at best tentatively linked.

The second section will discuss the changing dynamics and strategies of environmental groups within this political environment. It thus places their interaction with the state at the center of analysis. In particular, it highlights new and more contentious strategies for environmental advocacy and the greater reliance on the law on the one hand and incipient links between state and social actors on the other. It argues that the fragmentation of the state provides opportunities for social activists to become "embedded," yet at the same time can be a source of considerable risk for them. In the conclusion, we come back to the question of how to best understand recent trends in environmental politics and state-society relations.

## CONTENDING APPROACHES TO THE STUDY OF STATE-SOCIETY RELATIONS IN CHINA

Since the early 1990s, there has been a lively debate on how to conceptualize the emergence of organized social forces within Chinese society as these new actors challenged the notion of a Leninist political system in which the CCP claims a monopoly of organization. One group of authors saw in these new social organizations the budding of a "civil society," understood to mean a sphere of voluntarily organized social interests relatively independent from the state. Others, however, used corporatist models to explain how the party-state attempted to control and coopt emerging social forces into its organizational fold. While most of this "civil society" versus "corporatism" debate centered on business associations as prominent examples of emerging social organizations, similar arguments have been advanced regarding environmental groups.[1] Thus, some authors see ENGOs at the forefront of China's budding civil society (Yang 2005; Cooper 2006; Thompson and Lu 2006).

But Western conceptions of civil society and corporatism have come under criticism for their overemphasis of antagonistic relations between state and society, while most empirical studies conducted

in China found cooperative or even symbiotic relations and blurred boundaries between state and society (Solinger 1992; Saich 2000; Ho 2001). Most scholars now agree that Chinese civil society organizations do not work in opposition to the party-state but in contrast are connected with it through various ties.

However, differences of emphasis between more society-centered and more state-centered approaches remain. Thus, falling under the first paradigm, Ho advanced his notion of "embedded activism," which sees ENGOs as establishing symbiotic relations with politicians. Ho (2007: 198) suggests that the central state is the most valuable ally of ENGOs against local state actors and polluting industries, an assessment shared by Lin (2007) who calls Chinese environmentalism a "social movement with Chinese characteristics." Cooper (2006: 109–136), based on her fieldwork in Southwest China, proposes a "local associational model" to conceptualize the mutual accommodation of local state and civil society actors. And Yang and Calhoun (2007) recently argued that ENGOs together with the media had produced what they call a "green public sphere." All of these models point to the fragmentation of the party-state: in this view, bureaucratic rivalry and conflicts of interest between different administrative tiers and branches create openings for civil society to engage in environmental activism.

Closer to the corporatist line of reasoning are governance perspectives, especially those that can be called state-centered.[2] Such a governance perspective highlights the fact that states can use social organizations to achieve better policy results. In this vein, Jayasuria discusses "the emergence of a new regulatory state, whose function has shifted from direct allocation of social and material goods [including environmental protection] to the more indirect provision of regulatory frameworks." While he acknowledges the "tremendous variation in the relative dependency, origin and purpose of the NGO-state relationship," he contends that there is "a dispersal, not a diminution, of state power," and uses the Chinese case to bolster his claim that "negotiated governance" can in fact create "new forms of relational capacity that reconfigure the state within society" (Jayasuriya 2005: 21, 31). In other words, this view emphasizes the usefulness of state-civil society linkages for the state's side. A similar point is raised by Salmenkari (2008) who hypothesizes that the Chinese party-state is using NGOs in the fashion of its accustomed "mass-line" approach to gather information about society, just as it is making use of "mass organizations" or "democratic parties" under the CCP's united front policy.

Furthermore, Jayasuriya (2005: 22) stresses that "fragmentation is not simply a question of erosion of the central policy capacities of the

state; it is also a reconstitution of new policy capacities and functions within the context of a new regulatory state." Thus, in this state-centered perspective, these processes may even play out to enhance state capacity while at the same time transforming the state itself.

It has to be acknowledged that the differences between the explanations sketched here are not stark. Both "society-centered" and "state-centered" approaches to the study of Chinese NGOs highlight the mutual connections between state and societal actors. Their difference lies primarily in where they place their emphasis. Authors in the first category tend to stress the effect these ties have for social activism, namely, "limiting while enabling" (Ho and Edmonds 2007: 337). Those in the second category rather choose to highlight their impact on the state, that is, effectiveness-enhancing while potentially transformative. Here it will be argued that it is in fact possible to reconcile these perspectives by using Migdal's "state-in-society" approach as a starting point (Migdal 2001).

Developing his "state-in-society" model Migdal argues that states and societies constitute each other and are locked into processes of interaction that continuously transform both. Thus, in this perspective neither is the process ever ending, nor is the question which side is getting the better of the other. Rather, the emphasis is squarely put on interaction itself: it is a process-oriented approach. In Migdal's words, "The need is to break down the undifferentiated concepts of state and society in order to understand how each pulls in multiple directions leading to unanticipated patterns of domination and transformation" (Migdal 2001: 98–99). While the studies on Chinese ENGOs cited above have already moved in that direction—in fact, a recent publication by Sun and Zhao (2008) employed a similar framework—this article attempts to push the analysis one step further by more fully recognizing the fragmentation of *both* state and civil society in China and its effect on their interaction in environmental politics.

Although this social fragmentation is hinted at by both Ho and Lin, their stress is on embeddedness, which brings legitimacy to environmental groups. My contention is that only parts of the social activists become successfully embedded and that even their position may become precarious again if political winds shift. The party-state is still able to segment the environmental movement and prevent certain parts of it from becoming entrenched and legitimized. In brief, while the fragmentation of the state creates opportunities for "embedded social activism," it is at the same time the source of considerable risk for environmental activists. In a generally volatile political setting, the boundaries of the permissible are ill defined, and competing state

actors may suppress even legitimate environmental concerns voiced by social activists. To make this point, the next section begins with analyzing the fragmentation of state and civil society in China, before turning to recent trends in environmental politics.

## The Fragmentation of State and Society

### Environmental Protection Administration in China

It is an often observed fact that breakneck economic development in the reform era starting in the late 1970s has had a huge detrimental impact on the ecology of China, its neighboring states, and last but not the least, the global environment (Smil 2004; Economy 2004, inter alia). Of course, some of China's environmental problems have a much longer history: deforestation, erosion, and desertification all started centuries ago (Elvin 1998). And the Mao era of forced development also took a heavy ecological toll (Shapiro 2001). Nevertheless, it is fair to say that the economic boom of the past three decades exacerbated preexisting ecological conditions to a degree previously unknown and added a number of new problems. No matter where one looks, it is clear that China's environmental situation is deteriorating rapidly as economic growth without due regard to its consequences continues: air, water, and soil increasingly suffer from pollution, while the "traditional" environmental problems like deforestation continue and threaten wildlife habitat and biodiversity.

Without going into detail, suffice it to say that the Chinese government gradually came to accept the need for a more balanced growth model, and not too soon: preliminary calculations of a so-called Green GDP by the State Environmental Protection Agency (SEPA) and the State Statistics Bureau published in September 2006 showed that environmental damages (of 511 billion RMB) wiped out at least three percentage points of China's economic growth (Sternfeld 2006: 27).

State efforts at environmental protection can be dated back to at least 1973, the year of the first national conference on environmental protection, or 1979, when a first (trial) law on environmental protection was issued (Palmer 1998: 790–791). This trial version was superseded by a new, permanent version in 1989, and a host of more specific laws on environmental protection were promulgated especially in the 1990s. China now has a very strict and comprehensive body of environmental protection legislation (Heuser 2001), but problems remain in its administrative enforcement. In 1984, the National

Environmental Protection Agency (NEPA) was formed with equivalent environmental protection bureaus (EPBs) at lower administrative levels, now counting some 2,500 at the municipal and county levels (Tilt 2007: 919). In 1998 during a general downsizing of state bureaucracies, environmental protection bucked the trend: NEPA was elevated to full ministerial rank and is now called SEPA (Jahiel 1998). Again, in March 2008, its profile was raised by renaming it the Ministry of Environmental Protection (*huanjing baohubu*).[3] However, it currently employs only some 300 officials at the national level and a few thousand at lower levels, which is insufficient to successfully address the mounting challenges.

Frequent problems in environmental administration continue: despite a growing density of environmental legislation, polluters are rarely taken to task because enforcement of existing regulations is weak. This is not only due to lack of manpower, resources, and technical expertise on the part of local EPBs. A more important reason can be seen in bureaucratic organization: like other local bureaucracies, EPBs at a given level of the hierarchy are subject to two sometimes competing supervisory organs. One is the vertical (or *tiaotiao*) line of authority emanating from SEPA in Beijing and extending down along the administrative hierarchy to the county level. The second is the horizontal (or *kuaikuai*) authority wielded by the government and party organs at the same administrative level the EPB is situated in. In the case of environmental protection, the vertical superior only has "professional guidance relations" (*yewu zhidao guanxi*) with the subordinate unit. This means it only supervises the technical aspects of the subordinate's work. By contrast, the horizontal superior controls the personnel and financial aspects of the work and can issue binding orders in what is called a "leadership relation" (*lingdao guanxi*). Therefore, local EPBs regularly take local developmental needs into account when implementing environmental regulations (Jahiel 1998; in more detail, Sinkule and Ortolano 1995). In case of a clash between, say, a decision on the site of a new industrial plant and environmental regulations, local EPB officials are likely to neglect environmental protection to please local political leaders. Even if they tried to enforce stricter regulations, local governments can force them to comply because of their control over personnel and finances of the EPB. Thus, enforcement is a perennial problem (Vermeer 1998).

A related point is the weak institutional standing of SEPA. When competing with more powerful ministries for resources and attention of the top leadership, SEPA is at a disadvantage. For instance, the ministries governing water resources and electricity have much more

clout within the Chinese bureaucracy and often neglect proper environmental protection procedures in pushing forward with controversial projects. In these instances, SEPA can only make its presence felt if it succeeds to enlist the support of other bureaucratic actors. A case in point is the so-called Environmental Impact Assessment Tempest (*huanping fengbao*) (Moore and Warren 2006: 11): in January 2005, the outspoken SEPA Vice-Director Pan Yue issued a temporary halt to 30 big construction projects because respective environmental impact assessment (EIA) reports had not been approved before construction started. This was rightly hailed as an "extraordinary and unprecedented move"[4] by SEPA to enforce the 2003 EIA law.

However, the relevant companies failed to comply immediately. The ensuing standoff between SEPA and weighty development companies—including the heretofore unassailable Three Gorges Project Corporation—was only decided in SEPA's favor when the central government's mighty National Development and Reform Commission (NDRC) weighed in. This underscores the potential strength and weakness of such a strategy of institutional alliances: if SEPA manages to build an alliance with other more powerful bureaucratic players it can be successful. Yet it can be argued that in this case, environmental concerns and macroeconomic policies of retrenchment coincided. Of the 30 projects, 26 were energy-generation schemes that the central government was trying to restrict at the time of SEPA's action. Thus, in other instances when economic development plans and environmental concerns fail to coincide, it will be much harder to garner the support of other ministries and commissions. Furthermore, even in this high-profile case, the State Council eventually mediated a face-saving settlement and construction was restarted after EIA reports were approved.

The weakness of SEPA was also revealed in another infamous incident: the chemical spill in the Songhuajiang in November 2005. Following an explosion in a chemical factory in Jilin City, 100 tons of pollutants containing highly toxic (nitro-)benzene were released into the river in Northeast China. Local officials at first tried to cover up the incident and denied any negative environmental impact. However, as the contaminated slick made its way downstream, news could no longer be contained. Harbin, the capital of Heilongjiang Province, had to shut off its water intake from the Songhua River, and massive efforts had to be undertaken to supply its 3 million inhabitants with drinking water. The attempted cover-up and tardy reaction by local governments were severely criticized by the Chinese press and political leadership. In the end, a Vice-Mayor of Jilin City apparently committed

suicide, and the Minister for Environmental Protection was moved to another position for the failure of SEPA to issue a timely warning and provide truthful and reliable information (*China aktuell* 2005).[5] It is doubtful, however, if this measure will improve information flows within the environmental protection bureaucracy, as there remain significant disincentives on reporting environmental disasters built into the system. Also, it is too early to judge whether the elevation of SEPA to become the Ministry of Environmental Protection in March 2008 will have a major impact on its institutional standing.

It is important to bear in mind that none of these problems is unique in the environmental sector: lack of enforcement due to dual authority structures, bureaucratic infighting, and secrecy plague Chinese politics in every policy field. This is why some researchers call China's political system a "fragmented authoritarianism" (Lieberthal 1992). This observation conforms to that of "society-centered" authors, as noted above. But it is directly at odds with an image of the "new regulatory state" advanced by Jayasuria as the dispersal of state power actually seems to result in its diminution. Moreover, the incorporation of societal inputs via institutionalized complaint systems has so far only had mixed and limited results (Lo and Leung 2000; Warwick and Ortolano 2007). It is therefore too early to speak of the emergence of a "new regulatory state" in China's environmental governance.

Rather, the fragmented authoritarianism model seems to provide the more appropriate characterization. Within this context, SEPA is attempting to build bureaucratic alliances with other state actors to enhance its institutional standing and advance its own agenda. But this strategy is not necessarily successful. Therefore, SEPA is also beginning to look for allies outside the realm of the state, thus blurring the line between state and society. This is the political context in which ENGOs evolved. We will now turn to the fragmentation of civil society, which in important respects mirrors the situation of the party-state.

## NGOs in China: Fragments of Civil Society

In China, NGOs are a product of the reform era. They occupy the space between the party-state on the one hand and society at large on the other. Therefore, their emergence was only made possible with the retreat of the party-state from its almost complete dominance over society under Mao. Nevertheless, the party-state still places important constraints on NGOs' organizational independence, pluralism, and growth, which is why a civil society in China is still only in the making.

Over the 1980s, the party-state at first tolerated the largely uncontrolled emergence of NGOs. But after cracking down on the student protest movement of 1989, the central government issued regulations on the proper registration and administration of so-called social organizations (*shehui tuanti*).[6] These regulations required all NGOs to reregister with the administration in charge, the Ministry of Civil Affairs (MoCA). In order to do so, an NGO needs a "sponsor"—a government, party, or other official institution that takes on responsibility for that NGO. The sponsor is called "hang-on unit" (*guakao danwei*) or more colloquially "mother-in-law" (*popo*), because it oversees and controls the actions of the NGO. Thus, organizational independence is circumscribed, although in actual practice the degree of supervision varies considerably (Ma 2005: 64–66, in more detail).

A further hindrance for NGO development is the prohibition to establish more than one social organization with the same purpose in one administrative area. For instance, there can be only one fan club for any one soccer team. This measure restricts organizational pluralism. This can be particularly problematic if a government-organized NGO (see below) is already established and thus occupies a field of action (Yang 2005: 54–55). And finally, NGOs are not allowed to establish branches in other administrative regions than the one they were originally registered in, and this clearly hampers organizational growth. These restrictive methods are attempts to create a state corporatist system of interest representation that helps coopt societal actors into the organizational fold of the party-state. This is the point emphasized by authors proposing a corporatist model to explain NGOs in China as pointed out above.

In spite of these strictures, the party-state's attitude to NGOs has not simply been negative. As it attempts to retreat from more and more social functions it used to provide, the government has come to value social actors stepping in. It now encourages "social forces" (*shehui liliang*) to take over some responsibilities in poverty eradication, education, health, environmental protection, and other areas (Ma Qiusha 2006: 49–61, in detail).

But the party-state remains wary of too much independence on the part of NGOs. This became clear in 1998 when newly revised NGO regulations were issued: instead of relaxing the just described constraints, the new regulations kept them on the books and even created a new hurdle by instituting high capital requirements for the establishment of a new NGO. Currently, a start-up capital of 100,000 RMB is necessary to register a national-level NGO and 30,000 RMB for regional organizations (CIVICUS 2006). Nevertheless, the sector

continued to grow, and at the end of 2005 comprised almost 170,000 social organizations.[7]

In fact, many of those were founded by government initiative, as bureaucratic downsizing required the state to find new employment for former officials. These are commonly referred to as "government-organized NGOs" or GONGOs for short.[8] However, the distinction between GONGOs and "authentic" NGOs is a difficult one. Many GONGOs have been weaned off government support and many NGOs have intimate relations with their "sponsor" unit. As a result, the degree of independence varies from case to case.[9] Moreover, in China's still rather closed political system, strong relations with the party-state are usually seen as necessary to be effective, to "get the message through." Surveys show that many "authentic" NGOs in China crave better relations with government departments (Wexler, Ying, and Young 2006). However, for the sake of simplicity, we will below use the term NGO for "bottom-up" initiatives by societal actors and GONGOs for state-initiated organizations.

Within this general legal and political context, NGOs have been subject to varying "political winds." Encouraging signs and bad omens for NGO development alternate or even appear at the very same time—a clear manifestation of the fragmented nature of the Chinese polity and the ambivalent attitude toward NGOs adopted by the party-state. Corporatist as well as civil society approaches each capture different aspects of this ambiguous state-society relationship, yet both fail to grasp its complexity and linkages between actors of both realms. This will become particularly clear when looking at ENGOs.

## DEVELOPMENT OF ENVIRONMENTAL NGOS IN CHINA

### Growth of the Sector

The first ENGOs were started in the mid-1990s by prominent and dynamic founders who to this day continue to shape the development of these organizations. The first to be officially recognized in early 1994 was Liang Congjie's Friends of Nature (*ziran zhi you*) (CEDR 2001). Liang Congjie himself is a well-respected professor of history (now retired) and member of the Chinese People's Political Consultative Conference. His father Liang Sicheng was a renowned architect, and more crucially, his grandfather was the late-Qing, early-Republic reformer, journalist, and politician Liang Qichao. His lineage awarded Liang Congjie with a special status and an easy access to higher political

circles. Thus, Liang Congjie can certainly be said to be an "embedded activist," to use Ho's concept. His organization is formally registered and sponsored by the Chinese Academy of Culture (*Zhongguo wenhua shuyuan*) (hence its official name Green Culture Sub-Academy). Friends of Nature is mainly devoted to nature conservation, but has in recent years ventured into the more contested domains of pollution control and dam projects. However, its approach has been to cooperate with government whenever possible in order not to antagonize state officials and to gain wider appeal to the public.

A similar outlook has been adopted by Liao Xiaoyi (Sheri Liao), the U.S.-trained founder of Global Village Beijing (*Beijing diqiucun*). Her NGO is almost exclusively engaged in environmental education and propagating a "green lifestyle," most importantly through a regular TV show (on these two in more detail, Klein 2004; Economy 2004). Environmental education is directed at the public in general or at particular groups (like schoolchildren), and does not entail any criticism of state policies or individual state agencies. From the point of view of the party-state, it is "nonthreatening" and even supportive of national policy. Therefore, it is the most welcome contribution NGOs can make to the environmental efforts of the state. In contrast to "Friends of Nature," "Global Village Beijing" has been registered not as a social organization but as a "non-profit enterprise." This kind of registration is much easier to obtain, yet it means that taxes have to be paid (on donations received). And it also means that it is not as deeply embedded in the party-state.

These two organizations can be characterized as the "first generation" of ENGOs in China. In the meantime, their number has risen significantly to more than 1,600 officially registered ENGOs in 2001 and 2,768 in 2005 (CEDR 2001: 322; Lin 2007: 155). On top of this, there are probably another 2,000 unregistered ones (likely including those registered as "non-profits").[10] While Ho interprets this large number of unregistered NGOs as a failure of state controls (Ho 2001: 914), the complicated registration process detailed above is at least successful in marginalizing a large segment of an incipient environmental movement and denying it legitimacy. It is thus contributing to the fragmentation of civil society.

