

**CLEARING THE AIR?
THE ROLE OF NGOS IN CHINA'S ENVIRONMENTAL TRANSPARENCY
MEASURES**

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Abstract

This paper examines the impact of NGOs in using China's Open Environmental Information measures, focusing on an online database disclosing enterprise pollution, and an index disclosing government performance in environmental transparency. The analysis focuses on the strengths and weaknesses of various accountability channels between state, enterprise and society, and identifies the successful pathways through which change occurs. NGOs have been able to affect environmental governance in clear but marginal ways, when stakeholder incentives have been aligned. This has taken place with MNCs using the online database to monitor Chinese suppliers, and to a lesser extent with local governments responding to the index by engaging more closely with NGOs. However, the impact of NGO actions remains limited. For the environment ministry, enforcement costs remain high in a decentralized bureaucracy. For local governments and enterprises, the cost-benefit calculus depends on government capacity and type, state-enterprise bargaining relations, and internal government interests alignment. The improvements in environmental governance, moreover, do not map directly onto stronger accountability, given China's authoritarian structure.

I. Introduction

The past three decades of sustained rapid economic growth have brought a new generation of challenges for China's leaders. In particular, the country's economic gains have come at the cost of massive environmental degradation. Pollution problems are multiplying alongside rapid urbanization and industrialization, straining not just the long-term sustainability of China's development, but also social stability, as environmental issues increasingly become a daily burden in people's lives. The government's policy pronouncements show a growing recognition of the need to balance continued economic transformation with a reduction in the resource intensity and negative externalities associated with this process.¹ As part of this on-going shift in policy, China introduced a set of Open Environmental Information (OEI) measures in 2008 requiring government agencies to proactively disclose a range of environmental information.

Transparency regulations have become an increasingly popular tool across the world and in a range of issue areas, from the environment to aid accountability, anti-corruption and service delivery. The promulgation of these regulations, however, tend to be driven by untested assumptions about why transparency is desired or effective. A recent report by McGee and Gaventa (2010) reviewing the impact and effectiveness of transparency and accountability initiatives around the world notes the limited conclusions that we can draw about the relationship between transparency regulations and governance outcomes. Common arguments in support of transparency tend to combine both normative and technocratic justifications, asserting the right to know as an end in itself and assuming that increased access to information improves welfare and accountability. Progress in strengthening transparency-based initiatives is hindered by a lack of clarity over the objectives of these regulations, and the specific pathways through which change occurs.

Moreover, advocates of transparency often present transparency and democracy as two intimately connected – and possibly inseparable – concepts. The assumption on the normative end is that freedom of information and the right to know are the foundations of a democratic society. On the technocratic end, proponents of transparency argue that these regulations work

best when there is political space for citizens and civil society to use the disclosed information to proactively hold the state to account.² There is little literature addressing what impact disclosure policies have on welfare and accountability in political environments such as China, where transparency policies are grounded in technocratic goals, implemented under conditions of bureaucratic fragmentation, and where accountability relations exist in a dynamic state of negotiation, nested within a system of single party rule.³

A more precise approach offered by Fung et al. (2007) uses a specific framework to analyze the effectiveness of ‘targeted transparency’ regulations.⁴ It is based on the understanding that disclosure of information can have an impact through a variety of channels, given the multiple principal-agent relations at work (within the state, as well as between state, society and business) and the potential impact of the information on different market, political, as well as organizational incentives.

This paper employs the targeted transparency framework to consider how environmental transparency regulations work in an authoritarian environment such as China. It focuses on whether China’s OEI measures have enabled NGOs to improve environmental governance, and through which accountability relationship: (a) central and local state agencies; (b) state and enterprises; (c) state and citizens; and (d) state and civil society. In the event that there is no change in outcome, the analysis also seeks to identify why and how information disclosure failed to have an impact. This paper focuses on two environmental NGOs that have been using the OEI measures to engage with business and government. With business, the Institute of Public and Environmental Affairs (IPE) uses government disclosed data to establish online databases of enterprise air and water violations. The IPE has also partnered with the Natural Resources Defense Council (NRDC) to create a Pollution Information Transparency Index (PITI) to rank 113 municipal governments across China on their performance across various categories of environmental disclosure.

The focus on NGOs is particularly interesting not just given China’s authoritarian structure but also considering the bureaucracy’s lack of top-down enforcement and monitoring mechanisms to ensure that local agencies implement the OEI measures as required. Bottom-up pressure from the

citizenry tends to be weak due to low public awareness of the OEI measures and low public value placed on environmental protection. While environmental protests are on the rise, these tend to be centered on localized issues and usually dissipate after the problem is addressed. In addition, while the public as a whole stands to benefit from greater environmental transparency, these benefits are diffuse and citizens are poorly organized. Finally, even if information is disclosed, the technical nature of pollution information means that it may not be well understood or used by stakeholders. These factors combine to suggest that civil society could play a substantive role in strengthening the effectiveness of the OEI measures, by serving several functions: (a) overcoming coordination problems faced by potential beneficiaries, by serving as an agent for the public; (b) monitoring state performance and changing state incentives for disclosing environmental information; (c) monitoring business performance and changing business incentives for abiding by environmental standards; and (d) reducing costs by serving as collectors, interpreters and disseminators of information.

The rest of the paper is organized as follows: Section II introduces China's environmental disclosure regulations and two types of new information generated by NGOs, while Section III presents the analytical framework and the challenge of implementing these regulations in China's governance environment. Section IV proposes various pathways through which the NGO information could have an impact on environmental outcomes. Section V provides evidence for specific channels through which change has taken place, and Section VI analyzes the governance impact and implications for accountability. Section VII concludes.

II. China's environmental transparency regulations

On 1 May 2008, China's State Council promulgated a set of regulations on Open Government Information (OGI), requiring all administrative arms of the state to proactively release information related to their work, and allowing citizens the ability to request for information. On the same day, the Ministry of Environmental Protection (MEP) issued the Measures on Open Environmental Information (OEI), requiring governments to disclose information on: (a) environmental laws, regulations and standards; (b) allocation of emissions quotas and permits;

(c) pollution fees and penalties collected; (d) exemptions, reductions, or postponements granted; (e) outcomes of investigations into public complaints; and (f) lists of violators of environmental regulations. In addition, enterprises that have been found to violate pollution standards are to disclose information on their emissions and corrective actions taken.

