



How authoritarian is the environmental governance of China?



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ABSTRACT

This paper challenges the prevailing perception that the environmental governance of China is a case exemplar of authoritarian environmentalism. Using low-carbon governance as an example, it shows that although China's national low-carbon policy appears highly authoritarian, the situation on the ground is much more ambiguous, displaying a mixture of authoritarian and liberal features. While China's top-down and non-participatory policy environment has been crucial in stimulating a low-carbon transition, the failure of the central government to control local actors has created a situation of de facto neoliberal environmentalism, where local governments and energy-intensive enterprises enjoy a high degree of freedom and flexibility to manage their own energy consumption in spite of the overt authoritarian rule. The findings of this research show that viewing China's environmental governance as a clear-cut instance of authoritarian environmentalism should be done with circumspection, and that studying the nature of environmental governance as a complex process requires a thorough understanding of not just national policy but also local politics and the ways the two are connected.

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1. Introduction

Authoritarian environmentalism as a discourse of environmental governance can be defined by two aspects (Beeson, 2010). The first aspect is a policy process dominated by an autonomous state. In other words, the policy process is non-participatory, characterised by the absence of public consultation, grassroots activism, civil litigation, and lobbying. The second aspect is the pursuing of environmental outcomes by restricting individual liberty, and is therefore tantamount to the preference for a command-and-control, regulation-based policy environment. Authoritarian environmentalism is often contrasted with free market/neoliberal environmentalism, which accentuates individual freedom, and with democratic/participatory environmentalism, which stresses public participation in the policy process (Andrew and Cortese, 2013; Gilley, 2012). There exists an ongoing debate over the pros and cons of authoritarian environmentalism as a solution to pressing environmental problems such as anthropocentric climate change. Proponents praise the efficiency and effectiveness of the model to address ecological crises (Gilley, 2012; Ophuls, 1977; Shearman and Smith, 2007). Opponents, on the other hand, argue that the concentration of power and the lack of accountability could eventually harm the environment because the system allows

the elite to benefit personally from ecological degradation (Dryzek, 1987; Winslow, 2005). This paper moves beyond this normative debate to focus on the nature and workings of authoritarian environmentalism. It seeks to answer a seemingly simple question: How authoritarian is the environmental governance of China?

Pure authoritarian environmentalism obviously does not exist in the ideal form in any context; just as pure neoliberal or democratic environmentalism does not exist. In practice, a mixture of different environmental governance models can be found in every country (Gilley, 2012). Nevertheless, existing studies typically treat the environmental governance of China as a case exemplar of authoritarian environmentalism (Beeson, 2010; Eaton and Kostka, 2014; Gilley, 2012; Schreurs, 2011; Zhang et al., 2013; Zhu et al., 2015). As pointed out by many scholars, China's environmental governance can be characterised by a powerful party-state that dominates a mono-centric and non-participatory policy process, a weak and shackled environmental civil society, and a regulatory regime based mainly on command-and-control instruments (Deng, 2010; Liu et al., 2012; Kostka and Mol, 2013; Schwartz, 2004). This paper, however, challenges such conventional wisdom in the light of new empirical evidence. It argues that simply regarding the environmental governance of China as authoritarian disregards some important features of the governance and politics of the country. More specifically, the decentralisation of policymaking and policy implementation in the reform era has created political space for local governments to act as

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representatives of local interests, rather than as mere agents of the central government (Chung, 2000; Li, 2010; Lieberthal, 1992). It is now quite common for local governments to distort, ignore, or even challenge central government initiatives for the sake of local interests. The fragmentation of authoritarian power is particularly prevalent in environmental governance, as conflicting political and financial incentives reward policy misimplementation (Marks, 2010; Ran, 2013). Therefore, the nature of environmental governance in China depends on not only national policy but also central-local relations and local politics.

This paper uses China's emerging low-carbon governance as an illustrative example. China is experiencing a rapid rise in energy consumption and carbon emissions because of economic growth, industrialisation, and urbanisation (Feng et al., 2012; Lo and Wang, 2013; Minx et al., 2011). Coping with the associated economic and environmental problems has become a top priority for the government. In November 2005, in a highly unusual move, the Politburo (the highest decision-making body of the Communist Party of China) announced the national goal of reducing energy intensity by 20% in five years. The State Council designated the National Development and Reform Commission (NDRC) as the responsible body to oversee the energy conservation and climate protection objectives. Since 2006, the central government has issued many low-carbon policies and programmes relating to various aspects of energy conservation and renewable energy development (Lo, 2014).