In general, both officially registered and unrecognized organizations can be characterized as such: their activists usually are well educated, and many have a background in the media like Dai Qing or Wen Bo (on media-ENGO relations, Yang 2005: 55–56). Wen is of a younger generation but Dai Qing stands out as a well-known journalist and early environmental activist. She even earned international reputation

for her critique of the environmental impact of the controversial Three Gorges Dam in the 1980s. Briefly in jail for her alleged role in the Tiananmen protest movement of 1989, she was released probably because of her family ties with Marshal Ye Jianying, an important figure in the communist revolution and the People's Liberation Army (PLA) (Ho 2001: 900).

As with Liang Congjie, such personal ties with the party-state provide a kind of embeddedness for environmental activists. In fact, the same can be said with respect to Pan Yue. Himself a former journalist, he is also son-in-law of PLA general Liu Huaqing, former Vice-Head of the powerful Central Military Commission. As mentioned above, in 2003 Pan became SEPA Vice-Director and ever since has been outspoken in press interviews over China's environmental problems. He is also actively fostering emerging linkages between his agency and environmental groups in civil society, which will be discussed below (Sun and Zhao 2008: 157).[11] Therefore, with some justification Pan could be called "the best embedded environmental activist" in China.

Quite a few of these activists earned higher education degrees or received training in the United States and other Western countries. A large number of ENGOs was founded as student groups in Chinese universities. Although most ENGOs are still based in Beijing, numerous regional NGOs have also sprung up. Some of these were founded by members of the Beijing-based groups like Friends of Nature, and others received training or even financial help in the form of grants from those in the capital. An example for this is Green River Network, set up by Yang Xin in Sichuan to protect the upper reaches of the Yangzi River (Economy 2004: 156–157; Cooper 2006: 125). Thus, the prohibition on setting up branches in the provinces has been to some extent circumvented. This also compromised efforts to create a tight state corporatist system of control.

## Broadening of ENGO Activities

Environmental education is a field of activity in which relations between ENGOs and the party-state can be expected to be mostly unproblematic or even symbiotic. Over the 1990s, the Chinese party-state increasingly recognized the positive role that ENGOs could play in environmental politics, but also delineated the limits of proper participation. ENGOs and individual activists for most part accepted these limitations and accommodated themselves with this state-assigned role (Qing and Vermeer 1999). However, more recently activists also entered more contested domains. This section and the

next two provide an overview of this shifting focus and strategies while also analyzing the consequences for state-society relations.

To be sure, environmental education remains a major pursuit of ENGOs in China followed closely by nature conservation and biodiversity protection. These can be seen as less controversial activities and include absolutely nonthreatening activities such as bird-watching or collecting garbage in nature reserves. Even where more assertive activities are applied, they usually criticize not the government per se but for instance illegal logging in forests far away from the capital.

An example for this is the fight for the habitat of the snub-nosed monkey in the Yunnan-Tibet border region of Southwest China led by nature photographer Xi Zhinong over the 1990s. However, even this kind of activity can become politically charged. In 1998 long after logging in this area had been officially banned, Xi Zhinong went undercover to shoot a documentary showing the continuing deforestation. This is tantamount to criticizing the failure of government policy and means treading more dangerous terrain. Because the ones being singled out for criticism were local officials failing to implement central policy, this kind of investigative reporting has mostly been tolerated. In fact, from the point of view of the central government, this kind of additional check on its local agents should in principle be welcome. It helps to mitigate the above mentioned problem of lax enforcement of national policies. In this case, Premier Zhu Rongji came to the fore and forced local officials to undergo self-criticism (Sun and Zhao 2008: 148). However, this central state support and tolerance for investigative reporting is never guaranteed and its borders are illdefined. In the case of Xi Zhinong, despite the success of his campaign against logging, he lost his job in the Yunnan Forestry Bureau and even received death threats (Economy 2004: 151).

Government officials remain suspicious about environmental groups, especially the more combative ones. Another dramatic episode highlights this. From the mid- to late-1990s, a group called "Wild Yak Brigade" fought for the Tibetan antelope in Qinghai and against poachers hunting it for its fur. However, the group's first head (Gisang Sonam Dorje) was killed by poachers in 1994 and his successor and brother-in-law (Zhawa Dorje) died of a gunshot wound in 1998 at his home. Although this was said to be a suicide, circumstances were suspicious. This campaign received widespread support from other environmental activists (like Xi Zhinong and journalist Hu Kanping of Green Times) and NGOs (FoN, Yang Xin's Green River Network). This alliance of groups and individuals alerted the public and the political leadership to the issue. However, in 1999 the government

of Yushu Prefecture began to move against the group, and in 2001 succeeded in having it disbanded. It remains to be seen whether the now established state ranger team will be effective in its fight against illegal hunting of the endangered species (Economy 2004: 153–156). But the episode shows clearly that chances for "survival" of combative environmental groups are slim even when they pursue the enforcement of official policies.

That this situation has not significantly improved until recently is demonstrated by another case.[12] Former salesman Wu Lihong led a ten-year crusade against pollution of the Taihu, China's third largest fresh-water lake. His activism is similar to what O'Brien and Li (2006) called "rightful resistance." Collecting evidence of polluting chemical plants in his hometown Yixing himself, Wu attempted to raise the alarm on the lake's deteriorating water quality by using the media. He met with some success as well as with resistance. Over time he and his wife both lost their jobs, but in 2005 he was honored by the National People's Congress as an "environmental warrior." However, he continued to step on important people's toes and failed to become embedded in local politics.

Things came to a head when SEPA in 2006 decided to confer Yixing the laudatory designation of "model city for environmental protection." This decision was apparently based on the city's self-reported success in environmental protection in spite of ongoing pollution by local chemical factories. Enraged by this news, Wu Lihong started a drive to collect water samples and photographic evidence that he planned to use in a lawsuit against SEPA's decision. Instead, he ended up in court himself faced with trumped-up charges of fraud. Although he claimed that his confession to these charges was extracted under torture, the court sentenced him to three years in prison in August 2007. Ironically, a month after his arrest in April 2007, Taihu had a bloom of toxic algae as if to prove him innocent. But although the central and provincial political leadership reacted and moved to clean up the lake more forcefully, this did not help Wu's case. His example is a reminder that environmental activists in China act in a volatile political setting characterized as much by fragmentation as by embeddedness.

Such a political environment defies easy generalizations because outcomes of state-society interactions are highly contingent on concrete circumstances. Thus, Sun and Zhao are certainly correct in their assessment that the central government is increasingly encouraging ENGOs, while "the relationship between local governments and ENGOs is often antagonistic" (Sun and Zhao 2008: 150). But even such a statement

requires qualification. Cooper's fieldwork in Southwest China demonstrated that grassroots ENGOs can at times be successful in embedding themselves within the *local* state. Even so, mutual suspicions and ambivalence remain central features of the "local associational model" she proposes (Cooper 2006).

## Increased NGO Cooperation

There are, however, also more positive tendencies in ENGO development: a trend for increasing cooperation between ENGOs to overcome their fragmentation. Two prominent examples may suffice here. When the central leadership in late 1999 embarked on an ambitious program to vitalize its less developed Western regions (*xibu da kaifa*), many environmentalists feared that the massive investments would have negative repercussions on the area's many fragile ecosystems. Therefore, some prominent members of the community, like Liang Congjie, and some ENGOs wrote an open letter to the State Council urging it to include SEPA in the leading group for the campaign. Their effort succeeded (Economy 2004: 148). This goes to show that SEPA can benefit from NGO lobbying, as in this case it helped to raise its profile. The above described problem of SEPA's institutional weakness vis-à-vis other institutional actors can thus be mitigated, at least to some degree. The emerging SEPA-NGO alliance will be dealt with below.

Second, NGOs also begin to join forces to reach a broader public in their campaigns: in the so-called 26 degree campaign in summer 2004, about 30 Beijing-based NGOs built an alliance to convince major hotels and government agencies to keep their air conditioning set at 26 degree Celsius to save energy.[13] After much media attention, this idea was adopted by Beijing's municipal government: it issued a regulation that air conditioning systems in public buildings be raised to 26 degrees (Lehrack 2006: 19). This successful campaign was later picked up by NGO alliances in several other Chinese cities. In the event, this demonstrated the potential that rests in such broader cooperation that is tolerated by the state as long as it avoids sensitive political issues and is conducted in a nonconfrontational way.[14]

## More Widespread Use of the Law

Another recent development that is very promising is the growing use of the law to challenge polluters and projects with the potential to harm the environment. In this effort, ENGOs use legal instruments

created by the central state to challenge polluters who sometimes collude with local governments. As can easily be imagined, this is an area that is much less secure for activists to enter. The most important NGO in this field is the Center for Legal Assistance to Pollution Victims (CLAPV). It was established in 1998 by Wang Canfa, a professor for law at the China University for Politics and Law in Beijing. It already offered legal advice via its hotline to thousands of concerned citizens. CLAPV also takes on cases with good chances of success and high expected demonstration effects. For this purpose Wang Canfa is pushing the limits by organizing class action suits that involve hundreds and sometimes thousands of plaintiffs.

In one prominent case he sued a single petrochemical factory in Yanbian County, Panzhihua Municipality, Sichuan Province on behalf of 6,000 claimants for its alleged air pollution. Probably because he can pick the most promising cases from a huge selection, Wang has had considerable success. Up to 2006, he won favorable settlements in 31 out of 74 cases (Kezhu and Wang 2006: 103–104). To broaden its impact, CLAPV has also begun to link up with grassroots NGOs. A recent example is the lawsuit of Pingnan Green Association, a bottom-up NGO founded by affected villagers to fight against a highly polluting chemical plant in their village in Fujian. Despite clear evidence of serious health impacts of the factory's waste and sewage on local residents, the local government tried to stop villagers from mounting a legal challenge. Police violently confiscated the more than 10,000 RMB collected by villagers to finance the lawsuit. Then, CLAPV stepped in and provided a lawyer free of charge. In April 2005, a lower-level court decided in favor of the residents. But unsatisfied with the low amount of damages granted, about 1,700 villagers decided to appeal for higher compensation and won again at the provincial level.[15]

This kind of legal action is a relatively new and risky strategy to push for environmental protection, but it certainly bears great potential because the number of affected people is so large (Pitkin 2006: 142–143). However, the party-state is ambiguous toward this kind of activism, and legal practitioners have come under greater pressure lately. For instance, in May 2006, the All-China Lawyer Association issued controversial guidelines "for sensitive cases involving 'mass litigation.'" According to the guidelines, lawyers have to gain the support of at least three partners in their law firm before accepting a case with ten or more plaintiffs. They have to communicate "promptly and fully" to legal departments the content of the case, to accept the "supervision and guidance" of justice departments and bar

associations, and are not to counsel their clients to engage in petitioning (Moore and Warren 2006: 13). This shows that environmental activism in the legal realm is only tolerated by the party-state up to a certain point.

Nevertheless, from the point of view of the party-state, legal action is still more desirable than protests or rioting—the only other major avenue open to pollution victims. Cases in which residents sometimes violently protest against polluting factories in their communities have provoked very tense reactions by local and national governments (South China Morning Post 2008a). This concern is very real and protests are becoming more common: according to an interview with SEPA Director Zhou Shengxian, environmental protests numbered 51,000 in 2005 (Ma and Schmitt 2008: 97). These protests are also becoming more sophisticated. A recent incident occurred in Xiamen: in May and June 2007, text messages were widely distributed via cell phones to mobilize thousands of people to protest against a chemical plant scheduled to be built in a residential suburb of the coastal city. Police were unable to stop the demonstration, but kept a close watch. Videos from the protests were posted on the Website Youtube and attracted worldwide attention. They showed peaceful demonstrators shouting slogans like "Serve the people!" (*wei renmin fuwu!*). (See Chapter 7 below for a detailed account of this episode in Xiamen and the role of new communications media—cell phones—in Chinese public protests.)

In the event, the city retracted the plan and the chemical factory is now rumored to be built in another part of the province.[16] This quick compromise shows that environmental protest movements, even spontaneous and not embedded in nature, can be successful. This appears to be especially true when these occur in urban centers in coastal provinces where the party-state is more sensitive to accommodating the interests of the newly rising middle class. This is underlined by another recent protest in Shanghai in late 2007. Residents protested against the extension of the magnetic levitation train because of their concern over electric radiation emitted from the track. Again, the plan was put on (temporary) halt (Savadore 2007; *South China Morning Post* 2008b). However, rural protesters as well as those in urban centers in the hinterland have been less successful lately.[17]

## Public Participation in Environmental Impact Assessment

In part to prevent such protests from happening, the Chinese government is trying to increase "public participation" (*gongzhong canyu*)

in EIA. The EIA law passed in 2002 provides that the public is to be consulted in construction projects or "special plans" with potential major environmental impact.[18] Consultation may take the form of hearings, but more commonly, public surveys of sometimes dubious quality are used. Nonetheless, a few prominent cases in which these new measures have been applied show their potential impact and the role ENGOs may play in the process.

In one case residents of the Northwest-Beijing community of Beiwangjiayuan mobilized against construction of high-voltage electric towers through their community. They feared the health impact of electric radiation emitted from the wires. It is quite telling that SEPA had to force the local Beijing EPB to comply with the residents' demand to hold a public hearing in August 2004. This is a clear indication that SEPA is itself forging an alliance with civil society actors. The process of the hearing was judged to be quite fair, although speakers were preselected. Ultimately, the residents' demands were rejected.[19] Nevertheless, the hearing provided an outlet for citizens' concerns and acted as a safety valve. Experience in other cases shows that this kind of community-based resistance usually gives rise only to short-lived grassroots NGOs. But if their demands are ignored, these NGOs or certain opinion leaders within them may be radicalized, and take to more extreme actions. It is in this sense that public participation in EIA already serves a political purpose. And through their participation ENGOs may help the party-state to maintain social harmony.

A second well-publicized hearing was held on another Beijing construction project: the park administration of the Old Summer Palace (*yuanmingyuan*) was lining its famous lakes with plastic and cement to prevent drainage. In March 2005, a visiting professor from Lanzhou raised the alarm about the permanent ecological damage of this project, and this time environmental bureaus acted swiftly. In April, SEPA announced a public hearing and then selected 73 representatives from among 200 applicants. Crucially, SEPA set a new standard by including NGOs—Friends of Nature and Global Village Beijing—as recognized representatives for "the public interest." In this case the hearing resulted in a modified project plan taking ecological concerns into account.[20]

While the Summer Palace case recognized ENGOs as representatives of the "public interests" in EIA hearings, the Nujiang Dam case demonstrated that Beijing-based NGOs can have an impact on ecological issues in the hinterland if they link up and build alliances with local NGOs and the media (Litzinger 2007). The Nujiang is one of

the last wild flowing rivers of China in the border region of Yunnan. Since 2004, it is also listed as part of a World Cultural Heritage site by UNESCO. However, that same year the provincial government began planning a series of no less than 13 dams to tap the river's hydropower potential. This effort was a collaboration of the provincial government with China Huadian Corporation, a powerful hydroelectric company headed by Li Xiaopeng, son of former Premier Li Peng who had himself been a major advocate of the Three Gorges Dam. The project galvanized NGOs into action because it involved many sensitive issues: ecological destruction, resettlement, and poor ethnic groups living in the areas to be flooded. It also created a more explicit alliance between SEPA and the ENGO community (Sun and Zhao 2008: 151–160).

An NGO alliance headed by Green Earth Volunteers[21] and Friends of Nature organized an open letter ultimately signed by hundreds of individuals and NGOs and created media attention on the issue. Apart from petitions to the central leadership, they organized inspection tours of the region, public university lectures on the topic, and even linked up with international antidam organizations. The public pressure resulted in Premier Wen Jiabao's order in early 2005 to stop planning activities amid concerns that social stability may be in danger. However, despite the positive echo for this move, the fight is far from over. NGOs failed to get the EIA report of the project published: only the provincial EPB's document of approval concerning the EIA report was released, while the report itself was kept under wraps as a "state secret" (Moore and Warren 2006: 15; Birnbaum and Xiubo 2006: 190). Furthermore, planning was continued for a smaller version with only four dams later that year. Geological surveys were undertaken, but a final decision is apparently still pending. National as well as international ENGOs continue to push for more transparency in the planning process and a stop to the dam project, but so far with little success.[22]

Even as a limited success, the Nujiang case is remarkable. It can be seen as a fight between two competing state-society coalitions that demonstrates the importance of both fragmentation and embeddedness to understand environmental politics. As Sun and Zhao point out, on the one side SEPA aligned with ENGOs and the media, while on the other side the provincial government and business interests forged an alliance with some outspoken intellectuals and critics of the environmental movement. While mainstream media were mostly in favor of environmental concerns, the dam proponents used similar methods as did its opponents, such as public lectures and petitions, and questioned the ENGOs' moral high ground over the Internet.

Thus, rifts emerged not only within the state—between conservationists at SEPA and more business-friendly officials at the provincial and national level—but also within civil society (Sun and Zhao 2008: 154–155). What is more, in the moment of apparent success, after the premier's order of a temporary halt to planning, friction arose immediately inside the antidam coalition, as media professionals and environmental activists started debating who had contributed more to this victory (Litzinger 2007: 291). Thus, China's civil society itself is less than harmonious.

The Nujiang case also shows that there is still a long way to go to create effective instruments for public participation in EIA. Another step in this direction has been taken by SEPA in 2006 when it first consulted with NGOs and then released slightly more detailed "Provisional Measures for Public Participation in Environmental Impact Assessment."[23] These measures recognize NGOs as stakeholders with a right to participate in EIA. Furthermore, the "Trial Measures on Environmental Information Disclosure"[24] issued by SEPA in February 2007 and taking effect in May 2008 provide another basis for NGOs and individuals to request more openness on environmental issues. Yet again these measures include provisions on the protection of "state secrets," a term that lends itself to wide interpretation. So it remains to be seen how effective these new legal instruments will be in practice. But it is crucial to recognize that SEPA is actively seeking to accommodate civil society actors in this legal sense, too. As noted above, this transforms ENGOs into supporters of a government agency and assigns them a role in mediating social conflicts in the interest of the party-state.

## International Influences

Before concluding it is necessary to take a closer look at international influences on the development of ENGOs in China. It is obvious that ideas and experiences of international environmental movements have had an impact on ENGOs in China, as some founders are educated in the West and most borrowed from international intellectual debates on ecological problems. A more direct source of influence has been the financial help for budding Chinese NGOs offered through official development aid and international NGOs (INGOs) and foundations. Almost every international donor active in China has some program or project to build up the Chinese civil society and some—like the Ford Foundation—are particularly active in this regard.

INGOs have the largest impact on Chinese NGOs through financial grants and technical trainings they provide. Reportedly, a majority of Chinese ENGOs depend on foreign sources for the bulk of their funding (Yang 2005: 57–58; Thompson and Lu, 2006: 30). Examples for training activities are too numerous to be listed here, but include for instance capacity-building measures to facilitate NGO growth and cooperation. Another important example would be the American Bar Association's training courses for EIA practitioners (officials as well as NGOs).

But receiving international aid is a double-edged sword for local NGOs for several reasons. First, there are some complaints on the part of Chinese NGOs that international donors are trying to impose their own agendas on them (as well as complaints by international donors that Chinese NGOs are promising more than they can actually deliver). Second, and more serious, however, is that the Chinese government sees international involvement in China's NGO scene as a potential threat. This means that establishing transnational ties could put the embeddedness of Chinese ENGOs at risk. Particularly after the so-called color-revolutions of Ukraine, Georgia, and Kyrgyzstan (2003–2005) in which foreign-funded NGOs allegedly played a role, the Chinese party-state once again attempted to strengthen its control over the sector (Shambaugh 2008: 91). ENGOs came in for particularly close scrutiny as the Nujiang campaign had stirred "deep suspicions among CCP officials" (Lin 2007: 172). In summer of 2005, an official survey of ENGOs examined their work and tried to uncover unregistered groups. In the wake of this exercise the government created a new umbrella body—the All-China Environment Federation (*Zhonghua huanbao lianhehui*)—and required all GONGOs working in environmental protection to join. Against the political background, this was seen as a move to limit the space for independent NGO activity (Moore and Warren 2006: 13; Thompson and Lu 2006: 29–30; and CECC 2007).

