

# Introduction

Since China deepened its reform and opening-up through introducing the expression “socialist market economy with Chinese characteristics” and thus unleashing market forces in the early 1990s, its gross domestic product (GDP), especially in the coastal areas, has kept a high-speed growth momentum for over 15 years. This has imposed huge pressures upon the country’s already worsened environment and scant resources. Its mounting environmental problems have caught intensive attention from the Chinese government, domestic public as well as the international community. Water and air pollution, desertification, and other environmental degradation are now so severe that they not only threaten the sustainable development of the economy, people’s health, and ordinary life, but also pose an acute political challenge to the governance of the Chinese Communist Party (CCP).

The country is home to 16 of the world’s 20 most polluted cities,<sup>1</sup> and only 1% of the country’s 560 million city dwellers breathe air considered safe by the European Union.<sup>2</sup> As latest scientific findings describe the connection between climate change and human activity with more accuracy,

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<sup>1</sup>Elizabeth C. Economy, “The Great Leap Backward?”, *Foreign Affairs*, Vol. 86, Issue 5, (2007), p. 40.

<sup>2</sup>Joseph Kahn and Jim Yardley, “As China Roars, Pollution Reaches Deadly Extremes”, *The New York Times* (26, August 2007).

China, estimated by the International Energy Agency (IEA) to become the world's largest emitter of greenhouse gases in 2007, is now one of the countries under closer international scrutiny. China is facing the serious problem of access to clean water. Although China holds the fourth largest freshwater resources in the world (after Brazil, Russia, and Canada), skyrocketing demand, overuse, inefficiencies, pollution, and unequal distribution have produced a situation in which two-thirds of China's approximately 660 cities have less water than they need and 110 of them suffer severe shortages.<sup>3</sup> China is among the world's largest desert nations. A Ministry of Science and Technology task force says desertification costs China about US\$ 2–3 billion annually, while 800 kilometers of railway and thousands of kilometers of roads are blocked by sedimentation.<sup>4</sup> An estimated 110 million people suffer firsthand from the impacts of desertification and, by official reports, another 2500 square kilometers turns to desert each year.<sup>5</sup>

There is no doubt that China's high-speed economic growth over the last 30 years has had some positive impacts on the environment, given the fact that technology improvement and fund abundance are playing a conducive role in optimizing resources. Energy efficiency has improved drastically — almost three times better utilization of energy resources in 2000–2002 compared to 1978.<sup>6</sup> As a result of the changing industrial structure, the application of cleaner and more energy-efficient technologies, and pollution control efforts, ambient concentrations of particulate matter (PM) and sulfur dioxide (SO<sub>2</sub>) in cities have gradually decreased over the last 25 years.<sup>7</sup> Implementation of environmental pollution control policies — particularly command-and-control measures, and also economic and voluntary measures — have contributed substantially to leveling off or even reducing pollution loads, particularly in certain targeted industrial sectors.<sup>8</sup>

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<sup>3</sup>*Ibid.*

<sup>4</sup>Ron Gluckman, "Beijing's Desert Storm", <http://www.gluckman.com/ChinaDesert.html>.

<sup>5</sup>*Ibid.*

<sup>6</sup>The World Bank and SEPA, "Cost of Pollution in China: Economic Estimates of Physical Damages", The World Bank, Publications and Reports, March 2007, p. xi, [http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China\\_Cost\\_of\\_Pollution.pdf](http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China_Cost_of_Pollution.pdf).

<sup>7</sup>*Ibid.*

<sup>8</sup>*Ibid.*

**Table 0.1** China's Priority Environmental Problems

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- Water pollution, especially contamination by organic waste
  - Water shortages, particularly in northern China
  - Urban air pollution, as measured by particulates and SO<sub>2</sub>
  - Hazardous and toxic solid waste in urban areas
  - Soil erosion
  - Loss of forests and grasslands
  - Loss of species and habitats, especially wetland
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Source: Xiaoying Ma and Leonard Ortolano, *Environmental Regulation in China: Institutions, Enforcement, and Compliance* (Oxford: Rowman & Littlefield Publishers, 2000), p. 2.

At the same time, however, the economic miracle is accompanied by mounting environmental woes and the country is fast becoming one of the leading polluters in the world. China's priority environmental problems include water pollution, water shortages, air pollution, hazardous waste, soil erosion, loss of forests and grasslands, and loss of species and habitat (Table 0.1).

The year 2007 witnessed some very serious environmental incidents in China. In May and June 2007, a severe algae outbreak in the Taihu Lake, China's third largest freshwater lake, rendered tap water foul-smelling and undrinkable over the course of a week for half of the 2.3 million residents in Wuxi, a wealthy city in eastern China's Jiangsu Province. This worst-ever water crisis in Wuxi immediately caused social panic, touching off local residents' scare buying of bottled water in the supermarkets and even class suspension of some local colleges.

