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Central Protectionism in China: The “Central SOE Problem” in Environmental Governance

Sarah Eaton and Genia Kostka

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Abstract: This paper examines the so-called “central State Owned Enterprise (SOE) problem” in China’s environmental governance system, namely central SOEs’ defiance of environmental regulation. We present evidence showing that, in the last decade, central SOEs have been the source of a large number of serious pollution incidents and have often failed to comply with environmental guidelines and regulations. Central SOEs in the electricity generation and oil and gas industries are particularly culpable, with six firms alone accounting for 62 per cent of all 2,370 reported violations (2004-2016). We argue that a combination of “central protectionism” of state-owned national champions and insufficient regulatory capacity in the environmental bureaucracy have provided state firms under central management with both incentives and opportunities to shirk on environmental regulations. Yet, while the institutions of central protectionism are deeply-rooted, countervailing forces within the complex Chinese state are also gaining momentum. In spite of the considerable regulatory challenges, officials in the environment bureaucracy display increasing resolve and ingenuity in trying to strengthen their enforcement capacity.

Key words: China; Environmental Protection; Central-Local Relations; State-Owned Enterprises (SOEs); Central Protectionism; Pollution

Introduction

2013 was a pretty good year for China's state-owned oil and gas giant, Sinopec. The company climbed two spots on the Fortune Global 500 list to finish as the world's third largest firm. Sinopec was also recognized for its efforts in pursuing green and low-carbon development with receipt of the Green China Corporate Social Responsibility Excellence Award. The latter distinction would have come as surprising news to many in China accustomed to hearing about polluting emissions belching out from Sinopec refineries, pipeline leaks and myriad other environmental violations. Indeed, just ten days prior to receiving the award, a leaking Sinopec pipeline in the port city of Qingdao caught fire causing a blast and oil spill that resulted in the deaths of 62 people.¹

Are Sinopec's misdeeds just an ugly blemish on an otherwise clean environmental record for China's central state-owned enterprises (SOEs)? Aside from some positive analysis of the contribution of China's largest SOEs to recent energy efficiency gains in China, we know surprisingly little about the behavior of state firms under central management.² This constitutes a gap in the literature on China's environmental politics because, as extremely large firms concentrated in resource-intensive industries, central SOEs wield an enormous ecological footprint. In this paper, we present evidence showing that central SOEs have been the source of a large number of environmental rule violations as well as serious pollution incidents within China. Large central SOEs in the electricity generation and oil and gas industries are particularly culpable, with six firms alone accounting for 62 per cent of all 2,370 reported violations in the database.

We argue that a combination of "central protectionism" of state-owned national champions paired with insufficient regulatory capacity in the environmental bureaucracy have provided central SOEs with both ample incentives and opportunities to shirk on environmental regulations. Further, we find evidence of overlap between central and local protectionism of central SOEs. While China's State-owned Assets Supervision and Administration Commission (SASAC) tacitly encourages its firms to prioritize the attainment of traditional industrial policy goals (scale expansion and profitability), local governments are also often complicit in the national champions' environmental misdeeds. Faced with ambitious growth targets, revenue shortfalls and pressure to maintain or boost employment levels, local officials may also be incentivized to turn a blind eye to central SOE pollution.

Drawing from an original database documenting central SOEs' non-compliance with environmental regulations as well as fieldwork interviews, we also examine current efforts to address the "central SOE problem" (央企问题). While the institutions of central protectionism remain firmly rooted, there are concurrent countervailing trends within the complex Chinese state. Officials in the environmental bureaucracy display increasing resolve and ingenuity in trying to enforce environmental rules on recalcitrant central SOEs. They make innovative use of new governance mechanisms including using media and Internet platforms to name and shame polluters; charging higher pollution

¹ Xinhua, 13 January 2014.

² Wang 2006; Price, Wang and Yun 2010; Jing et al. 2012; Lo, Li and Wang 2015.

fees; taking polluters to court; removing industrial subsidies; and shifting enforcement activities from local Environmental Protection Bureaus (EPBs) up to higher-ranked officials.

Reports of Central SOE Non-Compliance with Environmental Regulations

The database catalogues 2,370 instances of non-compliance by central SOEs and their local subsidiaries between 2004 and 2016. The severity of these incidents range from procedural violations (程序违法) to major industrial accidents causing severe pollution, injury and death.³ The database entries include company name, province, industry, year of pollution event, and type of pollution. We also gathered, where possible, background information about the methods employed by local EPBs and other officials working in the environmental bureaucracy to elicit compliance and redress from central SOEs in their localities.

In compiling the database we drew from a number of sources to ensure maximum coverage. The majority of cases (2,255) come from the Institute of Public & Environmental Affairs (IPE) corporate environmental performance web portal.⁴ The portal gathers monthly reports on firms' environmental violations from China's local EPBs. We also reviewed an online database of the Ministry of Environmental Protection (MEP) covering 204 key environmental cases between January 2014 and 2015.⁵ An online crowd-sourced map of pollution incidents in China was also reviewed.⁶ Finally, we conducted keyword searches of individual central SOEs in the CNKI China Core Newspapers Full-Text Database as well as on online search engines to uncover media reports on major instances of central SOE pollution.

The database has some shortcomings as a measure of the "central SOE problem." First, the list is not a complete record of pollution cases involving central SOEs. Given their economic and political clout, we can assume that some instances of central SOE non-compliance have been kept from the media and out of official records. In addition, in the media reports we collected, there is typically minimal information provided about the factors behind central SOE non-compliance. They also usually do not contain rich detail about the official responses to non-compliance. Our data also does not give insight into the environmental misdeeds of central SOEs relative to those of local SOEs, private, mixed- and foreign-invested firms. While imperfect, our data does lend insight into general trends regarding central SOE non-compliance with environmental regulations,

³ The most frequent form of procedural violation are issued when firms begin new projects without first completing an approved environmental impact evaluation (报批环境影响评价文件 or 未批先建). Other common procedural violations include failing to attend mandatory training on environmental practice and failure to comply with environmental directives regarding, for example, proper storage of environmentally hazardous materials.