The MEP's motivations for the OEI measures are manifold: (1) to strengthen the MEP's regulatory power vis-à-vis other state agencies more focused on economic development; (2) to strengthen incentives for local governments to enforce existing environmental laws and regulations, by raising the MEP's ability to monitor local government performance; (3) to increase pressure on industry to reduce pollution; and (4) to strengthen state-society accountability, particularly given the rising number of environment-related protests. In the words of MEP Vice Minister Pan Yue: "Disclosing environmental information enables the public (to) understand the environmental decisions and plans of local governments, ... effectively restrains the "will of officialdom" and abuse of power, ... and gives full play to the role of media and society to supervise law enforcement. ... Disclosing environmental information may also force polluting enterprises to shoulder their due economic and social cost" (MEP website, 9/15/2010).

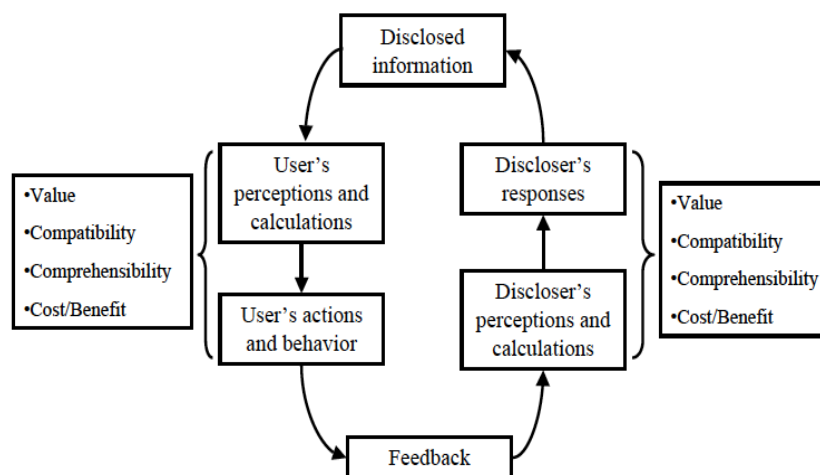
China's OEI measures are unique in several ways. First, it places the burden of disclosure on government rather than industry. Only enterprises that have exceeded pollution standards are required to disclose their emissions within 30 days of being listed by state agencies as being violators. Second, the measures, which rest on the OGI regulations, are mandated in that they emanate from the State Council and MEP, but hold less weight than laws passed by the National People's Congress, including the State Secrets Law and Archives Law. Third, the measures are technocratically designed to improve governance outcomes rather than to protect any set of rights – in contrast for example to the Toxics Release Inventory, which is based on the U.S. Freedom of Information Act.

III. Analytical framework

Fung et al's (2007, 50-68) framework of 'targeted transparency' argues that in order for a transparency policy to be effective, the disclosed information must have perceived *value*, be

compatible with user/discloser decision-making routines, and be *comprehensible*, so as to meaningfully impact behavior in the desired direction. The expected *cost* of acting on the information must be less than expected *benefits*, and there must be an effective *feedback* loop transmitting information about user responses back over to disclosers and vice versa. These conditions add up to a targeted transparency ‘action cycle’, wherein information is doubly embedded in users’ and disclosers’ decision-making processes (see Figure 1. below).

Figure 1. Targeted Transparency framework



This paper analyzes each major user-discloser relationship as a principal-agent problem, across four main sets of actors: (a) central and local state agencies; (b) state and enterprises; (c) state and citizens; and (d) state and civil society. If the OEI regulations worked as designed, they could strengthen principal-agent relations by reducing information asymmetries in several ways. For example, greater disclosure of state actions in environmental protection would allow the MEP to better monitor China’s overall progress in meeting its national environmental targets and strategically focus enforcement efforts in localities and industries that are under-performing. The OEI measures could also enlarge the space for citizens and NGOs to demand more environmental information from local governments. In the process, enterprises could also come under greater pressure by governments and society to improve their environmental practices. We now consider the specific incentives governing each of these major pathways.

Central-local state pathway. The potential impact of the OEI measures on central-local relations is unclear. On one hand, the OEI measures could strengthen vertical accountability between the MEP and local governments. On the other hand, a lack of mechanisms to enforce the implementation of the OEI measures means that local governments retain a wide scope of discretion to set their own priorities. The key challenge to implementing policies in China stems from its decentralized governance system, described by Kenneth Lieberthal and Michel Oksenberg (1988) as ‘fragmented authoritarianism’. While policies are formally drafted and enacted in Beijing, their implementation is left to local governments at provincial and sub-provincial levels. The MEP might be focused on reducing pollution, but local governments are often driven by other goals such as maximizing economic growth. Moreover, functional units at sub-provincial levels report not just to central agencies, but also to the level of local government at which they operate, creating dual authority relations. This makes enforcement of central policies incredibly difficult. Existing tools for monitoring and supervision wielded by the central government⁵ are weak for the exact same reasons – the sub-national arms of these agencies report to local governments rather than to their central ministries.⁶

With the OEI measures, the main burden of implementation falls on the Environmental Protection Bureau (EPBs) within each local government. EPBs receive their policy directives from the MEP, but local governments control their resources as well as personnel promotion decisions. If we consider the fact that EPBs also have to interface with citizens on environmental complaints, then the EPBs as agents essentially report to three principals – the MEP, the local government leadership, and the public. This situation makes aligning EPB incentives particularly challenging. As a result, environmental policies from the center are often subverted at local levels as EPBs come under pressure by local governments to overlook violations or lower pollution fines on account of other priorities (Economy 2005; Lieberthal 1997).

State-enterprise pathway. The OEI measures require state agencies to publish information on firms that have violated standards, and reveal what penalties have been meted out. However, the incentives to do so are weak. Economic growth remains an overriding priority for most local governments, leading their incentives to be closely aligned with those of industry. Since the 1980s, ties between government and business have become closer at the local level (Goodman

2009), with fiscal decentralization leading in some cases to local governments taking on roles and characteristics of corporations (Oi 1992). As Kenneth Lieberthal (1997) describes, “(a)lthough government and enterprise appear separate it is more realistic to regard the two as a joint local territorial corporation, with the township government serving as the corporate headquarters and the enterprises serving as the various business arms.”