In addition to the negative environmental effects of climate change and the ever-increasing international pressure on China to take mitigation action, China's recent endeavours in respect of low-carbon governance are also tied to two national political-economic concerns. The first concern is rapidly declining energy security (Yao and Chang, 2014). From 2001 to 2005, energy consumption in China skyrocketed from 1504 to 2360 million tonnes of standard coal equivalents. The dramatic rise in energy demand disrupted long-term energy planning, resulting in massive blackouts in more than two-thirds of the country's provinces. Thousands of factories were brought to a standstill, causing economic losses of over 1 trillion RMB (Bo, 2006). China is now a major importer of coal, oil, and natural gas; therefore, securing sufficient and stable supplies of energy resources at reasonable prices has become a key economic priority (Odgaard and Delman, 2014). Energy conservation and the deployment of renewable energy technologies are considered important contributors to China's energy security and the effort to reduce the reliance on energy imports.

The second concern, which is discussed less often in the literature, is the desire to optimise the structure of the economy (Liang et al., 2013). The Chinese government views the current resource- and labour-intensive, low-value-added, export-oriented economic structure as a significant threat to sustainable growth. A low-carbon industrial revolution is therefore essential to propelling China into a new round of sustainable economic prosperity. Consequently, the national focus is placed on developing globally competitive green technologies with domestic intellectual property. Examples of these technologies are wind turbines, photovoltaic cells, solar water heaters, and electric vehicles (de la Tour et al., 2011; Liu and Kokko, 2013; Wang et al., 2012).

Because of these interrelated eco-economic drivers, low-carbon governance has become a national priority and one of the most important components of China's environmental governance. The next section introduces China's authoritarian low-carbon governance as recorded in policy documents. The subsequent section presents a case study that explores the functioning of China's low-carbon governance. Next, the causes of this discrepancy are discussed, focusing on the failure of the central government to control local authorities with respect to low-carbon governance. The paper concludes by considering the

implications of the findings for the future of environmental governance in China.

2. China's low-carbon governance

In China, the discourse of authoritarian environmentalism is institutionalised by concrete command-and-control relations between state and market and between central and local governments. Therefore, understanding these command-and-control relations is key to this discussion. Within the context of low-carbon governance, command-and-control relations are mainly operationalised by two very important national-level programmes. The first is the Ten-Thousand Enterprises Energy Conservation Low-Carbon Programme (henceforth Ten-Thousand Enterprises Programme) which governs state-market relations in energy conservation and climate protection. The programme was jointly established in 2011 by the NDRC as a successor to the Thousand Enterprises Energy Conservation Programme that was active from 2006 to 2010. The programme regulates energy-intensive enterprises that annually consume 10,000 tonnes of coal equivalent, or more. Using this benchmark, the programme includes 16,018 enterprises that collectively account for approximately 60% of the total energy consumption of China. The programme is expected to deliver 250 million tonnes of coal equivalent of energy saving over five years. To put this figure in perspective, the total energy saving target set in the 12th Five-Year Plan is 670 million tonnes of coal equivalent. In other words, the Ten-Thousand Enterprises Programme will deliver over one-third of China's energy savings in the 12th Five-Year Plan.

The Ten-Thousand Enterprises Programme works by assigning energy-saving targets to regulated enterprises. In addition, the enterprises are required to fulfil five types of energy management requirements. First, they should establish leadership for energy conservation. Second, they should provide incentives to employees to encourage energy conservation behaviours. The third requirement is to set up a sophisticated energy management system (EMS) that includes energy audit, collecting energy statistics, formulating energy conservation plans, and energy conservation education. The fourth requirement is to invest in the research and development of energy-efficient technologies. The final requirement is to obey the relevant energy laws and regulations. Table 1 shows the 100-point evaluation system of the Ten-Thousand Enterprises Programme. Note that achieving energy-saving targets is a veto criterion, meaning that the targets must be met for the enterprise to pass the evaluation. Evaluation would also fail if the enterprise scored fewer than 60 points.

An interesting feature of this programme, from a governance perspective, is that the central government distinguishes between two groups of enterprises. The first group are state-owned enterprises (SOEs) owned by the central government. Although relatively small in number, these enterprises are the largest and most energy-intensive in China. Notwithstanding the reforms that have modernised the state-owned sector, the central SOEs resemble a central government ministry because of the strong political supervision and their leadership often being directly appointed by the central government. The central SOEs participating in the Ten-Thousand Enterprises Programme are directly controlled by the central government through the State-Owned Assets Supervision and Administration Commission (SASAC). The second group are SOEs owned by local governments and private enterprises. Compared with the central SOEs, these local enterprises are smaller and less energy intensive, but far more numerous and heterogeneous. Given the large number of local enterprises and their geographic dispersion, it is difficult for the central government to exercise direct control over them.