⁴ The IPE web portal can be accessed here: <http://www.ipe.org.cn/pollution/corporation.aspx>

⁵ The MEP database can be accessed through the following link: <http://datacenter.mep.gov.cn/main/templateview.action?templateId=ff8080814bd6ef88014bd954e9820023&dataSource>.

⁶ The China Environmental Accidents and Protests Crowdmap can be accessed here: <https://chinaenvironment.crowdmap.com>

including regional trends, most common violation types, most affected industries, frequent offender firms and official responses to rule violations.

The analysis also draws upon on extensive fieldwork between 2010 and 2012. Fieldwork was conducted at the central, provincial, municipal and county/district levels in Beijing, Hunan, Inner Mongolia, Jiangsu, Shandong, and Shanxi. In total, the authors conducted more than 190 semi-structured interviews with government officials, business managers, and civil society representatives. Collecting data from multiple administrative levels was helpful in shedding light on how environmental policies “trickle-down” from the national level to the county and district levels. The fieldwork studied China’s environmental policy and governance system in general, with a particular focus on China’s cadre rotation scheme and environmental policy implementation⁷ and China’s environmental target system.⁸ During the fieldwork, the topic of the “central SOE problem” emerged as a common governance problem in different localities. In addition to interviews, the analysis draws from government policy documents and media reports and available secondary sources.

The reported cases of non-compliance by SOEs were distributed across 30 provinces/autonomous regions (Figure 1). There is a high degree of inter-provincial variation. The highest number of cases were reported in Shandong (255), followed by Xinjiang (173) and Jiangsu (160). The provinces/regions with the fewest reports of central SOE environmental violations are Tianjin (15), Qinghai (12) and Hainan (7). The large number of reports from Shandong reflects the many violations within the Shandong electricity generation sector (176 cases), where large coal power providers failed to use the required desulphurization equipment. While the sources of this variation is not a focus of our analysis, and awaits in-depth future fieldwork-based and quantitative research, the results of basic correlation analysis using provincial-level data from the National Bureau of Statistics suggest a number of possible dependencies.⁹ As one might expect, the reported violation cases were higher in provinces with a heavy SOE sector and a large proportion of GDP from industry.¹⁰

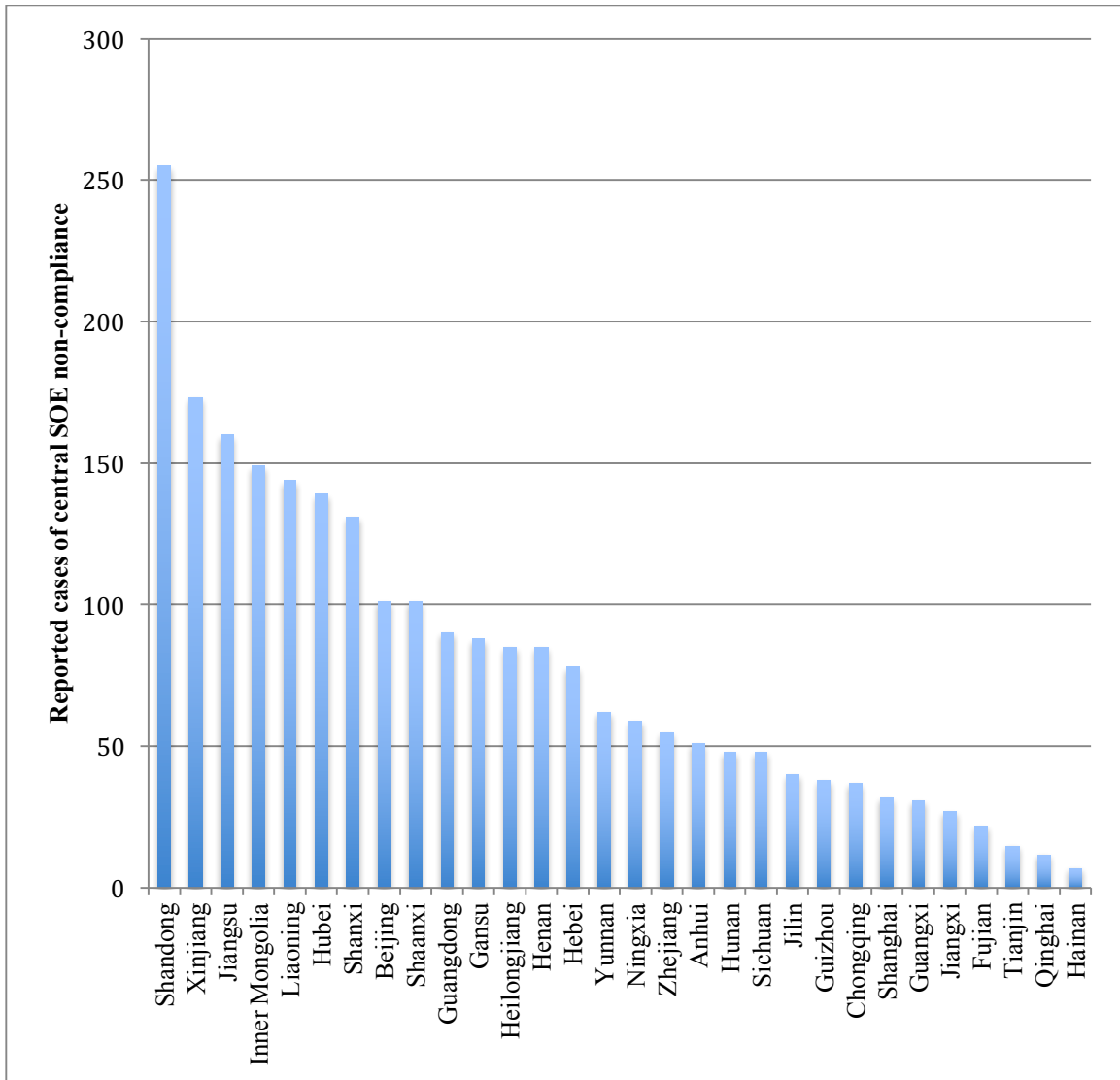
Figure 1: Reported cases of central SOE non-compliance with environmental regulations (by province/region)

