

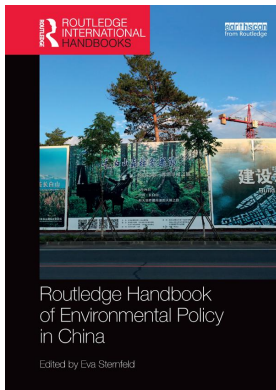
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CHINA'S LOCAL ENVIRONMENTAL POLITICS

Genia Kostka

Introduction

China's national leaders have recently made a priority of changing lanes from a pollution-intensive, growth-at-any-cost model to a resource-efficient and sustainable one. There is strong reasoning behind this shift in emphasis: China's leaders see political risks in the rising tide of domestic environmental protests and they worry about energy and resource security. Beijing's determination to steer China toward greater resource efficiency and lower carbon emissions is beyond dispute. Yet creating green and liveable cities remains an uphill battle for national policymakers. The immense challenges of rapid urbanization are one aspect of the problem. An estimated 300 million people will be added to Chinese cities by 2030 (OECD 2009), adding further pressure to cities that already struggle with serious air and water pollution. Central-local relations are another source of difficulty since Beijing's green agenda also does not always find willing followers at lower levels. Indeed, many of Beijing's low-carbon and green initiatives are implemented only selectively across China, when sub-national leaders take the lead.

The objective of this chapter is to identify barriers to a more comprehensive implementation of environmental policies at the city level and suggest ways to reduce or remove them. The research focuses particularly on the reasons for the gap between national plans and local policy outcomes. While environmental goals and policies at the national level are quite ambitious and comprehensive, it is insufficient and inconsistent implementation at the local level that holds back significant improvements in urban environmental quality. By analysing local institutional obstacles and by highlighting best-practice examples, this chapter outlines possible options that can be used at the national and local levels to close the local 'environmental implementation gap'. These findings contribute to the ongoing debate regarding how China can switch to a greener urban growth path and emphasize the need to create additional incentives and increase local implementation capacities.

Analytical framework

While national policymakers have started impressive efforts to switch to a more green and low carbon growth path, many elements of Beijing's green agenda fall to local governments for

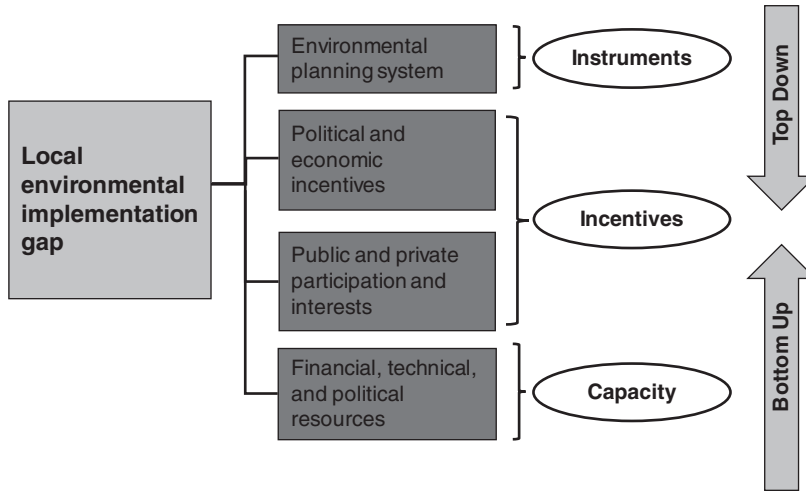


Figure 3.1 Institutional barriers to explain the local environmental implementation gap

Source: Author; adapted from Kostka 2014.

delivery. Despite numerous incentives for local cadres to abide by Beijing's directives woven into the cadre management system and provision of additional resources for green projects, a substantial environmental policy implementation gap exists.

Figure 3.1 offers an analytical framework, which aims to explain the main institutional challenges for the persisting environmental implementation gap at the local level. To better understand how institutional barriers affect local environmental policy outcomes, the following pages analyse the principal aspects: shortcomings in China's planning system and policy instruments; weak economic and political incentives for local implementers; low levels of public participation and private sector involvement; and insufficient implementation capacities of local agencies in charge of policy implementation.

Policy instruments and shortcomings in China's green planning system¹

China has employed a mix of top-down command and control methods and market-based mechanisms to propel the switch to a resource-efficient and low carbon growth path. Since 1972, the central government has very noticeably deployed more and more administrative instruments to enhance compliance with national environmental rules and standards. In the last four decades, more than 28 environmental and resource laws, 150 national administrative environmental regulations, 1,300 national environmental standards, and 200 departmental administrative regulations have been issued (Chang 2008 quoted in He et al. 2012, 31 and Qin and Zhang chapter 2 this volume).

More recently, China has also experimented with a variety of market-based instruments to supplement existing command and control tools, including piloting a dozen sub-national voluntary emission cap-and-trade schemes, rolling out a three-tiered electricity pricing system, promoting energy service companies and introducing numerous payment for ecosystem services to improve water, air, forest, and soil management (Jotzo and Löschel 2014; Kostka and Shin 2013; Liang and Mol 2013; Shin 2013). Yet the majority of these market-based instruments have not scaled up to nationwide programmes due to the lack of market preconditions and

excessive state intervention in emission trading formats, allocation methods, and pricing approaches (Lo 2013; Shin 2013). With market-based instruments still in their infancy, China's environmental governance system continues to rely primarily on top-down command and control instruments.