Table 1
Evaluation criteria of the Ten-Thousand Enterprises Programme.

Category	Details
Energy conservation targets (40 points)	40 points for achieving the energy conservation targets; 1 extra point if exceeding the targets by 10%; 2 extra points if exceeding the target by 20%
Organisation and leadership (8 points)	2 points for establishing an energy conservation leading work group chaired by a member of senior management 3 points for establishing permanent positions for energy management 1 point for recruiting qualified energy managers
Employee incentives (6 points)	2 points for assigning energy conservation targets to employees 2 points for conducting regular energy performance evaluation 2 points for establishing appropriate rewards and penalties
Energy management (25 points)	5 points for establishing and sustaining an energy management system (EMS) 1 point if at least one staff is a qualified energy manager 2 points for measuring and monitoring energy consumption 3 points for collecting and analysing comprehensive energy statistics 3 points for submitting timely and comprehensive energy reports to the government 2 points for conducting energy audits and implementing the recommendations 2 points for drafting and implementing an energy conservation plan 2 points for establishing and implementing an energy benchmarking system 2 points for rewarding employees who contribute to energy conservation and punishing employees who waste energy 1 point for actively promoting energy conservation
Energy-saving technologies (15 points)	2 point for regularly conducting energy conservation training for employees 3 points for establishing a dedicated energy conservation fund for energy-saving technologies 4 points for making and implementing a plan for energy-saving technologies 4 points for researching, developing, and adopting energy-saving technologies 4 points for eliminating obsolete equipment
Laws and regulations (8 points)	1 point for contracting energy service companies to adopt energy-saving technologies 2 points if no energy conservation laws and regulations is broken 2 points for complying with relevant product energy-efficiency standards 2 points for conducting energy impact assessment for new projects; 2 points for implementing new projects according to the recommendations of the energy impact assessment

Source: NDRC (2012).

Consequently, the central government has delegated the enforcement responsibilities to local governments.

The second programme of note is the Energy Conservation Target Responsibility System (ECTRS), which governs the central-local relations. The target responsibility system is a performance appraisal system that has emerged as a crucial institutional mechanism for the central government to control the behaviour of local governments (Edin, 2003; O'Brien and Li, 1999). The ECTRS was established in 2006 by the State Council to provide incentives for local governments to implement the low-carbon policy. The key element of the ECTRS is the establishment of territorialised carbon budgets by the disaggregation of the national energy intensity targets. For the 11th Five-Year Plan, the national target was a 20% reduction in energy intensity over five years. Hence, most local targets aim for between a 15% and 22% reduction in energy intensity. For the 12th Five-Year Plan, the national target was lowered to a 16% reduction in energy intensity over five years, and local targets were dropped correspondingly. In addition to meeting the energy conservation targets, local governments are also required to conduct a number of energy conservation tasks, such as establishing an energy conservation fund to support local enterprises in low-carbon initiatives, formulating a plan to develop energy-efficient technologies, and enforcing energy conservation policy including the Ten-Thousand Enterprises Programme. Table 2 shows the 100-point evaluation system of the ECTRS. Local governments would fail the evaluation if they failed to achieve the energy conservation targets or scored fewer than

60 points. Punishment for failing the evaluation includes the responsible local government officials being ineligible for annual honours and promotion for one year. Failure to meet the targets could also result in the restriction of investment in energy-intensive projects in the local jurisdiction area. This control of conduct is carried out in a cascading, top-down manner. The central government allocates targets to provincial governments that, in turn, allocate targets to local governments.

To sum up, China's low-carbon governance comprises three key command-and-control relations (Fig. 1). First, as part of the Ten-Thousand Enterprises Programme, the central government controls energy-intensive central SOEs. Second, also as part of the Ten-Thousand Enterprises Programme, local governments control local SOEs and private enterprises. Third, the central government controls local governments' energy-related activities through the ECTRS. This system of low-carbon governance described in policy documents is clearly authoritarian. However, we now turn to the empirical study which shows that the picture on the ground is a lot more ambiguous.

