

# Environmental Governance in China: State Control to Crisis Management

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*Abstract: After three decades of rapid economic growth, environmental degradation is now one of the most significant issues facing the Chinese government. The country's air, water, and land are all heavily polluted. Despite a number of environmental protection initiatives, both at the national and local levels, China ranks poorly when compared with other emerging nations. Formal government institutions have failed to address adequately the people's concerns. Beijing's system of decentralized authoritarianism lacks the political processes and incentives needed to implement meaningful national reform and to encourage local governments and polluting factories to enforce laws and regulations. The Chinese government now faces growing pressure from civil society, as NGOs, Internet activism, and protests compel the government to proactively address environmental issues. Beijing would do well to increase engagement between the government and its citizens, rather than relying on its current crisis management style of environmental governance.*

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In March 2013, residents in Shanghai watched as more than 16,000 diseased pigs floated down the tributaries of the city's Huangpu River. Farmers upstream in Zhejiang province had slaughtered the diseased pigs, and rather than bury or cremate them as the law mandated, they had simply dumped them in a nearby waterway that flowed into the Huangpu. Hundreds of miles away, Hunan's Liuyang River experienced a similar influx of dead pigs.

This was only the latest in a string of environmental disasters in China. Earlier in the year, residents in Beijing, along with those in a number of other Chinese cities, discovered that breathing the air where they lived was equivalent to living in a smoking lounge. And people in Guangdong learned that Hunan-produced rice sold in their province in 2009 was contaminated with cadmium, a metal that when ingested can cause severe joint and spine pain along with cancer. For all the headlines these disasters garnered, however, none was a first-time event. Similar incidents had occurred repeatedly in the preceding years.

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At the heart of the Chinese government's inability to protect the environment is the country's particular mix of political institutions, processes, and incentive structures. Decentralized authoritarianism, which so successfully spurred the country's economic growth, has proved highly damaging to the environment. On the economic front, the combination of centrally mandated targets for economic growth, devolution of authority to local officials, engagement with the international community, and constrained participation by the private sector provided substantial economic opportunities and incentives throughout the political system to encourage economic growth. This same institutional configuration, however, has not delivered an equivalent set of incentives – either economic or political – to engender effective environmental protection. Put simply, opportunities to “get rich quick” are more easily grasped than those intended to “protect the environment.”

Is China's environmental situation substantially different from those in other countries with a similar level of economic development, population size, economic complexity, or political system? While there is no country that closely approximates China across all these metrics, Yale University's Environmental Performance Index, which evaluates countries' current environmental performance as well as their performance trends over the past decade, offers some perspective. In 2012, China ranked 116th out of 132 countries.<sup>1</sup> China placed ahead of India (125th), which boasts a similarly large population, decentralized political system, and complex economy. (India, however, is a democracy, and its economic resources are far smaller: its per capita GDP is not even one-fourth that of China.) When compared with virtually any other strong emerging economy, such as Russia (106th) or Brazil (30th), China fared poorly. Its still-developing East

Asian neighbors – whether democracies or authoritarian states – also outperformed China handily: Thailand (34th), Indonesia (74th), and Vietnam (79th) among them.

Still, parallels and lessons can be drawn from others' experiences. Over the past five years, for example, new pressures to reform China's system of environmental governance have emerged. The Chinese middle class, much like that in every other country in the world at China's level of economic development, has begun to understand the trade-off between the benefits of rapid, unfettered economic growth in the short term and the health, environmental, and economic price paid over the long term. Aided by the widespread adoption of the Internet, the middle class has discovered its voice and, increasingly, the power to influence government policy – particularly at the local level – through public pressure. Chinese environmental NGOs, like their counterparts elsewhere, are taking on increasingly sensitive issues, moving from environmental education to anti-dam activism, pressure for greater transparency, and a stronger system of environmental law.

The impact that these calls for change have had on Beijing's system of environmental governance, however, has thus far been limited. The Chinese government has largely resisted the path adopted by most (albeit not all) of the other countries ranked above it in the Yale index, remaining wary of greater participation by civil society. What is emerging instead is a crisis-driven model of environmental governance at the local level, which, while effective in delivering environmental protection on discrete issues in the short term, does not foster a sustainable, long-term environmental governance structure.