More recently, in September 2007, in another ominous sign, the editor of the Newsletter *China Development Brief*, Nick Young, who had been living and publishing in China for more than ten years has been denied entry back into the country. His periodical was closed down after the Chinese sister-publication conducted an opinion survey allegedly in violation of China's Statistics Law.[25] Ironically, Nick Young has been a moderating voice in the sector, always cautioning donors not to push China's NGOs beyond a critical point. Since he had been asked several times by government agencies to act as their consultant,

he seemed to be well embedded within the party-state.[26] Therefore, shutting down his publication and refusing reentry to China came as a surprise to most observers. In short, the current political climate is definitively quite hostile to international involvement in China's NGO scene. Although this recent cooling attitude of the party-state toward NGO activism may only be part of a political cycle and of passing nature, it once again underlines the dangers for civil society organizations inherent in their insecure political environment as the party-state can swiftly curtail their freedom of action once it feels threatened.

## CONCLUSION

Environmental activism in China has evolved tremendously compared to its moderate beginnings in the 1980s and 1990s, and it provides a useful lens through which to view the larger issue of changing state-society relations. Instead of addressing the question of autonomy of civil society organizations that had been at the heart of the "civil society" versus "state corporatism" debate, more recent approaches to studying ENGOs in China have highlighted the effects of mutual linkages between state and societal actors. On the one hand, authors adopting a more society-centered perspective stressed the embeddedness of social activists, which had a limiting but also enabling impact on civil society (Ho 2007; Ho and Edmonds 2007; Cooper 2006). On the other hand, authors in the statist paradigm emphasized the potential usefulness of these ties for the purposes of creating a "new regulatory state" with enhanced capacities (Jayasuria 2005; Salmenkari 2008). However, while in theory there is much to recommend such a perspective, especially in environmental politics, the implementation gap in China is so glaring that the latter approach is far from convincing (on this approach in general, Pearson 2005; Alpermann 2007).

Instead, the discussion above showed that environmental activism developed in a context of a fragmented authoritarian political system that provided openings for the emergence of civil society organizations. But at the same time, this political setting is still unpredictable even for those who managed to become embedded to a certain degree. Thus, Cooper finds "[o]rganizations that have successfully negotiated the registration process report existing in a state of persistent fear of government intervention, seizure and in some cases even arrest, despite having secured legal status and with it, a higher degree of legitimacy" (Cooper 2006: 133). Moreover, these recognized organizations are only a fraction of the whole environmental movement. Other parts of a fledgling environmental movement such as individual advocates,

unregistered environmental groups or even spontaneous protests have to be taken into account as well. Under conditions of a fragmented authoritarian party-state these diverse actors possess very few mutual linkages. Even established ENGOs have only recently and tentatively begun to form closer ties. Therefore, the image of a fragmented state has to be complemented with one of a fragmented civil society (see also Lin 2007: 158).

These perspectives can be reconciled using Joel Migdal's "state-in-society" model that places the interaction between actors of both realms at the center of analysis. As he points out, the fragmentation of state and society are mutually reinforcing as states and societies shape one another (Migdal 2001: 92–93). Crucially, for Migdal "the interaction of states and other social formations is a continuing process of transformation. States are not fixed entities, nor are societies [ . . . ]. They are constantly *becoming*" (Migdal 2001: 57, emphasis in original). Such a process-oriented approach is well suited to analyze the mutual accommodation of state and social forces in China's environmental politics. The state itself is pulled into different directions, and while parts of it form ties with one section of society, other state actors join forces with different societal actors. Such a perspective illuminates the struggle over the Nujiang dams between a coalition of SEPA, ENGOs, and the media on one side and an alliance of central and provincial politicians with business interest and some intellectuals on the other.

It also sheds new light on accommodation of ENGOs in some localities observed by Cooper because outcomes in this "state-in-society" perspective are highly contingent. As seen above, even personal connections and family ties of certain activist individuals may change the nature of state-society interaction and its outcomes. Therefore, the lack of embeddedness of such environmental activists as Wu Lihong is not a direct contradiction of "embedded activism" in other places. Rather, it is part of a "web of unexpected state-society relations" resulting from accommodation and capture of the state at the local level (Migdal 2001: 88–89). While in one local political setting state forces may align (more or less uneasily) with environmental activists, in another locality the dominance of business interests may lead to their capture of the state and thus to a suppression of environmental grievances.

Therefore, this chapter proposes to take "embedded social activism" observed by some authors with a grain of salt. First of all, far from all environmental activism is successfully embedded. Second, fragmentation of state and society is the flip side of this embeddedness, and this fragmentation creates as much space for the accommodation of environmental interests as it does for that of countervailing

and potentially more powerful social forces. And third, transformation of state and society works in both directions. Viewed in this light, Yang's claim that "Chinese environmental NGOs may function as both *sites* and *agents* of political change" needs to be reassessed (Yang 2005: 64–65, emphasis in original). It may well be that the emerging SEPA-ENGO alliance will help to alter the course of environmental politics in China. But sure enough, Chinese ENGOs will be transformed during the process as well and may become coopted into the system instead of pushing for its democratization.

Looking at NGOs under this democratization perspective—as did much of the literature on the rise of civil society in China—probably means expecting too much. Recent strictures show that in spite of some positive developments delineated above, the general situation of NGOs in China remains volatile and their room for maneuvering can be restricted very quickly once the party-state feels under threat. ENGOs and activist individuals are in constant danger of miscalculating the boundaries of permissible behavior as the party-state with its fragmented nature sends ambivalent and contradictory signals. The future development of the NGO sector can therefore not be taken for granted. ENGOs in China will have to continue on this uncertain trajectory, gradually pushing the limits and bracing themselves for inevitable setbacks.

## NOTES

* An earlier version of this paper has been presented to different audiences at Wuerzburg University, Heidelberg University, and the University of Cologne. I am particularly grateful for helpful comments by Christian Göbel on a previous draft.

1. Good overviews of this debate are provided by Elizabeth J. Perry (1994) and Ding Yijiang (1998).
2. There is, of course, a wide range of governance theories from the extreme societal model to étatist and state-centric models. The perspective discussed here falls in the latter category. For an overview see Pierre and Peters (2005), Chapter 2.
3. Since most of this chapter deals with the time before the renaming, the previously common abbreviation SEPA will be used throughout.
4. Patricia Adams in CECC 2005.
5. Press reports at the time that SEPA Director Xie Zhenhua had to "step down" were not entirely correct: Xie was replaced by Zhou Shengxian, formerly head of State Forestry Bureau. But he rather "stepped sideways" to become Vice-Director of the National Development and Reform Commission and still is in charge of environmental affairs. See http://chinavitae.com/biography/Xie_Zhenhua/career (accessed November 2, 2008).
6. Two other often-used terms have a somewhat broader meaning: "civic organizations" (*minjian zuzhi*) and "non-profit organizations" (*fei-yingli zuzhi*).

Chinese also use the direct translation for NGO "*fei-zhengfu zuzhi*" or simply the English acronym itself.

7. There were 168,000 (membership-based) social organizations, 146,000 civilian nonprofit units (like private schools or hospitals), 999 (fund-based) foundations (CIVICUS 2006: 7). However, Elizabeth C. Economy (2004: 132) gives a higher number of 230,000 registered and as many as 2 million unregistered NGOs for 2002. And other sources give the current (2007) number with 350,000 "according to official figures" (CSM 2007).
8. Examples in the environmental sector include China Environmental Protection Foundation (since 1993, formerly headed by ex-NEPA Director Qu Geping), China Association for Environmental Industry, Chinese Society for Environmental Science, Forum for Environmental Journalists, China Environmental Culture Promotion Society, and China Environmental Protection Fund (Klein 2004).
9. Cooper (2006: 121) therefore introduces a category she calls "semi-Gongo." Also see Ho 2001: 911–913.
10. This estimate is based on Elizabeth Economy's statement in CECC 2005.
11. On Pan's early political activism, see Fewsmith 2001: 98–99.
12. The following account is based on Kahn 2007.
13. It is noteworthy that a former GONGO, the China Network on NGO Development (CANGO), was instrumental in bringing about this cooperation. On CANGO see Lehrack 2006: 19.
14. A third example for increased networking and cooperation would be the "Green Student Environmental Association Network" (www.gsean.org). It epitomizes the trend among (relatively volatile) student groups to evolve into "regional youth environmental organizations." See Haoliang 2006: 105–111.
15. Compensation is still quite low at about 50 USD per capita (85,000 USD in total). But perhaps more crucially the environmental treatment facilities of the plant have been upgraded and improved significantly. http://www.pacificenvironment.org/article.php?id=1742 (accessed December 31, 2007). Apart from CLAPV, help also came from abroad in the form of a grant by the Global Greengrants Fund; http://www.greengrants.org/grantstories.php?news_id=86 (accessed January 1, 2008).
16. The Taiwan-invested plant will produce PX (paraxylene), probably in Zhangzhou. http://chinadigitaltimes.net/tag/Xiamen+PX (accessed December 30, 2007). Comments on the planning review ordered by SEPA and carried out in Xiamen: http://www.chinadialogue.net/article/show/single/en/1564-Planning-failure-in-Xiamen (accessed December 31, 2007). Reportedly, a public hearing was held before the government decision; see Savadove 2007.
17. A protest in Chengdu, provincial capital of Sichuan, mimicking the one in Xiamen has recently been quickly suppressed; see South China Morning Post 2008a. Also, rural environmental protests that sometimes turn violent have been less successful; on one recent case in Zhejiang province, see Tatlow 2006. Also see Jun 2000.
18. Law on Environmental Impact Assessment (*huanjing yingxiang pinggu fa*) in force since September 1, 2003. Another important legal basis is the Administrative License Law (*xingzheng xuke fa*) issued in 2004. On EIA and the cases below, see Moore and Warren 2006 and Beach, Bleish, and Yang 2006.
19. The echo in the media was also very positive, but the local EPB, and after an appeal SEPA, both rejected the residents' concerns and ordered the

construction to continue. Most likely, this was also a political decision as three-quarters of the project were already finished by the time of the hearing.

20. The process was flawed in one respect, however: maybe a bit over-eager, SEPA had conducted the hearing *prior* to the EIA report and failed to hold another one after the report was completed, as is prescribed by the EIA law (Moore and Warren 2006: 10).
21. On this group founded by influential Chinese reporter Wang Yongchen, see Qing and Vermeer 1999: 149–150.
22. In 2006, UNESCO even threatened to take the site off its World Cultural Heritage list; see Toy 2006. On (lack of) local participation, see also Jianqiang 2007. On the other hand, a broad campaign to stop the Yangliuhu Dam in Sichuan was successful. Plans for this dam drew fire from various quarters because of the damage it would have inflicted on the 2,200-years-old Dujiangyan irrigation system—a World Cultural Heritage site since 2001 (Birnbaum and Yu, 2006: 189).
23. Issued February 2006; see Buckley 2006.
24. Environmental Information Disclosure Measures (*huanjing xinxi gongkai banfa*) issued February 2007, in force from May 5, 2008. http://www.zhb.gov.cn/info/gw/juling/200704/t20070420_102967.htm (accessed December 28, 2007)
25. See two "messages from the editor" dated July 12, 2007, and October 10, 2007 respectively at http://www.chinadevelopmentbrief.com/node/508 (last accessed: November 15, 2008).
26. For instance, see the report on NGO advocacy in China he coauthored (Wexler, Xu, and Young 2006: 39); or his "Personal Press Statement" (Young 2007).

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# Chapter 6

# Responding to Climate Disaster: The Cosmopolitan Challenge to China

*Paul G. Harris*

*China's affluent class today regard driving a gas guzzler as a badge of honor. . . . In today's China, conspicuous and ostentatious consumption is unrestrained by an appropriate sense of moral and social decorum*

*(Lo 2008)*

The 1992 Framework Convention on Climate Change aims for "stabilization of greenhouse gas [GHG] concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC 1992: Article 2). To achieve this objective, governments have agreed that climate change is a *common but differentiated responsibility:* all countries are responsible for doing something about climate change, but the affluent ones, which are the largest historical polluters of the atmosphere, are obligated to act first to reduce their emissions of GHGs before the developing countries are required to limit theirs. Diplomats heeded recommendations of philosophers and experts on international cooperation who saw international justice as essential to an effective and fair climate change regime. Some governments have started to act on their obligations, as reflected in recent efforts by some European states to limit their GHG emissions (Harris 2006; 2007b). However,

these efforts have been tiny compared to what is required. Nearly every day we are confronted with news about the increasing impacts of global climate change. By any reasonable measure, anthropogenic interference with the atmospheric commons is already dangerous, contributing to environmental damage and human suffering, especially in the poorest parts of the world (IPCC 2007). In short, the climate change regime has failed (Harris 2007a). The arguments for international (i.e., inter*state*) justice that have permeated the climate change regime have been insufficient to prevent this failure. This may be a consequence of the regime's diversion of all responsibility to states, consequently ignoring consumption and pollution by affluent *people*, including those in the developing world whose governments have no obligation to limit nationwide pollution (often rightly from perspectives of international justice, if not environmental necessity).

The bulk of literature on justice and climate change, and nearly all international legal instruments on climate change, speak of obligations of *states* to limit their emissions of GHGs, or to act in ways to mitigate the effects of these emissions, and to assist poorer states to help them develop in less polluting ways. There is much less discussion about the obligations of *individuals.* Increasingly, however, individuals matter: more and more of them who are not now subject to any climate-related obligations are able to afford lifestyles that lead to GHG emissions and more climate change. This is especially true given the very rapid increase in the numbers of affluent people in the developing world, most prominently in China and India, where hundreds of millions of people can now consume at levels unimagined even a decade or two ago.

Bearing this in mind, this chapter explores the role of individuals, and particularly of "new consumers" (Myers and Kent 2004) in the context of climate change.[1] It examines the climate change regime from the perspective of cosmopolitan or *global* justice. The chapter attempts to do what Molly Cochran (1999: 21) says that cosmopolitans do: "seek to interrogate and complicate the value conferred upon sovereign states in the contemporary international system, since cosmopolitans take individuals, not states, to be the starting point for moral consideration." Global justice can locate more of the obligation to act on climate change, and to aid those people who are suffering from it, and especially those who will suffer from it in the future, in affluent *individuals* in both affluent *and* poor states.

It is well established that states have obligations to implement climate justice among themselves. We can take this as given (despite much disagreement on the precise content of these obligations and

the failure of states to act adequately to implement international climate justice). Many will argue that other actors, notably corporations and perhaps international institutions, also have obligations.[2] But there is another set of actors who have obligations in this context: *Affluent individuals everywhere* are obliged to act and to aid those affected by climate change.[3] It is not unusual to say that rich people in economically developed states have obligations, so this chapter has more to say about affluent individuals in developing countries, which is something remarked on quite rarely by my reckoning. The present situation, whereby affluent individuals in poor countries are completely off the hook, directly (as are most people in affluent countries) and indirectly (unlike people in some European states, who must pay more for energy as part of their governments' early efforts to act on climate change), hardly fits even the most basic conceptions of justice, which at the very minimum require that those who unnecessarily do harm to others end that harm. This chapter is therefore a critique of the status quo statism of most official and scholarly discourse, as well as national and international action, on climate change. While states must of course be major actors in any climate change regime, this reality need not absolve capable *individuals* from explicit responsibility and obligation, especially when states are not doing nearly enough. Nor should it prevent diplomats, activists, and scholars, along with laypersons, from openly and explicitly discussing cosmopolitan obligation and attempting to be good global citizens by acting upon it at both community and personal levels (see Harris 2010).

The reason for undertaking this critique is quite simple: It is simply not practical—and not just—to let the most affluent *people* who happen to live in poorer countries avoid this issue simply because the affluent *states* have been recognized to be practically, morally, and legally to blame for most of the historical pollution causing climate change. We can of course say that the wealthy states are the most to blame for climate change, both by aggregate (historical) and average per capita measures. However, this may be the wrong discourse, or at least a very much inadequate way of thinking and talking about climate change. To talk of climate justice in that way frames the issue in terms of states, which is acceptable *only if it is supplemented* with much more talk of the obligations of affluent *individuals*, and critiques of their consumption choices. In short, this chapter directs more attention to the obligations of affluent people *everywhere*, including in developing countries where their obligations are now tacitly ignored, and particularly to China, where there is an already large and rapidly expanding affluent class that is polluting just like the

West. By directing more attention toward these people in the context of international negotiations on climate change, diplomats and policymakers may be able to escape the current North-South/rich state-poor state impasse that has so far prevented the aggressive action that is required to address this problem.

## THE DOCTRINE OF INTERNATIONAL JUSTICE

The political world is made up of sovereign states, so it is normal that most discussions about climate justice have been about national communities vis-à-vis one another. According to the doctrine of the morality of states (Beitz 1979), states have rights and bear the burden of, at minimum, not violating other states' rights. Consequently, many scholars (including this one) have for some time argued that affluent states have an obligation to reduce their GHG emissions and to aid poor countries that will suffer from climate change (see, for example, Harris 2001, 2003). This no longer sounds morally profound because it is clear that the developed countries are the ones who have caused most of the problem and the developing countries are the ones who will suffer the most from it. Common conceptions of fairness demand that the former act first and aid the latter accordingly. Indeed, Stephen Gardiner argues that political philosophers considering climate change are "virtually unanimous" on this point (Gardiner 2004). Significantly, the Framework Convention on Climate Change, the Kyoto Protocol, and other international agreements that comprise the global climate change regime have affirmed this. In short, at least in principle, common but differentiated responsibility—and, at the level of legal obligations, especially the differentiated responsibility of industrialized states—has become the basis of the climate change regime.

But what is fair and just from the perspective of international justice is not necessarily fair and just from other perspectives. It can be the opposite. To be sure, it would not be fair if the less developed countries like China, and least of all the very poorest countries, were required to take on the same obligations to combat climate change as the United States and other affluent countries. But it is also not fair—and environmentally unsound—for the many affluent people in China (and India and other rapidly developing countries), and especially the rich elites there, to be absolved of duties regarding climate change. Why, ethically, should a poor person in, say, Germany be lumped together with wealthy people in Germany to aid both the poor *and* the rich in China who experience the effects of climate

change, especially when the latter may pollute far more? While it is true that affluent countries ought to aid poor ones in the context of climate change, and that the former ought to be drastically cutting their GHG emissions while allowing the latter to increase theirs, to rely solely on this morality among states is grossly inadequate from practical *and* ethical perspectives. For starters, it ignores the hundreds of new consumers in China who are behaving just as consumers in the West did in the past.