The focus on growth translates into poorer bargaining power for EPBs – both within the bureaucracy and vis-à-vis enterprises, leading to multiple perverse outcomes in enforcement. First, the need to heed local government objectives of promoting economic growth leads EPBs to exercise incomplete, or what has been described as “pragmatic enforcement” (Ma and Ortolano 2000, 128). Rules are applied selectively on a case-by-case basis, through negotiation, and often on the basis of informal ties (*guanxi*) (Ma and Ortolano 2000, 83-88). Second, the degree of enforcement depends also on the type of enterprise – its ownership, profitability, and specific cost structure. Studies have found that state-owned enterprises (SOEs) appear to have more bargaining power with the state than privately owned firms (Wang et al 2003), with 90% of township and village enterprises paying their fines on time, compared to 59% for SOEs in two surveyed localities. (Ma and Ortolano 2000, 145) Third, the pressure on EPBs to find their own revenue sources means that EPBs seek to price the fee structure to maximize revenue rather than to regulate pollution, and in so doing create incentives for sustained pollution. One study found that pollution fines provided Foshan EPB with twice as much revenue as that from the city government (Sinkule and Ortolano 1995, 178).

State-citizen pathway. The OEI measures could strengthen state-society relations by enabling citizens to request for and use information to hold the state to account. However, state-citizen accountability relations are weak as local government officials are upwardly accountable to higher levels of the state rather than to society and legal protection of citizen rights remains thin. That said, these state-society relations are nested within central-local state tensions and inter-agency competition. Given the MEP’s weak enforcement capabilities vis-à-vis local governments, it has increasingly enlisted extra-bureaucratic support, from NGOs to citizens and the media (Economy 2005, 111). In Carlos Lo and Sai Wing Leung’s (2000) study of

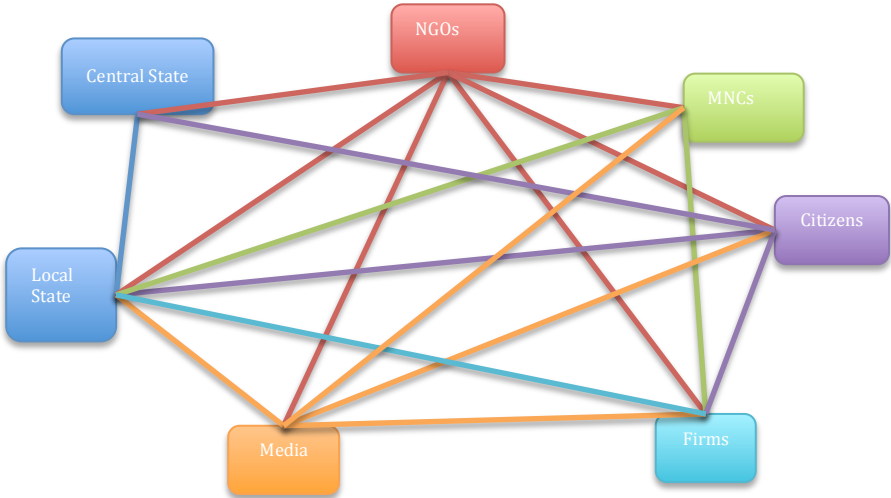
Guangzhou, EPB officials described some success in mobilizing public opinion to counter intra-government opposition to strengthening environmental governance.

State-civil society pathway. As described in the introduction, environmental NGOs could use the OEI measures to serve as intermediaries and interpreters of disclosed information. In the past 30 years of economic liberalization, the Chinese government has steadily curtailed its direct role in society. As the socio-economic problems that China faces become more complex, the government has also recognized the limits to direct intervention, relying increasingly on social organizations and local communities to meet a range of welfare provision functions. However, it has also drawn up restrictions to control the conditions under which social organizations can operate, leading to contradictions in state-civil society relations. The lack of independent space for civil society in China effectively dilutes the clarity of principal-agent relations, given NGOs' need to negotiate for policy space. Environmental NGOs, in particular, have been able to exploit the space created by official state vacillation between toleration and control to exert influence, aided by an overall 'greening' of certain state agencies at the center (Ho 2001). However, far from holding government accountable for its actions, "green social organizations are increasingly courting government approval and influence in policy-making" at the central level (Ho 2001). The emergence of an active civil society space in the environmental sector may have led to a greater pluralization of the policy process (as argued by Andrew Mertha, 2008) even the formation of policy communities – but not necessarily to greater accountability. Instead, it appears that a range of non-state actors – from domestic and international NGOs to citizens and the media are being drawn into the policy process to supplement major gaps in the MEP's capabilities – both in its bargaining power vis-à-vis other policy issues, and in its enforcement abilities vis-à-vis local states and business.

In short, the main channels through which the OEI measures could strengthen environmental governance turn out to be fairly weak, with incentives structured in ways that make it unlikely for greater information disclosure to have a strong direct impact on governance. As this paper will show, however, other less expected actors turn out to be important users of disclosed information. These include multinational companies (MNCs) that contract Chinese enterprises in their international supply chain, and media outlets. Rather than four exclusive sets of user-

discloser relations, the impact of the transparency regulations is transmitted unevenly through a web of relations between these various actors, with potential changes in incentives flowing through any one of multiple pathways, as shown in Figure 2.

Figure 2. User-discloser pathways



IV. Potential Impact of NGO-generated Information

The previous section shows that the potential pathways through which China’s OEI measures could work are highly uncertain and depend on a large number of factors. Bureaucratic fragmentation means that as central regulations are channeled through the layers of the state, the policy intent becomes diluted and distorted. Implementation and enforcement of environmental regulations operates through negotiation, in uneven and idiosyncratic ways. As such, the OEI measures alone may be insufficient to overcome local state priorities on economic growth, the weak bargaining position of EPBs, and the constrained operating space for citizens and civil society.