High levels of nitrogen and phosphorus are believed to be major causes of algae blooms, which develop in water that is rich in nutrients. Apart from Taihu Lake, blue-green algae outbreaks have been reported in Chaohu Lake and southwestern Dianchi Lake since May 2007, and have threatened the local tap water supply. The blue-green algae outbreak in large lakes was only one symbol reflecting China's rapidly deteriorating environment and ecosystems in recent years, when the country was turning itself into a "world workshop" with economy surging at double-digit growth rate per annum. In May and June 2007, several hundred people staged a peaceful demonstration against a planned chemical plant named Tenglong Aromatic PX Company, in southern China's Xiamen City.

The work was suspended by the government after residents sent about one million mobile phone short messages in protest against possible health dangers.

Water crisis, air pollution, climate change as well as growing protests triggered by environmental problems are testing Chinese leaders' wisdom to balance economic growth with environmental problems. If the Chinese Communist Party wants to consolidate its rule, it has to address environmental issues properly and timely. Examples from Eastern Europe and the Soviet Union show that growing environmental discontent often served as a catalyst for broader opposition to the communist regime. A notorious accident at the Chernobyl nuclear power plant in Ukraine in 1986, for example, undermined faith in the Soviet authorities and helped accelerate the breakup of the Soviet Union.

Environmental conservation has made it to the highest platform in the CCP, whose General Secretary Hu Jintao's political report to the 17th Party Congress in 2007 floated the notion of "conservation culture" (*shengtai wenming*) for the first time, in the context of the need to "build a comprehensive, well-off society".

Environmental pollution is a global issue that most fast-growing economies have to face, relating to many factors such as economic structure, technological level, political systems, governance capacity, institutional building as well as public awareness and social participation. In China, however, the increasing environmental crisis is more likely a result of its unique political and economic institutions, only showing the weak capacity of the government to handle those "growing pains". This book, putting an emphasis on China's current environmental policy, regulations, related enforcement issue, and the bureaucratic politics concerning environmental protection, shows governance improvement is a better solution to China's pollution, rather than simply enhancing fund and technology investment.

In recent years, China's deteriorating environment and related governance problem have drawn growing attention from China watchers and other researchers outside the country. In January 1998, a conference entitled "The Chinese Environment" was convened by *The China Quarterly* at the School of Oriental and African Studies, University of London. The discussion papers for the conference were later compiled into *Managing the Chinese Environment*, a book edited by Richard Louis Edmonds and

published by the Oxford University Press.<sup>9</sup> This book covered a wide range of China's environmental problems, including land resources, water pollution and shortage, biodiversity and energy use. In his chapter "The Environmental Legacy of Imperial China", Mark Elvin argued in the book that environmental problems are not new to China, which has pushed its growth beyond sustainable limits on many occasions prior to the modern era. In her contribution to the book, Abigail R. Jahiel said that there are problems of insufficient authority and a lack of coordination in China's bureaucracy involved in environmental protection, while the overall management ethos in China remains one in which sustaining economic growth is more important than sustaining the environment.<sup>10</sup> In another book *Environmental Regulations in China: Institutions, Enforcement, and Compliance*, the authors emphasized the institutional factors influencing the environmental protection in China, giving a much more detailed picture about China's legal and administrative system concerning ecological conservation.<sup>11</sup> The book pays particular attention to the customs and informal codes of behavior that govern relationships between enterprises and regulators and to the post-1978 economic and administrative reforms that are moving China toward a market economy. The authors interestingly argued that *guanxi*, the Chinese word frequently translated as "social connections", can be used by entrepreneurs to avoid compliance of environmental regulations or can assist in enhancing environmental protection in both ways.<sup>12</sup> The book, *China's Past, China's Future: Energy, Food, Environment*, argued that the gradual lowering of subsidies on energy use and deregulation of coal prices have helped China to reduce its energy intensity remarkably.<sup>13</sup>

In cooperation with the Chinese government, the World Bank has since 2003 put together a joint Chinese and international expert team that

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<sup>9</sup>Richard Louis Edmonds (ed.), *Managing the Chinese Environment* (Oxford: Oxford University Press, 1998).

<sup>10</sup>Abigail R. Jahiel, "The Organization of Environmental Protection in China", *Managing the Chinese Environment* (Oxford: Oxford University Press, 1998), p. 33.

<sup>11</sup>Xiaoying Ma and Leonard Ortolano, *Environmental Regulation in China: Institutions, Enforcement, and Compliance* (Oxford: Rowman & Littlefield Press, 2000).

<sup>12</sup>*Ibid.*, p. 83.