Recent developments in China provide the most obvious example of how the international ("communitarian" and "realist") perspective on international affairs in a globalized world fails to capture the true reality of the climate crisis. China is now a major source of GHGs, and this will only become truer with time. China has overtaken the United States to become the largest national source of GHGs (Netherlands Environmental Assessment Agency 2007). The number of passenger cars in China doubled every 30 months during the 1990s (Gallagher 2006), and some reports anticipate that by 2010, China will have 90 times as many cars as it had in 1990 (*International Herald Tribune* 2006: 6). Official Chinese estimates predict that the total number of cars will reach 140 million by 2020 (*China Daily* 2004).[4] Goldman Sachs predicts that within two decades, there will be 200 million passenger cars in China—more than in the United States (Dyer 2006: A15). According to one estimate, there are about 450 million people "in eastern China with a purchasing power of over $7,000 a year; $6,000 is the usual threshold at which car-ownership begins to take off" (*The Economist* 2005). David Wilson argues that energy use and consumption will grow worse as "the 100-million-strong middle class—the nation's leading consumer group—is set to double in numbers over the next five years" (Wilson 2006: T6). Jonathan Garner (2006: 73) predicts that the number of Chinese households earning more than $10,000 per year will increase from 3.8 million in 2003 to 151 million in 2013.[5] Between 2004 and 2013, the number of urban households in China "able to make discretionary consumer purchases beyond meeting basic needs" will increase to 212 million from 31 million, rising from 17.4 percent of households to 90.6 percent (Garner 2006: 73). In short, many Chinese are becoming remarkably affluent, consuming and living more like the stereotypical American conspicuous consumer, and soon "the locomotive of the global economy in terms of incremental annual consumption demand will have changed from the U.S. consumer to the Chinese consumer" (Garner 2006: 13). But these Chinese people (not to mention China's 300,000 new millionaires) (Mellor and Cheng 2006: 21),

regardless of how rich they become and how much they contribute to climate change, live in a state with no obligation to require them to limit their impact on the Earth's atmosphere.

The existing system of international environmental governance, like international relations generally, is biased against—and indeed premised upon—*not* placing any obligations directly on people within state boundaries. But our preoccupation with international (interstate) justice diverts attention and action exclusively to the national and international levels, when what is needed is simultaneous attention to localized and individual responsibility and action. Another problem with international (interstate) conceptions of climate justice is that they can make people lazy; they push duties and responsibilities onto governments. People can say, "I pay taxes and follow regulations. I've done my duty." This applies to affluent people in rich and poor countries—neither of which should be allowed to avoid responsibility if their governments have failed to implement policies necessary to push or force them (and corporations) to act. Neither should they be allowed to shirk their duties to limit their GHGs. It is unjust, and impractical for any successful effort to combat climate change, to allow affluent Chinese people to act on the sentiment, "China is the victim, so I am a victim too. Thus it's not my responsibility to do anything but support my state's demands for compensation." Given the importance of individual contributions to climate change, if international environmental treaties and regimes are to be effective, it is necessary for them to include explicit obligations and duties for these affluent individuals to implement. Policies of governments should aim to promote fulfillment of these individual obligations.

Put succinctly, there is no American or Chinese atmosphere; there is only one atmosphere, and every person contributes to changes in global climate, albeit with varying effects in different places, regardless of where he is located. Obligations—for states *and* for people, notably all affluent people—arise from this circumstance. What matters is how much a person contributes to the problem and how affluent he or she happens to be, not whether that person was born in London or Beijing.

## The Cosmopolitan Corollary to International Justice

The current situation, with affluent persons causing pollution that harms others, notably the poor and weak of the future, seems patently unjust. On what basis can one say this? Not on the basis of strictly

*international* justice, which does not ascribe obligations to individuals per se. We need an alternative justification, which can come from *cosmopolitan* conceptions of justice pointing to *individuals* as global citizens of one world (cf. Singer 2004). It is hard to argue against the observation often made by cosmopolitans: borders do not matter the way they did in the past (Attfield 2003: 159). As Charles Beitz has put it, "[w]hen, as now, national boundaries do not set off discrete, self-sufficient societies, we may not regard them as morally decisive features of the earth's social geography. For purposes of moral choice, we must instead regard the world from the perspective of an original position from which matters of national citizenship are excluded by an extended veil of ignorance" (Beitz 1979: 176).[6]

The core elements of cosmopolitanism are individualism, universality, and generality. Cosmopolitans are fundamentally concerned about human beings, and, in Thomas Pogge's words, "persons are ultimate units of concern *for everyone*" (Pogge 2002: 169). A cosmopolitan approach places rights *and* obligations at the individual level, discounting the moral importance of national boundaries. Morally speaking, people in one state do not matter more than people in others, and rich people do not matter more than poor ones: "life of everyone matters and matters equally" (Nielson 2003). Robin Attfield (1999: 205) argues that only cosmopolitanism (a consequentialist variant based on needs) provides the foundation for global sustainability and justice: "only cosmopolitanism does justice to the objective importance of all agents heeding ethical reasons, insofar as they have scope for choice and control over their actions, and working towards a just and sustainable world society."

Importantly, cosmopolitanism is not only about the rights of people everywhere; it is also about their duties. Everyone has basic rights; everyone has potential basic duties, which are a function of their condition (but not necessarily their location). Most people will agree that affluent people in the rich countries should bear some ethical responsibility for harm they do to the world's poor; this is arguably part of civic responsibility in developed democracies (Satz 2005). Many people will also agree that the affluent in rich countries ought to give aid to the world's poor simply because aid is needed. The question is whether affluent people everywhere have the same responsibility, and whether we are willing to acknowledge that more than we do now.

Where cosmopolitan justice is especially important is in placing obligation to stop harming the environment on which others depend, and to take steps to aid those who suffer from that harm to the environment, on the shoulders not only of governments but also of

individuals. Cosmopolitan justice, and the associated obligations, can supplement the traditional international-justice view and its associated obligations—although it need not dilute the common but differentiated responsibilities of states.[7] Communitarians will of course say that obligations obtain only within one's own political community—one's own nation or state. However, when it comes to the global environment, and especially in light of the causes and consequences of climate change, everyone is living in one interdependent community. Everyone has a right not to be harmed by the pollution of others, whether they be next door or on the other side of the planet, at least if the polluters have any ability to control their pollution. Everyone, and especially those most capable (usually the most affluent), also has an obligation to act, if possible, in ways that do not violate those rights. That we are living in a single world also suggests that we have obligations to aid others, even those very far away, whom we have harmed or will harm.

It seems self-evident that it is wrong for affluent people to harm the planet and the poor who are most dependent on it. Justice at least demands that we end the harm that we cause (unless we are causing it out of necessity). As Henry Shue has argued, some will argue that there is no obligation for a person to help strangers whom that person has not harmed.

> It is a very different matter if I have in fact wronged the person whose plight is under consideration—if that person's plight was caused by harm that I did. The question, ought I now to help someone whose need for this help results from harm that I myself inflicted? is radically different from the question, ought I to help a stranger whom I have never harmed? And the reason that the situation is so different when harm has been done is that one of the most basic principles of equity in every culture . . . is: Do no harm. One may or may not be expected to help in this or that context, but one is always expected not to harm (but for exceptional overriding circumstances). Consequently, the obligation to restore those whom one has harmed is acknowledged even by those who reject any general obligation to help strangers. Whatever one's obligation to help people with whom one has no previous connection, one virtually always ought to "make whole," insofar as possible, anyone whom one has harmed. And this is because one ought even more fundamentally to do no harm in the first place.
>
> (Shue 1994: 386)

This suggests that the basis for our obligations to act and to aid is fundamental, and to argue otherwise would contradict ethical norms that are accepted nearly everywhere.

Singer proposes two basic principles of fairness related to climate change: equal per capita shares of the atmosphere—it is difficult to argue, although some have tried, for *un*equal shares—and the principle of "you broke it, you fix it" (Singer 2003), which mirrors Shue's view. But one can argue that we also have an obligation to aid those in need that we have not harmed. Dale Jamieson believes that causing harm is not as important for determining moral responsibility in the case of climate change as the ability to benefit or prevent harm (helpfully, because harms from climate change are diffuse and hard to pin down): "those who are in a position to prevent or mitigate climate change are responsible for doing so regardless of their causal contributions" (Jamieson 1997: 99–119). The ethical basis for this is simple: we should help those in need even if we did not get them into trouble. If you come upon a drowning child, you do not turn away but rather try to provide immediate assistance. Jamieson sees the positive duty to aid as being a stronger moral argument than one based on negative duties to end harm, whereas Pogge's argument seems to be the other way around, although he too believes there are (weaker) positive duties (Pogge 2002). The upshot is that there is another basis for affluent people everywhere to act now to limit their GHG emissions: their obligation does not depend on anticipated future harm to others. Jamieson argues that those who are able to do so "should seek to stabilize climate, and they should also do what they can to help those who are most vulnerable to the change that may already be occurring" (Jamieson 1997: 11).

Governments and policymakers are largely ignoring the consumption habits of affluent people in developing countries that are contributing to GHG emissions. Can we justify, in ethical or practical terms, what affluent people—in the developed world *and* in the developing world—are doing? Some affluent people living in poor countries might say that what they are doing is not unethical, that, for example, *China and all Chinese people* have no obligation to limit their activities that contribute to climate change, let alone being obligated to aid people in other countries who might suffer from it. However, one must challenge this nationalistic perspective. As Singer shows,

> One of the clearest cases where [it] must be challenged is . . . climate change. Think about the difference that it makes to our conceptions of thinking ethically either within a community or globally once we understand that things that people do entirely within their own territory—like, for example, decisions about what kinds of vehicles we drive—could lead to making it impossible for, let's say, villages in Bangladesh to continue to farm low-lying delta lands where tens of millions of Bangladeshis

> make their living, because it may contribute to the rise in sea levels, which may mean that those lands become inundated and too salty to farm. Or it may contribute to changes in climate patterns in sub-Saharan Africa, which eliminates the reliable rainfall needed to grow crops.
>
> (Singer 2003)

Consequently, it should not be the case that we focus entirely on state obligations to cut GHGs and to aid those suffering from climate change. We should focus more than we do now on the obligations of affluent people, not just affluent states. But even Singer makes the argument, true enough, about how the United States has used five times its collective per capita share of GHGs and China has used only three-quarters of its share. Singer's discourse lapses into talk about states. Nevertheless, Singer's individual utilitarianism recognizes that "decisions and actions of human beings can prevent [extreme human] suffering" (Singer 1972: 26), and suggests that *all* of the world's affluent have an obligation to act differently. Applying his famous principle—"if it is in our power to prevent something bad from happening, without thereby sacrificing anything of comparable moral importance, we ought, morally, to do it" (Singer 1972: 28)—in the context of climate change seems to demand this—unless one assumes that the luxuries of affluent people in both China and France (for example) are more important than human survival and basic needs, not to mention ecological health.

Two principles of justice promoted by Brian Barry, based on the premise that what is just is what the least well off could not reasonably reject, also seem apt: (1) personal responsibility and compensation, and (2) the priority of vital interests (Barry 1998: 148–149).[8] According to the first principle, people may fare differently "if the difference arises from a voluntary choice on their part; conversely, victims of misfortunes that they could not have prevented have a prima facie valid claim for compensation or redress," and "where the voluntary act of some person (or persons) is the cause, redress should be looked for in the first instance from that source" (Barry 1998: 148).

According to the second principle, "the vital interests of each person should be protected in preference to the nonvital interests of anyone" (Barry 1998: 148). As we have seen, the first principle suggests obligations by the world's affluent because climate changes they help create cause harm to others (in the future). The second principle is especially provocative, requiring that the material luxuries of the rich be curtailed to limit harm and to provide resources for redistribution to help protect the vital interests of the poor. Similarly,

in a discussion about the importance of international climate justice, Shue makes a claim that is just as well suited to cosmopolitan climate justice: "it is unfair to demand that [the poorest] be sacrificed in order to avoid our sacrificing interests that are not only not vital but trivial" (Shue 1992: 394). This is the heart of the matter to a great extent: after a point that meets our needs and then a bit, the world's affluent are contributing to climate change for relatively trivial reasons at the expense of the genuinely vital interests of the world's poor. This is unjust. The right of the Chinese elite to pollute with abandon, causing suffering to the poor, is no more justifiable that the right of Americans to do so. The upshot is that justice does not permit poor *persons* to be told to sell their blankets in order that rich *person*s may keep their jewelry.[9]

Bearing in mind that climate change will affect people's rights, particularly the most basic rights to sustenance and even survival, another way of looking at climate justice is from the perspective of human rights. As Ciaran Cronin and Pablo De Greiff argue,

> [A] person's human rights are not only moral claims *on* any institutional order imposed upon that person, but also moral claims *against* those—especially, the more influential and privileged—who collaborate in its imposition. Since human rights-based responsibilities arise from collaboration in the coercive imposition of any institutional order in which some persons avoidably lack secure access to the objects of their human rights, it follows that there are transnational obligations that fall primarily on the more influential and privileged agents (individual and collective) who collaborate in the imposition of the current international order. . . .
>
> (Cronin and De Greiff 2006: 18)[10]

Note the way that obligation is explicitly placed on the shoulders of *privileged individuals*. We might think of this as a sort of corollary to the argument that people have rights to a stable and clean environment (Sachs 2004: 42–49). People (not just governments) are obliged, especially if they are affluent (but not if they are poor), regardless of their nationality or where they may reside, to act in ways that do not undermine others' environmental rights.

The aim here is not to mediate among these and other philosophical viewpoints but to show that there is ample ethical justification for saying that, in the context of climate change, obligations of justice lie with capable persons everywhere, not just with capable states. If China is not as responsible as Britain for climate change, that does not mean that rich Chinese people are also not responsible for their

actions. To be sure, policy institutions (normally states) ought to play a big part by mediating the obligations of individual persons. However, institutions have failed so far. Meanwhile, climate change is accelerating. We ought not reject the argument, made by some cosmopolitans, that people ought to push for the creation of the institutions that can mediate our obligations (Moellendorf 2002). But we must be realistic in admitting the difficulty of doing this. We have not succeeded in doing it so far, we cannot wait forever, and huge numbers of people live in authoritarian environments where they have little ability to shape institutions, although they do often have the ability to shape their own behavior. Even if China ought not, will not, or cannot act on climate change, capable, affluent people living there should and can do so, just as capable Americans have every obligation to act even though their government has done far too little to tackle this problem.

## AFFLUENCE BEYOND BORDERS

To suggest that well-off people in affluent countries have obligations to the poor and destitute of the world is no longer very controversial. One rarely hears arguments that well-off people in poorer countries share the same obligations. Nevertheless, if one accepts the cosmopolitan ethic and associated logic, one is left with the conclusion that they do, and that they should restrain their consumption and pollution. With the numbers of affluent and even very wealthy people in China expanding so much and so quickly, the ethical and practical importance for them to take responsibility and act accordingly is no longer something we can ignore, nor can we wait for governments and international institutions to mediate and actualize these obligations—at least not if we want to robustly combat climate change and address the injustices and suffering experienced by those people and communities most adversely affected by it. What matters first is how much an affluent person pollutes. This is the cosmopolitan ethical corollary to the polluter pays principle. From this perspective, an affluent person who lives like a hermit and always has done, thus doing almost no harm to the environment, does not have the responsibilities based on causing the problem. But very few affluent people live this way (were it even possible nowadays). So nearly all of us have obligations because acting on our affluence—by consuming—we contribute to climate change. What also matters is affluence per se because it can enable people to help others. Just as in wealthy people bear obligations to the poor in domestic societies regardless

of whether the wealthy people have harmed the poor directly or not, so too do wealthy people everywhere have some obligations to the global poor.

One might add that, *ceteris paribus*, a poor person in, say, the United States might be less obligated to act on climate change than is an affluent person in China if the former pollutes less.[11] People in the industrialized world did not know until quite recently that they were doing harm to the global climate,[12] and they are stuck in economic structures and with infrastructure premised on the use of fossil fuels. And not all of those people have benefited greatly from the fossil fuel–based economies in which they live.[13] Compare, for example, the people of rich New Orleans to those of poor New Orleans, and their relative suffering during and following Hurricane Katrina in 2005. Affluent people in less affluent countries should be aware of the harm they are doing (as should the affluent everywhere, of course). One might expect that history will judge affluent people in China even more harshly than it will many people in North America, Australia, and Europe because the former had (and still have) a choice about whether to jump on the consumption bandwagon. While average per capita GHG emissions in China are well below the averages for the world, and especially the developed world, they are above those for the whole developing world.[14] Furthermore, China's burgeoning middle and upper classes are hiding behind their state's per capita average. The "luxury emissions" of the new superrich elites in China are multiples of Chinese and global averages, and indeed well above the averages of the major polluting states of the developed world. Their behaviors now lead to huge amounts of GHG pollution. This practice of affluent people in China hiding behind the country's overall relative poverty becomes more and more perverse, not least because many of those who will suffer from GHG emissions from these newly affluent will be people living in the poorest parts of the world in the future, including within China itself.

Thus, just like affluent people in the industrialized countries, newly affluent people in China arguably have a moral obligation to keep their consumption, and thus their GHG emissions, low. Cosmopolitan justice demands that we explicitly recognize this reality rather than ignore it in international instruments on climate change and in personal morality and behavior. The solution is not to be found exclusively in the climate treaties' simplistic and unrealistic classifications of "Annex I" (developed) and "non-Annex I" (developing) states where all citizens carry labels of rich and poor regardless of their real wealth and well-being. Indeed, if affluent people in China were seen

to be behaving responsibly, it would be much harder for the Americans and Canadians to sustain their patently unjust argument that the developing world must act robustly before the affluent countries do so. Even if we agree that affluent people in developed societies should have long since taken on the moral and practical initiative to reduce their global pollution, the fact they have largely failed do so is no excuse for affluent people elsewhere to do what is morally right. Common but differentiated responsibility among *states* is no excuse for affluent people *everywhere* to avoid cutting or even limiting their GHG emissions.

Many of the world's affluent and privileged people will argue that climate change is really not their fault, that their personal contribution to climate change is really quite small. This is largely true, but if everyone who is affluent thinks this way, and behaves accordingly, the result can be quite large, especially as the number of affluent people grows in China and the rest of the developing world. More generally, as Pogge argues with regard to global poverty, "Even a very small fraction of responsibility for a very large harm can be quite large in absolute terms . . ." (Pogge 2002: 151–195). In the case of climate change, the affluent consume disproportionately more, and in so doing emit disproportionately more GHGs than do the poor. Pogge notes that "[e]ven if each privileged person typically bears only one billionth of the moral responsibility for the avoidable underfulfillment of human rights, . . . each of us would still be responsible for significant harm" (Pogge 2002: 192, n. 41).[15] Pogge acknowledges that "nearly every privileged person might say that she bears no responsibility at all because she alone is powerless to bring about a reform of the global order" (Pogge 2002: 170). However, he points out that this "is an implausible line of argument, entailing as it does that each participant in a massacre is innocent, provided any persons killed would have been killed by others, had he abstained" (Pogge 2002: 170).

Bradley Parks and Timmons Roberts ask a fundamental question that needs to be explicitly addressed: "*Are states the relevant units of analysis in the study of climate justice?*" (Parks and Roberts 2006: 347). As they point out, "the notion of the nation-state contributing to, being vulnerable to, and responding to climate change may obscure important intra-country distinctions. Many developing nations now have a sizable middle class that affects and is affected by warming of the earth's atmosphere much differently than the rest of society" (Parks and Roberts 2006: 347). Wolfgang Sachs is one of the few people vocal about obligations of *all* of the world's affluent people.

He is critical of our usual focus on what he calls the "zombie category of the nation-state": "the real gulf in the world is not between the Northern and the Southern countries, but between the global middle class and the marginalized majorities, and that a quarter to a third of the global middle class is sitting in the South. . . . You have a Germany sitting right in India" (Sachs 2001). In Sachs's view, the real equity issue is not the one among states but "between the global middle class and the marginalized majority. They are affected by the climate by being the victims of climate change. Now that is the serious equity question" (Sachs 2001).