3. Local experience

In 2012, I conducted fieldwork in Changchun and interviewed key players who were participating in or had knowledge of low-carbon governance. These informants included government officials, enterprise managers, academics, and representatives of local non-governmental organisations. In addition, secondary data, such as government working reports and policy documents were collected. Changchun is a large industrial city in northeast China and is the capital of Jilin Province (Fig. 2). Formerly the capital of Manchukuo, the city has developed into one of China's most important industrial centres, specialising in the manufacture of automobiles, locomotives, and agricultural machinery. The industry sector consumes approximately 72% of the energy and more than 85% of the city's coal (Hu et al., 2013). Similar to other industrial cities in China, Changchun's overall carbon emissions have been increasing rapidly from 20.2 million tCO₂e in 2000 to

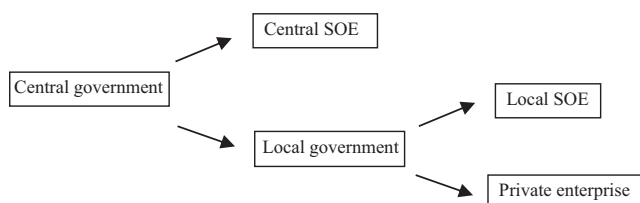


Fig. 1. Key command-and-control relations in China's low-carbon governance.

Table 2
Evaluation criteria of the Energy Conservation Target Responsibility System.

Category	Details
Energy conservation targets (40 points)	40 points for meeting the targets, 3 extra points for exceeding the targets by 10%, maximum 9 extra points
Organisation and leadership (2 points)	1 point for establishing a system for monitoring local energy intensity 1 point for a clear division of labour and conduct regular meeting
Target decomposition (3 points)	1 point for assigning energy conservation targets to lower levels of government 1 point for evaluating the fulfilment of energy conservation targets 1 point for publishing energy consumption statistics
Industrial restructuring (20 points)	4 points for increasing the proportion of the tertiary industry 4 points for increasing the proportion of the high-tech industry 4 points for establishing and implementing a system to evaluate the energy impact of investment projects 8 points for meeting the Obsolete Capacity Retirement Programme targets
Investment in energy conservation (10 points)	3 points for establishing an energy conservation fund 4 points for increasing the proportion of expenditure on energy conservation 3 points for implementing major energy conservation projects
Energy conservation technologies (9 points)	2 points for including energy conservation technologies in the annual technology plan 3 points for increasing the proportion of expenditure on energy conservation technologies 2 points for organising demonstration projects of energy conservation technologies 2 points for promoting energy-saving products, technologies and services
Energy-intensive enterprises (8 points)	3 points for ensuring the energy-intensive enterprises meeting their energy conservation targets 1 point for monitoring energy conservation activities 4 points for achieving a 100% compliance rate of energy efficiency standards for new buildings; 2 points for a 80% compliance rate
Laws and regulations (3 points)	1 point for formulating local regulations in accordance with the Energy Conservation Law 1 point for enforcing the Energy Conservation Law 1 point for enforcing the energy efficiency standards for energy-intensive products
Capacity building (5 points)	1 point for strengthening energy conservation monitoring 1 point for strengthening the collection of energy statistics 1 point for procuring energy measurement equipment 1 point for promoting energy conservation 1 point for rewarding energy conservation actions

Source: State Council (2007).

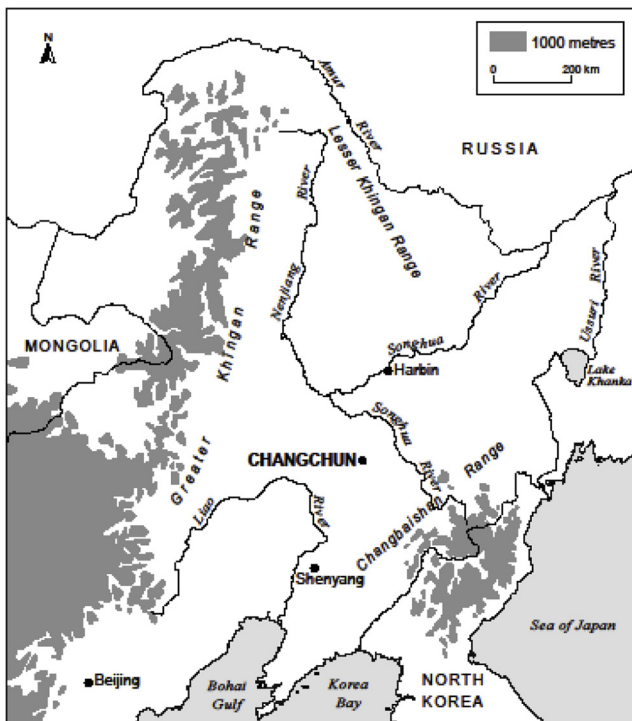


Fig. 2. Location of Changchun.