We now turn to the question of how new information generated by environmental NGOs could potentially overcome existing governance deficiencies by altering incentives and relations between state, enterprise and society. To measure enterprise pollution, IPE uses data disclosed by governments to establish online databases of enterprise air and water violations. The IPE has also

partnered with NRDC to create the Pollution Information Transparency Index (PITI), measuring municipal government performance in environmental disclosure. Here, the targeted transparency framework is employed to systematically consider how each type of new information could potentially change existing behavior. Change in behavior is conditioned by several factors – in particular, the information disclosed by agents must not only be valuable, compatible and comprehensible to users, but the benefits of acting on the information must outweigh costs, and the action must be communicated back to disclosers through a strong feedback loop. If monitoring or enforcement is weak, then the expected costs of noncompliance are likely to be too low to address the information asymmetries at work.

Online Pollution Database and the International Supply Chain

IPE started an online water pollution database in 2006 and an air pollution database in 2007, with information dating back to 2004, covering over 300 cities in 31 provinces. The databases disclose information on enterprises that have violated pollution standards, discharge data and other environmental quality information, and are presented in the form of easily navigable digital maps. The OEI measures allowed IPE to greatly expand its database, from 5,500 entries of violators in 2006 to over 86,500 by August 2011 (IPE website). The information comes from public data released by government agencies, but IPE serves the crucial function of collating the data from disparate sources, organizing it in a coherent fashion and publishing it for free consumption on the Internet. Table 1 below shows how this new disclosed information could affect the incentives and behavior of potential users.

Table 1. Transparency action cycle for online pollution database

User	Value	Compatibility	Comprehensibility	Cost/Benefit	Feedback
MNCs	✓✓✓	✓✓	✓✓✓	✓✓✓	✓✓✓
Central Government (MEP)	✓✓✓	✓✓✓	✓✓✓	✓	✗
Citizens	✓✓✓	✓	✓	✗	✗
Local Government	<i>Depends</i>	✓✓✓	✓✓✓	<i>Depends</i>	✗
Local Enterprises	<i>Depends</i>	✓	✓✓✓	<i>Depends</i>	✗

✓✓✓=strong ✓✓=moderate ✓=weak ✗=not present

MNCs. Given MNCs' concerns with global branding and reputation, IPE's database could potentially be highly valuable for screening and monitoring the environmental performance of suppliers. The information is not only *valuable* to MNC supply chain management objectives, it is *compatible* as the information can be accessed anytime via the Internet. The information is *comprehensible* given that the MNCs are likely to have staff with necessary technical expertise. Finally, the potential costs to *not* acting on this information are high, given the MNCs' concern for branding and reputation. If links between the NGO and MNCs are established, feedback could potentially be strong, given the incentive for the NGO to heighten pressure on Chinese enterprises by leveraging on the MNCs, and given MNC interest in relying on the NGO to perform monitoring functions that it otherwise could not do without incurring higher costs.

Central Government (MEP). The online pollution map would conceivably be of high *value* to the MEP, since the information is now not only available nationally, but also in a form which allows for easy comparison across time and space. The *compatibility* of the information with MEP decision-making cycles is greatly enhanced since the online data can be accessed anytime. MEP staff would also find the online information highly *comprehensible*, given that they are technically trained. While the *costs* of accessing enterprise pollution data now has been drastically lowered, the ministry may still face high costs in acting on the information to enforce existing regulations, given the decentralized structure of the administration and the MEP's limited resources. With high costs of acting on the information, there could be little feedback from the MEP arising from this new information.

Citizens. The online pollution maps would likely be of high *value* to victims of pollution, as it provides them with concrete evidence on which enterprises have violated environmental standards. However, the information may not be highly *compatible*. Pollution victims are likely to have been dealing with the health and economic consequences for some time already, with damage done long after polluting enterprises are inspected, their violations disclosed by government and then published by IPE on the Internet. The information may also be less *comprehensible* to illiterate citizens or those who are not trained in the technicalities of environmental standards. Finally, the *costs* of acting on the disclosed information are

considerable. While the online database greatly lowers information consumption costs, access could still be difficult for rural residents without Internet connectivity. In addition, citizens face high formal and informal costs in using the information to confront powerful enterprises and government agencies. Legal options are particularly costly given the under-developed state of the judiciary system. For these reasons, action and feedback from citizens are likely to be fairly weak.

Local Government. The *value* of the online pollution map to local governments is likely to depend very much on type. In this analysis, governments are conceptually divided into pro-growth and pro-environment types. Pro-environment governments would value this information highly for the same reason as the MEP, and also because the database allows for benchmarking against other regions. Pro-growth or predatory governments would not disclose information on enterprise violations in the first place, but may over time be compelled to (or shamed into) releasing more information, if other governments are increasingly becoming more transparent. The *compatibility* and *comprehensibility* of the information is high for the same reasons as for the central government. The costs and benefits of acting on the information, as well as feedback, would likely depend on a few factors. First is government type – whether it plays a regulatory role or if its functions are more closely tied in with those of the dominant enterprises. Second is the government-enterprise bargaining relations – in other words, how much leverage and capacity the bureaucracy has to enforce regulations. There would not appear to be strong reasons for *feedback* between the government and NGOs, given that the pollution data comes from local governments in the first place.

Enterprises. The database has in effect created a nationwide ‘blacklist’ of polluters. However, the concrete *value* and *cost-benefit* calculus of acting on this information depends in large part on enterprise bargaining power vis-à-vis government, and their position in the international supply chain. Enterprises who supply MNCs with strong reputational concerns would face higher costs to continued pollution. Those enterprises that have stronger bargaining power vis-à-vis the government (e.g. SOEs or large enterprises) are likely to face lower costs to continued pollution (Wang et al 2003). While the information would be *comprehensible* to most enterprises, *compatibility* may be low, e.g. the information may be published after budget and production

decisions have been made. The *feedback* between the NGO and enterprises is likely to depend in turn on reactions from other potential users of the disclosed information. For example, whether governments levy fines on the polluting enterprises, or if MNCs exert pressure on the enterprises to alter their production processes.

Naming and Shaming through the Pollution Information Transparency Index (PITI)

The PITI assesses the performance of 113 municipalities in implementing the OEI measures across eight categories. These include disclosures of: enterprise violations; results of EPB enforcement campaigns; clean production audit information; enterprise environmental performance rating; disposition of petitions and complaints; environmental impact assessment reports and project completion approvals; discharge fee data; and responses to public information requests. Basic compliance with OEI measures was set at 60 points out of a total of 100. (Details in IPE and NRDC 2010). Unlike the online pollution maps, the disclosed information here is not directly about environmental outcomes, but rather levels of government transparency regarding the environment. Table 2 below shows how this new disclosed information could affect each potential user’s incentives and behavior.