<sup>13</sup>Vaclav Smil, *China's Past, China's Future: Energy, Food Environment* (New York: RoutledgeCurzon, 2004), p. 67.

developed a new model to estimate how much environmental air and water pollution costs China, including in terms of human health impact. It is the most comprehensive report on economic costs and human health impacts of environmental pollution undertaken in China. The report entitled *Cost of Pollution in China: Economic Estimates of Physical Damages* found out that the combined health and nonhealth cost of outdoor air and water pollution for China's economy came to 362 billion yuan in 2003 (or about 2.68% of the country's GDP).<sup>14</sup> According to this report, air pollution, especially in large cities, is leading to higher incidences of lung diseases, including cancer, respiratory system problems, and therefore higher levels of work and school absenteeism. The report concluded that regardless of income levels in China, the willingness to pay for reduced health risks associated with environmental pollution is about the same.

In its report entitled *Environmental Performance Review of China*, OECD (Organisation for Economic Co-operation and Development) gave a number of recommendations to China for environmental management, including establishing SEPA (State Environmental Protection Administration) as a ministry, making local leaders more accountable for their environmental performances and extending the use of pollution charges, user charges, emissions trading, and other market-based instruments.<sup>15</sup> In their paper published by *Science*, Jianguo Liu and Jared Diamond also suggested a reform of China's administrative system and a change in its model of economic development to tackle the environmental problems.<sup>16</sup> In the paper "The Great leap Backward? — The costs of China's Environmental Crisis",<sup>17</sup> Elizabeth C. Economy used a much harsher language to criticize China's mounting environmental problems, saying China's environmental

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<sup>14</sup>The World Bank and SEPA, "Cost of Pollution in China: Economic Estimates of Physical Damages", The World Bank, Publications and Reports, March 2007, p. xvii, [http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China\\_Cost\\_of\\_Pollution.pdf](http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China_Cost_of_Pollution.pdf).

<sup>15</sup>OECD Working Party on Environmental Performance, "Environmental Performance Review of China — Conclusions and Recommendations (Final)", The OECD Publications and Documents, 9 November 2006, p. 5, <http://www.oecd.org/dataoecd/58/23/37657409.pdf>.

<sup>16</sup>Jianguo Liu and Jared Diamond, "Revolutionizing China's Environmental Protection", *Science*, Vol. 319, No. 5859 (2008), pp. 37–38.

<sup>17</sup>Elizabeth C. Economy, "The Great Leap Backward?", *Foreign Affairs*, Vol. 86, Issue 5 (2007), pp. 38–59.

problems “stem as much from China’s corrupt and undemocratic political system as from Beijing’s continued focus on economic growth”.<sup>18</sup>

Stefanie Beyer assessed the current state of China’s environmental legislation framework in the paper “Environmental Law and Policy in the People’s Republic of China”, highlighting the surprising comprehensiveness of China’s environmental protection legislation and enforcement tensions between the center and the periphery, a result of decentralization and growing local protectionism.<sup>19</sup> *The China Environment Yearbook (2005): Crisis and Breakthrough of China’s Environment*,<sup>20</sup> known as the Green Book of Environment 2005 (*Huanjing Lupi Shu 2005 Nian: Zhongguo de Huanjing Weiji yu Tuwei*) in the original Chinese version, was written in English in 2007 as an attempt by “Friends of Nature”, China’s first environmental NGO, to gather a large number of experts to observe the current record and consider the process of environmental protection in China from the public perspective. *Environmental Governance in China*, by editors Neil Carter and Arthur P. J. Mol, published in 2007, gives special attention to the development of “environmental governance” in contemporary China, especially in the urban, industrial, and infrastructure sectors, showing how the rapid economic growth that has transformed China in recent years has major implications for the environment, as well as future economic development.<sup>21</sup> *Environmental Governance in China* was previously published as a special issue of the renowned journal of *Environmental Politics*, an internationally refereed journal sensitive to the distinction between goals of conservation and of a radical reordering of political and social preferences.

This book, with reference to the above-mentioned research materials, analyzes the factors in China’s governance and political process that affect and restrain its capacity to handle the mounting environmental problems. It argues that solutions to China’s ecological woes to a larger

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<sup>18</sup>*Ibid.* p. 56.

<sup>19</sup>Stefanie Beyer, “Environmental Law and Policy in the People’s Republic of China”, *China Journal of International Law*, Vol. 5, No.1 (2006), p. 185.

<sup>20</sup>Liang Congjie and Yang Dongping (eds.), *The China Environment Yearbook 2005: Crisis and Breakthrough of China’s Environment* (Boston: Brill, 2007).

<sup>21</sup>Neil T. Carter and Arthur P.J. Mol (eds.), *Environmental Governance in China* (London: Routledge, 2007).

extent lie in the political and institutional changes rather than more engineering, technological, and investment input. China is now at the crossroad of further political and economic reform, and the intensified public attention to environmental pollution may help the ruling Chinese Communist Party to decisively push forward the long-sluggish political reforms.