⁷ Eaton and Kostka 2014.

⁸ Kostka and Hobbs 2012; Kostka 2016.

⁹ China Statistical Yearbook 2014.

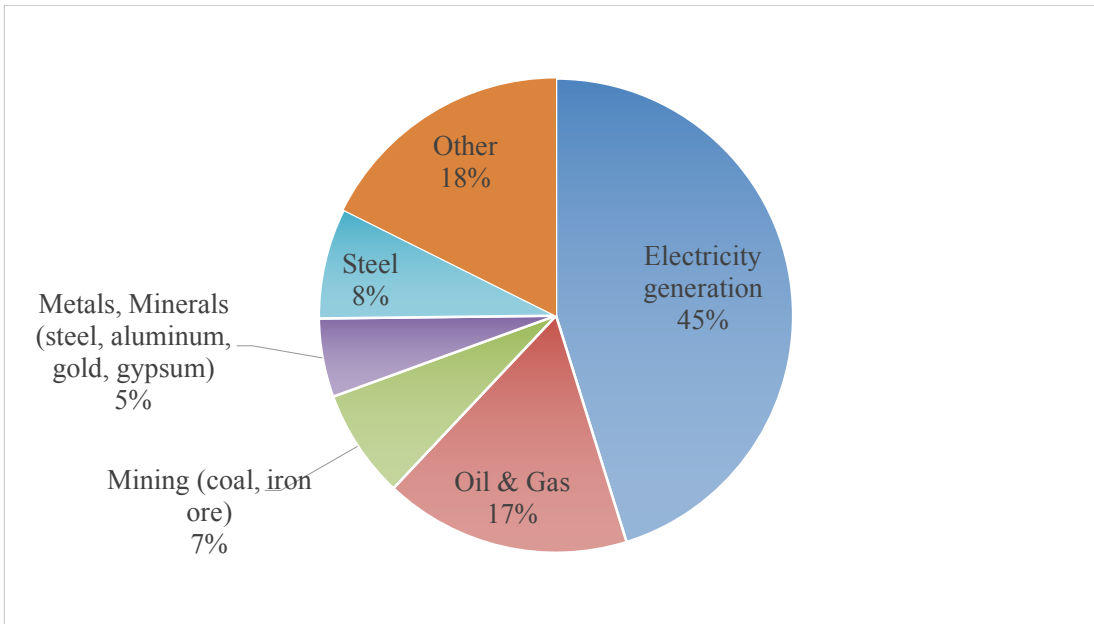
¹⁰ The reported pollution incidents by central SOE correlate highly with provincial revenues from industrial SOEs (correlation coefficient $R=0.69$), provincial investments in the treatment of industrial pollution (correlation coefficient $R=0.65$), presence of foreign firms (here measured by the value of total exports and imports; correlation coefficient $R=0.56$), production of electricity ($R=0.58$), industrial GDP (correlation coefficient $R=0.48$), and presence of private firms ($R=0.44$). Violation cases at the provincial level were far less closely correlated with waste water pollution ($R=0.34$), GDP per capita ($R=0.13$), urban disposable income ($R=0.11$) and with the share of urban population ($R=-0.03$).



Source: Authors' Central SOE Environmental Violation Database, 2016

Reported incidents also differ by industrial sector (Figure 2). The electricity generation sector is the largest contributor (45 per cent). Other high-polluting sectors include oil and gas (17 per cent), steel (8 per cent), mining (7 per cent) and metals and minerals (5 per cent). The high proportion of cases in the electricity generation sector reflects the failure of coal-fired power plants to meet pollution control standards for desulphurization, denitrification and dust elimination. These firms' reported pollution cases are typically the result of falling below sulphur dioxide (SO₂), nitrogen oxides (NO_x) and soot emission standards.