Table 2. Targeted transparency action cycle for the PITI

User	Value	Compatibility	Comprehensibility	Cost/Benefit	Feedback
Media	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Local Government	<i>Depends</i>	✓	✓✓✓	✓	✓
Central Government (MEP)	✓✓✓	✓	✓✓✓	✓	✗
Citizens	✓	✓	✓	✗	✗
Enterprises	<i>Depends</i>	<i>Depends</i>	✓✓✓	<i>Depends</i>	✗

✓✓✓=strong ✓✓=moderate ✓=weak ✗=not present

Media. The media is likely to be an active user of the PITI information. Journalists have found developments around government transparency and civil society to be *valuable*, for several reasons. First, these events reflect changing conceptions about the role of government and its obligations towards society. Second, the PITI presents a new dynamic between civil society and

the state, with NGOs now actively monitoring and ranking the performance of government agencies. Finally, growing global attention over China's environmental management brings international interest to such new initiatives. The information is highly *compatible* since journalists are constantly in search of interesting stories, and *comprehensible* to those on the environment beat. The *cost/benefit* and *feedback* elements are also likely to be strong, as media outlets stand to benefit from reporting on this new development, and both NGOs and media are likely to be interested in engaging with each other on the PITI.

Local Government. For local governments, the *value* of the PITI again likely depends on type. Pro-environment governments or EPBs would value this information as it allows them to benchmark themselves against their peers and learn useful practices from high-performing municipalities. *Compatibility* of the information with user decision-making processes is uncertain. While the PITI is constructed annually, the timing of the release of results may be released far ahead of, or only after, internal government budget planning periods. As for *comprehensibility*, the approach of ranking and scoring each city according to clear categories makes it easy for local governments to understand the broad performance of each city, and allows for a common standard of assessment. The extent to which the PITI raises the *costs* of inaction, however, likely depends on a number of factors. For pro-environment governments, the index could lower the costs of action by providing state agencies with greater leverage to mobilize citizen and intra-bureaucratic support for stronger environmental regulation. Changes in the behavior of other actors would also shift the cost-benefit calculus of local governments. For example, media coverage means that even those governments who are not pro-environment might have to pay some attention to the PITI if public and nation-wide attention is called to the poor performance of their city, thus raising the costs of inaction. *Feedback* is therefore likely to be strong only for those governments for whom the benefits of taking action outweigh the cost.

Central Government (MEP). The PITI information may be *valued* by the central government as it provides a broad assessment of municipal performance, and greater insight into the areas where implementation of its policy is going well or failing. The MEP would further value this information as it could lead to responses by other segments of society, serving as another source of external pressure on local governments and businesses. *Compatibility* and *comprehensibility*

issues match that of local governments described above. The *costs* for the MEP to access the information are low, but the costs of acting on the information are higher, again given the decentralized nature of the bureaucracy and the MEP's weak enforcement power. As such, *feedback* from the MEP on the PITI is likely to be weak.

Citizens. The PITI may have little impact on state-society relations for several reasons. First, the rankings could be of *low value* to citizens if existing awareness on environmental protection is weak. Citizens tend to get mobilized around specific, localized pollution issues rather than across-the-board performance in environmental openness measures. Second, the information may be *incompatible* with their decision-making processes. If citizens tend to react to environmental issues only when a specific problem arises, then the release of the rankings would not necessarily coincide with those moments. The rankings may also be less *comprehensible* to citizens who are less aware about the technical and legal framework of the OEI measures. The PITI information would be less *costly* to access for citizens in affluent municipalities with greater media and Internet access, while the benefits would depend on the specific environmental issues that citizens are facing, and how greater environmental information would address their concerns. However, as with the online pollution maps, the formal and informal costs of citizens using the information to confront powerful state and business interests are likely to be prohibitively high in many cases.

Enterprises. The value that enterprises might place on the PITI is unclear and of the second order, since the rankings examine government disclosure rather than enterprise behavior. If the PITI rankings causes municipal heads to place greater emphasis on environmental regulation, polluting enterprises would *value* the information more. Again, the PITI information may be *incompatible* with enterprise business decision cycles, even if the information is fairly comprehensible. Here, PITI information could fail to make an impact due to weaknesses in the *cost/benefit* component in the transparency action cycle. While the PITI rankings potentially raise the costs of enterprise pollution by placing greater pressure on governments to disclose information, this channel remains indirect. As such, costs of inaction may still be lower than the costs of changing production patterns to reduce pollution.

V. Evidence / Impact Analysis

This section brings quantitative and qualitative evidence to bear on whether user-discloser cycles did play out in the channels proposed in Section IV. In order to understand how NGO-generated information *changes* the incentives and behavior of state, enterprise and societal behavior, the analysis looks both at what factors affected the initial willingness and ability of government agencies to disclose environmental information (as required under the OEI measures), and what impact the new NGO information then had on user and discloser behavior.

The PITI remains the most comprehensive assessment of municipal performance in environmental disclosure to date, and therefore is a rich source of information for exploring why certain municipalities were more transparent than others on the outset. The 2009 assessment, made one year after the OEI measures came into force, found low levels of implementation, with only four out of 113 cities receiving more than the minimum compliance level of 60 points, 32 cities less than 20 points and an average score of about 31 points (IPE and NRDC 2010). As to be expected, there was large variation in performance, including in the disclosure of different types of information (e.g. Shanghai performed well in proactive information disclosure, while Chongqing did well in disclosing information on the handling of public petitions and complaints) (IPE and NRDC 2010).

Table 3 below shows the results of an Ordinary Least Squares regression testing possible factors that could be related to municipal performance in the PITI. PITI performance is found to be statistically correlated to: the level of unemployment, sulphur dioxide emissions, government revenue, loans to the industrial sector, share of secondary industry in GDP, and the average output per domestically funded enterprise as a share of gross industrial output.⁷ The statistical significance of these variables is found to be robust when tested in multiple regressions (shown in Tables A-1 and A-2 in Annex A). These results offer insight into the factors broadly shaping state and enterprise behavior, which enables deeper understanding into how both the PITI and the online pollution map subsequently impact user and discloser incentives.