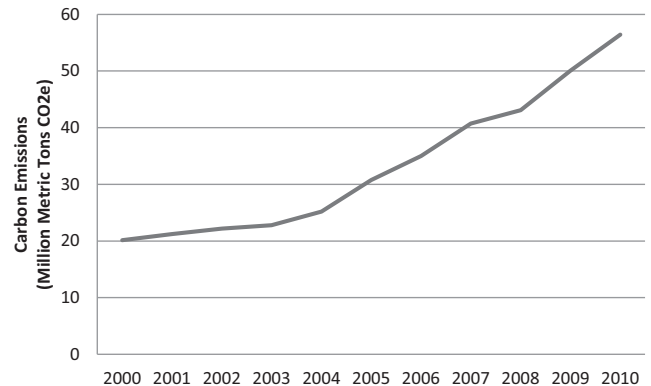


Fig. 3. Overall carbon emissions in Changchun (2000–2010).
Source: Changchun Statistical Yearbook (various years).

therefore the ideal place to observe the workings of authoritarian environmentalism.

By interviewing a diverse group of stakeholders, my fieldwork shows that the power of authoritarian environmentalism is unevenly experienced by local actors. Turning first to the central SOEs, my fieldwork finds that their energy conservation behaviour is closely regulated by the central government's SASAC. According to the energy manager of First Auto Works, one of China's leading automaker and Changchun's biggest employer, the SASAC has introduced an energy conservation component into the annual performance evaluation of the company's leadership, and the impact has been immediate and significant:

Energy conservation is now part of the performance evaluation conducted annually by the SASAC. I think about 20% of the total evaluation score is now based on the company's performance in energy conservation, making it the most important social responsibility assessment criteria. Obviously, the leadership now takes energy conservation very seriously because it affects

56.4 million tCO₂e in 2010 (Fig. 3). However, during the same period, the carbon intensity of Changchun (or per GDP carbon emissions) has declined from 2.5 tCO₂e/10000 RMB to 1.7 tCO₂e/10000 RMB (Fig. 4), which indicates that the economy is becoming more energy-efficient. As an industrial city with a high concentration of energy-intensive enterprises, Changchun is a main target for central government's low-carbon measures. Changchun is

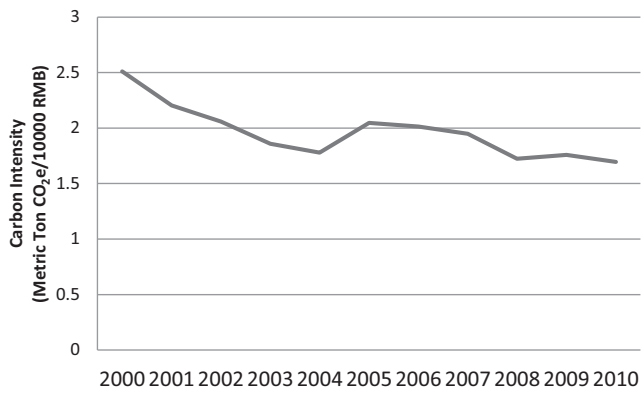


Fig. 4. Carbon intensity of Changchun (2000–2010).
Source: Changchun Statistical Yearbook (various years).

their pay! This energy office was established a long time ago but it was solely focused on energy procurement, that is, making sure the factory had enough power to operate. Only in the past few years has energy efficiency become a focus of our job thanks to the new policy. (Interviews with an energy manager of First Auto Works)

As Changchun's leading economic powerhouse, First Auto Works is in the forefront of the low-carbon transition and has established a comprehensive energy management system. This system includes a state-of-the-art energy-consumption monitoring system and a number of rewards to promote energy conservation behaviour among employees, particularly the front-line workers who handle energy-intensive equipment. Furthermore, over the last number of years, First Auto Works has invested in over 500 retrofit projects aimed at improving energy efficiency. In 2011, the company invested approximately 100 million RMB to replace the antiquated steam boilers with energy-efficient hot water boilers, estimated to save 17,000 tonnes of standard coal every year. Other central SOEs I visited have similarly invested significant resources in energy conservation. For example, Changchun Second Cogeneration Power Plant has minimised air leakage from their boilers and has improved the exchange of heat between the water tower and the condenser. All central SOEs I visited have established energy-conservation responsibility systems, through which the energy conservation targets are disseminated to each factory, production line, shift, and individual employee. Overall, the central SOEs are illustrative of a properly functioning authoritarian governance system. They are the subject of effect control by the central government, which explains why they have emerged as the clear leaders in energy conservation and climate protection.