## Some Policy Implications

What might cosmopolitan climate justice mean for government policy and for individual behavior, including in China? To be sure, most individual obligations are and will continue to be mediated by states to varying degrees. This is a fact of life for the time being at least. Governments ought to do much more in the areas of taxation, regulation, and infrastructure. Cosmopolitanism would, Brian Barry suggests, "be best satisfied in a world in which rich people wherever they lived would be taxed for the benefit of poor people wherever they live," thereby considerably derogating sovereign states while allowing them a role for raising funds and their international organizations a role for distributing them (Barry 1998: 153).[16] This would include, among other things, taxing international airline flights, luxury goods, and other nonessential polluting activities and goods.[17] The United Nations could administer the funding to limit climate change and aid those who suffer from it the most. Some or most of the money raised from these taxes might be deposited into one of the existing funds, such as the Global Environment Facility, the Special Climate Change Fund, the Least Developed Country Fund, and/or the Kyoto Protocol Adaptation Fund.[18] There might be a new fund, perhaps a Future Climate Fund, specifically designed to aid future generations, perhaps funded primarily from a tax on fossil fuels used by affluent people everywhere, to help future generations cope with climate change caused by past, present, and future GHG emissions.

One way of raising the money, suggested by Barry, is to tax states based on their proportional GNP, but another way might be "taxes on infliction of global environmental damage . . . driven by considerations of equity: those who make use of inherently limited facilities should pay, and those who impose burdens on the rest of the world should compensate for the damage they cause. [This] would . . . modify

behavior by providing an incentive to economize on scarce resources, and to reduce pollution" (Barry 1998: 155). Among the specific measures could be a carbon tax on GHG emissions, which Barry says could ideally be collected "directly from the users or polluters," which is preferable to taxing states based on per capita GNP because "individual income acts as a proxy for resource use wherever the person with income lives" (Barry 1998: 155). More of the money should come from earmarked climate-change-related taxes on nonessential activities. Actualizing such a scheme would admittedly run up against all sorts of practical obstacles, but Barry confronts this head on: "unless the moral case is made, we can be sure nothing good will happen. The more the case is made, the better the chance" (Barry 1998: 156).

Governments should also assist the actualization of cosmopolitan climate justice by more strictly *regulating* the nonessential polluting activities of affluent residents. The most obvious activity to regulate is the use of fossil fuel energy, for example, by banning large cars so common in the United States and restricting fossil-fuel-intensive recreation. Insofar as these regulations and the taxes suggested above adversely affect poor people, as heavy restrictions on international leisure travel might hurt people in poor parts of the world dependent on tourism, governments should step in with assistance. The needs of present generations should not be ignored for those of the future; the present does not trump the future, and even some poor people may have to rely on different forms of income in light of the consequences for climate change. But in so doing, those poor people who might suffer from the changes in lifestyle among the affluent ought to be compensated so that they can live happy and decent, albeit differently financed, lives.

Taxes and regulations are government's sticks to persuade or force affluent people to live in ways that are consistent with cosmopolitan climate change obligations. There should also be carrots, perhaps in the form of tax rebates for activities that are good for the environment or to encourage new, more environmentally benign activities. At the very least, governments should not create economic and other structures—and infrastructures—that make it more difficult or well-nigh impossible for individuals to act on their cosmopolitan obligations. An example is China's repeat of the mistake made in the West, especially the United States, of building highways and encouraging a car culture at the expense of mass transit.[19] Indeed, in China, bicycle lanes are being *removed* from cities to make way for cars, not installed as is sometimes now happening in Europe and North America. Governments ought to

instead do more to create economic and physical infrastructures that are consistent with cosmopolitan climate justice. This would include creating new, efficient, and comfortable (and affordable) mass transit systems, while making the use of cars less attractive in the medium and long term (unless a new climate-friendly personal transport vehicle is developed), and also creating distribution systems for alternative energy (perhaps hydrogen).

In short, from the perspective of government policies, what the climate crisis may require is a conception of world citizenship that *supplements* traditional prevailing views of interstate justice. What is at issue is not so much the substance of government policies—because a number of the policy implications (e.g., carbon taxes) are not new—but rather that policies be negotiated and implemented via a structure or legal mechanism that targets individuals rather than through measures that solely or even principally address action by states.

Regardless of government policies, affluent individuals everywhere, including in China, should act responsibly by, insofar as possible given where they live and the structures that rule their lives, cutting their GHG emissions if they are already emitting more than their fair share of GHGs or, if they are not emitting much more than their fair share of GHGs, by limiting them to somewhere near that level.[20] Even if it is not clear where this limit is set, affluent people should do everything they reasonably can to limit their GHG emissions. Many nonessential polluting activities should be avoided, particularly if they are frivolous (e.g., driving automobiles for pleasure, travelling by jetliner to far-off holidays). This implies that affluent people everywhere will have to live differently. They will have to enjoy airline travel much less because it quickly puts them over their fair share of lifetime GHG emissions. One easy new behavior that the affluent could adopt would be to stop eating animals because meat production uses large amounts of fossil fuel energy and other resources and produces methane, a potent GHG. Yet, in China, meat consumption, including conspicuous consumption of exotic animals, is increasing dramatically. To be sure, it is difficult for people to know their precise individual impact on those people to be harmed by climate change in the future. Rather than use that as an excuse for doing nothing, we ought to consume what we need from the Earth to survive and to fulfill our basic needs, and perhaps a bit more, doing all we reasonably can to limit the impact of that consumption—and no more.[21] By behaving this way, affluent individuals *everywhere* would be actualizing cosmopolitan justice. By not doing this, affluent people are doing something wrong.

## CONCLUSION

As millions of people in China join the affluent classes of the world, a cosmopolitan ethic of climate change becomes more urgent. *International* justice is inadequate. The focus on it by diplomats, activists, and scholars may be part of the problem. Two suggestions seem germane here: (1) Without minimizing the essential role of states and other institutions to actualize climate justice, we should stop talking almost exclusively about national obligations. We should talk much more about individual obligations (of affluent persons) and consider these obligations when making policies and attempting to educate people about climate change. (2) And we ought to spread the burden and stop letting affluent people in certain places avoid all responsibility. Most people in the rich countries are of course the most to blame, but it may be counterproductive (and unfair, albeit unfair to those who more often than not treat others unfairly) to keep telling the American middle class that they should drive their cars less while they watch China's roads fill with them (including many of the fanciest and most expensive—and most polluting—cars available).

We ought to remain sympathetic to those who point out that looking at per capita emissions identifies the United States as far and away as the world's greatest polluter: most people there pollute heavily, even grotesquely, and it was until very recently the largest national source of GHG pollution (and most other pollution). This is very unfair (see Agarwal and Narain 1990). The governments of China and other developing countries rightly focus on the unjust *luxury* emissions of the rich versus the *survival* (or subsistence) emissions of the poor, noting that the former ought not come at the expense of the latter (Shue 1993: 39–59). But they are talking about the luxury emissions of the rich (by their standards meaning most people) in rich countries. They do not talk about the luxury emissions of the rich in *poor* countries. It is as though China's affluent people do not exist in ethical terms. To be sure, until recently their practical importance has been much less than that of people in the developed world, but that is changing very rapidly. While nobody says it outright, we are almost saying that the luxury emissions of the affluent in poor countries are in the same ethical category as survival emissions of poor people in poor countries. Cosmopolitanism by definition rejects the negligence that leads to this result; ethical obligations (and rights) exist regardless of nationality. Consequently, fat cats in Shanghai have just as much of an ethical obligation to consume less as do fat cats in Madrid. As the number of the former grows, we ought to acknowledge the

importance of this in practical terms, in the process being more ethically consistent.

We have devoted so much diplomatic and philosophical capital to arguing for international justice that we avoid looking at the actual locus of environmental harm, which is the individual, and, from an ethical perspective, especially the affluent individual with a major impact on climate and a choice about whether to end or exacerbate that impact. The solution to our ethical deficit, and to the profound problem of climate change, is, at least in large part, to supplement talk of interstate justice with a new discourse, including among diplomats and those crafting new international environmental agreements, which encompasses cosmopolitan justice. This poses a cosmopolitan challenge to the Chinese government and many millions of affluent Chinese people. Unless they, along with their counterparts in the West, take up this challenge, the future health of the atmosphere will continue to deteriorate.

## Notes

1. Most of these ideas also appear in Harris (2008a, 2008b, 2010).
2. For a taxonomy of who or what should bear the burdens, see Caney 2005: 754–755.
3. Here I find support from Caney who argues that "the burden of dealing with climate change should rest predominantly with the wealthy of the world, by which I mean affluent persons in the world (not affluent countries)" (Caney 2005: 770).
4. This is roughly the same number of cars as in the United States.
5. The number of households in the United States with the same annual income was 102 million in 2003.
6. Beitz is invoking John Rawl's "original position" and "veil of ignorance." See Rawls 1971.
7. While I do believe that cosmopolitan justice is more fundamental than interstate justice, what I am arguing for here is that cosmopolitan considerations should *supplement* the prevailing interstate approach for very practical reasons. One implication is that the duties of capable citizens increase when their states are less active in tackling climate change.
8. Barry identifies two other principles of justice: the presumption of equality ("All inequalities . . . have to be justifiable in ways that cannot reasonably be rejected by those who get least" [Barry 1998: 147]) and mutual advantage.
9. Cf. Shue 1992: 397, where he says that "whatever justice may positively require, it does not permit poor nations to be told to sell *their* blankets in order that rich nations may keep *their* jewelry."
10. On human rights considerations, see also Caney 2006: 255–278.
11. The determination of one's relative poverty might be arrived at based on some reasonable standard of purchasing power parity. That is, everyone deserves a

minimum that at least meets his or her basic needs, but meeting those needs is more costly in some places than in others.

12. On responsibility for past emissions, see Gardiner 2004: 578–583. On ignorance of the impacts of climate change, see Caney 2005: 761–762.
13. Henry Shue argues that current generations bear some responsibility for actions of past generations because they enjoy the fruits of what their ancestors did. See Shue 1999: 536–537. For a counter argument, see Caney 2005: 756–758.
14. By way of comparison, carbon emissions per person in 2004 were 0.8 tons in China, 0.3 tons in India, 2.5 tons in Europe, and 5.5 tons in the United States. From 1990 to 2004, total carbon emissions from China increased by 67 percent to 1,021 million tons per year, by 88 percent in India to 301 million tons, by 6 percent in Europe to 955 million tons, and by 19 percent in the United States to 1,616 million tons (World Resources Institute 2006: 9).
15. If I understand his argument, Dale Jamieson would say that this kind of causal connection should not serve as the primary basis for moral obligation in the case of global environmental change. Rather, the ability to prevent or mitigate climate change is a stronger basis for obligation (Jamieson 1997: 10).
16. To avoid the familiar problem of the rich in poor countries stealing the funds, the transfers might have to be made to individuals, not governments.
17. As always, unless regulations are put in place to limit every individual's polluting activities, the world's wealthiest people will be able to pay taxes rather than end activities that are not strictly regulated. For example, taxes alone are unlikely to push wealthy people to drive smaller cars or to move from cars to public transport.
18. These funding mechanisms are hardly ideal, but they are increasingly like the kind of thing that is needed.
19. Mass transit systems are indeed being built in China, but the same infatuation with the car and responses to the consequences seen in the United States and elsewhere—more highways and more ring roads—are underway with a vengeance.
20. A fair share of GHG emissions is arguably equal per capita emissions. I will avoid that debate here, although I realize that it is crucial to helping people decide exactly how to behave. See Baer 2000: 22–87.
21. For an analysis of sustainable consumption, see Seyfang 2005: 290–306.

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# Part III

# Environmentally Caused Social Change in China: New Media Technologies and Traditional Confucian Values Updated

# Chapter 7

# Digital Power: Public Participation in an Environmental Controversy

*Yanmin Yu and Fanxu Zeng*

## Introduction

Evidence of economic development was everywhere in China when the twenty-first century started; Xiamen was no exception. A beautiful coastal city across the Taiwan Straight, Xiamen was poised to be one of the leading cities in China's economic boom. Haicang District, which is located about 16 kilometers away from Xiamen city center, obtained a unique opportunity when a Taiwanese company agreed to invest in Haicang with a chemical plant called PX Project. When the opportunity came, it was also around the time when Haicang's real estate industry took off after many years of dormancy. As Xiamen was growing rapidly, some Xiamen residents found they had to move to the outskirts of the city to have enough living space. Haicang proved to be not too far away and the apartments there not too out of reach. The news of building a PX (paraxylene) plant came around the same time when many Xiamen residents started to move to Haicang.

Xiamen residents, both living in Xiamen and Haicang became very concerned when they learned that PX is hazardous to health. Opposition to this PX Project surfaced and a semipublic movement was formed. As a result, the construction of this large chemical plant was halted and later relocated to a different city, and this marked the

beginning of public participation in environmental issues mobilized by the new media and influenced by the Internet opinion. Digital technology has demonstrated its power in informing, influencing, mobilizing, and organizing the public in a major event with a concrete result.

## MEDIA INFLUENCE AND SOCIAL MOVEMENT

How did a social movement start? What role do mass media play in disseminating information, organizing the public, and influencing public opinion on social issues? In the previous studies on media and social movement and social action, scholars have developed two different research approaches, namely, critical approach and functioning approach. The critical approach is a European tradition that stems from Marxism. Scholars of the critical approach argue that society is divided into mainly two classes: an upper class and a working class. The upper class controls and dominates the media and the working class is controlled and dominated by the media. Todd Gitlin is an influential scholar in the critical approach. He proposes a Hegemony Model to describe the relations between the media and social movement. Gitlin argues the mass media marginalize social movements and reinforce the current regime since media are part of the political institutions (Gitlin, 1980). Scholars adopting the critical approach pay more attention to the news-making process and explore how the media interact with different sources and use different framework for application (Tuchman, 1978; Hall et al., 1978). The critical approach thus can be considered as media-centric studies.

Functional or pragmatic approach, however, has its roots in the United States. Scholars taking this approach tend to use more of a scientific method to study mass media and their role in society. In the 1990s, more and more scholars began to take a closer look at how social movement organizations and actors used media strategies to obtain media access, convey their opinion about a situation, mobilize people, and gain legitimacy. In the studies carried out by Charlotte Ryan (1991) and Barker-Plummer Bernadete (1997), it is found that while the media may marginalize social movement organizations, it is still possible for social movement organizations to make use of the media as an important political resource. Ryan points out that if social movement organizations are familiar with media routines, they may be more likely to appear in media reports and exert influence on public opinion and policy agenda. In her study about the *New York Times* and the National Organization for Women (NOW), Bernadete

argues that commercial media can be an important political resource for movement organizations and movement actors.

In recent years, new technologies, especially the Internet, have developed very rapidly. Some media scholars have turned their attention to the new media and their role in social movements and social actions. In particular, some studies have shown the impact of the new media on the way social movements are mobilized and organized (Ayres 1999; Yang 2003).

To summarize, almost all the above researches are rooted in Western countries and they indicate that the Western media tend to hold a conservative attitude toward social movement organizations and actors (Zhao, 2006). But when we take a look at the relationship between social actors and the media in China, things are quite different. In Xiamen's PX Project case, we find social actors utilized the media strategically and flexibly to influence the public opinion, and they were able to mobilize people onto the streets. On the other hand, the traditional media relied on the movement actors instead of the local government for news information. As the coverage of the PX environmental movement by the traditional and mainstream media increased, the environmental movement also gained more publicity and legitimacy. So, in this chapter, we will analyze the interaction between the media (especially the digital media) and social movement in contemporary China. In particular, we will examine such questions as: how the digital media facilitate social movements in a country like China; to what extent the digital media will influence the results of a movement; and, how the digital media increase the ability of social actors to set media agendas in China, where agendas are mostly set by the government only.

## Background: The Nature of the PX Project

The PX Project is a plant that is planned by the Xianglu Tenglong Aromatic PX (Xiamen) Co. Ltd. It is a 10.8 billion yuan (1.4 billion USD) project that was expected to generate thousands of jobs as well as revenues of 80 billion yuan (10.45 billion USD) a year for the city of Xiamen. This 80-billion-yuan revenue is equivalent to one-fourth of Xiamen's present GDP. Once the project is completed, it will be the largest in the world for PX and other derivative products.

PX stands for paraxylene, which is a raw material used in chemical production. PX is a highly polluting petrochemical used to make purified terephthalic acid, a raw material for producing plastics, polyesters, packaging resin, and fabrics. Xylene is believed to be cancer causing, and some even claim that it can cause fetus abnormalities.

According to local authorities, however, the PX Project "has completed all procedures in accordance with the laws and regulations." Ding Guoyan, Vice Mayor of the city, said at a news conference in May 2007 that the PX Project had passed an environmental evaluation by an expert panel before it was given the green light by the National Development and Reform Commission (NDRC). Ding assured the public that "the evaluation (of the project) and the approval were strictly in line with China's laws and regulations."

The Xiamen PX Project did appear to have all the paperwork it needed, technical as well as legal. It was approved by several high-level organizations. According to the *Southern Weekend*, the State Council approved the Xiamen PX Project in February 2004; the State Land Resources Department examined the budget for the land; the State Environmental Protection Administration (SEPA) passed the environmental impact assessment report in July 2005; and the State Development and Reform Committee approved the application in July 2006. The Haicang Land Development Corporation began land requisition for the project in August 2006.

The issue is yet complicated by another source. As reported by Zhu Hongjun, a *Southern Weekend* reporter consulted a chemistry expert at the Chinese Academy of Sciences about the negative effects of xylene. This expert said, "Xylene itself is a mildly toxic. For a chemistry expert, xylene is no different from any other ordinary chemical whose risks can be controlled. As for toxicity, it can only occur when it is not burned thoroughly" (Zhu, 2007).

## Location

The PX plant was first planned to be located in Haicang, a district in Xiamen. Haicang is situated on the coast across Xiamen Island. In 1997, Haicang Bridge was built and Haicang and Xiamen were thus connected. The reason Haicang was selected for the PX Project was that back in 1990, when the Chinese government approved the establishment of a Xiamen Special Economic Zone in the Haicang Development Zone, the vision was to establish a chemical industry in the area. The project was known as the "901 Project" (Zhu, 2007).

The vision of the local government for Haicang is two-fold: one is urbanization and the other is industrialization. More specifically, it is to develop the area into a subcenter of the city and at the same time to create an industrial zone focused on the chemical industry. According to the environmental assessment report, however, Haicang

planners are advised to choose one objective or the other, but not both (Xinhua News Agency, December 7, 2007) due to environmental concerns.

International organizations require chemical and other similar plants be 100 kilometers away from cities, but Xiamen is only 16 kilometers away from Haicang, the proposed location. The nearest residential area from the planned plant is less than 1,500 meters away. About four kilometers from the plant is the Xiamen Foreign Languages School, a senior high school with about 5,000 students. Gulongyu, a beautiful island and tourist destination, is only seven kilometers from the plant. One-fifth of Xiamen Island is within a radius of 10 kilometers ("SMS delays controversial chemical project in Xiamen"). Furthermore, Haicang itself has a population of 100,000.

## Timeline

According to the documents obtained by the *Southern Weekend,* the PX Project in Haicang was approved by the State Council in February 2004. The State Land Resources Department examined the budget for the land, the SEPA passed the environment impact assessment report in July 2005, and the State Department and Reform Committee approved the application in July 2006 (Zhu, 2007).

The construction of the plant began in November 2006 in Haicang District. On March 16, 2007, Zhao Yufen, Professor of Chemistry at Xiamen University and a member of the National Committee of the Chinese People's Political Consultative Conference (CPPCC), gave a speech at the CPPCC meeting voicing concerns over the health hazards posed by the PX plant. After that speech, 105 members of the CPPCC signed a petition, expressing their disapproval of the PX Project in Xiamen.