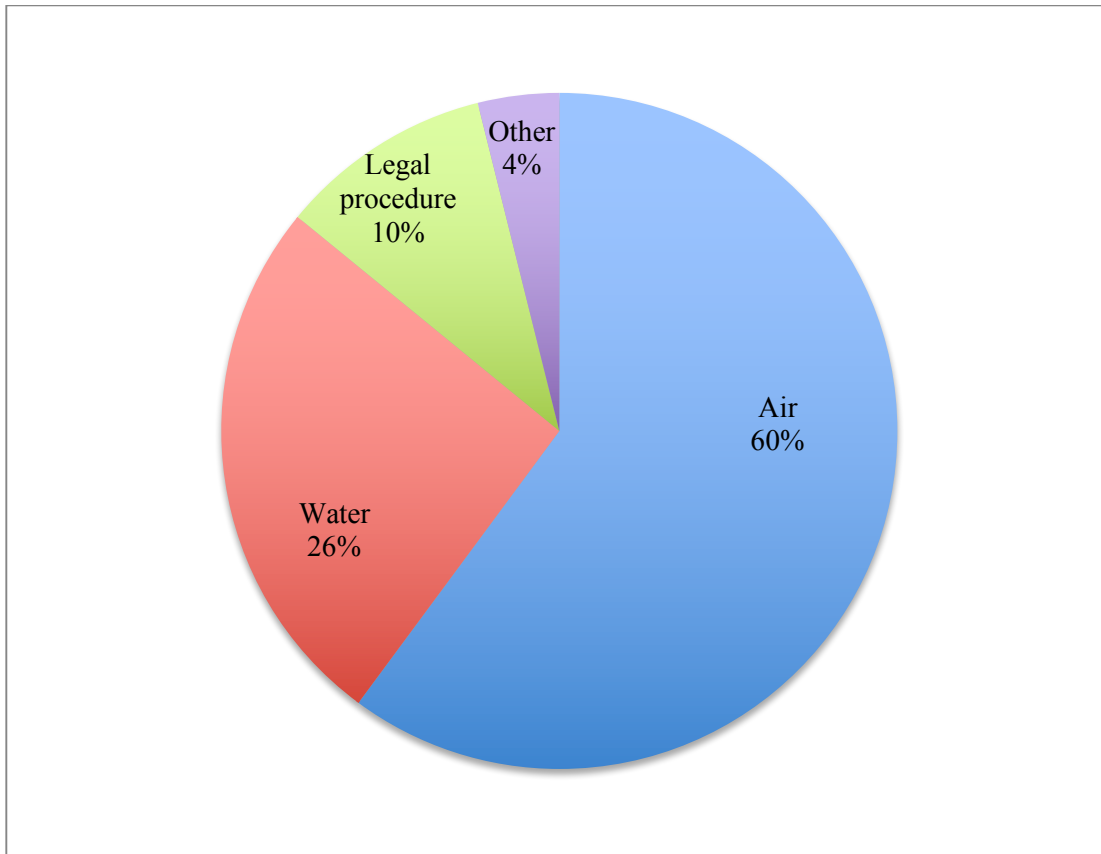
Figure 2: Sectoral distribution (N=2,370)



Source: Authors' Central SOE Environmental Violation Database, 2016

Among the reported incidents and type of environmental non-compliance, air pollution accounts for 60 per cent of all violations, followed by water (26 per cent) (Figure 3). Procedural violations such as starting a project without completing an environmental impact evaluation, account for one in ten of such reports.

Figure 3: Type of Pollution (N=2,370)



Source: Authors' Central SOE Environmental Violation Database, 2016

For reasons outlined above, the most commonly-encountered companies in the database include four of the main electricity generation firms (Guodian, Huadian, Huaneng and Datang), followed by the two major oil and gas SOEs (Sinopec and CNPC). Oil and gas firms were often cited for excessive emissions of NO_x and dust along with other pollutants. These six firms alone account for 62 per cent of all 2,370 reports in the database. The top 10 polluters make up 78 per cent of the total (Table 1).

Table 1: Most Frequently Listed SOEs in the Database (N=2,370)

Name of central SOE	Sector	Frequency in Database
Guodian	Electricity Generation	301
Huadian	Electricity Generation	274
Huaneng	Electricity Generation	262
Datang	Electricity Generation	232
Sinopec	Oil and Gas	211
CNPC (incl. PetroChina)	Oil and Gas	181
Shenhua	Mining (Coal)	120
Chalco	Metal (Aluminum)	97
COFCO	Grain and Food	89
Sinochem	Chemical	75

Source: Authors' Central SOE Environmental Violation Database, 2016

In sum, our analysis shows that Sinopec's environmental violations are by no means anomalous. Since 2004, central SOEs have been the source of a large number of violations and serious pollution incidents across China. National champions in the electricity generation and oil and gas industries are especially to blame, together accounting for almost two-thirds of the violations in our database. In the following section, we turn to an examination of the factors behind central SOE non-compliance before looking at state efforts to regulate these firms more effectively.

What are the Sources of Environmental Non-Compliance?

What cracks in China's environmental governance system allow for these breaches of regulation? Of course, central SOEs are hardly the only businesses in China to routinely violate environmental rules. In fact, previous work indicates that small, privately owned or former TVE polluters are the usual suspects in this regard.¹¹ The existing literature has identified local interests and preferences, fragmented bureaucracies, under-funded and poorly-trained EPBs, and inadequate monitoring capabilities as key factors behind environmental violations in industry.¹² Yet, SOEs exist in an institutional environment quite distinct from that of private, mixed- and foreign invested-enterprises—a context in which, one might expect, enterprise managers would be strongly inclined to adhere to state directives. Indeed, given the existence of a revolving door between central SOE management and top leadership roles in the government and the Communist Party, the dual identity of many SOE managers as business leaders and promotion-hopeful officials could be expected to exert a strong pull to compliance. An analysis of the environmental behaviour of large SOEs versus that of firms of other ownership type provides some qualified support for this view.¹³ Equally, one could assume that close ties between state firms and high-ranking officials furnish the conditions for non-compliance, the assumption behind previous research as well as ours here.¹⁴ We argue that two pathologies of this institutional setting, weak enforcement capacity and central protectionism, help to explain the implementation gap in the state-owned industrial sector.

Weak Enforcement Capacity: Administrative Rank Asymmetries, Insufficient Resources

At local levels, government officials often have insufficient regulatory capacity to enforce unwelcome regulations on central SOEs operating in their jurisdiction. In a complex system of governance in which SOEs under the authority of the central government answer to bureaucrats in Beijing and not to local authorities, central SOEs have ample *de facto* opportunities to shirk on environmental measures demanded by local governments. Such administrative rank problems are made more complicated by the fact that managers of central SOEs themselves also often hold concurrent positions of power within local government and Party organizations. Officials in the environmental

¹¹ Jahiel 1997.