Among the many different command and control instruments, setting binding environmental targets has become the key environmental management tool in China. Environmental targets are incorporated into the target responsibility system (*mubiao zeren zhi*), wherein the central government sets a national target for a policy or programme and then assigns specific targets for particular areas. Central leaders' priorities are communicated by differentiating between 'soft', expected (*yuqixing*), and 'hard', literally restricted (*yueshuxing*) binding environmental targets in the national FYPs. The majority of these 'hard' binding targets have been accorded 'veto power' (*yipiao fougjue*) status, meaning that, if these targets are not met, all other achievements of a local leader will be rendered null and void. This is a powerful incentive in the context of stiff competition between local cadres for promotion to upper-level positions.

Although environmental targets had been incorporated into national FYPs as of the late 1990s, they were accorded fairly low priority in the context of the overriding emphasis on national economic growth and the 'soft' nature of these targets (Wang 2013). In 2006, at the beginning of the 11th FYP, central planners in Beijing upgraded a number of environmental targets from 'expected' to 'binding' status. Binding environmental targets were thereafter written into local leading cadres' annual responsibility contracts and became an important criteria in cadre promotion decisions. The intent was to incentivize officials at each layer of government administration to fulfil Beijing's environmental mandates (Heberer and Senz 2011; Ran 2013). In addition, the scope of binding environmental targets widened from the original three binding environmental targets in the 11th FYP to a total of nine binding targets in the 12th FYP. These targets touch on air quality (sulphur dioxide and nitrogen oxide), water quality (chemical oxygen demand and ammonium), energy efficiency, carbon efficiency, the production/use of non-fossil fuels, water consumption intensity, and forest coverage. By adding new environmental targets to the two most recent national FYPs, and making them binding, Beijing has added teeth to its green growth ambitions.

The heavy reliance on binding environmental targets reflects Chinese leaders' pragmatic judgements about how best to fit new policies to existing implementation structures. Indeed, the target-based approach has delivered on intended policy outcomes in the past. Two notable examples are the family planning targets used to implement China's one-child policy and investment growth targets that set limits on local investment growth in order to curb China's inflation (Huang 1996). Environmental targets are, however, unlike family planning and investment targets, in several important ways. For example, in comparison to family planning, allocating environmental targets can be a much more contentious political process since environmental targets frequently impose high costs on local businesses and local employment. In addition, the implementation of environmental targets is often characterized by a time lag such that costs are incurred in the short term but benefits only materialize in the long term. This is problematic since the realization of such policies is out of sync with the rhythms of the cadre rotation system with the result that local cadres are strongly incentivized to undertake initiatives which yield results in the short term. With respect to the matter of target verification, local deviation from the one-child policy is relatively easy to detect, whereas non-compliance with energy intensity targets is not as readily apparent since measurement standards for energy efficiency are complicated and outcomes are not visible (Rietbergen and Blok 2010). Given these distinctive characteristics of environmental targets, a critical analysis of leaders' responses to top-down targets helps to generate a realistic picture of what binding environmental targets can and cannot achieve.

The heavy reliance on a target-based implementation approach has so far yielded a number of *desirable* results. First, environmental issues have moved quickly onto the policy agenda of many city mayors and Party secretaries. Second, the target-based system allows for some flexibility in factoring in local circumstances. Environmental targets can be allocated either through a ‘one-size-fits-all’ or a ‘differentiated’ approach. In Jiangsu, for instance, all municipalities received a uniform forest coverage target of 20 per cent, while forest coverage targets in Shandong and Hunan were differentiated for municipalities. In addition to the question of how to allocate targets to subordinate governments and enterprises, local governments are also given flexibility as to *when* to implement binding targets during the five-year planning period. For instance, in one county in Hunan, leaders set the same annual energy intensity targets of minus 3.43 per cent per year over the entire planning period, while in the neighbouring county, energy intensity targets started high with minus 5 per cent for the first year and declined to minus 3.5 per cent over time. Leaders selected this descending method since they believed that there would be less and less room to achieve additional energy savings.

Another desirable or intended aspect of the system is that frequent reporting on environmental target fulfilment strengthens the Party’s performance legitimacy. At the end of the 11th FYP, frequent announcements on environmental targets communicated to the Chinese public that the central government is doing everything possible to realize announced goals. For example, when, during the last months leading up to the end of the 11th FYP, it became clear that China was not on track to meet its national energy intensity target of 20 per cent, former Chinese Premier Wen Jiabao publicly called for local officials to use an ‘iron hand’ when implementing the energy intensity targets. Such announcements communicate to the Chinese public that the central government takes the implementation of environmental policies very seriously and if targets are not met, it is likely because of policy shirking by local governments. Therefore, authoritarian regimes can exploit binding environmental targets to enhance trust in central authorities and enhance the appearance of effective governance, thus ultimately furthering the Party’s legitimacy.

While the introduction of binding environmental targets has, to date, resulted in a number of positive outcomes, the target system also generates multiple *undesirable* (and often unanticipated) results. Heavy reliance on binding environmental targets can also be problematic as allocated targets can be inappropriate to local circumstances and units of protection, unscientific, rigid, arbitrarily inflated as they get passed down the administrative hierarchy, and difficult to verify (Kostka 2016).