China faces a deep and enduring environmental crisis born of decades – or in some cases, such as deforestation, centuries

– of resource-intensive growth. Two-thirds of China's cities cannot meet the country's air-quality standards,<sup>2</sup> and according to a 2012 Asian Development Bank study of the country's five hundred largest cities, less than 1 percent meet the World Health Organization's air-quality standards.<sup>3</sup> Much of the challenge stems from China's reliance on coal for power; coal contributes around 70 percent of the country's overall energy mix, and energy consumption grew 130 percent from 2000 to 2010.<sup>4</sup> And as Chinese citizens become wealthier and move into cities, they will use more energy. Urban residents use on average up to four times more energy than their rural counterparts.<sup>5</sup>

China also suffers from high rates of land degradation and desertification, as well as high levels of soil pollution. Centuries of deforestation, combined with overgrazing of grasslands and overuse of agricultural land, have left much of China's north and northwest seriously degraded. The level of soil erosion on the Loess Plateau, once the center of Chinese agriculture, is the highest in the world, and China has been unable to arrest the process of degradation. According to a survey completed by state forestry officials, more than one-quarter of China's land – well over one million square miles – is now desert or facing desertification.<sup>6</sup> At the same time, soil pollution from unregulated factories has seriously contaminated some of China's arable land.<sup>7</sup> The government, however, has been unwilling to release detailed information on soil pollution: a survey released in 2013, with information dating back to 2006, has been deemed a state secret. Beijing has only acknowledged that more than 10 percent of arable land in the mainland is polluted.<sup>8</sup>

No resource is more important to China's continued economic growth or more worrisome to China's leaders than water. Agriculture demands the largest share of

the country's water resources, but household and industrial demands have increased dramatically over the past decade as individual wealth and the overall economy continue to expand. At least ten provinces in China are below the World Bank's water poverty level of 1,000 cubic meters per person per year; these provinces account for 45 percent of the mainland's GDP, 40 percent of its agricultural output, and more than half of its industrial production. According to Jiao Yong, vice minister of water resources, in 2012 China had more than 400 cities without sufficient water, 110 of which faced serious scarcity.<sup>9</sup> China's water is also highly polluted. The quality of the water has deteriorated significantly due to industrialization and urbanization. A February 2013 report by the Geological Survey of China revealed that 90 percent of the country's groundwater was polluted,<sup>10</sup> and approximately one-fourth of the water that flows through China's seven major river systems and their tributaries is considered unfit for even agriculture or industry.

The environmental consequences of China's development choices are significant. Equally consequential is how the environment affects the Chinese economy and public health. As Minister of Environmental Protection Zhou Shengxian stated in a 2011 editorial, "The depletion, deterioration, and exhaustion of resources and the worsening ecological environment have become bottlenecks and grave impediments to the nation's economic and social development."<sup>11</sup>

In 2010, the Chinese Academy of Environmental Planning estimated that the cost of environmental degradation equaled 1.54 trillion yuan, or 3.5 percent of China's GDP.<sup>12</sup> Skyrocketing pollution has also brought about a number of public health challenges. In 2012, Vice Minister of Environmental Protection Wu Xiaoqing

claimed that 40 percent of rivers and 55 percent of groundwater was unfit for drinking. All along China's major rivers, villages are experiencing rising rates of disease, cancer, tumors, and other health issues. Lee Liu, a geographer at the University of Central Missouri, reported in *Environment* magazine that in 2010, he had identified 459 "cancer villages" – villages in which cancer rates are significantly higher than normal. Most are clustered around rivers with the lowest grade of pollution on the government's five-point scale. Some of these villages have cancer rates thirty times the national average.<sup>13</sup> The effects of water pollution are not limited to China's water supply. Chemicals and pollutants that seep into rivers and groundwater also find their way into food crops and eventually onto dinner tables. A consistent diet of cadmium-laced rice has caused bone softening and weakness in southern Chinese villagers. And according to *China Economic Weekly*, in 2007, as much as twelve million metric tons of grain – enough to feed forty million people annually – were contaminated with heavy metals absorbed from the soil.<sup>14</sup>