March 25, 2007, a text message began circulating around Xiamen. It reads:

> Xianglu Group joint venture has already begun investing in a benzene project. Once this kind of heavily poisonous chemical is manufactured, it will be like all of Xiamen has been hit with an atomic bomb, and Xiamen people's lives will be full of leukemia and deformed children. We want to live; we want to be healthy! International organizations require this sort of project to be developed a distance of 100 kilometers outside of a city. Our Xiamen is just 16 km away! For our children and grandchildren, send this message to all your Xiamen friends!" Another message states: "For our children and grandchildren, act! Participate among 10,000 people, June 1 at 8am, opposite the municipal

> government building! Hand tie yellow ribbons! SMS all your Xiamen friends!
>
> ("SMS Texts Energize a Chinese Protest," June 1, 2007)

On May 28, *Xiamen Evening News* published an article entitled "The Haicang PX Project is under Construction after Being Approved According to the Legal State Procedures." This 10,000-word long article was based on the interview with the Director of the City Environmental Protection Bureau.

With SMS messages being sent and resent and rumors and gossips also flying around, the Xiamen city government, in the morning of May 29, asked the various departments to be prepared to stabilize the masses and to ensure the project moves ahead.

The following morning (May 30), the tone and direction of the course took a turn. Ding Guoyan, the Executive Vice-Mayor of Xiamen City, held a news conference and announced a temporary halt to the construction of Haicang PX Project. During the announcement, Ding also said that the city government has commissioned a new assessment organization to conduct a more extensive study on the environmental impact of this project on the city.

On June 1, an estimated 8,000 to 10,000 people from Xiamen went to the street to protest the PX Project in Haicang.

Six months later, on December 5, 2007, a 14-page review report of the strategic environmental impact assessment was published on Xiamen Net, the government's official Website. The review was conducted by the Chinese Research Academy of Environmental Sciences. The report criticized the Xianglu Group's repeated emissions breaches and their disregard of requests since 2003 from the local environmental protection bureau to tackle the problems. Although it was less concerned about the environmental effects of the plant, the report pointed out serious flaws in a development scheme for Haicang that was pursuing the conflicting goals of industrialization and urbanization in such a small region. The report concluded that space was limited in Haicang. The city government should reconsider its original vision, that is, to develop the area as a petrochemical industrial zone and as a secondary city center at the same time (Civic China, 2008).

On December 13, 2007 a hearing was held to offer the public to voice their opinions on the PX plant. One hundred representatives were selected (50 from the municipal People's Congress and Political Consultative Committee and 50 from the general public). Fifty-seven spoke at the hearing. Forty-five of the forty-nine (close to 92 percent) public representatives opposed the project and seven of the eight

(87 percent) government officials who did speak also opposed the project (Martinsen, 2007).

The Xianglu Tenglong Group posted an open letter on its Website on December 13, 2007. Xianglu sees itself as a responsible company and the PX plant as a safe engineering project using the most advanced technology in the world. It believes the PX plant can exist in complete harmony with Xiamen residents. It also reminds Xiamen residents that a vinegary smell can be detected long before chemical levels reach national toxicity standards, so the bad smell the plant emits does not mean the plant is polluting. Also, in the letter the company indicates that they will completely eliminate the smell by the end of March 2008 (Martinsen, 2007).

The project is now being moved to Zhangzhou, a southern city of Fujian. What do people in Zhangzhou think? We do not know.

## City Planning

According to an informed source, at first Xiamen wanted to attract Wang Rongqing, a successful Taiwan businessman, to invest in Xiamen. To start the process, Xiamen set aside an area of 20 square kilometers in the area for a future project. Later, however, Wang's investment did not go through. As a form of compensation, Wang donated the 100 million yuan, which was deposited for the land earlier, to erect a building at Xiamen Jimei University and another one at a Xiamen hospital (Zhu 2007).

For quite some time, the Haicang Chemical Industrial Zone was just waiting with no one coming for investment. While there were a few plants there, such as Xianglu Chemical Fibers and some other companies, the highly expected chemical industry zone never materialized. Change came in 2000 when Haicang became a hot spot for real estate development. As housing prices kept rising in Xiamen city, people there were attracted to Haicang's real estate. Comparatively speaking, housing prices in Haicang are more affordable than those in Xiamen.

A short time after Haicang's real estate market took off, talk of a PX Project in Haicang also started. The person Xiamen wanted to attract for investment in chemical industry is Chen Youhao, a Taiwanese businessman with money and connection. Chen has donated hundreds of millions of New Taiwan dollars to the KMT (Kuomingtang). It was speculated that Lian Zhan's trip to China in April 2005 helped Chen build up the political foundation of his economic project. (Lian Zhan was the Chairman of KMT at the time of the visit.) Chen has planned

the PX Project for some time (The Man behind Xiamen Project 2007).

Another important person is Yu Xinchang, the CEO of Xianglu Group. Yu is a high-tech elite who obtained his doctoral degree in computer science in the United States. When Yu worked in Hewlett-Packard, he was the supervisor of Jiang Mianheng, Jiang Zemin's son. Yu helps Chen make the connection with Beijing. Yu is also a celebrity in the area of Xiamen and he was selected as one of the ten outstanding entrepreneurs in Xiamen and Fujian Province in 2005 (The Man behind Xiamen Project 2007). Xianglu Group has businesses in a number of areas, including fiber production, petroleum chemical production, power plants, and hotels.

While the PX Project may have completed all the procedures and passed an environmental evaluation by an expert panel before it gained approval from the NDRC, the project has drawn heavy criticism from experts and residents in Xiamen. Citizens compared it to an "atomic bomb" and sent nearly one million text messages via cell phones to pressure the government to renounce the project.

## DISCUSSION

### How Did a Civic Movement Get Started?

Initially it was Zhao Yufen, a researcher at the School of Chemistry and Chemical Engineering at Xiaman University, who played a key role in making the PX Project an issue by submitting a petition with 105 signatures to the Chinese government calling for the plant to be relocated. The 105 signatures were gathered from the CPPCC members, of which Zhao is also a member.

Zhong Xiaoyong, web name Lian Yue, was instrumental in keeping the movement alive through his blogs by constantly providing information, leading discussions, and encouraging people to participate in the demonstration and speak out against the project. As a resident of Xiamen and a freelance commentator for newspapers and magazines, Zhong is well positioned for the role he played.

During the days leading up to the march, messages regarding the PX Project were posted on the weblogs, sent in chain-letter form through e-mail, and short text messages went out via cell phone as well as posted online on bulletin board system (BBS). Over a period of two months, tens of thousands of pages discussing the issue were posted on BBS.

As more and more Xiamen citizens became aware of the issue and the buzz against the building of the plant became louder, journalists from other cities started to come to Xiamen to cover the controversy. Zhao Yufen was contacted by many media outlets for interviews, but she declined. Confronted with coverage of the issue by media from other cities, Xiamen local newspapers blamed other media for practicing "yellow journalism" and sensationalizing the conflict (Cody 2007).

At the time when the traditional media were attracted by the web media to shed light on the PX Project and the environmental concerns, the cell phone campaign had also picked up its momentum.

## Major Characteristics of the PX Project Movement

The movement to oppose the building of the PX plant in Haicang, Xiamen, is grassroots, bottom-up, and civic. The participants are urban, middle-class, white-collar, and tech-oriented. The organizers utilized Websites, blogs, and cell phone text messages to communicate with Xiamen citizens. The demonstration is peaceful and the theme is for environmental protection.

Chinese law requires street protesters to apply for approval from the Public Security Bureau for large gatherings, protests, or demonstrations. Generally, if a permit is given, police are sent out to contain the crowds and identify the leaders. Organizers in Xiamen, however, circumvented this national law by saying that they are only "taking a stroll." Today "taking a stroll" has become an Internet code word for peaceful protest. Digital technology has not only allowed organizers to mobilize the masses but also allowed participants to be actively involved. During the march, some people used their cell phones to send short text messages and pictures to Websites, which enabled bloggers to webcast and blog in real time as the march was on.

## Digital Power: How New Technology Brings People Together?

Digital technology allowed organizers to communicate with Xiamen residents in large numbers, within a short period of time, and at multiple times. Organizers used blogs, SMSs (short message service, a communication protocol that allows the interchange of short text messages between mobile phone devices), webmasters, Websites such as HaicangPX and antipx.com, and BBS to send out messages and to monitor the development.

The Internet and cell phones played a major role in disseminating information quickly and communicating with a large number of people instantly. Citizens in Xiamen sent nearly 1 million text messages via cell phones to their friends and families urging the government to renounce the project. Over 8,000 people went to the streets on June 1, 2007 to voice their opposition of the planned construction of the plant.

One interesting phenomenon of the movement we note is that this large mount of information exchange on the digital media was not banned by the government, as usually it would be the case.

First of all, when we take a closer look at the information on the Internet and cell phones, we find that opinion leaders, including Lian Yue and some professors at Xiamen University, constantly put the state authority in their communications. They frequently used politically correct phrases such as "scientific development," "harmonious society," and "public participation" in their messages. Those terms are current and consistent with the rhetoric the central government uses. This line of discourse gains the event organizers legitimacy for the heavy flow of information exchange on the digital media. As a result, the local government was not sure how to respond since it is really difficult for them to find fault with building a "harmonious society" in a "scientific development way" with "public participation."

Second, Xiamen is a beautiful coastal city, and one of the most pleasant coastal cities in China. It once won the "Best Resident Environment" award by the United Nations. Xiamen residents are proud of the city and proud of living in Xiamen. Opinion leaders of the PX movement tapped into people's romantic sentiment about the city and turned people's passion and love for the city into residents' responsibility to protect the city.

Third, opinion leaders played a role as specialists on the issue. When they talked about the project, they were rational and objective and they appeared to be cautious not to overstate the case or stir up public emotions. This balanced approach influenced the discussions among other residents on the Internet.

Another important characteristic of the event is that the digital media and the mainstream media collaborated with and influenced each other as the event evolved. Since the traditional mainstream media are still considered as the Party's mouthpiece, and since they represent the CCP's policies, their coverage of the controversy lends legitimacy to the movement. When "real journalists" go to Xiamen to cover the story and express their sympathy for Xiamen residents' opposition to the PX Project, the reports and comments are quoted enthusiastically

by the netizens, believing that their movement is supported to some extent by the Party and the government. This phenomenon, referred to as "media storm" by scholars, came into presence rather quickly just as a storm is formed suddenly; this makes it difficult for the local government to decide how to respond to the situation.

As the event evolved, not only were people in Haicang District mobilized and ready to oppose the project, but other residents in Xiamen also became aware of the plant's potential hazard to the locals. As a result, people in Xiamen decided to get involved by "taking a stroll." According to the social constructionist theory, this mobilization process can be regarded as a consensus mobilization (Klandermans, 1984; 1988). In the process, we find the digital media have played a vital role in spreading the messages quickly to the residents of the city and mobilizing them effectively by organizing the "stroll."

## Government Response

When Xiamen residents went to the streets to "take a stroll" together, the Chinese government did not crack down on the Xiamen protest. While the Xiamen Public Security Bureau did try to block the cell phone campaign and the city hall did send out warnings against the public demonstration, Xiamen residents gathered and marched peacefully in large numbers. When the march started, the local officials tried to persuade the participants to get out of the march by saying that the weather is too hot and for their health concern, they should go home. Although there was a strong police presence, both in uniform and plainclothes, the police acted in a restrained manner. For the most part, the police simply observed the protest and did not arrest any participant. Is it that they did not receive any order to arrest some protesters? Is it that the police did receive an order to use force when necessary but they ignored the order? Is it that the police were sympathetic to the demonstrators because they realize that they could be victims of the chemical plant themselves? We do not have the answers to those questions; however, it would be interesting to conduct another study to find the answers.

Government officials in Beijing clearly took notice of the development of the controversy. A few days after the public protest, Pan Yue, Deputy Director of the SEPA, called for an independent environmental impact assessment of the plant as well as of Xiamen's urban development plans. Pan also suggested that the relevant parties should comply with recently announced regulations on environmental impact assessments that require a public-consultation process

and the release of relevant information to the public (*Civic China*, January 28, 2008).

The government's response appeared to be consistent with President Hu's and Premiere Wen's policy of "putting people first" and "building a harmonious society." The Chinese central government listened to environmental concerns. Pan Yue, Deputy Director of SEPA, said Xiamen government should think again about the chemical plant. The *People's Daily*, the official Party paper, ran a front-page editorial condemning local officials who had disregarded President Hu's admonitions to preserve the environment (Cody 2007). The strong position taken by the government and the *People's Daily* is not matched by the stance taken by the government on other political issues. We may argue that environmental issues are different from political issues.

Green is the color now, so it is possible for the central government to allow environmental issues to set the agenda for the mainstream media as well as the digital media, and furthermore, to allow media agenda to influence policy change. With mounting environmental problems in China and around the world, China cannot ignore the impact of air pollution, water pollution, flooding, droughts, deforestation, and global warming that have developed in China (described in earlier chapters in this volume). The recent policies to limit the use of plastic bags in stores, to reduce the number of vehicles on Beijing streets before the Olympics, and to reinstate the traffic rules after the Olympics are examples to address environmental problems one at a time. Had it been some other controversial issues, it is difficult to predict the outcome. In fact, there were two occurrences, similar to the PX Project opposition, that followed Xiamen model, but with no success.

## Is the PX Project the Tip of the Iceberg?

The halting of the PX Project in Xiamen is seen by some observers to be the tip of the iceberg where other cases would follow as a result of public participation. So far the result is mixed. In Chengdu, Sichuan residents took to the streets on May 4, 2008 to protest against a 5.5 billion dollar ethylene plant in Pengzhou, 18 miles northwest of the city center. But public involvement did not change the course and the organizers were arrested by the local government. In Nanjing, another PX Project has been under construction since 2005, which costs 2.86 billion yuan in total. Because the plant is only 20 kilometers away from the city center and has schools, universities, and towns in the vicinity, residents in Nanjing started to follow the example of Xiamen

in the beginning of 2008 to disseminate information on the Internet, calling the government to halt the construction and relocate the plant. However, no answer has been given by the government yet.

Things may become even more complicated with the development and control of the Internet. Realizing that the Internet has become a powerful tool to launch grassroots movement, the central government is believed to have a group of "hired guns" to send posts, blogs, and e-mails to guide the Internet discussion, to counter the views that are not friendly to the government, and to disseminate information that is favorable to the government. Nicknamed "*Wumao dang*" because they receive fifty cents (wu mao) per piece they post, this group of Internet "opinion leaders" is estimated to be 280,000 strong (Li 2008).

The Internet in fact is a battleground fiercely fought between ordinary netizens and the hired guns. Some netizens are genuinely concerned about environmental issues or other social issues and they try to use the Internet as a venue to voice their opinions. The hired guns on the other hand can mask as regular netizens to express their opinions on the Internet. The problem is both groups can claim that they represent the public.

## Conclusion

For the first time in Chinese history, a major project was halted and later relocated to a different place as a result of public protest organized through the digital media. This shows it is possible for the Chinese to be mobilized; it is possible for the Chinese to get involved in issues they are concerned about; it is possible to use the new media, including cell phones, to reach a large number of people; it is possible for the Chinese government to respond positively on public opinion, and it is possible for the Chinese government to act green.

In the past few years, Chinese netizens have evolved into a formidable force in reflecting and shaping public opinion in the areas of social, cultural, political, economic, as well as environmental issues. Many times Chinese netizens are the leading players in influencing and guiding public opinion in China, including sometimes-flaming emotions. The sheer number of 253 million netizens in China, according to China Internet Network Information Center (CNNIC) (July 2008), is one thing; the unstoppable momentum generated by the Internet community is another. Once a blogger starts a flame with a comment, the flame can trigger a wildfire across the bloggersphere almost instantly. Examples include the rally, both in China and around

the world, in support of the Olympic torch relay, the protest against CNN and its commentator Jack Cafferty, the demonstrations against Carrefour, the French supermarket chain store in China, and the boycott of Sharon Stone and the cosmetics for which she acts as a spokesperson. Organizers of those events relied heavily on the Internet for information dissemination and event coordination. Chinese netizens are particularly effective in expressing anti-West and anti-Japan sentiment, unleashing tidal waves of nationalism across the country.

The recent events that have occurred in cyberspace and on the streets have demonstrated that public opinion can be cultivated, manipulated, swayed, guided, and shaped. The events have also shown that the Internet is especially effective in creating awareness of a certain issue, building momentum toward the issue, and influencing public opinion on the issue. The Internet is fast; it can reach large numbers of people with a click away; and it can be anonymous or pseudo when needed.

The Chinese Internet community has demonstrated that its power is undeniable and formidable, and the Chinese government has certainly recognized that. As recently as June 20, 2008, President Hu Jintao went online to communicate briefly with the netizens on *Qiangguo luntan* (Powerful Nation Forum) of the *People's Net* while visiting the *People's Daily*. Hu's visit signified the government's recognition of the growing presence and significance of the Chinese Internet community, the opinion leader role, and the domino effect the Internet opinion can play.

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# Chapter 8

# Confucianizing Modernity and "Modernizing"* Confucianism: Environmentalism and The Need for a Confucian Positive Argument for Social Change

*Joel Jay Kassiola*

*There is much to say on behalf of studying the classical Confucian tradition in order to illuminate contemporary problems of morals, politics, and religion . . . classical Confucianism, to my mind, is of great relevance today, especially as a variable alternative to the modern Western liberal tradition so deeply grounded in individuals that communities are always suspect as confining, conformist, constraining, stifling the human spirit.*

*—Henry Rosemont, Jr. (2008: 53)*

*Confucian political philosophy emphasizes the role of moral virtue in society and advocates a "thick" notion of good society. A good society does not only prosper economically but also virtually. A good society is to be led by virtuous leaders, supported by virtuous people, for from the Confucian view only virtuous persons can adequately care for others and only virtuous lives are worth living. A good society is a caring society.*

*Chenyang Li (2008: 193)*

*[T]he world has not stood still during the century in which Confucians watched their traditional world being destroyed and then revived. New issues have emerged, and one of the most pressing concerns is the question of the ecological crisis . . . However, if Confucianism is to play an active role in Chinese and global intellectual life, it must learn how to address new as well as traditional issues . . . New [contemporary] Confucians need to ask: what are the resources for ecological thinking within the tradition and how can they be related to the ecological crisis?*

*—John Berthrong (1998)*

*[A] materialist West has damaged nature almost beyond repair, a spiritual East will provide guidance as how best to heal it.*

*—Vassos Argyrou (2005: 45)*

*The Master said: "A man is worthy of being a teacher who gets to know what is new by keeping fresh in his mind what he is already familiar with" [alternatively translated: "The Master said: Both keeping past teachings alive and understanding the present—someone able to do this is worthy of being a teacher" (Lau 1979: 2.11, 64).]*

*—Confucius*[1]

## 1. Introduction: The Environmental Crisis, Green Political Theory, and Social Change

As a student of the environmental crisis and political theory since the 1970s, and teacher of courses encompassing these subjects on both coasts since the 1980s, I am well aware of the great desire by students and the general public to know how humans can live so as not to threaten the ecological health of the planet and all of its living inhabitants. After the latest detailed scientific data regarding the litany of environmental threats to Earth, from global warming to water and air pollution, and so on (as described for China in the preceding chapters), are presented to classes and community audiences, the natural anticipated response follows with such questions as: "*Now* what do we do?" "How should we live so we do not put the environment at risk?" Or finally, "How can we humans, all 6.6 billion of us, live sustainably now, and in the future, when the numbers of humans will be substantially higher?" I quickly would like to add to this list of reactive ecological concerns a crucial normative political point that is often omitted from class and public discussion as well as from the

professional scientific ecological literature, and that pertains to social justice. While environmental sustainability is necessary for all social orders to endure, it must be accompanied, in my view, by an equal emphasis upon social justice. The ideal of an environmentally healthy society is not politically or morally sufficient if social justice is absent.