Inappropriate to local circumstances and units of protection

First, picking nine binding environmental targets in the 12th FYP also means neglecting other important environmental targets and issues, such as binding targets for particulate matter 2.5 (PM_{2.5}) or water efficiency in the agricultural sector. As binding environmental targets cascade downward through the administrative hierarchy, targets set by upper-level governments might not fully represent local conditions or local environmental priorities. As a result, the most urgent local environmental protection challenges might be untouched by the target system. For example, heavy non-ferrous mining industries in Chenzhou municipality (Hunan) caused severe pollution in multiple counties over the last two decades. Yet because there was no binding target addressing non-ferrous metal pollution until the most current 12th FYP, the most pressing local pollution issue was not tackled until recently (Kostka 2016). Moreover, targets can be inappropriate since targets are usually distributed based on administrative

boundaries, which do not necessarily match the unit of protection. Lakes, rivers or wetlands are complete ecosystems that should be managed as single entities rather than parcelled out to different administrative units (for more detailed case studies, see Kostka (2014)).

Unscientific targets

As targets get distributed at each level, bureaucrats need to make decisions as to how to share the burden of implementation. Yet, this decision-making process requires a constant flow of high quality information in order to identify the 'right' target level for subordinate governments and enterprises. In the absence of such information, the use of one-size-fits-all targets can distribute the implementation burden very unequally between different reporting units. For example, within the same municipality in Hunan, one EPB reported that air pollution targets were 'easy' to achieve while two neighbouring counties felt they were 'difficult'. Such scenarios can generate resentment and supply incentives for heavily-burdened localities to misreport data on difficult targets. With many local governments lacking in the technical know-how and resources needed to decide on differentiated targets, they are often not allocated in the most optimal way.

Rigid targets

Targets also remain rigid. For example, one urban district in Hunan failed to meet its 11th FYP energy intensity target because a large-sized, central state-owned power enterprise moved into the district. District leaders escaped punishment only because the municipality still managed to meet its overall target despite the shortfall in the district.

Inflated targets

Moreover, as binding environmental targets get passed down to lower tiers of government and bureaus, sometimes unattainable targets are allocated to subordinate governments. Provincial and municipal government officials often inflate environmental targets when passing them down the administrative hierarchy in order to allow for slippage as they anticipate that some environmental projects and efforts will fail or that the results will be questioned by national inspection teams. For example, in one municipality in Shanxi, energy intensity targets among counties generally ranged from 27 to 30 per cent, despite a municipal overall target of only 25 per cent (Kostka and Hobbs 2012). Receiving unattainable targets demotivates local leaders in charge of implementation and, in extreme cases, can trigger non-cooperation by local leaders.

Verification difficulties

In addition, because targets differ widely in terms of their ease of measurability, verifiability, and the extent to which they are tied to vital economic and social issues, the effectiveness and efficiency of binding environmental targets can vary widely. For example, forest coverage targets are easier to measure and verify due to existing GPS technologies, while energy intensity is more difficult to measure and verify since there are multiple ways to calculate energy and GDP data and no sophisticated technical equipment exists to monitor performance. Some localities measured energy intensity per GDP or per value added in large-scale (*guimo yi shang*) enterprises. This measure can be problematic because GDP data for the service sector is often not reliable, especially when it gets down to county-level data.

Political and economic incentives for local policy implementers

As described in the analytical framework, besides the green planning system, the incentives provided to local actors via the cadre management system play a crucial steering function in local policy implementation. One can differentiate between political incentives, meaning political awards local bureaucrats can expect, and economic incentives, referring to the economic payoffs different actions are likely to produce for both political leaders and private actors.

Political incentives for local governments

Political incentives play a central role in motivating local cadres to fulfil national green mandates and targets. Like other mandatory targets, binding environmental targets have been linked with the annual cadre promotion and evaluation system. Outstanding performances in the annual cadre evaluation are rewarded through promotions (in rank or position), additional wage or bonus payments, or other material benefits, including administrative benefits (e.g., free transport, entertainment, training, and travel), and other allowances for cadres (e.g., subsidized housing, health care, and opportunities for further education). If local leaders fail to meet binding targets, they can face punishments through, for example, denial of promotion and formal censure, such as redeployment to a remote region or, in rare cases, expulsion from office. Local leaders (e.g., the Party secretary and mayor of a province, municipality, or county) also sign individual responsibility contracts that include specific annual energy or emission reduction requirements for their locality. The signing of personal responsibility contracts helps to ensure that government officials at each layer of government administration are motivated to at least partially fulfil upper-level government directives.

Managers of state-owned enterprises (SOEs) are also embedded within the same system of annual cadre evaluation, meaning that they are more easily incentivized to comply with environmental standards than managers of private enterprises (Kostka and Hobbs 2012; Harrison and Kostka 2014). SOE managers who fall short of their annual goals can be excluded from year-end bonuses and be subject to other political punishments. Managers of certain large SOEs who significantly increase energy efficiency and reduce emissions may yield political benefits including promotions. SOEs have a reputation for shirking regulations and getting away with worse environmental practices (Lo and Tang 2006, 204), but the above example suggests that the government can sometimes effectively leverage links to SOE managers to achieve environmental gains. Informants also reported that SOEs are more easily regulated because local government officials have better information access to them as compared to private enterprises.