Air pollution is also a significant source of health-related problems in China. According to Yale's Environmental Performance Index, China's performance in the area of health impacts from air pollution was among the world's worst, ranking 128th out of 132 countries.<sup>15</sup> The Global Burden of Disease Study, first presented in December 2012, estimates that outdoor air pollution in China contributed to 1.2 million premature deaths in 2010. According to the same study, India, with roughly the same population but with a much smaller economy, confronts 620,000 premature deaths due to air pollution-related diseases.<sup>16</sup>

China's environmental challenges are daunting, and the needs of a rapidly ex-

panding economy and large population ensure that the country's environmental problems will not be resolved easily. As Premier Li Keqiang acknowledged in January 2013, Beijing's air pollution was the result of "accumulated problems" and solving it would take "a long time" and involve the "concerted effort of the whole society."<sup>17</sup>

Environmental policy-making in China reflects the same institutional arrangements that govern the formulation of economic policy. Beijing establishes a set of targets and timetables and relies on implementation by local authorities. Local officials are encouraged and sometimes directed to experiment with different policy implementation models. Interaction with and learning from the international community is also generally encouraged. However, private actors – in the case of the environment, NGOs, business, and the Chinese public – have limited opportunities for formal participation in the political process.

During the 12th Five-Year Plan (2011 – 2015), for example, the State Council's plan for environmental protection called for an investment of US\$536 billion (3.4 trillion yuan); by comparison, Bloomberg News estimates that the 11th Five-Year Plan allocated only around 40 percent of that total.<sup>18</sup> China is also the world's leading market for renewable energy investment: it attracted US\$65.1 billion in investment in 2012, which represents over one-fifth of total global investment in renewables.<sup>19</sup>

The 12th Five-Year Plan also embraced a number of binding targets on resource consumption and environmental protection. According to the 12th Five-Year Plan for the coal industry, China plans to restrict coal output and demand to approximately 3.9 billion metric tons per year by 2015.<sup>20</sup> (According to official statistics from the National Bureau of Statistics, in 2011, China produced 3.52 billion metric

tons of coal and consumed 3.48 billion metric tons.<sup>21</sup>) Additional measures from the 12th Five-Year Plan include a 16 percent cut in energy intensity, a 17 percent cut in carbon intensity, an 8 percent reduction for sulfur dioxide and chemical oxygen demand, and a 30 percent cut in water intensity.<sup>22</sup>

China's decentralized authoritarian system, however, does not augur well for actual implementation of these environmental targets. At the beginning of the 11th Five-Year Plan (2006–2010), Beijing also set a number of ambitious targets for pollution reduction and improvements in the country's energy practices: reduce emissions of sulfur dioxide by 10 percent, reduce energy intensity by 20 percent, expand the forest coverage rate from 18.2 percent to 20 percent, and many others. But in March 2012, at the joint session of the National People's Congress and the Chinese People's Political Consultative Conference (CPPCC), then-Premier Wen Jiabao, reporting on the results of the 11th Five-Year Plan, conceded that Beijing had failed to meet a number of the environmental targets. Those goals missed included reductions in energy intensity, sulfur dioxide, nitrogen oxide (which instead of decreasing by 1.5 percent actually increased by 5.7 percent), and chemical oxygen demand, a measure of water pollution.<sup>23</sup>

Why did the Chinese government not meet its targets? As Zhang Ping, head of the National Development and Reform Commission, noted in March 2012, "There are a lot of complicated reasons for failing to meet the targets [of the 11th Five-Year Plan] . . . the biggest is that we have not transformed our economic development model. Our means of growth are still too coarse and our structural adjustment is lagging behind." Zhang's remarks reflected the continued imperative of rapid growth, energy-inefficient industrial structure, and reliance on fossil fuels.<sup>24</sup>

The nature of China's political institutions and processes is just as important as the structure of the economy and energy use in understanding Beijing's inability to address its environmental challenges. One issue is China's continued reliance on large-scale campaigns to meet its environmental targets. The leadership uses mass campaigns to tackle macro-level environmental threats, including land degradation, water pollution, and water scarcity. These campaigns, however, suffer from several limitations.