¹² Van Rooij 2006; Kostka and Hobbs 2012; Ran 2013.

¹³ Li and Chan 2016.

¹⁴ Lo and Tang 2006, 204.

bureaucracy in different localities reported that this “central SOE problem” is a frequent source of frustration for local authorities trying to meet their increasingly binding obligations under the “green” national plans.

For instance, one leading official from the Economic Commission in a heavy industry-intensive district in Shanxi province discussed the difficulties of eliciting compliance on energy efficiency initiatives from central- and provincial-level SOEs in his jurisdiction, which together accounted for 60 per cent of energy consumption of above-scale (规模以上) enterprises.¹⁵ In the context of the 11th and 12th Five Year Plan’s ambitious targets on energy efficiency, officials had directed their attention to the highest energy consumers in the district, two state-owned electricity generation enterprises. Yet, because they were both owned by North China Grid Company (itself a subsidiary of State Grid, a central SOE), the sticks at hand proved feeble. Local officials had appealed, first, to the municipal level for assistance in “coordination” (协调) with the enterprise, then gone up to the provincial level and finally all the way to State Grid headquarters in Beijing—all to no avail. Local officials also voiced concern that pushing too hard against these SOEs could lead to recriminations in the form of power cuts to the district.

Even at the central level, insufficient authority and power vis-à-vis central SOEs is a problem that environmental authorities face, a point vividly made in Chai Jing’s hit documentary about China’s environmental crisis, *Under the Dome* (穹顶之下).¹⁶ In conversation with a central MEP official on the topic of the difficulties of enforcing fuel standard regulations on powerful central SOEs, Chai asks if the MEP is effectively powerless, to which the reply is “Nowadays I don’t dare open my mouth for fear that people will see I have no teeth.” And an official from the imposing National Development and Reform Commission (NDRC) concedes “You can’t control them [the major state-owned oil players]...[t]hey don’t pay us any mind.”

Central SOEs are difficult for central bureaucrats to police, in part due to the high administrative rank (级别) many state firms’ CEOs carry, an unanticipated legacy of Zhu Rongji’s sweeping, and heavily resisted, efforts to rationalize the central government in the late 1990s.¹⁷ Indeed, in 2010, of the approximately 120 SASAC SOEs in existence, fully 54 of the heads of these firms enjoy full ministerial rank.¹⁸ While many of these regulatory bodies, including the MEP, have now been upgraded to full ministerial status in order to mitigate this rank problem, interviewees in Beijing described the high rank of SOE heads as a factor that continues to frustrate the impartial enforcement of regulations.¹⁹ Regulation scholar Wang Junhao summarized the difficult predicament of regulatory bodies this way: “The cat wants to catch the mouse, but the mouse is bigger than the cat.”²⁰

¹⁵ Interview No. 24, 27. September 2011, Shanxi.

¹⁶ Chai 2015.

¹⁷ Walter and Howie 2010; Brødsgaard 2012.

¹⁸ Ibid.

¹⁹ Interview No. 8, 18. September 2011, Beijing.

²⁰ Wang 2008, 57.

In contrast to key agencies in the economic system (系统), especially SASAC, the weak capacity of the environmental bureaucracy vis-à-vis central SOEs is also the result of insufficient resources and a high monitoring burden. To large degree, SASAC's power is derived from its shared responsibility with the Communist Party Organization Department for carrying out the annual performance evaluations of SOE senior managers. MEP is not involved in these evaluation exercises and consequently does not wield much leverage over enterprise heads. Especially at local levels, where the burden of environmental oversight lies, EPBs are notoriously under-resourced. Officials in industrial localities, in particular, have a high supervision burden and typically small, ill-equipped inspection teams.²¹

Insufficient Incentives to Comply: Central Protectionism

Official protection of polluting local firms has often been blamed for weak enforcement of environmental regulations at sub-national levels and constitutes a key argument in favour of centralizing environmental enforcement in China.²² The phenomenon of “local protectionism” (地方保护主义) results from cronyism as well as goal conflict between economic growth and environmental protection, with the former typically winning out.²³ Local protectionism is seen to be particularly resistant and deeply-rooted in cities dominated by large, polluting firms.²⁴ We submit that, for central SOEs, a counterpart to this local protectionism exists. Officials in the central economic bureaucracy, principally SASAC, provide a measure of shelter for chronic polluters within SASAC's ranks by incentivizing senior SOE managers to look upon the achievement of traditional industrial policy goals such as profitability, scale, market share and efficiency—and not compliance with environmental regulations—as the *sine qua non* of a positive enterprise performance evaluation and possible promotion for managers themselves.

As subjects of a long-standing industrial policy program that aims at creating global players in key sectors, central SOEs face tacit, yet nonetheless strong, incentives to shirk on environmental rules that would harm their economic performance. Beginning in the late 1980s, central policymakers introduced a series of policies which had, as their common aim, the establishment and nurturing of large, state-controlled business groups in key industries.²⁵ Selected state-owned “trial” enterprise groups, many of which are now under SASAC authority, are relentlessly called upon to “go bigger and go stronger” (做大做强) via scaling up and striving to attain global standards of competitiveness. SASAC has primary responsibility for “maintaining and increasing the value of state assets” (保值增值) and carries this out by way of annual evaluations and the subsequent ranking of central SOEs in which, until fairly recently, profitability and return

²¹ Kostka 2014.

²² Van Rooij, Li and Wang, forthcoming.