Shortcomings of the cadre incentive system

In spite of political and economic incentives woven into the cadre management system, the incentive system does not always work effectively. Leading cadres' pressures for target fulfilment can lead to short-term maximization behaviour instead of long-term innovative environmental management. Many of the environmental and energy intensity targets in the 11th FYP were implemented at the eleventh hour and implementation measures did not yield lasting change. In some localities, binding energy intensity targets were fulfilled at the very end of the planning period using extreme and sometimes socially harmful measures. These included cutting electricity to hospitals, homes and rural villages. Local governments also temporarily shut down energy-intensive companies for a given period of time only to allow the same enterprises to

later reopen, a method known as 'sleeping management' (*xiumian guanli*) (Kostka and Hobbs 2012). These low quality implementation approaches ensured that leading cadres met their energy intensity target outlined in their individual responsibility contracts but effectively put off the difficult matter of economic restructuring (Eaton and Kostka 2014). In contrast, after the completion of the 11th FYP targets in 2010, many localities went back to 'business as usual' and, at the beginning of the 12th FYP in 2011, they thought of creative ways of easing their new burden. For example, they worked to attract outside companies in the hopes of boosting local growth as a means of manipulating the energy intensity ratio since energy intensity = energy consumed/GDP.

The existing cadre incentive system is also somewhat problematic as tensions between environmental and economic targets result from the different weights allocated to targets in the cadre evaluation forms (*kaohetiao*). Generally, economic targets significantly outweigh social and environmental targets. For example, in one county in Shanxi province, government officials could obtain a maximum of 28 points for meeting economic targets in the 2011 evaluation forms, while just 14 points were allocated to resources and environment targets (Eaton and Kostka 2013).

Overall, it is clear that environmental targets, while substantially more important now than previously, compete for space on the crowded agenda of local officials. In these circumstances, most local officials have adopted the attitude of doing the very minimum required.² One official in a county in Shandong said: 'It is like a constraint maximization problem (youyue shue de jidahua): We try to maximize GDP and fiscal income, but we meet only the bare minimum of environmental standards. This is of course not always efficient for the environment'.³ A leading EPB official further reflects: 'Environmental and energy targets are binding targets but they are not our ultimate targets. No leader will be promoted because of their better achievements in environmental protection and energy savings. GDP growth is still the target that we work hardest to achieve'.⁴ This attitude explains why all the three municipalities and six counties visited during fieldwork in 2012 set an annual GDP growth rate between 12 to 17 per cent in the local 12th FYP, twice as high as the national 12th FYP growth rate of 7 per cent. A local EPB official notes 'in theory, all local departments should together decide about local GDP growth rates, but in practice it is finally decided by the local Development and Reform Commission (DRC), while the EPB does not have much say in this'.⁵ When asked why they selected such high growth targets, local DRC officials often replied that national or provincial figures are 'average' figures and some regions will have higher growth and some regions will have lower growth.⁶ Naturally, no locality wants to 'sacrifice' their economic development and have average or below-average growth. In addition, promotion-seeking cadres will look for projects with high 'political accomplishment value' to impress their superiors but these actions can lead to less optimal outcomes for the locality in the long term (Eaton and Kostka 2014).⁷

Cadre rotation system and local leaders' short time horizon

Implementation of environmental targets is made harder through the institutionalized cadre rotation system that switches leading cadres to a new position or locality every three to four years (Eaton and Kostka 2014). Available data suggest that leading local cadres do not stay long in their positions.⁸ Party secretaries and mayors, the two pillars of a city's leadership group (*lingdao banzi*), are typically whisked off to a new locale well before the recommended five-year term for civil servants and Party cadres in leadership positions.⁹ On average, mayors and Party secretaries at county and municipal levels tend to serve between three and four years before moving on to their next assignment (Seckington 2007; Eaton and Kostka 2014). For instance,

data on 898 former municipal Party secretaries appointed across China between 1993 and 2011 reveals that the average time in office was 3.8 years, 1.2 years shorter than the recommended tenure time for cadres in leadership positions (Kostka and Yu 2015). Beyond the leadership group, departmental heads with a key role in environmental policy implementation also rotate on average every four years. For instance, the average time served as head of a provincial DRC, the head of a provincial EPB, and the head of a provincial Construction Bureau was 3.6 years, 4.0 years, and 4.6 years, respectively (Kostka 2013).

There are pros and cons of the cadre turnover system and its effects on environmental policy implementation. Frequent post-shuffling among local cadres can help to bridge departmental gulfs, an eternal problem in China's huge and fragmented bureaucracy. Circulating cadres between different administrative levels can also enhance communication across administrative levels and improve cadres' knowledge of upper or lower governments' daily tasks. Job rotations through SOEs can also aid effective environmental governance; cadres with previous work experience in state-owned enterprises can draw from their knowledge of enterprises' decision-making processes and internal politics and thus negotiate more effectively with enterprise managers on implementation of onerous environmental regulations (Eaton and Kostka 2014).

Although cadre rotation has some benefits for environmental policy implementation, there are also significant downsides to the rotation system. Short tenure cycles incentivize cadres to prioritize short-term over long-term gains. For instance, a series of short-staying mayors and Party secretaries in Datong City, Shanxi province, had reputations for extracting rents from local industries while avoiding the painful restructuring Datong urgently needed (Eaton and Kostka 2013). In addition, frequent rotation of leading cadres can be disruptive to local development planning. Newly-posted cadres frequently stop existing initiatives, regardless of their merits, in order to place their own stamp on a locality. Finally, in the space of a three- or four-year tenure, circulating officials spend much of their time simply getting up to speed in their new localities and their limited knowledge of local circumstances can result in suboptimal environmental policy outcomes (Eaton and Kostka 2014). Once leading cadres move on to a new post, they are also no longer held responsible for environmental outcomes of their previous actions. This inability to hold cadres responsible for environmental damage after they leave a post prompted Xi Jinping's call for 'lifetime accountability' for cadres (*South China Morning Post* 2013). In 2015, the State Council approved the inclusion of such a lifetime accountability rule for environmental pollution in the new 'Guidelines of Pushing the Construction of Eco-Civilization' (Lelyveld 2015) and announced a roll out of this policy across China by the end of the decade. Yet, whether such a rule can be effectively enforced remains to be seen because there are serious concerns whether an independent audit system can be established to effectively audit officials' performances (Zhang 2015).