At this critical point in human history when the Earth's environment is in danger, I would contend that the two-and-a-half millennia-long tradition of Western political theory beginning with Socrates and Plato and their decaying fifth century BCE society, along with another fifth century BCE Chinese thinker Confucius, become profoundly relevant for the answers to these questions of societal transformation emanating from the global environmental crisis. The distinctive lesson of environmental political theory, in contrast to the environmental sciences, is to focus upon the paramount issue of social transformation of the modern consumer society (currently existing for about one-quarter of the human population on Earth but the object of emulation in the remainder of the nation-states worldwide.[2]) This subject consists of the answers to the questions: What is the ideal environmentally sustainable and just society? And, furthermore, how do we create the ideal environmentally sustainable and just society? And, how do we create this ideal moving forward from where we are now with the prevailing unsustainable and unjust modern social values, institutions, and social practices? Therefore, this topic of social transformation becomes of urgent importance as humankind confronts potentially devastating environmental limits in the not-so-distant future.[3]

One of the first environmental political theorists, Lester W. Milbrath, perceptively argued for the top priority of social transformation generated by environmental concerns, to seek and realize sustainability when he wrote:

> In my judgment, the most important reality in today's world is that modern industrial civilization cannot be sustained. Even though many of the world's leaders do not recognize this fact, it is nevertheless true . . . Will we thoughtfully, transform our society to a sustainable mode or will we stubbornly refuse to change and have change forced upon us by the collapse of society's fundamental underpinnings? *Resisting change will make us victims of change. I repeat for emphasis, resisting change will make us victims of change.*
>
> (Milbrath 2003: 37, 40–41, emphasis original)

In 2008, the movie on global climate change, *An Inconvenient Truth*, had gained worldwide popularity. Al Gore won both an

Academy Award and the Nobel Peace Prize (along with the scientists of the United Nations Intergovernmental Panel on Climate Change, IPCC). Every day brings new reports of polar ice caps melting, dire reports from the IPCC, or a disturbing price for a barrel of crude oil (either low, $50 per barrel, reflecting the current global recession as I write this in late 2008, or too high, as it was in July 2008 at its peak of $145 per barrel). China provides a negative role model of its own extreme environmental circumstances with hundreds of thousands of people officially reported dying each year because of air pollution and a thousand environmentally related protests *a week*![4] We may have finally reached a state of increased global consciousness of the degraded and dangerous quality of our environment that Milbrath's point about the necessity of global social change has achieved a global consensus.

Reluctantly but unavoidably, the world's leaders (including the most important resister, former President George Bush) and citizenry are realizing that our planet will not physically permit all of the human species to live like the Industrially developed world. A recent visitor to China observing its state of the environment put it succinctly: "Were China's income per capita to reach the American level, we'd need several Earths to sustain it" (Leslie 2008: 84).

This comment is consistent with what environmentalists have been saying for a long time about the global unsustainability of the modern Industrial worldview, values, and way of life. That we have only one Earth upon which to live seems like an obvious point to make, but when the hegemonic ideology of modernity essentially denies this fact with its supreme value of unlimited economic growth, then the obvious becomes necessary and urgent to assert. It is imperative for the environmental movement to effectively communicate the perils of unlimited economic growth in its outreach to the public so that this fatal flaw of modernity can be recognized publicly and acted upon by policy-makers and citizens alike. Therefore, the need for social change away from the current, dominant, modern consumer society and its unlimited economic growth ideology has finally become a reality for an increasing number of experts and the ordinary members of the public.

The nature and extent of this Green change/transformation are really the heart of the issue now.[5] Those "reformers" who think that "cap and trade" of carbon dioxide emissions on a voluntary basis will be sufficient to save the planet from an environmental catastrophe are profoundly distant from those "radicals" who see a need for a new postmodern social order as a whole with a different set of social values and institutions.[6] In essence, the latter argue that a new social

order other than the Industrial one that reigns currently supreme is needed, and it is my claim here that Chinese Confucianism may provide insight into such an alternative post-Industrial order. Therefore, let us look more closely at the nature of the Industrial life and values and what they lead to environmentally.

## 2. The Dystopian Environmental Limits to Economic Growth and the Need to be Positive about Environmentally Inspired Social Change

The reasoning of the environmental movement's advocacy as well as most environmental theorists, including natural scientists, has been largely unified since the movement's origins in the 1960s, the first Earth Day celebration in 1970, and founding document, *Limits to Growth* published in 1972 (Meadows et al. 1975). To wit: since the world now knows through the findings of the environmental sciences the existence of environmental limits and the resulting seriousness of the various threats to our global ecosystem, humanity, it is argued, must take action to create basic changes in social thinking, values, and action so our planet can be saved from ecological catastrophe.[7]

The point I would like to highlight here concerning both the environmental movement for social change and theoretical literature in this field of inquiry is that the underlying logic of environmentalism has been totally "dystopian." What do I mean by this term? The environmentalist dystopian argument is as follows: We are headed for an ecological disaster if we stay on the modern Industrial course we are on now, and continue to maintain modern Industrial values such as unlimited economic growth and materialism that ground the contemporary consumer society. It is these Industrial values that are responsible for the precarious contemporary state of the planet's environment. The environmental movement's organizers and theorists expect that the need for social change will become apparent and compelling to all once the severity of the environmental crisis is fully acknowledged and communicated by the experts to a sympathetic lay public (for a prominent example, see Al Gore's climate change movie and its public impact). Milbrath's statement "resisting change will make us victims of change" is merely one illustration of the dystopian logic of fear based on the dread of reaching a fearful conclusion ("the victims of change") where Milbrath adds ominously: "Remember nature's solution to environmental problems is death" (Milbrath 2003: 40). This negativity is most often labeled by the movement's antienvironmentalist

critics "gloom and doom" or "neo-Malthusian" to capture this distinguishing trait of the dystopian environmentalist logic and resulting apocalyptic social movement for the past four decades.[8]

Predicting the end or death of Industrial civilization because it contradicts the basic ecological fact of human existence, finitude, or limited conditions, as we have discovered regarding our own planet, was not maudlin or funereal because, as I have maintained in class and in community addresses, a new and better social order could follow it, one that was environmentally sustainable and socially just. But such an optimistic logic within the negativity of the passing of an existing social order places great weight on knowing the characteristics of this promised superior social order *and* how to create it out of the burning ashes of the dying civilization; in short, the two main questions of social change: *What would the ideal social order be like*? And, *how do we make it reality from the current circumstances*? With this as background, I would now like to turn to my transformative experiences in China and to Chinese Confucian thought, and how the latter might inform our new thinking about environmentalism and the need for a Confucian-positive argument for social change.

## 3. Environmentally Inspired, Positive Social Change Based on Chinese Confucianism

On my trips to China, I saw firsthand and discussed with China's leaders the extreme, or even dire, environmental conditions in that country coupled with the largest human population on Earth. The experience galvanized my own thinking on the environment and social change. China's economy growing at an unprecedented rate holds many billions of American dollars (some estimates say over a trillion dollars!) as our creditor, symbolized by its hosting the 2008 Olympics in Beijing and its spectacular Opening Ceremonies.[9] The American mass media as well as scholarly literature seem preoccupied with the Chinese government's efforts to stem the environmental degradation while still bringing the hundreds of millions of impoverished Chinese (with its 900 million peasants working in rural areas) to a better material standard of living.[10]

During my first trip to China in 2006, I was given the rare opportunity to speak before the future leaders of this vast country at the government's Central Party School. There I warned the Party students and their instructors of the mistakes of Industrialism, that the Western model of development was a flawed one fraught with ecological dangers (which they were already well aware of) and, perhaps what they

were less cognizant of, the social, political, psychological, familial, and vocational consequences of pursuing a Western, unlimited, economic growth-based, consumer-driven model of development.[11] Back in 2006, I was still pursuing my dystopian limits-to-growth argument and applied it to China's development. I told the current and future leaders of China that they must find a new way, and not follow the American hyperconsumer lifestyle with its ubiquitous advertising, debt, bankruptcies, resource depletion, and environmental pollution. However, I stopped there with this purely negative prescription, thinking this proposition would be difficult enough to gain acceptance. I did not recommend any new, positive social order or alternative plan of action to achieve it, much like the environmental literature and accompanying social movement since its beginnings.

When I was in China, I keenly felt this theoretical *lacuna*: telling the Chinese leaders not to follow the United States and its excessive consumerism with all of its ecological and social ills, but not offering any positive guidance to fill this alleged profound void was important, but only partially fulfilled the overall necessary argument. The weakness of my position seemed palpable, so I resolved to think about it more systematically.

It is not sufficient for Americans to tell the developing nations, like China, that they cannot grow and develop like the West did because today we have an environmental crisis. It seems disingenuous and perversely self-serving, as Chinese Government representatives argue on the issue of carbon dioxide emission caps when they state that the reason there is a global warming crisis in the first place is because of the past Western development, and to use that very development and its harmful ecological consequences—the environmental crisis—as a reason to prevent the developing nations from growing to help its poor seemed the height of Western arrogance and continued exploitation (as expressed in the contentious 2009 Copenhagen Climate Change Conference where China leading the developing nations, "Group of 77," made the argument against the developed West led by the United States). If the dystopian limits-to-growth argument did not work for the developed nations in bringing about social change of the Industrial worldview because of a projected ecological disaster, it certainly was not going to be successful with the developing nations, like China, that must grow in order to improve the quality of life for hundreds of millions of materially deprived people who desperately need economic growth to survive. The leaders of the developing nations know that their lands and people were exploited by the Western hegemonic powers in order for the latter to achieve their own

unprecedented collective material wealth. These leaders are not going to wait any longer for their nations and citizens to gain the material benefits of Industrialism—hence the great success of globalization-driven, as in our own Industrial transformation, by global advertising (Durning 2008: 713–720).

So, as I approached my next trip to Beijing and Shanghai, I confronted the problem of the Western modern Industrial set of values with a different approach: What could I recommend to the Chinese in this existential dilemma of the most profound proportions not only for themselves but for the entire world, given the global significance of China's environment, economy, and social system? It was at this time that I discovered that China already possessed an intellectual resource available in their own history and long-enduring culture: Confucianism. This ancient worldview was a set of values and prescribed social order that was not part of the Western Enlightenment, with its individualism, materialism, and competition, some of the pernicious values that need to be discarded and replaced with others if the projected environmental apocalypse is to be avoided. One might still adhere to the dystopian argument but now add the positive aspect of the merits of Confucianism as a desirable alternative social theory beyond the sole admonition to avoid impending disaster. On the vital humanity-nature relationship and disconnection that many environmentalists believe constitutes the root of the environmental crisis, as Al Gore argues in his *Earth in the Balance* book,[12] I believe Confucianism has great value to teach us in the West. As a leading Confucian scholar writes:

> The Confucian tradition offers profound insights on the relationship between humanity and nature, and between individual and society. Its philosophy of the unity of heaven and humanity and its familial model (i.e. that all things form one unified whole and that all human beings are members of one family) confirm that it constitutes a broadly humanistic worldview. Confucianism humanism is predicated on the principle of harmony between individual and society, human being and nature and human heart-mind and the Way of Heaven . . . This trend toward a New [Confucian] Humanism repudiates narrow-minded anthropocentrism and opposes the undue emphasis on materialism, instrumentalism, technology, and pragmatism.
>
> (Wei-ming 2000: 381)[13]

And so in the next part of this chapter, I would like to elaborate on this idea by sketching some of the intellectual resources that Confucianism can bring not only to China but the whole world

including the Industrialized West. *I shall argue that it may be possible for China to reconstruct itself and improve its ecological circumstances along with creating a more socially just and sustainable life for all of its citizens by uniting Confucian values with the latest technology, thereby updating the ancient classical ideas of Confucianism originating 2,500 years ago.* Hence the (borrowed) title of this chapter: "Confucianizing modernity" (restructuring modern industrial values according to Confucian ones), and "modernizing Confucianism" (in the sense of bringing Confucian values to the current world and its contemporary characteristics) by adhering to the wisdom of the Master Teacher by "keeping past teachings alive and understanding the present" (Confucius quoted in Lau 1979: 2.11).[14] This could produce a Green Confucian political theory and the first truly "post-modern" society *with content* and not just a theoretical placeholder for a social order that chronologically follows modernity but about which we can say little positively except to indirectly imply that it would not have the negative traits of modernity.

## 4. China's Development, Confucianism, and Green Political Theory

The subject of China's path to development is not only of paramount importance to all Chinese citizens and their leaders but is of profound significance to the entire world because of the many ecological, economic, political, and social consequences that will ensue from the decisions that are made in Beijing and throughout China. The point is central to all of my work on the environment and political theory: human values and politics lie at the root of the environmental crisis, and it is only when we recognize and call upon political theory for ideas to implement social change of our values as well as the social practices based upon them that the feared global environmental catastrophe can be averted *and* we can learn how a socially just and sustainable society can be created.

The basic principle of my thinking on the environment and the field of environmental political theory is that the environmental crisis is not, as most people define it, a crisis in technology or science, wherein a breakthrough in these fields will resolve it. Instead, the fundamental premise of my thinking is that the environmental crisis is at its root a crisis in values—a spiritual crisis as Gore sees it (see the subtitle and Gore 2006: 367)—and, therefore, is essentially and unavoidably political since politics involves the making of value judgments and resolving peacefully conflicts arising from value disagreements as well

as providing the rules for the ordering of society. It is from this insight that I maintain that political theory, the study of political values and how to implement them, needs to play the primary role in addressing the nature of the civilization or culture that has generated the many, severe environmental problems confronting contemporary humanity, including, of course, and, alas, especially China with its litany of environmental dangers.[15] Otherwise, the nature of the environmental crisis and its basic normative foundation requiring fundamental social change will be misconceived and opportunities overlooked when timely social change is needed for both social improvements and disaster aversion.

In my earlier work on China's development path I argued that "we must begin to imagine and explore alternative methods to industrialism's erroneous and harmful model while bringing the necessary material goods to meet the needs of China's 1.3 billion people" (Kassiola and Liu 2007: 151). I went on to prescribe in this work that China needed to pursue alternative, non-Western, non-Industrial, Green values and create social institutions and policies based on these post-Industrial values that were not characterized by Industrial Civilization's fatal denial of environmental limits and other errors such as thinking that economic growth can occur limitlessly and, therefore, ceaselessly. Furthermore, I asserted that this value of unlimited economic growth constitutes the modern Industrial society's supreme social value. I believe that these fatal delusions created by Western modern Industrial and capitalist ideology must be eliminated and a substitute set of foundational values and social institutions must replace them. Not only to avoid disaster—the dystopian argument—but also for positive reasons of creating a more desirable, more satisfying way of life that produces an environmentally sustainable and just social order. Here I turn to the wise insights of a commentator on consumerism and China's development for recognition of the need for normative ("utopian") political theory that needs to encompass both the developed and developing worlds.

> The West has already been alarmed by the possibility of the Chinese, one-fifth of the world's population, suddenly entering the consumer age. A report by the Worldwatch Institute urges the industrialized countries to face the sheer unsustainability of their own current pattern of consumption. The burden of creating a sustainable society, the report rightly argues, should firstly fall on the countries that pioneered the unsustainable lifestyles. But common sense tells us that any search for a way out of the current predicament has to start with concerned global efforts, made by the West and the "Third World" together.

> For this to happen, narrow national interests must give way to concern for the destiny of humanity as a whole. This may sound hopelessly utopian. But utopian thinking is precisely what is most wanting at this moment of fin de siecle disillusion when the free market appears beyond any reasonable challenge after the collapse and retreat of actually existing socialism. The West needs to reflect on and take action against the irrational aspects of its own way of life. *What the poor countries desperately need is holistic vision which can guide them in their search for other possibilities of development.*
>
> (Shao 1997: 57, emphasis added)

In pursuing such an alternative Industrial development strategy infused by non-Western political theoretical ideals, China's leaders and citizens would be true pioneers and lead the world into adopting a postmodern, Green social paradigm and structure based on different values and institutions than the current hegemonic Industrial model that has led the planet to the brink of the ecological apocalypse.

Traditional Chinese Confucian values, in sharp contrast to the standard, Western Industrial liberal, capitalist values, I want to suggest here, are excellent foundations for the necessary revolution in values and societal transformation. A simple illustration of some alternative Confucian values that could take China down a different path of development and be a positive role model for the world—both developed and developing portions—are the values of:

1. *Min Ben*: people-oriented policy;
2. Li Min: benefiting the welfare of the people;
3. *Jun Fu*: equal wealth; and finally, and perhaps most importantly,
4. He Xie: harmony between humanity and nature.[16]

Hu Jintao, President of China, has made creating a harmonious society the signature of his leadership, but the label of "harmonious society" is vague. It leaves open whether he intends to focus on the relations between humans only or whether he means harmony between humans and nature, or perhaps most inclusively, harmony in all aspects of social/natural life together. Thus, we need to examine specifically how China might lead the way by "Confucianizing modernity," and updating or "modernizing Confucianism" to a necessarily changed world. How might this ancient Chinese worldview influence Western Industrial Civilization now widely recognized by both environmentalists and members of the general public as fundamentally flawed and ecologically unsustainable, perhaps best illustrated by the severity of the climate change threat?

My political theoretical analysis of the environmental crisis is that there is a compelling lesson to be learned. In the Industrialized social order based on materialism, unlimited economic growth is not sustainable for the entire current global population of 6.6 billion people, let alone 8, 10, or 12 billion people that is projected for the remainder of the twenty-first century.

Therefore, I now would like to suggest that China is well equipped to meet the unique historical challenge of offering an alternative to Western Industrialized society its values, concepts, social institutions, and policies. I would like to briefly explore for illustrative purposes within the small compass of this chapter this important use of China's traditional Confucian values and their implications for current social practices with the aim of generating a provocative discussion and an exchange of ideas among environmentalists and Confucian scholars as a means to produce a comprehensive Confucian, green political theory. It is my hope that other environmental political theorists and students of Confucianism will begin to examine the possible usefulness of Chinese Confucianism to both that nation and the world.

## 5. Some Selected Confucian Ideas to Transform Modernism

Like most Western political theorists, I had heard little about what makes Eastern civilizations different from the Western, and the role of Confucian values and philosophy in making East Asian cultures, including China, different from the West. Like most Western political theorists, students of the dominant global culture, Western philosophy and Industrialism, naturally assume that with the worldwide dissemination of Western values and social practices—what is called the ubiquitous and inescapable Western "globalization" process—the thousands of years old, Confucian civilization and thought would be eclipsed by the all-powerful and hegemonic Western Industrial civilization's ideology and practices. Indeed, this type of Western-dominated thinking is so pervasive that many students of globalization identify these global developments as "Westernization" or the successful competition by Western values and institutions upon contact with non-Western and non-Industrial ones. On the other hand, the title of this chapter is drawn from a discussion by experts on Confucian thought presenting Confucianism's contribution to the modern world[17] where Western modern society is "Confucianized" and Confucianism is updated and "modernized."

Now, I know that there are students of economic development and policy-makers who believe that China can succeed at its present goal of achieving what may be termed "Industrialization with Chinese characteristics," presumably meaning accomplishing the creation of Western Industrialized material wealth with some minor changes or adjustments in Chinese culture. What I would like to suggest is that this view is not radical enough. Instead of seeking Industrialization with minor Chinese cultural adjustments, I propose that China pursue a policy of seeking a largely non-Western, non-Industrial, postmodern, non-Western Enlightenment values and principles, like individualism and materialism, and thereby provide a model of what I think the world desperately needs: a vision of an alternative, post-Western, post-Industrial, postmodern, Green social order that constitutes a positive role model for fundamental social change to a new environmentally sustainable and just social order. Furthermore, this non-Western, alternative model of sustainable development and just social order needs to address our human and planetary existential finitude unlike the way in which the ideology of unlimited economic growth is in denial and in conflict with our existential finitude.