Often there is significant attention upfront but little follow-through past the stated target of completion. In 1978, for example, Beijing initiated a series of large-scale tree-planting campaigns with the goal of covering 35.6 million hectares by 2050. The fourth phase of the project, the Green Wall of China, began in 2002 and included shelterbelt construction in northern China, conversion of farmland to natural forests, and conservation of natural forests. Beijing reportedly invested as much as 460 billion yuan in the project, which according to the State Forestry Administration has resulted in 61.4 million trees being planted over the past three decades. China's forest coverage reportedly grew to 20.36 percent in 2010 from 18.2 percent in 2005. However, a 2011 survey by the Beijing Forestry University revealed that the afforestation project has an 85 percent failure rate.<sup>25</sup> Local officials had little political or economic incentive to ensure proper implementation of the program. Tree-planting efforts, many of which engaged entire communities, produced a number of problems: planting foreign species with water needs beyond native capacity, planting trees too close together, and failing to care for the trees after they were planted.<sup>26</sup>

The decentralized nature of China's political system also means that Beijing often fails to get policy buy-in from local offi-

cials. Local environmental protection bureau officials' primary economic benefits and political obligations derive from local governments rather than from the Ministry of Environmental Protection. This creates ample opportunity for political pressure as well as distorted incentives to prevent local environmental officials from fully enforcing laws and regulations. Of the 1.3 percent of GDP that Beijing currently spends on environmental protection (note: Chinese experts believe the percentage should be closer to 2–4 percent of GDP),<sup>27</sup> half finds its way into other local priorities, such as infrastructure development.<sup>28</sup> Implementation of central directives also suffers from various elements of weak local capacity. Local environmental protection bureaus often lack the capacity to enforce laws and regulations, with too few human or financial resources to oversee the factories in their jurisdiction. Fines for polluting enterprises are often ignored or negotiated in such a way that continuously paying fines is cheaper than following regulations.

These challenges are not unique to China. Other highly decentralized states, such as India, face similar issues. A review of India's environmental policy-making states: "A major shortcoming [in environmental protection] relates to the gap between central and state-level authorities preventing consistent implementation of federal legislation . . . the SPCBs (State Pollution Control Boards) are embedded in a dual command structure, as they also receive funding and directives from state-level governments. . . . Moreover capacity of different SPCBs is highly uneven."<sup>29</sup>

In China, outright opposition by local authorities to central government environmental directives is also not uncommon. In 2005, the State Environmental Protection Administration (renamed the Ministry of Environmental Protection in 2008) launched the Green GDP campaign, an initiative designed to calculate the costs of

environmental degradation and pollution to local economies. These costs would then serve as a metric for evaluating the performance of local officials, accounting for both economic growth and environmental stewardship. A few provinces, such as Shanxi, embraced the process: officials there believed that the province's environment and citizens' health had suffered unduly from serving as the coal capital for much of the rest of the country and, therefore, should be compensated. Many more, however, balked at the process, fearing that adopting an evaluation metric of Green GDP would undermine the validity of growth statistics. Provinces that were reporting growth rates of 9 to 10 percent could easily see their rates drop to 5 or 6 percent once environmental externalities were included. The National Bureau of Statistics (NBS), which was charged with gathering and calculating the data, also resisted the campaign. It claimed that it did not have the ability to determine a Green GDP accurately and that it did not believe officials should be evaluated on such a basis. The NBS released only a partial report in 2006 and refused to release subsequent findings. While the initiative appeared to lie dormant for a number of years, in 2013, following the air pollution crises in Beijing and other Chinese cities, *China Daily* published a piece calling for renewed efforts toward adopting a Green GDP: "It is generally believed that it is not technical limits but local governments that have prevented such data from being released. Such data releases might affect the promotion prospects of local officials. It is clear that if China wants to press on with the uphill task, it must first reshuffle its performance assessment methods for government officials."<sup>30</sup> The message is unequivocal: until local cadres are held accountable for the environment by the central government, the green implementation gap will remain.