The situation for the local government and the local enterprises is, however, much more ambiguous. As mentioned previously, the local government of Changchun is responsible for the implementation of the Ten-Thousand Enterprises Programme. My fieldwork finds that the local government is highly autonomous in choosing how to implement the programme, and it has used this liberty to resist the implementation of the Ten-Thousand Enterprises Programme. In particular, two key implementation problems remain unresolved. The first problem is the lack of staffing on the monitoring and evaluation of enterprises. The Changchun Energy Conservation Inspection Team (CECIT) is the main government organisation responsible for monitoring and evaluating the energy conservation progress of the local enterprises. CECIT was established through a reorganisation of the Changchun Energy Conservation Centre that provided technical assistance to local enterprises on improving energy efficiency. In an effort to save

money, no provision was made for the additional staff required by the new enforcement body. This arrangement might have been satisfactory before 2011, but since a large number of enterprises were added to the regulatory net in the 12th Five-Year Plan, the capacity limitation becomes evident. Furthermore, CECIT has other responsibilities, such as providing energy conservation consultation and energy audit. These service-related activities generate additional revenue for CECIT and are therefore given priority over the enforcement activities. The aforementioned factors explain why CECIT is essentially unable to carry out its enforcement function. On-site inspection, for instance, is conducted infrequently and, according to an official of CECIT, the target is to inspect an enterprise once every three years rather than annually. In the absence of rigorous inspections, compliance is assessed mainly by using the self-evaluation reports submitted by the enterprises, without any stringent auditing mechanisms to ensure the reliability and accuracy of these reports. The second problem is the failure to impose any financial or legal penalty for non-compliance. According to an official from the Changchun Department of Industry and Information Technology, which is responsible for the Ten-Thousand Enterprises Programme:

There is no punishment for failing to achieve the energy conservation targets, other than a public announcement in the newspapers about the failure. You can say it is voluntary, because the enterprises can choose to comply if they want to, can choose not to comply if they do not want to. (Interview with an official of Changchun Department of Industry and Information Technology)

Ran's (2013) research on China's environmental governance demonstrates that local government officials often view the fulfilment of environmental targets as being in conflict with their other responsibilities. My interviews similarly find that the use of authoritarian control to achieve energy conservation is perceived by local officials as incompatible with the existing norms and values:

The main objective of this department is to help local enterprises to solve problems, rather than to harm them. Therefore, we do not have the authority to, and should not punish our enterprises. In the old days, we helped enterprises to reduce energy consumption, but ultimately the responsibilities are theirs. Now, the responsibilities are imposed upon us. But why should we be responsible for enterprises' failure? (Interview with an official of Changchun Department of Industry and Information Technology)

The interviews with local enterprises further confirm that the energy conservation behaviour of the local SOEs and privately owned enterprises is much less rigorously controlled by the government. Three local enterprises I visited were quite unaware of being selected to take part in the Ten-Thousand Enterprises Programme. These enterprises are the privately owned Jilin Longqing Property Services, Changchun High-Tech Heating, owned by the district government, and Changchun Public Transportation, owned by the municipal government. The officials of these entities typically responded with bewilderment and dismay on being informed of their obligations under the Ten-Thousand Enterprises Programme. The reaction of the energy manager of Changchun High-Tech Heating was typical:

I don't think we should be given an energy conservation target. If what you said is true, that the target for us is to conserve 3,500 tonnes of coal, then it is simply not possible because we only consume a bit over 10,000 tonnes of coal per year. Coal is the most expensive input for this company and therefore we have taken great care to use as little as possible. How can we come up

with new ways to reduce coal consumption by such a big amount? We provide heating in winter, which is a life-and-death issue that cannot be compromised. (Interviews with the energy manager of Changchun High-Tech Heating)

Other local enterprises that are more aware of their energy conservation targets are nevertheless unsure of the particulars of regulations, such as the calculation of the targets, the reporting mechanisms, and the punishment for noncompliance. The pervasive confusion among local enterprises indicates that the local government has not been effective in communicating the policy to the regulated local enterprises. Overall, the enforcement problems means that the command-and-control relationship between the local government and the local enterprises essentially turns into 'command-without-control'. Decisions on whether to pursue energy conservation and climate protection are consequently largely taken by the local enterprises themselves. This does not mean that the local enterprises never engage in energy conservation activities – my fieldwork finds a small number of local enterprises do aggressively pursue energy efficiency for the ensuing economic benefits. Nevertheless, from a governance perspective, the situation could best be described as *de facto* neoliberal environmentalism given the lack of control.