²³ Jahiel 1997, 1998; Tang et al. 1997; van Rooji and Lo 2010.

²⁴ Lorentzen et al. 2014.

²⁵ Nolan 2001; Sutherland 2003; Eaton 2016.

on equity were the main criteria.²⁶ Critics of the system have argued that SASAC's strong "maintaining and increasing the value of state assets" mandate effectively incentivizes SOEs to blindly pursue profitability. It comprises one of the main reasons that many of the central SOEs which have shot up the ranks of the Forbes Global 500 in the last decade remain protected state monopolies.²⁷

Promotion criteria for central SOE managers seem to reflect the primacy of these traditional industrial policy goals. A Human Resource (HR) manager from one of the SASAC oil majors near the top of the Global 500 said, shortly after the beginning of the "green" 12th FYP, that environmental performance remained relatively unimportant for promotion decisions in oil and gas companies.²⁸ Citing the case of an official promoted from Tianjin, the manager's positive evaluation in this instance rested on perceptions of him as an effective controller of costs. While energy consumption had been reduced under his watch, these energy savings were framed as incidental to cost savings. And environmental accidents have sometimes been treated fairly lightly by the companies. The HR manager mentioned a case in Sha'anxi in which 200 tons of a pollutant was leaked and the official in charge received just 18 months of probation.²⁹

While traditional industrial policy goals remain predominant, SASAC has begun to modify its system of SOE oversight and guidance in ways that could encourage greener behaviour in the state industrial sector in the future. Developed in early 2008, SASAC regulations first encouraged and then mandated (from 2011) that central SOEs produce annual Corporate Social Responsibility (CSR) reports which include discussion of efforts to upgrade resource efficiency and environmental protection.³⁰ And, in 2010, SASAC enfolded energy savings and emissions reductions work (节能减排) into the evaluation system for SOE heads. From the first unveiling of SASAC's CSR regulations, however, observers have wondered whether this is an exercise, first and foremost, in "window dressing".³¹ At present, a deficiency of the CSR system is that only a tiny minority of reports published by Chinese companies on the Shanghai and Shenzhen exchanges are actually certified by an independent third party—reportedly just 5.1 per cent in 2014.³²

Two important implications flow from the existence of central protectionism in environmental governance. First, the logics of central and local protectionism are not mutually exclusive and they actually frequently overlap. That is, local government officials may be incentivized to turn a blind eye to central SOE environmental violations because of the leverage these enterprises wield as providers of essential services such as electricity (as in the Shanxi example cited above), sources of local employment and, to lesser extent, government revenue. The high standing of central SOE managers in local

²⁶ In 2010 the system shifted to include Economic Value-Added measures in order to apply pressure to those SOE managers who have posted impressive financial performance on the backs of cheap policy loans from state-owned financial institutions and direct state subsidies.

²⁷ Kan 27 September 2008.

²⁸ Interview No. 8, 18. September 2011, Beijing.

²⁹ Ibid.

³⁰ Lin 2010, 72.

³¹ Lin 2010.

³² China Economic Review 21 April 2015.

Party and business networks can also frustrate enforcement efforts. Second, this finding aligns with recent work arguing that the center itself, and not only China's much-maligned local governments, bears a heavy responsibility for the country's runaway industrial pollution.³³ By tacitly encouraging its national champions to pursue growth and profitability at all costs, the center effectively undermines environmental protection efforts. In the remainder of the paper, however, we qualify this claim. We see China's center, like Walt Whitman's self, as large and containing multitudes. While one face of the state contributes to central SOE pollution, another works to contain and eliminate it.

Current Mechanisms to Pressure Central SOEs into Compliance

While the SASAC system provides a degree of cover to central SOE polluters, there is, at the same time, increasing pressure to comply with environmental rules emanating from other state organizations and agents. In other words, fragmented authoritarianism is in play.³⁴ We have argued that the prevailing incentives in the SASAC system are such that, in circumstances in which the attainment of industrial policy and environmental protection goals are in a zero-sum relationship, industrial policy will tend to trump green goals. At the same time, developments in the environmental governance system linked to the state's ever-increasing emphasis on greening growth are (slowly and unsteadily) raising the costs of non-compliance for polluting firms, even the largest and most politically powerful among them.

There are important efforts at the central level to strengthen environmental enforcement capacity. Following its administrative upgrade from vice-ministerial to ministerial rank in 2008, central officials in the MEP, have worked to tighten oversight of enterprises, including central SOEs. In August 2013, MEP announced that it would cease approvals for new projects by oil giants PetroChina and Sinopec as punishment for having fallen short of environmental targets in connection with a program to install denitrification units in coal-fired boilers.³⁵ The following year, MEP began publishing monthly reports on environmental violation cases. The names of companies that fail to correct misdeeds remain on an Internet blacklist that is shared with corporate lending institutions. In addition, 15,000 factories—among them a large number of SOEs—are now required to report real-time figures on air and water emissions. The information is made public on a website as well as on an app for mobile phones which more than 3 million Chinese people are said to have downloaded.³⁶ Officials hope that by giving the public the tools to keep tabs on neighboring factories, they have issued "a warning to all of the 15,000 companies on the pollution map."³⁷ Finally, the ministry has also begun using drones to conduct site inspections since inspection teams often face great difficulty in carrying out assessments of polluting firms.

³³ Ran forthcoming, 2013.

³⁴ Lieberthal and Oksenberg 1988; Mertha 2009.

³⁵ Ng and Li 29 August 2013.

³⁶ The app was developed by prominent environmentalist Ma Jun's NGO, the Institute of Public & Environmental Affairs.

³⁷ Goering 17 April 2015.