Table 3. Factors affecting 2009 PITI scores

EXPLANATORY VARIABLE	PITI SCORE	EXPLANATORY VARIABLE	PITI SCORE
Ln GDP per capita	4.72 (3.51)	Average output per domestically funded enterprise (% Gross industrial output)	-15.77*** (5.78)
Unemployment (% population)	-5.43** (2.43)	Average output per foreign funded enterprise (% Gross industrial output)	0.90 (5.30)
SO2 emissions (tons thousands) / Gross industrial output	-4.63*** (1.69)	International tourism revenue (% GDP)	8.44 (5.36)
Waste water discharge (tons millions) / Gross industrial output	-0.87 (3.10)	Domestic tourism revenue (% GDP)	-0.22 (0.14)
Government revenue (% GDP)	1.32*** (0.48)	% population enrolled in higher education institution	-0.55 (0.57)
Loans to industrial sector (% GDP)	0.37*** (0.10)	% population enrolled in secondary school	2.61* (1.46)
% GDP of primary industry (agriculture, mining etc)	-0.08 (0.19)	% population enrolled in primary school	-1.53** (0.63)
% GDP of secondary industry (manufacturing)	-0.13*** (0.05)	Constant	40.82*** (14.39)
% GDP of tertiary industry (services)	0.01 (0.07)		
Average annual wages (RMB)	-0.00 (0.00)	Observations	103
		R-squared	0.58

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sources: 2009 PITI Score from NRDC and IPE; Explanatory variables calculated from 2008 CEIC data

The primacy of growth and the enforcement challenge

Table 3 reveals the negative relationship between government disclosure of environmental information and levels of pollution. Cities with higher levels of sulphur dioxide emissions as a share of gross industrial output, and cities with a higher GDP share of manufacturing industry (which is more polluting than the primary or tertiary sectors), are correlated with lower PITI scores. This result indicates the importance of looking not solely at growth as an overriding objective for local governments, but examining more specifically the nature and components of that growth. The finding, that implementation of the OEI measures is poorer in precisely those localities that are in need of stronger environmental governance, underscores the MEP's challenge of enforcement in a decentralized bureaucracy. Correspondingly, the *cost/benefit* and *feedback* segments of the MEP's targeted transparency action cycle are weak or not present in both Tables 1 and 2.

In fact, there is some evidence that NGOs are stepping in to fill the enforcement gap. With the online database, one polluting enterprise received a letter from the MEP in early 2011 suggesting that the enterprise deal with its violation by working with IPE (Interview F, 1/12/11). While this is just one instance, it suggests that the feedback loop between MEP and IPE might be strengthening, but with the effect of the MEP delegating some enforcement responsibilities to the NGO. Similar to the PITI, initial findings point to a stronger response and feedback between the NGOs and local government than between the MEP and local authorities (Interview C, 1/1/11). The stronger value that local governments place on the PITI can be seen from the fact that some municipalities sent their own reporters to report on the PITI results. The compatibility of the PITI for both local and central governments could be strengthened. The past two sets of results (mid-2009 and Dec 2010) were released simply whenever the data was ready (Interview C, 1/11/11). This means that information about municipal performance is being disclosed at times that may or may not be in sync with government performance review or budgeting cycles, potentially diluting the impact of the PITI.

As evidence of a *feedback* channel between local governments and NGOs, NRDC and IPE held a workshop in Shandong Province in May 2010 attended by over 50 government officials, to discuss the PITI results and challenges to improving environmental transparency (Wang 2010a). Local governments also attended the 2011 press conference announcing the release of the 2010 PITI scores, in contrast with the MEP, which was invited but did not attend (Interview C, 1/1/11). According to NRDC, both Chongqing and Tianjin municipalities have initiated discussions with NGOs, including on the topic of environmental information disclosure. Other cities that NRDC has noted for their positive engagement of NGOs include Jiaying, Beijing, Zhongshan, Yantai, Baoding and Yinchuan (IPE and NRDC, 2011). The contrasting lack of reaction from the MEP may send the signal to EPBs that either their efforts are not being recognized, or that there are no penalties for failing to perform. Both of these signals would undermine the usefulness of the disclosed information.

Apart from these enforcement challenges, the reluctance of more polluted cities to disclose environmental information indicates the need to further investigate incentives and dynamics

within the municipality, in terms of government type and capacity, internal bureaucratic alignment, and state-enterprise bargaining relations.

Government type and capacity

Tables 1 and 2 propose that local government valuation of NGO information depends very much on whether each government is of the pro-growth or pro-environment type. This is affirmed in part by the first finding in Table 3 that disclosure is poorer for more polluted cities. Table 3 further shows that government disclosure is negatively correlated with levels of unemployment. This could indicate the importance of type: high unemployment could reflect the presence of a predatory government that is not interested in governance.⁸

Being of the pro-environment type, however, is insufficient. Table 3 shows that a city's PITI score is positively correlated with the size of its government revenue (measured as a share of GDP). This relationship could be a proxy for government capacity, reflecting the administrative and financial costs to implementing the OEI, from hiring staff to building websites and responding to public requests for information. Resource-strapped governments would thus face higher costs to changing their behavior even with greater scrutiny resulting from the PITI. Lorentzen et al (2010) similarly find that government revenues are positively related to municipal performance on the PITI.

The importance of government type and capacity is further underscored by the tendency for cities who did well in the PITI to have had a history of experimenting with disclosure-based policies from the early 2000s. These cities enjoyed government-wide support for transparency, which alleviated any potential conflicts of interest between the EPBs and local government leadership. Their longer experience with disclosure regulations also fed into stronger capacity to implement the OEI measures. For example, Shanghai ranked 7th in the 2009 PITI, and 4th in 2010. The city performed particularly well in the disclosure of records of enterprise violations, putting the information out through a web-based database that was found to be user-friendly and comprehensive (IPE and NRDC 2010). This performance required an alignment of support at a high level beyond the functional focus on environmental protection. Shanghai established

China's first province-level regulations on open government in January 2004 with the "Provisions of Shanghai Municipality on Open Government Information" (Horsley 2004). Its high-level commitment to government disclosure is reflected in its establishment of a Joint Conference on Open Government Information as the main body for deliberation and coordination on disclosure matters, with political support from the Standing Committee of the Municipal Party Committee and administrative support from the executive deputy mayor. Capacity for government transparency was further institutionalized in the form of a Division of Open Government Information, which had 165 full-time staff by 2009. (Beijing University Center for Public Participation Studies and Support 2010).