Economic incentives for local governments

Next to personal political incentives, local cadre behaviour is also determined by economic incentives. Local governments increasingly face pressure to enhance local income since local governments are assigned the main responsibilities for delivering public services and infrastructure provision, yet revenues based on tax revenue sharing and intergovernmental fiscal transfers are insufficient to cover these costs (Wu et al. 2013; Wong 2010, 2013a). The revenues received from the sale of land use rights and urban construction projects have become a particularly important source of extra-budgetary income for local governments, but this often has led to urban sprawl and wasteful land use. The revenues received from the sale of land use rights have become the most important source of extra-budgetary income for local

governments (Man 2011, 12). The institutional structure of the land transfer process also enables local governments to make significant profits. The compensation required for requisitioned agricultural land, based on the administrative formula, is usually much lower than the conveyance fees governments receive from private developments (Lichtenberg and Ding 2009, 58). Estimates and anecdotal evidence suggest conveyance fees are approximately 10 to 20 times the value of compensations (Tian and Ma 2009, 603; Lichtenberg and Ding 2009, 58). In addition, prior to the transfer, the price for the land sale is often intentionally driven up by increasing values through infrastructure construction such as investments in highways, metro stations, or even airports (Wei and Zhao 2009, 1034). Given these economic incentives, city expansion *'always pays off, whether people end up living there or not'* (Kaufman 2012, 43). At its most extreme, these economic incentives can lead to the emergence of ghost cities such as Kangbashi New Area in Ordos City in Inner Mongolia.

In summary, insufficient political incentives and severe budget constraints at the local level disincentivize local cadres to faithfully implement national environmental mandates. As a result, cadres quite rationally invest the majority of time and funds in projects that produce tangible evidence of economic growth within their own tenure.

Limits on public and private participation

Another barrier at the local level is the limited opportunities that exist for participation of local non-state actors to improve environmental management. In the following, this problem is referred to as the 'participation gap'. Participation in China's environmental policy-making has traditionally been structured and institutionalized within the state and party systems, for instance, through the Chinese People's Political Consultative Conference (CPPCC) at various levels. These mechanisms of participation – characterized by restricted opportunities for participation and limited access to decision makers – continue to define Chinese environmental policy-making (Kostka and Mol 2013). Environmental guidelines and measures are initiated, driven, and executed by the government. As discussed in the following, local government officials from the EPB and other government agencies interact with and respond to pressures from industry, public, non-governmental organizations and the mass media.

Vested interests of the business sector

Despite the central government's push for tighter environmental regulations and restrictions, industry has various means of countering costly environmental measures. Many larger companies at the local level – especially central- or provincial-level state-owned oil and power companies – have continued to prioritize profit-making over fulfilling environmental standards at the local level (Eaton and Kostka 2017). For instance, state-owned power companies are reported to violate government regulations on emissions from coal-burning plants and regularly ignore guidelines to upgrade coal-burning electricity plants (Wong 2013b; Eaton and Kostka 2015). China's oil companies have also held up an improvement in diesel fuel for years.

Moreover, in cities where only a small number of companies contribute to the major share of tax revenue or employment, these few companies wield great bargaining power, making it particularly difficult for local government officials to enforce unwelcome environmental regulation on them. Finally, enforcing compliance from private enterprises and SMEs has proven to be difficult for local governments. For example, under the recent Top-10,000 Energy-Consuming Enterprises Program, large energy-intensive enterprises have started to undertake substantial efficiency improvements, but the programme needs to broaden its scope

beyond targeting larger, predominantly state-owned, enterprises. For instance, China's industrial SME sector – which is largely privately owned – accounts for 41 per cent of the total energy consumption, followed by non-industrial enterprises (29 per cent) and large industrial enterprises (17 per cent) (IFC 2012, 20). As such, the SME sector is not unimportant in terms of overall energy usage and emissions (Kostka et al. 2013).

Limited role of public and media

The public has numerous ways to participate in local environmental governance, but the scope and effectiveness of these practices have their limits.¹⁰ As early as the 1970s, China set up a complaint system (the so-called *letters and visits system*) to assist in government accountability and in setting priorities in the field of environmental pollution mitigation. Urban citizens also increasingly use social media like *Weibo* and online chat rooms to exchange opinions and alert fellow citizens to local environmental problems. Although there are clear indications that these complaint systems do have an impact on priority setting and control and enforcement activities of local environmental officials (Kostka and Mol 2013), such bottom-up pressure still plays only a very minimal role.

Public hearings form a more institutionalized arrangement for participation in China's environmental policy-making. The best-known example concerns local public hearings in the Environmental Impact Assessment (EIA) procedure, as formalized in the 2002 EIA law and its implementation measures. Yet, such a legal obligation to organize consultation with citizens does not mean that they always take place – and in a meaningful way (for EIA procedures and public participation see also chapter 18).