As a civilization, Industrialism is not very old. It is only about 250 years old since its first inception in Great Britain, yet in many places in the world, industrialism has not arrived at all to this day. In short, my suggestion of "Confucianizing modernity" means to reinterpret and adjust Confucian traditional values and apply them to the contemporary modern world. Bell and Hahm, in their collection of essays, seek to do precisely this, yet do not aim to replace totally Western liberal society with an East Asian one (Bell and Hahm 2003: 27–28). They intend to argue that *some* Western Industrial social traits deserve to be retained because of their superiority to premodern, pre-Industrial thinking; therefore, a full-blown substitute with no Western components left would be excessive, the proverbial "throwing out the baby with the bathwater!"[18] Possible illustrations of such desirable Western Industrial values and institutions might be gender and social equality,[19] and the abolition of slavery and autocracy.

I can agree with this view that *some* of the Industrial values, social and political thinking, deserve to remain intact. This will make the process of replacing Industrial civilization selective and involve difficult judgments and integration with the new, post-Industrial, and ecologically sustainable and just social order a challenge that will require much thought and creativity. I strongly encourage my colleagues in environmental political theory and Confucian experts to begin this

line of inquiry, although a full treatment of this crucial subject is beyond the limits of this chapter.

Therefore, let me at this point go on to briefly describe how China can be the new world leader in Green thinking by calling upon its Confucian heritage. First, a few preliminary but important points for the reader to consider when assessing the possible use of Confucian thought and values for contemporary society.

## 6. SOME PRELIMINARY POINTS ABOUT CONFUCIANISM

Like all major philosophers and/or religions, there is no monolithic body of content that admits one and only one interpretation: *the* correct one. We need to recognize the possibility—indeed, the expectation—of a diversity of interpretations of Confucian thought, just like any other great theorist's writings. Here I follow the thoughts of two experts on Confucian thought attempting to garner insights from this body of thought regarding contemporary life who write as follows:

> [A scholar] once opined: "It is hard to think of any idea responsible for more fuzziness in writing about China than the notion of Confucianism." This is because the term "Confucianism" has been variously applied to so many different things, some of the more common being the philosophical and ethical teachings of a number of thinkers (including Confucius), a tradition of scholarship, a religion, a social ethic, and a state ideology.
>
> (Makeham 2003: 1)

> I believe we should free ourselves from the habit of trying to find *the* correct meaning of Confucianism. To obsess about arriving at "the essence" of Confucianism is to ignore the fact that, as a living tradition, Confucianism has always undergone revisions and transformations. In a way, it is peculiarly "un-Confucian" to ignore changed historical circumstances and to insist on identifying an eternal and immutable core of Confucianism. Premodern Confucians themselves were constantly reinterpreting and re-presenting the tradition to meet the exigencies of their days. As is the case with other traditions, Confucianism began to function as an agent of oppression and repression when people lost that ability to reinterpret and re-present the inherited tradition. As participants in a living tradition, modern-day East Asians should not be afraid to so reinterpret and re-present their Confucian heritage to meet the challenges of our day.
>
> (Chaihark 2003: 48–49, emphasis added)

These are enlightened and important statements of how to consider any moral and religious tradition, but especially one that, like Confucianism that is millennia old, and includes continuous adaptations to the historical exigencies of the current moment. Thus, it seems that Confucianism is especially well suited for the possible adaptation to our world of the twenty-first century. And like any living tradition, it must evolve with changing social conditions to be useful to current thinkers and policy-makers, along with everyday citizens. In other words, and following Bell and Hahm's view, not only must we "Confucianize modernity" because of the flawed nature of the modern values, chief of which is the framework of competitive materialism that places the value of endless economic growth as the top social value and public policy, but we must also update or "modernize," Confucianism as well. The good news here is that Confucianism has a rich history of such continuous social change. Thus, utilizing Confucianism in the manner I propose is not inconsistent with thousands of years of Confucian thought and commentary.[20]

Currently, the only alternative to Western Industrialized perspective is a group of theories termed "Green political theory" or "deep ecology" that I have studied extensively, and even prescribed.[21] Such Green theory emphasizes environmental limits and not continuous economic growth as a stark alternative to the unlimited and economic "growthmania" [to borrow the Ecological Economist's apt term of Herman Daly (1977)]. But the alleged alternative is itself solidly within the Western tradition of political theory, such as John Stuart Mill's "no growth" society.[22] This alternative set of Green values differs from the dominant endless growth ideology but still carries the legacy of Western civilization with regard to such fundamental values as: (a) individualism and (b) the subordination of morality to other material values, etc. In forcing Greens to think of the reasons for their alternative values, and examining how Confucians can help improve modernity, and not solely as critics of the Industrial worldview and society (the negative approach with no positive argument for the need and means of achieving social change) and a new desirable society, we can begin to have a more productive dialogue about an alternative society that will be both globally sustainable and socially just, in contrast to Industrialism.

China can "modernize" or contemporize Confucianism, and by introducing our current knowledge of environmental threats confronting humanity at the present time such as global warming, stratospheric ozone depletion, acid rain, etc.[23] One vital question to pose: what values can Confucianism add to achieve the amelioration of the

global crisis of having to feed, clothe, and shelter about 2 billion poor people in the world, a significant portion of which reside in China's countryside?

To the inevitable question of what is Confucianism, two experts offer the following reply by a substitute question: "how does Confucianism work?" to which they reply: "We will argue that Confucianism . . . might be better understood as a way of organizing and meliorating experience rather than as a potted ideology. That is, Confucianism is not *the* way, but is productive 'way making'" (Hall and Ames 1987: 125, emphasis in original).

Could contemporary China organize its social order according to Confucian principles and values, and, if so, can China's experiment of organizing itself according to Confucian values be the model for both the world's developed and developing nations to live within their respective environmental limits, and yet be productive enough to generate sufficient food, and other material needs, for its huge population? Can Confucian sensibilities and values be joined with China's material growth to constitute a successful experiment that other nations both, developing *and* developed, could follow or learn from, even partially? These are the key questions that I hope this chapter stimulates others to pursue in the effort to seek a positive argument from Chinese Confucianism for social change from Industrialism.

## 7. Some Selected Confucian Values to Revise Modernity

I offer just some examples of Confucian principles and values that might serve in such a project of Confucianizing Western modernity or as Bell and Hahm put it, "improving modernity with Confucian norms and institutions" (Bell and Hahm 2003: 25).

### A. The Confucian Emphasis upon Morality over Material Self-Interest in Industrialism

> It is the central tenet in the teachings of Confucius that being moral has nothing to do with self-interest"(Lau 1979: 19). " . . . at the sight of profit one should think of what is right" (Lau 1979: 20, 14.12, 16.10, 19.1). "The gentleman understands what is moral. The small man understands what is profitable" (Lau 1979: 4.16).
>
> The Master said, "If one is guided by profit in one's actions, one will incur much ill will" (Lau 1979: 4.12). "Since in being moral one can

neither be assured of reward nor guaranteed success, morality must be pursued for its own sake" (Lau 1979: 13). "Mengzi said in response: Why must your Majesty say, 'profit'? Let there be benevolence and righteousness and that is all . . . But if righteousness is put behind and profit is put ahead, one will not be satisfied without grasping from others.[24]

## B. The Moral Focus and Valuation of Confucian Government over Western, Liberal, Procedural "Thinly" Moral (or Rawlsian, Not Substantively Moral) Government

The emphasis upon the moral basis of government is fundamental to Confucius' teaching" (Lau 1979: 33). "To govern is to correct" (Lau 1979: 12.17). "The Master said: 'In his dealings with the world the gentleman is not invariably for or against anything. He is on the side of what is moral" (Lau 1979: 4.10). "Is there a single word which can be a guide to conduct throughout one's life? The Master said: 'It is perhaps the word 'shu' [altruism, reciprocity]. Do not impose on others what you yourself do not desire (Lau 1979: 15.24).

## C. Morality and Material Simplicity over Material Gain Prescribed by Confucius

The Master said: 'It is his simplicity of style that makes him acceptable'" (Lau 1979: 6.2). "The Master said: 'It is shameful to make salary your sole object, irrespective of whether the Way prevails in the state or not" (Lau 1979: 14.1). "Benevolence (*jen*) is the most important moral quality a man can possess. Although the use of this term was not an innovation on the part of Confucius, it is almost certain that the complexity of its content and the pre-eminence it attained amongst moral qualities were due to Confucius . . . [Thus] it is *the* moral quality a gentleman must possess. . . . (Lau 1979: 14, original emphasis).

The Master said: 'Wealth and high station are what men desire but unless I got them in the right way I would not remain in them (Lau 1979: 4.5).

## D. The Endless Anxiety of Constant Materialist Preoccupation Versus the Confucian Ideal of Ease

The Master said: 'The gentleman is easy of mind, while the small man is always full of anxiety (Lau 1979: 7.37).[25]

The Master said: '. . . before he ["the mean fellow"] gets what he wants, he worries lest he should not get it. After he has got it, he

worries lest that he should lose it, and when that happens he will not stop at anything' (Lau 1979: 17.15).[26]

## "E. The Continuity of Being: Chinese Visions of Nature"

The Chinese belief in the continuity of being, a basic motif in Chinese ontology, has far-reaching implications in Chinese philosophy, religion, epistemology, aesthetics, and ethics (Wei-Ming 1996: 35).

The continuous presence in Chinese philosophy of the idea of *ch'i* as a way of conceptualizing the basic structure and function of the cosmos, despite the availability of symbolic resources to make an analytical distinction between spirit and matter, signifies spirit and matter as an undifferentiated whole" (Wei-ming 1996: 37).

To Chinese thinkers, nature is vital force in display. It is continuous, holistic, and dynamic. Yet, in an attempt to understand the blood and breath of nature's vitality, Chinese thinkers discovered that its enduring pattern is union rather than disunion, integration rather than disintegration, and synthesis rather than separation [in sharp contrast to the false dualism and disconnection of modernity as illustrated with the foundational humanity/nature division as emphasized by Al Gore]. The eternal flow of nature is characterized by the concord and convergence of numerous streams of vital force. It is in this sense that the organismic process is considered harmonious (Wei-Ming 1996: 41).[27]

The highest Confucian ideal is the 'unity of man and Heaven,' which defines humanity not only in anthropological terms but also in cosmological terms. In the Doctrine of the Mean (Chung yung), the most authentic manifestation of humanity is characterized as 'forming a trinity with Heaven and Earth' (Wei-Ming 1998: 13).

## F. Confucianism Transcending Modernity and the Enlightenment Philosophy

Greek philosophy Judaism, and Christianity . . . have been instrumental in giving birth to the Enlightenment mentality [that] makes a compelling case for them to reexamine their relationships to the rise of the modern West in order to create a new public sphere for the transvaluation of typical Western values. The exclusive [dualistic] dichotomy of matter/spirit, body/mind, sacred/profane, human/nature, or creator/creature must be transcended to allow supreme values, such as the sanctity of the earth, the continuity of being, the beneficiary interaction

> between humankind and Heaven, to receive the saliency they deserve in philosophy, religion, and theology (Wei-Ming: 1998: 6).

> An alternative model of sustainable development with an emphasis on the ethical and spiritual dimensions of human flourishing, must be sought (Wei-Ming 1998: 16). From classical times Confucians were concerned with harmonizing with nature and accepting the appropriate limits and boundaries of nature (Wei-Ming 1998: 19).

## CONCLUSION

Let me conclude this discussion by citing a passage that addresses the alleged "doom and gloom" of the environmental critique of modern society. Nordhaus and Shellenberger, and other advocates of positive social change arguments, would approve in their search for the advantages of positive corrections to the negativity of dystopian environmental advocacy for social change.

> One can look at the economic death agonies of industrial civilization as unequivocally bad . . . Yet one might also look upon the coming years of trauma as the long-needed opportunity to set some old problems straight . . . in short, to undertake an awesome but exhilarating task that few generations in human history have ever faced: the design of a new civilization.[28]

My response to this point about the need "to design a new civilization" is to point to the help toward this awesome goal that Confucianism and Green political theory and their critique of Western Industrialism that emphasize the central issues of morality-grounded environmental sustainability and social justice. It is during such periods of social crises when political philosophy is most needed, and, happily, when it has been most active and insightful; from its origins with the ancient Greek *polis* of Plato and Aristotle, and Confucius' own turbulent time in China to the present with environmental political theory in response to the environmental crisis, and now the promise of renewal through ancient and updated Chinese Confucianism, by "keeping past teachings alive and understanding the present." It is no hyperbole to say the world's future is at stake in seeking and implementing the positive argument for social change from modern Industrialism to the design of a new Confucian environmentally sustainable and socially just civilization.

## NOTES

* This phrase has been drawn from Daniel A. Bell and Hahm Chaibong (2003: 28), "Introduction: The Continuing Relevance of Confucianism," where the phrase is reversed and not in the gerund form. In addition, I put "modernizing" in quotes to alert the reader that I am not using the word in the ordinary sense of "making something modern" or "having the attributes—especially values—of modernity," which I definitely do not prescribe. Indeed, I recommend the opposite: that we need Confucianism to help us overcome the flaws, and resulting social and ecological problems of modern society. I borrow Bell and Hahm's phrase and use it in the more general sense of "updating" or "making more contemporary," taking into consideration modern, "high technological life," but not to emulate the value foundation and social institutions of misguided modernity, as I shall discuss below.

1. The alternative translation was provided by Edward Gilman Slingerland (Ivanhoe and Van Norden 2005: 6). Here and throughout I use the conventional notation system to this only work we have of Confucius' ideas (as noted by his students), of the book number followed by the paragraph quoted or referred to. Thus, "2.11" signifies: Book Two, Paragraph Eleven. Also, hereafter, all references to *The Analects* shall be to the edition by Lau.
2. For perhaps the leading example of such national emulation by the largest country on Earth in terms of population and what it means for the world's ecology as well as for its own citizens, see Leslie 2008: 29–39, 83–85.
3. For the details of our deteriorating ecological state, see any annual or biannual report on the state of the environment by such organizations as The World Resources, World Wildlife Fund, etc. For climate change, the most recent report that I have in mind here is Spratt and Sutton 2008.
4. On China's extreme state of environmental degradation, see Leslie 2008: 31, 33, for the latest official data from the Government including the two alarming facts cited in the text. For scholarly treatments on China's environmental crisis, see Day 2005, Economy 2004, and Shapiro 2001. For an annual report on China's deteriorating environmental situation, the Woodrow Wilson International Center for Scholars' China Environment Forum produces *China Environment Series.* The latest issue is Issue 10, 2008/2009, where the latest information is grim indeed: China likely surpassed the United States as the leading emitter of greenhouse gases in the world; the government admitted that it had not met energy efficiency goals; Lake Taihu (the country's third largest lake) turned green with a toxic algae; the International Olympic Committee announced that although the air is improved in Beijing, it may not be good enough for endurance sports at the Olympics, and huge riverbank landslides occurred near the Three Gorges Dam requiring the relocation of an additional 3 million people; see the Foreword to the 2007 volume, Turner 2007: 1.
5. As indicated by the polemical works of Michael Shellenberger and Ted Nordhaus that have stirred such a sharp critical reaction by the professional environmental world, see Shellenberger and Nordhaus 2004 and Nordhaus and Shellenberger 2007.
6. For an example of such radical environmentalism, labeled "ecologism," see Dobson 2007.
7. For a starting comprehensive, topical bibliography on the immense literatures contributing to the new field of environmental political theory that addresses

these issues, see my "Recommended Additional Reading," list in Kassiola 2003: 217–237.

8. For a bibliography of the critics of the limits to growth, dystopian environmentalism, see the Recommended Reading list in Kassiola 2003: 221–222.
9. See the DVD of Opening Ceremonies available through NBC broadcast network that exclusively televised the Beijing Olympic Games to the United States.
10. See Leslie 2008, as just one example of the American mass media fascination with contemporary China and its impact on the United States and the global environment and culture.
11. See the printed version of my address for a list of social bads that characterize contemporary American life (Kassiola and Liu 2007: 146–147).
12. See Gore (2006: 218), where he writes: "The Cartesian approach to the human story allows us to believe that we are separate from the earth, entitled to view it as nothing more than an inanimate collection of resources that we can exploit however we like; and this fundamental misperception has led us to our current crisis."
13. Note where the two passages are reversed in the original text.
14. See epigraphic quote above.
15. See note 5 above where sources are cited about China's deteriorating environmental conditions.
16. For a brief, but excellent, summary of the main ideas of Confucianism, I recommend Berthrong 1998: 237–263 and the translator's lengthy Introduction (Lau 1979) as good starting points in the immense commentary on Confucian thought about the basic ideas of Confucianism.
17. See Bell and Hahm 2003, Introduction by the editors on: "The Continuing Relevance of Confucianism" and the remainder of the volume where the contributors address this theme of the applicability of Confucianism to today's world. For the most recent attempt to apply Confucian ideas to contemporary politics, see Bell and Hahm 2003, and more recently, Bell 2008.
18. For a similar argument for the retention of the worthy portions of modernity against the environmentalists' critique, see Zimmerman 2003: 149–177.
19. Although several contemporary Confucians argue that this worldview can be made compatible with gender equality despite the conventional thinking to the contrary. See Yee 2003: 312–333; Chang 2008: 147–174, and Li 2008: 175–197.
20. For some of the long tradition of commentary within Confucianism beginning with the founder's own *Analects*, see Van Norden 2002, Hall and Ames 1987, Roetz 1993, and Hershock and Ames 2006.
21. For a portion of my argument on "A Green Industrialization for China," see Kassiola and Liu 2007: 151–153.
22. See John Stuart Mill, *Principles of Political Economy with some of Their Applications to Social Philosophy*, Volume 2, Book 4, Chapter 6, cited and discussed in Kassiola 2003: 118–119, and section on "Global Equilibrium," in the original LTG work: 161–188.
23. This goal of "modernizing" Confucianism was the aim of the contributors to Bell and Hahm 2003, but none of the contributors to this volume consider Confucianism as a possible alternative to Western, Industrialized model of development or take an environmental or value perspective as I suggest in this chapter. This result may be caused by the contributors' desire to seek

"concrete" examples of possible transfers of Confucian ideas to the West. Consider what the editors write: "What we are doing, then, is reviving Confucianism for the modern world by bringing about a creative synthesis between the two, an endeavor that would have been entirely familiar to Confucian intellectuals of the past . . . Rather than point to vague principles said to influence the "habits of the heart" of East Asians, our contributors tended to focus on particular practices and institutions still relevant and defensible today. In other words, they focus on concrete phenomena in East Asia. . . . (Bell and Hahm 2003: 26–27). See also, Tucker and Berthrong (1998) for creatively uniting Confucianism and environmentalism in a pathbreaking volume, the contemporary Confucians and their New Confucianism described by Makeham (2003), as well as the Bell and Hahm ed. (2003), Bell (2008), and Bell volumes that try to apply Confucian ideas to contemporary society. For a critique of the most recent and most popular work attempting to apply Confucianism to contemporary China, see Daniel Bell's review essay of Jiang Qing's wildly popular, current discussion of *The Analects* in Appendix 2: "Jiang Qing's *Political Confucianism*" in Bell 2008: 175–191.

24. Mengzi (Mencius), Book One, in Ivanhoe and Van Norden 2005: 117–118.
25. Contrast this idea to modern society that emphasizes endless seeking of competitive status and luxury goods with resulting high anxiety and mental illness.
26. The similarity of this passage to the famous paragraph of Thomas Hobbes regarding the endless seeking of material goods and power not for its own sake but to protect what we have already attained is striking. See my discussion of the Hobbesian paragraph in Kassiola 2003: 22–27.
27. The contrast here between the Chinese "anthropocosmic" [as Tu Wei-Ming (1996: 137–138) terms it] and the disconnected or disjointed view of the humanity/nature relation emphasized by Al Gore as the main cause for the environmental crisis is striking, and profoundly important to the contribution Confucianism can make, I believe, to understanding and resolving the environmental crisis.
28. Alvin Toffler (1975) quoted in Kassiola (1990: 30).

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