Yet, despite such measures, MEP still faces dogged resistance from central SOEs. Such firms have been known to disregard use of even the MEP's sharpest implements, including "stop production orders" (停止生产的要求). For instance, Anshan Iron and Steel (Angang) was placed on a national blacklist after ignoring a stop production order issued from the Liaoning provincial EPB in connection with the company's refusal to replace coke ovens and dust removal equipment that were not up to code. An MEP official commenting on the case said: "This is the result of polluting with impunity. Central SOEs and SOEs ought to take the lead on environmental issues. However, the reality is cause for worry."³⁸

New developments in governance are also evident at sub-national levels. Below, we use the case studies of Lanzhou (Gansu) and Anqing (Anhui), taken from our database, to illustrate an incipient, if still rare, boldness among local EPBs in trying to hold central state firms to account. Some local officials make use of an expanding menu of governance mechanisms in the effort to discipline firms. They levy higher pollution fees, take polluters to court and use the removal of subsidies as a stick to achieve compliance with environmental rules. And when their own tools are insufficient, they shift enforcement activities from local EPBs up to higher-ranked officials. We also see local EPBs, like MEP at the central level, increasingly trying to leverage the force of China's widening "green public sphere" by taking instances of central SOE pollution public.³⁹ In particular, local government officials increasingly make savvy use of media power and information technology platforms to leverage the force of public pressure directly on polluting state firms.

In Lanzhou, for instance, EPB officials have drawn on media glare to apply pressure to a serial polluter. In early 2015, EPB officials released a statement to the media harshly criticizing PetroChina for air pollution and calling on it to curb pollution and issue an apology to Lanzhou citizens. This naming and shaming of PetroChina, the biggest employer and tax contributor in Lanzhou, was a bold move for environmental officials in this less-developed city. It is also striking that the local EPB seems to have acted without prior approval of the Lanzhou mayor, who later said that he had not been made aware of the EPB press conference beforehand.⁴⁰

A number of factors shaped Lanzhou's confrontational stance. First, the January 2015 pollution was by no means an isolated event. Conflicts between PetroChina and local officials began in 2006 when a plant explosion caused a huge fire and killed 11 workers.⁴¹ Tensions were renewed in spring and summer 2014, when a benzene leak contaminated Lanzhou's water supply and a number of industrial fires at PetroChina's refinery plants worsened air pollution.⁴² In total, four serious pollution incidents were reported, none of which were punished with fines or criminal or civil charges.⁴³

³⁸ Sina 29 July 2014.

³⁹ Yang and Calhoun 2007.

⁴⁰ Liu 12 January 2015.

⁴¹ Database Case 92.

⁴² Database Case 35.

⁴³ Li 27 January 2015.

Throughout 2014, PetroChina avoided addressing its poor environmental pollution record and instead claimed that incidents of leakage or pollution are normal and unavoidable for such a large-scale enterprise. Thus, when the fifth incident within a year occurred in early January 2015, Lanzhou's EPB director would have faced significant pressure to gain some form of redress. The director may have also been under a high degree of personal pressure since, in the past five years, two consecutive directors of Lanzhou's EPB had been dismissed due to failure to reign in pollution.⁴⁴ The EPB's public criticism may also have been a bid to force PetroChina to move a refinery into a new industrial park zone outside Lanzhou city.⁴⁵

Emboldened by tougher legal punishments for polluters, other local EPBs have begun to issue substantially higher pollution fees. In June 2013, Anqing's local EPB charged the central SOE Sinopec (Anqing) with a 90,000 RMB fine for air pollution, following a major production accident that led to polluting emissions. This event was one of the first of its kind, as local EPBs typically have no authority to charge pollution fees to central SOEs. It was seen as a daring move since, as is often the case, the firm's general manager held a political post in the locality (as a member of the Anqing Municipality Standing Committee). To mitigate the administrative rank problem, Anqing city announced that the issue would be taken up by a vice-mayor who, in turn, initiated contact with the MEP.⁴⁶ Ultimately, Sinopec relented and paid the fine. The Anqing case was widely reported in the media, and could be a signal to other local EPBs to be more bold in addressing the "central SOE problem." However, even this boldness must be seen in context: a fine of 90,000 RMB is not especially punitive for the likes of Sinopec. Further, the sum does not fully reflect the considerable local ecological and health damage resulting from the pollution.

Two factors help to explain why the municipal EPB in Anqing took a bold stance vis-à-vis Sinopec. First, public monitoring was certainly an important stimulus. Following the industrial accident in May 2013, many Anqing citizens complained about the resulting pollution and posted pictures to the Internet. Second, the municipal EPB changed leadership in early 2013 with the appointment of a high-ranked local leader – a former vice mayor – as director of the municipal EPB. The newly appointed leader frequently visited the provincial EPB bureau and the national MEP to gain upper level government support. This unusual combination of a powerful local EPB head together with support directly from the central level made issuing the fee possible.⁴⁷

Of course, this unusual combination of a powerful EPB head with an active local civil society would make the Anqing approach difficult to replicate in a more typical locality. Nevertheless, institutional reforms linked to China's "war on pollution" have brought new instruments into existence which, at the very least, expand the menu of such formal

⁴⁴ China Council for International Cooperation on Environment and Development 4 December 2014.

⁴⁵ Since 2011, the Lanzhou government had requested that PetroChina move the facility to an industrial park on the outskirts of the city, but the company is reportedly unwilling to pay for the approximately 60 billion RMB in associated costs, a sum which the government claims it also cannot afford. See Li 27 January 2015.

⁴⁶ Xinhua 21 June 2013; Jiangnan Wanbao 12 June 2013.