Citizens also put pressure on local governments to enforce pollution standards by exposing local polluters through the media. The media is influential in shaping both public and government officials' perceptions of environmental issues, but particular attention is placed on issues that have immediate implications for citizens' lives. For instance, the media heavily covers PM_{2.5} pollution issues but pays much less attention to less visible pollution issues such as heavy metal pollution. Media reports also tend to focus more on specific events (e.g., a new polluting enterprise moving to a particular region) than they do on pollution problems that develop gradually. As a result, local government agencies increasingly feel pressure to immediately respond to media reports and might sideline other equally pressing but less publicly reported environmental problems (Lora–Wainright 2013). Sometimes local government agencies also rely on local media to put pressure on other local government agencies or local enterprises. For instance, in Lanzhou, the local EPB criticized central SOEs in their jurisdiction for non-compliance with emissions guidelines in the local media, adding pressure to the leading government officials to finally take punitive action (Eaton and Kostka 2017). Organized protests in cities have also recently helped to oust polluting factories and, in some cases, have succeeded in putting a stop to polluting projects and closing down polluting enterprises.

Limited role of local NGOs

Over the last few years, NGOs working on environmental issues have considerably increased in number but their influence is limited as they are not integrated in policy formulation processes and play a 'supplementary role' at best. While reliable official numbers do not exist, estimates suggest that there are currently approximately 1,000 registered environmental non-governmental organizations (ENGOS), as well as a similar number of unregistered ENGOS. The majority are quite small and are not directly engaged in environmental policy-making and implementation,

but instead focus on awareness-raising, education, study, and research. A number of those ENGOs engaged in policy advocacy are spin-offs of governmental organizations and institutes and are often referred to as government organized NGOs (GONGOs). Through closed networks with policymakers and their expert knowledge, these GONGOs articulate environmental interests and bring them into state institutions and decision-making processes. In doing so, GONGOs play a role in bridging the gap between NGOs and civil society, on the one hand, and the state on the other, but they are sometimes criticized for having achieved a place at the table at the expense of taking a softer stand on environmental issues than independent ENGOs. Increasingly, we see also independent ENGOs being incorporated into environmental policy-making and implementation processes, by sharing their knowledge with government agencies, writing petitions, using media outlets, discussing policy alternatives with officials and providing legal assistance to pollution victims. Several studies have detailed how such ENGOs explore the boundaries of what is allowed in contemporary China in terms of NGO engagement, policy involvement and protest (Hildebrandt 2011; Wu 2013). Often local governments are not very enthusiastic about ENGOs playing these watchdog roles.

Capacity constraints

State capacity is of key importance to the enforcement of environmental policies at the local level as well as the effective use of environmental policy instruments (Schwartz 2003). Local governments work under certain political, technical, or financial capacity constraints that influence environmental policy outcomes.

Political capacity: fragmented and weak environmental bureaucracies

Political capacity constraints can result from coordination difficulties due to the following three factors. First, the implementation and enforcement of environmental mandates at the local level is partly hindered by the fragmented and ambiguous allocation of environmental responsibilities. Usually, numerous government agencies are responsible for the implementation of a single environmental issue but sometimes without a clear division of labour, which in practice ultimately leads to a lack of accountability (Ran 2013). For example, more than five departments have a role to play in energy efficiency implementation at sub-national levels: the local DRC, the Economic Commission, the Construction Department, the Transportation Department and the EPB.

Second, implementing agencies also face multiple and sometimes conflicting goals within an organization (for a comprehensive table of conflicting priorities, see Ran 2013). For example, the local DRC is in charge of multiple functions; its main interest lies in economic overseeing planning and investment management, while at the same time it is also responsible for overseeing energy efficiency and climate change issues. In many cases, the DRC's industrial and economic policy goals trump its environmental mandates.

Third, the implementation capacity of local departments in charge of environmental mandates is further constrained by their low bureaucratic status and rank within the local political hierarchy. Local agencies in charge of enforcing China's binding environmental targets vary in their political status within the locality. For example, as the agency in charge of energy efficiency issues, the local DRC holds a wider net of bureaucratic links and access to finance than, for instance, the EPB. The EPB, on the other hand, has the authority to impose 'regional investment restrictions', an enforcement practice that can restrict the environmental approvals of all new projects. By contrast, local Water and Resource Bureaus do not have the same range of enforcement tools available to enforce water consumption targets (Kostka 2014).

The importance of providing local bureaucracies with an adequate independent status to enforce environmental policies can be illustrated with the example of local EPBs. Although the total number of employees working in local EPBs increased from 105,900 in 1998 to 166,800 in 2005 (Li and Higgins 2013, 412), EPB officials frequently complained that they have only limited enforcement authority. For example, government officials in SOEs are often senior in rank to directors of local EPBs, making it difficult for local EPBs to assert bureaucratic authority to compel compliance to minimum environmental standards (Ma and Ortolano 2000). EPB officials frequently mentioned the ‘central SOE problem’ and noted that nothing could be done to prevent central SOEs (*yangqi*) from polluting their localities except bringing this problem to the attention of their superiors at the next administrative level (Eaton and Kostka 2017).