At the same time, China's decentralized authoritarianism can bring benefits to the country's environmental protection efforts through its ability to conduct controlled experiments at the local level. China has invested billions of dollars in large eco-cities, models of green urban design. In this effort, China often looks to the international community to understand best practices and access advanced technologies. The most substantial of these efforts is the Tianjin Eco-City, a joint development project between the Chinese and Singaporean governments. Located just outside Tianjin and less than an hour from Beijing, the eco-city project sits on 11.6 square miles of nonarable land that was previously uninhabited and unusable. Upon its completion, the city will house as many as 350,000 residents. Already about 5,000 apartments have been sold. As much as 20 percent of the city's energy will come from renewable sources such as solar and geothermal power, and 90 percent of travel within the city will be by foot, bicycle, or public transportation. The city will also feature more green space than almost any other Chinese city. Early reviews suggest that the city planners have made a substantial commitment to green transportation through ample bus and bike lanes, but have failed to develop pedestrian-friendly community spaces.<sup>31</sup>

The city of Qingdao, as well, has partnered with Germany to establish an eco-park that not only will be a center of clean-technology investment, but also will itself operate with high environmental standards.<sup>32</sup> Shenyang, the largest city in northeast China and once an industrial hub, is another example. In 2009, the city announced plans to collaborate with IBM and Northeastern University to create a "smart eco-city" to improve energy efficiency, water supply and use, and traffic flow.<sup>33</sup>

If such partnerships are successful, these eco-cities and the Sino-German Qingdao

eco-park could become models for many other urban development efforts, particularly as hundreds of millions of additional rural Chinese citizens transition into urban life over the next decades.

While China eagerly seeks input on urban design and environmental technologies from advanced industrialized countries, it has been less interested in adopting certain of the political institutions that may contribute to more effective environmental protection. Missing from China's environmental protection efforts, for example, is the robust institutional mechanism for engaging with civil society, formally organized NGOs, the business community, and the Chinese public that typically exists in nonauthoritarian states. A comparative study by Andrew Whitford and Karen Wong of eighty countries (including China) indicates that democracy has a statistically significant and positive effect on environmental sustainability.<sup>34</sup> In contrast to democratic developing countries, the formal role of private actors in China – whether in the business sector or civil society – is much more circumscribed. In these other countries, environmental NGOs have played critical roles in educating policy-makers, as well as holding them accountable. In the Philippines, for example, environmental NGOs direct a Green Electoral Initiative that ranks politicians on their environmental views and practices and publishes these findings in advance of elections. In Costa Rica, NGOs provide formal environmental-law training to judges, police, and elected officials.<sup>35</sup>

In China, however, the two most established formal mechanisms – public participation in the review of environmental impact assessments (EIAs) and the citizen complaint system – are only spottily implemented. With regard to public participation in EIAs, as Chinese scholars have noted, there are a number of limitations: only a small percentage of projects are

subjected to compulsory public participation; the timing and duration of engaging the public is short; the method of selecting those who can participate is often biased; and the amount of information disclosed is often quite limited in an effort to prevent social unrest.<sup>36</sup>

Chinese citizens also have the right to engage the system through a formal complaint system: writing letters to local environmental protection bureaus complaining of air, water, and waste pollution. According to the 2010 *Environmental Statistical Yearbook*, there were more than 700,000 such complaints in 2010.<sup>37</sup> During the 11th Five-Year Plan, the Ministry of Environmental Protection itself received 300,000 petitions on environmental matters. But resolution of these issues remains difficult. All told, there were only 980 administrative court cases about EIAs and only 30 criminal cases from 2006 to 2010. It is estimated that not even 1 percent of environmental disputes are resolved in court.<sup>38</sup>

This lack of an effective institutional mechanism for the Chinese people to participate in the environmental policy-making process or to get redress through the legal system has translated into a vibrant environmental protest movement in China. When citizens' concerns are not addressed satisfactorily, they turn to protest to make their voices heard, either via the Internet or on the street. The environment has now surpassed illegal land expropriation as the leading source of social unrest in China.<sup>39</sup>

Taiwan experienced a similar phenomenon in the early 1980s through the lifting of martial law in 1987. In a study of the evolution of Taiwan's environmental movement, Yok-Shiu Lee and Alvin So detail how local communities in many areas of the island began to protest against the polluted water and air they felt was harming their health and livelihood. Middle-

class intellectuals, professors, and sympathetic newspaper reporters supported the protests and called upon the government to rethink its distribution of resources in favor of a stronger environmental protection effort. According to Lee and So, these protests contributed significantly to the evolution of a far more participatory political culture in Taiwan.<sup>40</sup>