State-enterprise bargaining relations

Another common point of weakness in the action cycle for both the online pollution map and the PITI is the cost/benefit calculus of governments and enterprises to act on disclosed information. This reflects not just government priority in sustaining economic growth, but also the weak regulatory relationship between state and enterprise. Table 3 shows a positive relationship between PITI performance and loans to the industrial sector as a share of GDP. This finding is initially counterintuitive. If higher loans indicate a growing industrial sector, then one would expect a negative rather than positive relationship with PITI scores. However, if higher loans reflect a more profitable economy, then perhaps those cities with more loans have enterprises that can better afford pollution mitigation investments. Governments in those localities would then be more willing and able to implement the OEI measures without fearing a big negative impact on economic growth or backlash from industry. Another interpretation could be that local governments have greater bargaining power when enterprises are more reliant on government loans. This interpretation is supported by the finding that the average size of enterprises in a city⁹ is highly negatively correlated to city performance in disclosure.¹⁰ This finding could reflect bargaining relations between local governments and enterprises. If larger enterprises have more bargaining power with governments, then those cities whose revenue and economic growth is dependent on a smaller number of larger enterprises will be more reluctant to implement environmental disclosure regulations. Lorentzen et al (2010) find a similar relationship, namely

that cities with a concentrated industrial base (i.e. more dependent on one industrial firm) tend to perform more poorly in the PITI.

Not surprisingly, then, there is little evidence thus far that the pollution map or PITI alone have had a strong impact on state-enterprise relations. The 2009 PITI scores showed that 70 out of 114 cities scored only 5.6 or less points out of 28 points in the disclosure of enterprise pollution violations. In 2010, government performance in this category continued to be weak, with 68 cities scoring 5.6 points or less. A study of seven municipal EPBs found that the EPBs performed best in disclosing standard, non-sensitive information such as the institutional set up of the organization, its duties and contact information, and performed worst in disclosing the list of heavily polluting enterprises that had violated emissions standards (CLAPV & Article 19 2010). In short, EPBs face strong disincentives to disclosing this information due to fears of negative repercussions coming from large enterprises placing pressure on municipal leaders that are in charge of the EPBs (Interview D, 1/12/11).

Greater disclosure of information alone is unlikely to sufficiently alter the costs of enterprise pollution – additional measures are required. One positive example comes from Ningbo, the top performing city in both 2009 and 2010 PITI rankings. The Ningbo EPB not only disclosed the list of enterprises that had violated pollution standards, but also sent that information to the People’s Bank of China. Xie Xiaocheng, Director of the Ningbo Environmental Promotion and Information Center, was quoted as saying “Many enterprises do not care about fines, but they are truly affected if their loans are threatened” (China Global Times 2010).

Pressure from the International Supply Chain

As proposed in Table 1, the transparency action cycle is likely to be strong for MNCs. The evidence shows that polluting enterprises tend to change their behavior in the face of much sharper costs to inaction, namely through pressure from brand conscious multinational companies such as Nike, General Electric (GE) and Esquel. Nike, with 150 factories in China, regularly uses the IPE website to check on suppliers given that it does not have the resources to directly monitor each individual factory. It has even trained 50 key suppliers to use IPE’s

database as a monitoring tool. GE China's environmental, health and safety managers are similarly using the database to check on their local suppliers. IPE reported an increasing number of firms approaching it as a result of having been referred there by their international partners. The effectiveness of this strategy also lies in the strong *feedback* loop between the discloser (IPE) and user (MNCs). For example, IPE started sending alerts to Nike whenever one of its suppliers was going to be listed, while MNCs started responding to the alerts by referring their suppliers to IPE for follow-up remedial actions. (World Resources Institute and IPE 2010; Shao 2009).

Again, in this instance, incentives for MNCs to use the pollution map and for strong feedback are enhanced by actions that complement and strengthen the impact of disclosure. These additional actions involved a new process of environmental auditing which raises standards for companies to meet in order to be taken off IPE's blacklist, thereby further strengthening the incentives for MNCs to use IPE's online database.¹¹ IPE, along with 20 other environmental NGOs, established the Green Choice Alliance (GCA), in which an environmental audit of a polluting enterprise is undertaken by an accredited third party auditor, with observation by GCA members. After the audit, IPE shares the report with all the members of the alliance. If there are no objections to the report after seven days, the violation is removed from the database and the report published on the IPE website (IPE 2008). In this way, the flow of information between user and discloser is doubly embedded, enhanced by procedures to assist firms in changing their behavior. Where the audit has been put into place, the changes in firms' environmental practices have been positive. However, the overall impact remains marginal. Despite the listing of over 86,500 violations on its website, IPE has received only 415 responses on these violations, with only 72 firms having gone through the GCA audit, as of August 2011 (IPE website).

Media Scrutiny

As proposed in Table 2, the conditions and incentives for the media to actively use the PITI information are strong. Over 100 media outlets reported on the 2009 PITI results, including almost every single major Chinese media outlet. The 2010 results received similarly heavy coverage (Interview C, 1/11/11). This high level of publicity works to reduce the costs of

accessing the information, and potentially affect how the information is valued by other users. Media coverage raises the potential value of the index for both pro-environment and pro-growth types of government, creating reputational effects that alter the cost/benefit component of the action cycle. The China Economic Times cited the PITI as one of the top ten environmental events of the year, and noted that “the scientific-nature and rigor of the evaluation system make it impossible for government officials to ignore these results” (Wang 2010a). Pro-environment municipalities have sent journalists to cover the release of the 2010 PITI scores, and included their performance scores in their 2009 annual reports (Interview C 1/11/11). Pro-growth types may not value environmental transparency on the outset, but their costs of inaction may be raised by press coverage. After the release of the 2009 PITI scores, for example, NRDC cited an example of a low scoring city (Lanzhou) that arrived at an NRDC conference with a new online environmental information platform, to demonstrate its improved actions on environmental disclosure (Wang 2010b). In addition, press reports on the PITI may improve comprehensibility for the general public. However, it remains to be seen how the level of media coverage translates into citizen awareness and action.