Moreover, leadership appointments of local EPBs are subject to the preferences of local Party secretaries and mayors as well as leaders in the local organization departments and Party committees. Together, they have control over who gets appointed as a local EPB director. Among all 31 provincial EPB directors, only one-quarter of appointed directors were promoted within the ranks of the EPB bureaucracy, while the remaining came from other government or Party positions (Kostka 2013). When selecting bureaucrats for promotion to EPB head, local leaders will balance considerations on the need for economic development, the complexity of environmental pollution, required implementation practices, as well as their own political career concerns (Kostka 2013). For example, while Shanxi, a province under heavy external pressure to improve air pollution in 2006, selected a candidate with the skills and credentials to effectively implement air pollution targets to head the provincial EPB, the still-developing Inner Mongolia appointed a candidate with the experience needed to balance economic growth and environmental protection concerns. The power to select local EPB directors gives local authorities significant scope to influence the local path of environmental policy enforcement. Given these appointment procedures, EPB directors might feel sometimes more beholden to local leaders than to their duty to pursue environmental protection goals.

Technical capacity: lack of equipment and know-how

Technical capacity constraints can further hinder the implementation of national environmental mandates. Two pertinent technical constraints commonly cited in the literature are a lack of technical equipment and insufficiently trained local staff (Mol and Carter 2006).

First, the verification of environmental outcomes, a key component of effective environmental management, is a difficulty faced in many localities due to a shortage of advanced monitoring equipment. The available technologies and forms of monitoring systems differ for the verification of environmental targets. For energy intensity targets, there is no purpose-built monitoring equipment in place and reported data relies on self-reported figures from enterprises. For the verification of forest targets, recent GPS technologies make it somewhat easier to independently confirm reported forest coverage rates as these latest technologies can serve as ‘the central state’s eyes in the sky’ (Shue 2012, 24; Interview 9 May 2012). For COD and SO₂ targets, real-time monitors are usually installed in larger companies. This monitoring equipment is reported to be not very technically advanced, unreliable and too few in number (Kostka 2014). Overall, the COD and SO₂ data collected from monitors can only serve as a reference (*can kao*) and many counties continue to rely more strongly on monthly or quarterly inspection visits to larger companies (Interview 10 May 2012). Although it is very taxing in terms of staffing requirements and time consumption, sending frequent inspection teams is seen to be quite necessary. For example, inspection teams sent from the national Ministry of Environmental Protection to the provinces sometimes rejected 30 to 50 per cent of claimed SO₂ reductions by some provinces

(Schreifels et al. 2012). Heavy reliance on inspection visits gives local officials a certain amount of discretion when it comes to verifying targets, including the decision about which enterprises to inspect or on which day to visit a lake to test its water quality.

In addition, the environmental bureaucracy is also in chronic need of well-trained staff to strictly monitor the accuracy of reported figures and targets. Such skills are needed, for example, in deciding which method is appropriate to the estimation of energy intensity levels, defined as energy consumption per unit of GDP. Interviewees working in local EPBs frequently admitted that sector-specific technical knowledge is needed to be able to critically check enterprises' self-reported energy consumption reports. The lack of formal and informal training of EPB staff in environmental sciences is also visible among the top leaders in the EPB bureaucracy. Among all 31 provincial EPB heads as of 2010, only one director has undergone university training in environmental sciences and only one-quarter were promoted to their leadership position from within the EPB (Kostka 2013).

In summary, the combination of shortages in advanced technical equipment and officials' limited technological know-how leaves ample room for business managers to play the 'game about numbers' with the local environmental bureaucracy (Ran 2013).

Financial capacity: insufficient funding

At the national level, China has increased funding for environmental protection and is planning major future investments over the next decade. According to the *China Daily* (2013), the total government spending on environmental protection in 2011 was 419 billion RMB, or about 0.9 per cent of GDP. Although this figure is a significant step up from previous years, it is still below the 2–4 per cent of GDP that is estimated as necessary to tackling environmental damage. Further investments are planned at the national level. For instance, the MEP budgeted a further 200 billion RMB for cleanup projects and 350 billion RMB for more than 13,300 projects to control emissions and reduce PM_{2.5} levels between 2011 and 2020.

Despite the significant increase in funding from Beijing, most of these environmental funds are assigned for specific programmes and projects managed by different central ministries. Local branches of the EPB tend to be seriously underfunded as their responsibilities and tasks have multiplied over the past decade. For example, the allocated budget for local EPBs visited during fieldwork ranged from 0.5 to 2.5 per cent of local GDP. Typically, more advanced localities in coastal provinces spend proportionally more on environmental protection than less advanced localities in central and western provinces. The financial capacity of local EPBs is further constrained by fiscal and administrative interdependence between the local EPB and other local government agencies and leaders. As the de facto first-in-charge, local Party secretaries and mayors have substantial influence over local EPBs through the allocation of resources. From their leadership positions, they can exercise influence over the comprehensive budget set by the local finance bureau, which includes the annual budget for local EPBs. This makes EPBs dependent on local finance bureaus for their funding needs; thus, EPB officials often worry that their budgets are dependent on the good graces of local leaders.

To overcome funding shortages, local EPBs can apply for project funding and staff expansion from the municipal, provincial, and national government, but these funding applications are often lengthy and require sustained effort by the local leadership over several years (Lo and Tang 2006; Kostka 2014). Limited financial capacity can lead to shortages of needed inspection vehicles, up-to-date testing equipment and skilled staff. For instance, a single city air-monitoring station costs on average approximately 200,000 RMB, and a city would need multiple stations for effective pollution control. Most EPB leaders interviewed admitted that they could control

air and water pollution better if they had multiple air-monitoring stations and monitoring equipment. In summary, local EPB leaders receive mixed signals: they are asked to fully implement binding environmental targets but these demands by upper-level governments are not always matched with a corresponding increase in financial resources.