Engaging China's educated middle class in environmental protest is reasonably recent, dating back only to the 2007 protest in Xiamen, where university students and professors organized a widespread protest against the planned siting of a PX (paraxylene) factory near the city center. Since that time, however, dozens of urban-based, middle-class environmental protests have occurred throughout the country. In July 2012, for example, protests broke out in the southwestern province of Sichuan, where residents of the small city of Shifang were upset by a planned molybdenum copper plant. The facility would have been a US\$1.64 billion project funded by the Sichuan Hongda Company,<sup>41</sup> but residents of Shifang, led by students and joined by others from nearby towns and cities, feared that the plant would have a negative impact on the environment and public health.<sup>42</sup> The state-supported *Global Times* estimated that several thousand people took part in the protests,<sup>43</sup> which turned violent, forcing the police to use tear gas and stun grenades to disperse the crowds.<sup>44</sup> Thirteen protestors were injured<sup>45</sup> and another twenty-seven were detained, six of whom were formally charged.<sup>46</sup> On the third day of demonstrations, local officials announced that the project would be halted.<sup>47</sup>

Later that month, inspired by Internet reports of the Shifang protest, thousands of protesters took to the streets of Qidong, a coastal city in Jiangsu province, to challenge a pipeline that would discharge waste into the sea and potentially pollute a near-



by fishery, as well as contaminate drinking water.<sup>48</sup> Worried that wastewater originating from Japan's Oji Paper Company in the city of Nantong would not be cleaned properly, a thousand or more protestors (Reuters reported that there were about one thousand,<sup>49</sup> while the *Asahi Shimbun* estimated ten thousand<sup>50</sup>) damaged government buildings, cars, and property on July 27.<sup>51</sup> Some demonstrators clashed with police, and at least one police car was overturned; hundreds of police arrived later in the day to protect government offices.<sup>52</sup> Fourteen people pleaded guilty to encouraging the riot in which dozens of police were injured, the local Communist party chief was stripped half-naked, and protestors caused more than US\$20,000 in damage.

Even Beijing has been confronted with substantial citizen discontent as a result of its skyrocketing levels of air pollution. In January 2013, Premier Li Keqiang first attempted to downplay the ability of the Chinese government to address the problem: "The current situation wasn't created in one or two days, it accumulated over a long time. Solving this problem will also be a long-term process."<sup>53</sup> Yet just two months later, facing mounting calls on the Internet for more aggressive action, Li stated that he would use an "iron fist, firm resolution and tough measures" to tackle the pollution problem.<sup>54</sup> By June, Beijing had issued ten measures to reduce air pollution, and by September, it announced the "Action Plan for Air Pollution Prevention and Control." The action plan was largely a top-down initiative, including targets to reduce coal consumption, to limit concentrations of the harmful pollutant PM<sub>2.5</sub>, and to eliminate high-polluting vehicles.<sup>55</sup> Subsidies for electric cars and plans to close down outdated factories were also included as part of the leadership's effort. Many of these policies, however, have been tried before or are already in place to little

effect. The question remains whether the incentives, as well as implementation and enforcement mechanisms, will be put in place to ensure that this time the effort succeeds.

In each instance of environmental demonstration, local governments respond by acceding to the demands of the protestors. According to Ma Jun, director of the Institute of Public Environment in Beijing: "The next leadership of China is going to face a challenge on these environmental issues, which the previous leadership had not seen so strongly for 30 years. For the first time, some local officials have begun to call us to learn more about how these situations are handled in other countries – they really worry about becoming the next protest targets."<sup>56</sup> In contrast to the often raucous engagement of the Chinese citizenry in environmental issues in the country, environmental NGOs in China have adopted a far more measured approach, relying on environmental laws and regulations to advance their cause. Despite numerous political and economic obstacles, they have been at the forefront of strengthening civil society in China, advancing transparency, rule of law, and official accountability. They also exist as part of a much wider community of environmental activism, including the Chinese media and international NGOs. Over time, Chinese NGOs have become far more adventurous in the types of issues they address, moving from environmental education and biodiversity protection in the mid-1990s to advocating greater transparency and launching anti-dam initiatives by the mid-2000s. Often they derive both technical and economic support by partnering with their international counterparts. Since 2009, for example, Ma Jun has worked with a U.S. NGO, the Natural Resources Defense Council, to conduct an annual transparency index, which "ranks the performance of 113 major Chinese cities