4. The lack of control from the top

To a certain extent, the mixed experience and the emergence of *de facto* neoliberal environmentalism in Changchun is integral to the preference of the central government for rapid-fire regulations, which, inevitably, omit many of the specifics (Gilley, 2012). The combination of hasty policymaking and desire for flexibility means that there is plenty of room for local government to innovate. However, the high degree of local autonomy with regards low-carbon governance also implies that the ECTRS has not been effective as a top-down mechanism to control local government behaviour. Just as with the relationship between local government and local enterprises, the central-local relation is also characterised as 'command-without-control' because of several problems associated with the ECTRS.

The first problem is information. The complex governing structure and the sheer number of local governments present a serious challenge to the central government as regards collecting information. Other than conducting occasional inspection tours, the central government relies mainly on self-reported information to evaluate local government. Not only does such an approach provide an opportunity for false reporting, but it also suffers because of the poor quality of local statistics. In Changchun, energy statistics are collected by using the outdated reporting system, inherited from the planning era, which gathers information only from enterprises above a certain size. According to an official of the municipal statistics bureau, approximately 1600 enterprises in Changchun regularly report energy consumption statistics to the bureau. This accounts for approximately 65% of the total energy consumption of the city. The bureau collects no energy consumption data other than from these enterprises. Consequently, the quality of the local energy statistics in Changchun is poor. This was admitted frankly by an official of the [Changchun Department of Statistics \(2001–2011\)](#):

We do not conduct any random sampling survey. We just don't have the people and resources to do that. In areas where we don't have any concrete information, we use old census data and other information, such as historic trends for guidance to make an estimate. But the most important element is experience. If you work in this area for a long time and understand the system, you have a feeling for the right numbers. They may not be very accurate. This is why we don't

publish energy consumption data in the statistical yearbook. We would not be able to explain the numbers if people questioned them. (Interviews with an official of Changchun Bureau of Statistics)

The problem pertaining to the inaccurate local energy statistics was officially acknowledged by the NDRC in its recently released report *The Grim Situation of Energy Conservation and Emissions Reduction* (NDRC, 2013). This report, in a surprisingly unequivocal manner, stated, 'The mismatch between local and national statistics is seriously undermining the attainment of the national energy conservation target.' According to the NDRC, the National Bureau of Statistics (NBS) reported that energy intensity had declined by 5.5% during 2011 and 2012. However, according to the aggregated local statistics, national energy intensity had declined by 7.7% for the same period. The NDRC therefore accused local governments of significantly overstating their achievements in energy conservation. However, there has been no real official response to this report.

The second problem of the ECTRS is that the energy conservation targets are too conservative. The targets for Changchun, which include a 16% reduction in energy intensity over five years, are not high enough to provide adequate incentives for local government to implement low-carbon policies. Moreover, the use of energy intensity as an indicator is highly problematic because it is a soft constraint. Energy intensity, calculated as units of energy consumed per unit of GDP, will continue to decline as long as the GDP grows faster than does energy consumption. It is therefore possible for local officials to meet, partially at least, the energy conservation objectives through sustained economic development. The consequence is a widely shared view among local officials that it is easy to achieve the energy intensity targets when the industrial sector is not growing:

This part of the city is already highly developed. There aren't many opportunities for new industrial investment anymore. Our focus is now on commercial and residential development, which does not use as much energy as industrial development. Therefore, energy intensity will continue to decline by itself. There is not much else to do and I am not worried about my jurisdiction not achieving the energy intensity target. (Interview with an official of a district-level government)

This belief results in the weakening of incentives for making tough decisions on the energy budget, because the budget can be inflated by the GDP growth. Local officials in Changchun view the development of the economy as the best way of lowering energy intensity. Except for a small number of energy-intensive enterprises, officials are generally not too concerned about the energy conservation performance of their entities.

Finally, rewards and punishments are inadequate, especially in the presence of conflicting incentives. The perceptions of the local officials in Changchun on the consequences of failing to achieve the energy intensity targets are vague and ill defined. However, some local officials did state that there would be serious consequences if they consistently failed to achieve their targets (i.e., consecutively failing to meet the targets for multiple years). They could not say what the punishment was for failing to meet the targets, however, other than not qualifying for honorary awards. This is in clear contrast with the importance the officials associate with meeting the economic targets, such as investment and GDP growth, which is closely related with career advancement.