Conclusion

This chapter identified barriers to a more comprehensive implementation of environmental policies at the city level in China and suggests an analytical framework to analyse these barriers. Key institutional barriers at the local level include shortcomings in the current environmental planning system, insufficient political and economic incentives provided to local implementers, limits to public and private participation, as well as financial, technical, and political capacity constraints of local implementing agencies.

In particular, the analysis showed that reliance on a target-based implementation system as the main environmental management instrument has yielded mixed results. Although environmental issues have moved quickly onto the policy agenda of local governments over the past decade, the target system itself produces multiple unanticipated and undesirable results. As binding environmental targets cascade downward through the administrative hierarchy, targets can become inappropriate, rigid, and are routinely inflated. Binding environmental targets also aggravate cyclical behaviours among cadres, and pressures for target fulfilment can result in eleventh-hour, short-sighted actions. In addition, because targets differ widely in terms of their ease of measurability, verifiability, and the extent to which they are linked with economic and social issues, the effectiveness and efficiency of binding targets can vary among environmental issues.

Weak political and economic incentives for local policymakers further help to explain why there is often insufficient motivation for effective environmental governance at the local level in China. Environmental targets, while substantially more important now than previously, compete for space on the crowded agenda of local officials. In these circumstances, many local officials have adopted the attitude of doing the very minimum required to implement green targets while most attention continues to be placed on maximizing GDP growth rate and fiscal income. Among local leaders, the attitude prevails that 'no leader will be promoted because of their better achievements in environmental protection and energy savings'.

In addition, the failure to implement environmental policy at the local level is also shaped by the preferences of powerful public and private interests. Large local businesses typically put the bottom line above the public interest and can use their considerable leverage vis-à-vis local governments to shirk on costly regulations. Moreover, the participation of NGOs and the public often remains ad hoc and limited in scope, especially in non-coastal, low profile cities. Current participation of non-state actors at the level of *designing* and *formulating* policies and practices are particularly rare.

At the most basic level, environmental policy implementation at the local level is also constrained by the political, technical, and financial capacities of implementing agencies. Political capacity constraints can result from coordination difficulties due to a fragmented environmental bureaucracy, conflicting priorities *within* implementing agencies, and low bureaucratic status and authority granted to environmental bureaucracies. The main pertinent technical constraints include the lack of advanced technical equipment and insufficiently trained local staff. Finally, greening growth demands by upper-level governments are also not always matched with a corresponding increase in financial resources, providing mixed signals to local leaders.

Numerous recent innovations and experiments provide a better understanding of how to address existing institutional barriers in China.¹¹ First, Chinese planners and local governments have recently begun to address some of the unanticipated and undesirable consequences of China's target-based green planning system. For instance, there are increasing efforts to improve environmental governance across provincial borders to ensure complete ecosystems are protected. There are also efforts under way to improve target allocation, implementation, and verification processes. For instance, in order to avoid cyclical implementation behaviour among cadres observed at the end of the 11th FYP period, in the 12th FYP more emphasis has been placed on achievement of annual targets instead of accumulated five-year targets. In addition, some sub-national governments devised additional incentives to motivate local policymakers and enterprises to pursue green goals. For example, Shanxi started a competition among the most polluted municipalities and offered price rewards to those localities that first got themselves off the national list of 'most polluted cities'. Finally, efforts are under way to address local governments' political, technical, and financial capacity constraints that influence environmental policy outcomes. For instance, to prevent central SOEs (*yangqi*) from polluting localities, the State Owned Assets Supervision and Administration Commission (SASAC) has included energy savings in the annual performance evaluation of SOEs. In addition, increased environmental NGO activism, public hearings, and improved information disclosure, also contribute to enhance local environmental policy implementation, and sometimes even policy-making (Kostka and Mol 2013). These findings contribute to the ongoing debate regarding how China can switch to a greener urban growth path, and particular emphasis is needed in the coming years to create additional incentives and increase local implementation capacities.

Notes

- 1 This section draws on Kostka (2016).
- 2 The next three paragraphs draw on Kostka (2014).
- 3 Personal Interview 8 May 2012.
- 4 Personal Interview 14 May 2012.
- 5 Personal Interview 23 May 2012.
- 6 Personal Interview 23 May 2012.
- 7 It is also important to stress that not all cadres are responsive to political incentives outlined in the cadre evaluation system. A recent study based on 898 local Party secretaries' biographies shows that county-level cadres face only a slim possibility of being promoted upwards to the municipal government (Kostka and Yu 2015). The study suggests that the importance of political incentives in the cadre evaluation system might be overestimated.
- 8 This section draws on Eaton and Kostka (2013, 2014).
- 9 The five-year tenure limit is, in reality, a firm recommendation rather than a hard and fast rule. A 1999 CCP Organization Department document set ten years as the absolute limit for cadres in leading positions but rules stating that cadres change positions at five-year intervals is phrased in the language of 'should' (*yinggai*) rather than 'must' (*bixu*). This flexibility explains why some cadres have tenures longer than five years.
- 10 This section draws on Kostka and Mol (2013).
- 11 For a more detailed list, see Kostka (2014).

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