in complying with environmental disclosure requirements.”<sup>57</sup> While many cities refuse to release the data, even though it is required by law, some Chinese officials have become fans of greater transparency as a result of work by NGOs. One official from Hunan Province People’s Congress uses his Weibo account (a microblogging site similar to Twitter) to “name and shame” polluters, leading one named company to put in place new environmental clean-up technology.<sup>58</sup>

Chinese NGOs have also become active in the legal arena, which remains a weak link in the country’s environmental protection efforts. As is the case with other socialist and formerly socialist countries with strong command-and-control legacies, Chinese environmental laws are often not well- or fully-articulated and are ill-suited to the demands of an emerging market-based economy. In a review of its own environmental protection process, the Vietnamese government cites legal norms that are “contradictory, overlapping, irrational and unfeasible.”<sup>59</sup> India as well faces a situation in which its laws and regulations are ill-equipped to use market-based instruments to help protect the environment; its fiscal tools are also directed to “promote compliance with environmental standards” rather than to “support incentives to invest in pollution control.”<sup>60</sup>

Yet India’s legal system is far more accessible to the Indian citizenry, affording much greater opportunity for private citizens to play a watchdog role, working through the judiciary to “force state action.” A 1985 Indian Supreme Court case, in which local environmental groups in the state of Uttar Pradesh pursued a lawsuit against local limestone quarries, provided a legal precedent that established public-interest litigation as a “central pillar of Indian environmental governance” and provided the judiciary with a “key role in driving policy changes.”<sup>61</sup> In China, by

contrast, there is no such defining legal precedent for citizen engagement. While a limited number of environmental NGOs have had the right to bring environmental lawsuits through the court system, individual citizens have not. Moreover, a 2013 draft of China’s Amendment of Environmental Law proposes that only one body, the government-organized NGO All-China Environment Federation, will be allowed to file public-interest environmental lawsuits, thereby sharply limiting the number of lawsuits that will be able to be launched. The draft, unsurprisingly, has caused a firestorm of controversy among environmental activists in China.<sup>62</sup>

Despite growing prominence, Chinese environmental NGOs also remain hampered by government regulations that make it difficult for them to find funding, expand their activities, and operate freely. The government remains concerned that environmental activism could lead to a broader push for political reform. Thus, environmental NGOs lack both the independence of action and legal protection that they enjoy in other developing countries. In contrast to NGOs in Indonesia and India, for example, environmental NGOs in China are required to be registered with government bodies, which are then technically responsible for the actions of the NGOs: the government body must approve an NGO’s membership and activities. In some cases, environmental NGOs have been threatened with closure when political dissidents have tried to join. Chinese environmental NGOs are also not permitted to establish branches in multiple provinces; Beijing has long been concerned that such branches could provide an informal mechanism to develop a broad-based political challenge to the Communist Party.

In most countries, effective environmental protection depends on a partnership

– sometimes cooperative, sometimes contentious – among local environmental protection officials, NGOs, the media, the public, and the central government. China has all the actors in place, but its system of decentralized authoritarianism does not provide adequate incentives or institutional mechanisms to help ensure effective environmental protection; the judicial system, for example, lacks the capacity and independence to serve as an effective check on corporate and official malfeasance. In addition, Beijing's lack of trust in nongovernmental actors further means that the country is unable to take full advantage of the expertise, innovation, and watchdog capacity that such groups bring to many other countries. The rise of the

urban middle class, along with widespread adoption of the Internet, however, is changing the relative power dynamic between the state and society. As China's environmental challenges continue to mount, this tension between largely ineffectual formal government institutions and processes, on the one hand, and growing pressure from civil society, on the other, may find resolution in a more flexible and open system with new channels of engagement between government and the people. In the meantime, though, it is an uneasy, politically fraught situation defined by official adherence to traditional, often ineffectual modes of government policy-making at the national level and crisis management at the local level.

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