⁴⁷ CNR Financial Review 2013; Banyuetan Network 2013.

enforcement options available to local bureaucrats. In particular, amendments to China's Environmental Protection Law 《环保法》, in effect since 1 January 2015, removed the previous cap on pollution fines and also established a provision for charging penalties on a daily basis (按日计罚单) to enterprises which do not comply with environmental regulations. In 2015, for instance, aluminum manufacturer Chalco, the eighth most frequent polluter in our database, was charged under this new system in Zibo city (Shandong).⁴⁸

We also see some localities making use of industrial policy tools to punish polluters, particularly those in the power sector. A number of central SOEs in the power generation industry have collected government subsidies for the purchase of desulphurization facilities but then failed to ensure proper running of the equipment so that flue gas continues to have high amounts of SO₂, a known cause of respiratory illnesses among other adverse health effects. Some local Development and Reform Commission (DRC) officials, responsible for such subsidy programs, have begun to take action against these firms. For instance, a local DRC in Inner Mongolia discovered, in 2014, that a company in the Huaneng Group had failed to put desulphurization facilities into proper operation. Officials reduced the subsidies the company was receiving for desulphurized electricity and issued them a fine of 17 million RMB.⁴⁹

Local environmental authorities have also sometimes appealed to courts to step in against non-compliant SOEs. After years of oil leakage causing serious water and soil pollution, a PetroChina subsidiary operating in the Changqing oil field (Sha'anxi) was charged with pollution fees of more than 110 million RMB and ordered to pay compensation of 850 million RMB for water and soil losses. After refusing to pay, the EPB appealed for help from authorities higher-up, but even provincial leaders failed in their efforts. (The vice-governor of the province stepped up to coordinate the unsettled environmental fine payment between PetroChina and the Yulin City government but was unsuccessful). In October 2013, officials then successfully appealed to a district court to freeze the oil field's 22 bank accounts. The move brought PetroChina back into talks with government over eco-compensation and the courts ultimately unfroze their accounts.⁵⁰

The above cases are evidence of both change and continuity in environmental governance. They show us that new governance mechanisms that aim to bring substantial punishments to bear on polluters, have, at least in formal terms, increased the state's coercive capacity vis-à-vis polluting central SOEs. But these innovations in the formal architecture of the environmental bureaucracy, while noteworthy, are incapable of budging the *status quo* on their own. Indeed, the examples we have of local officials maneuvering against central SOE polluters are newsworthy precisely because they are rare. What these exceptions to the rule tell us is that informal politics (still) matters. Anqing's victory against Sinopec is particularly telling in this regard. It is safe to say that had the EPB head not been a powerful local figure—very much an exception to the local

⁴⁸ Database Case 51; Sina 3 February 2015.

⁴⁹ Database Cases 6-8.

⁵⁰ Database Cases 37-38.

rule of politically weak EPB heads—Sinopec would have escaped punishment. For this reason, we should perhaps not expect any strong demonstration effect across China, at least in the immediate future. At the same time, it would be a mistake to understate the importance of these institutional reforms in the context of ever-increasing support for environmental protection within both the Chinese state and society.

Conclusion

The literature on environmental governance in China has often excoriated the local state for protecting polluters and failing to implement the center's environmental rules and plans. Our research joins that of Ran's in highlighting the culpability of the center in the so-called environmental implementation gap.⁵¹ While our data does not allow us to comment on the frequency or severity of environmental violations relative to firms of other ownership type, it does unequivocally show that central SOEs have been the source of a large number of serious pollution incidents across China. SASAC firms in the power generation and oil and gas industries, in particular, have contributed to China's environmental crisis in different regions through the emission of pollutants that contaminate the air, water and soil.

And, in all likelihood, our evidence represents only the tip of the iceberg. This is so because the logics of local and central protectionism often overlap. China's revenue- and job-hungry localities have a strong incentive to sweep these firms' environmental violations under the rug. In addition to local officials' propensity to turn a blind eye to pollution from SASAC firms for economic reasons, the embeddedness of SOE managers in local patron-client networks also works against the impartial enforcement of environmental rules. For these reasons, the cases in our database may be the exceptions to the rule of keeping quiet about central SOE pollution.

Our analysis also offers insight into what is behind such central protectionism. First, SASAC firms are incentivized, above all, to increase their scale and improve profitability in order to “go big and go strong” in global markets. While SASAC has begun to incorporate environmental measures into its evaluation system, at present, green incentives within the central SOE system remain overshadowed by traditional industrial policy goals. In contrast to one recent analysis, we remain skeptical of the view that SASAC represents the best hope for greening central SOE behavior.⁵² Second, central SOEs are simply too big and too powerful for officials in the environmental bureaucracy to regulate. Central SOEs' high administrative rank, economic clout and *guanxi* ties to political elites, combine to present extreme challenges in holding them to account for environmental violations. Nonetheless, environmental officials' innovative use of new governance mechanisms affords a measure of hope.

Finally, an implication of our paper is that the “central SOE problem” is an increasing source of strain in central-local relations and environmental governance. While local officials have displayed ingenuity and resolve in dealing with non-compliant SOEs, these

⁵¹ Ran 2013, forthcoming.

⁵² Wang 2015.

efforts remain few and far between and are often ineffective. As society's demands for environmental protection grow louder and as green targets in cadre performance evaluations continue to harden, local officials will face increasing pressure to effectively regulate business, including central SOEs. Providing lasting solutions to this central SOE problem will involve both substantially improving the regulatory capacity of the environmental bureaucracy and significantly strengthening central SOEs' incentives to pursue cleaner production. In other words, this will involve nothing less than reducing the cognitive dissonance within the Chinese state by minimizing the goal conflict between its economic and environmental systems.

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