Collectively, these problems encountered by the ECTRS have significantly weakened the control of the central government over the behaviour of local government in respect of energy conservation and the mitigation of climate change. Weak control affords freedom to the local officials with regard to the implementation of

low-carbon policies. Consequently, for the local officials of Changchun, energy conservation and climate change remain secondary concerns compared with the other pressing local issues. The exception is when there is a synergy between local priorities and low-carbon objectives. An example is the promotion of electric vehicles, which is perceived by the local government as vital to the long-term competitiveness of the local automobile industry. To this end, the local government has spent a considerable amount of money in building electric-vehicle charging stations and procuring locally produced electric buses.

5. Concluding remarks

This paper sidesteps the debate on the benefits and limits of authoritarian environmentalism to answer an empirical question, which is how authoritarian is the environmental governance of China. It draws on new empirical evidence to show that although China's national low-carbon policy appears highly authoritarian, the situation on the ground is much more ambiguous, displaying a mixture of authoritarian and liberal features. On the one hand, there is no doubt that China's top-down and non-participatory policy environment has been crucial in stimulating a low-carbon transition in Chinese cities. It is difficult to imagine that local governments and energy-intensive enterprises (especially central SOEs) would pay as much attention to energy conservation without the directives (the Ten-Thousand Enterprises Programme and the ECTRS) from the central government. The fact that the central government was able to set up the programmes very quickly without fear of political backlash is another hallmark of authoritarian environmentalism. On the other hand, the problems with the ECTRS, along with the other problems discussed, have led to the central government not sufficiently controlling local governments and local energy-intensive enterprises. More specifically, the lack of instruments to enforce the authoritarian policy regime and the failure to set priorities between economic growth and climate protection have resulted in an inadequate setting of incentives and disincentives for local business managers and representatives of local governments, creating a situation of de facto neoliberal environmentalism. In other words, local governments and businesses enjoy a surprisingly high degree of freedom and flexibility to manage their own energy consumption in spite of the overt authoritarian rule. In fact, it may be argued the studied enterprises enjoy more leeway in energy and carbon management than the enterprises regulated by the European Union Emission Trading Scheme. As such, the purported benefits of authoritarian governance, such as uniformity and effectiveness in reducing energy consumption and carbon emissions, have yet to materialise. The findings of this research indicate that it is prudent to be circumspect in treating China's low-carbon governance, and by extension environmental governance, as a clear-cut instance of authoritarian environmentalism. It recommends that, for both China and other authoritarian states, studying the nature of environmental governance as a complex process requires a thorough understanding of not just national politics but also local politics and the ways the two are connected.

A practical question arises whether the low-carbon governance in China should be made more authoritarian, given the challenges facing the country in dealing with climate change and other environmental problems. While a comprehensive analysis of the pros and cons of authoritarian environmentalism is not the aim of the present paper, it should be noted that strengthening authoritarian rules would require significant reforms to the statistical system and the ECTRS. It should also be noted that the central government has formulated plans to exert stronger control over local government. The most important initiative is to render the targets harder to achieve by replacing, or

supplementing, the energy intensity targets with a cap on energy consumption. However, the introduction of the energy cap has been delayed because of concerns over the effect of such an action on economic development, especially in the poorer inland regions (Lo, 2013). At the time of writing, the energy cap has yet to be implemented although it was originally scheduled for implementation during the 12th Five-Year Plan. The introduction of such a cap may be postponed to the 13th Five-Year Plan and even beyond. The difficulty of introducing the energy cap indicates that authoritarian environmentalism might not be compatible with the framing of environmental governance in economic terms. As shown in the case study on Changchun, the current situation is well suited to the pro-growth economic strategy; however, imposing an energy cap is likely to impose actual limits on economic growth. Local government would be obliged to make difficult decisions on whether to approve energy-intensive projects, because of the fear of exceeding this energy cap. The central government is therefore caught up in the dilemma of having to decide whether the environmental governance system should be made more authoritarian. On the one hand, the central government wants a more effective environmental governance system, but, on the other hand, the central government wants to sustain the rapid economic growth of the country. There is no easy solution to this dilemma because the degree of authoritarianism of the environment governance in China is constrained by the commitment of both central and local government to economic growth. As long as growth is a priority, the government would find it difficult to justify going beyond the current easily attained targets and non-invasive measures. Nevertheless, as China's energy consumption and greenhouse gas emissions continue to escalate, the government will be subject to ever-increasing pressure to impose a stronger, more effective environmental governance system. The question of how to meet this governance challenge effectively is a major concern that justifies further study.

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