Disempowered Citizenry

Tables 1 and 2 propose that change in environmental governance via the citizen channel is likely to be weak. Indeed, there is little evidence thus far of citizens using either the PITI or the online pollution map to deal with their environmental concerns. Citizen requests for information have remained low. The MEP received 72 requests for information in 2009 (MEP 2010), while Guangzhou received 17 requests in the same year (Guangzhou EPB 2010). Most of these requests, moreover, came from NGOs rather than citizens (Interview A 08/2010). IPE and NRDC assessed that one of the contributing factors was the under-appreciation of environmental information in Chinese society and the fact that “information has not yet become a tool for active public participation in China” (IPE and NRDC 2010).

Indeed, direct unrest might be a more effective channel for citizens to push for governments to improve their environmental regulation. Zhenhai District in Zhejiang province, for example, adopted a proactive approach to environmental transparency and public engagement because of

mass protests in 2002 over pollution from the chemical industry. In one interview, Hu Rongzhang from the Zhenhai EPB was quoted as saying "While we have become a lot busier, these 'small pressures' enable us to resolve 'big problems', and so the effort is worthwhile". (China Environmental News 03/24/2010).

Multi-actor Governance

The weakness of the citizen action cycle in Tables 1 and 2 suggest that additional, intervening factors are needed to overcome the issues with compatibility, comprehensibility, cost/benefit and feedback. Indeed, cases of successful environmental management tend to draw on action from multiple actors that end up having mutually-reinforcing effects in the transparency action cycle. For example, for several years in the mid-2000s, residents in Dachang township in Shanghai had been filing complaints with the local government over the polluting activities of Fuguo tannery company. The EPB itself had also listed Fuguo as a pollution standards violator from 2004-2009, ordering Fuguo to rectify the problem. While Fuguo responded to government and community pressure to mitigate some of its polluting processes, these measures were neither sufficient nor disclosed to the public, and the complaints also continued.

In April 2009, environmental NGO Friends of Nature helped a resident to file a suit to request Fuguo to disclose its discharge data. Two months later, the Green Choice Alliance of NGOs sent a letter to Fuguo to request that it disclose its emissions as required under the OEI measures. When Fuguo did not respond, Friends of Nature and IPE informed the CEO of Timberland of Fuguo's environmental violations, as Timberland was a major client of the tannery company. Pressure from Timberland led Fuguo to disclose its records in July 2009. In September 2009, the CEO of Fuguo sat down with residents, representatives from Timberland, and the local media to listen to community complaints, and organized an open house for residents to visit the factory. A community representative was appointed to liaise with the company regarding future environmental issues, and a direct hotline was established for pollution complaints. In addition, Fuguo started publishing daily data on its wastewater discharge, and went through the Green Choice Audit to confirm that it had indeed taken corrective actions to address its polluting practices.

Multi-actor governance can also be help resolve principal-agent problems within the bureaucracy. One example is Shenzhen city in Guangdong Province, ranked 13th on the 2009 PITI and 2nd in 2010. Several factors account for Shenzhen's good performance. First, its domestically funded enterprises are on average smaller than other cities (5th lowest in the 113 PITI cities), which could translate into stronger bargaining power for the EPB. Second, the city's economic prosperity also helped boost the size of the city government's revenue (23% of GDP in 2008), which could translate into more funding for its EPB.

Beyond that, however, the city was ahead of others in experimenting with open government information, putting the "Measures of Shenzhen Municipality for Online Open Government Information" into effect on April 2004 (Horsley 2004). Equally important was the set of strategies that Shenzhen EPB devised in the past to overcome the principal-agent problems and constraints that encumber the work of most EPBs. The EPB focused on developing formal and informal cooperative relations with the other agencies in government, in order to align intra-bureaucratic objectives. Formal mechanisms included the establishment of the Shenzhen Environmental Protection Commission in 1986, led by the mayor and deputy mayor, and commissioners coming from various ministries and districts. The Shenzhen EPB also used the tactic of issuing regulations jointly with other departments, as way of riding on the relative strength of those older and more influential agencies (Sinkule & Ortolano 1995, p154). Finally, Shenzhen EPB reached out to the public as another source of support for its environmental agenda. It did this through awareness campaigns and public participation mechanisms such as the Environmental Protection Consulting Commission established in 1989 (Sinkule & Ortolano 1995, 157).

These examples underscore that environmental disclosure efforts work best when the incentives of users and disclosers are aligned, and when a network of actors are engaged such that weaknesses in one set of user-discloser relations can be overcome by other actors in the broader network of governance relations.

VI. Impact and Accountability

Impact on environmental governance

The evidence thus far shows that the new information and actions of IPE and NRDC have had specific impacts on environmental governance. The pollution database has proven to be a valuable resource for MNCs looking to screen and monitor their suppliers in China, with the information becoming doubly embedded in both user and discloser action cycles. The PITI rankings have provided a new quantitative method for measuring government performance, created a platform for municipalities to learn from each other and fostered greater engagement between governments and NGOs. The index has also led at least one city to actively improve its disclosure system. All these impacts, however, remain marginal, in part because the OEI measures have only recently come into force.

The limited impact can additionally be attributed to two sets of weaknesses, as proposed in Tables 1 and 2 and discussed in Section V. First, the *value* that local governments and enterprises place on the new information generated by the NGOs depends on a broad number of factors. For local government, the factors include the strength and influence of local EPBs within the bureaucracy, and the type of leadership in place (pro-growth or pro-environment). For enterprises, the value of the pollution database depends on their position in the international supply chain, and the value of the PITI depends on how the rankings affect the government's incentives to regulate polluting industries – and this in turn depends on not just government type but also state-business bargaining relations.

Second, the new information does not always lead to changes in the cost/benefit and feedback segments of the targeted transparency action cycle. For the MEP, the information generated by NGOs reduces monitoring costs, but the costs of enforcement remain high in a decentralized bureaucracy, particularly when the MEP has little control over EPB incentives. For local governments and enterprises, the cost-benefit calculus depends once again on government type, capacity and state-industry bargaining relations. For society, not only is the information less compatible and comprehensible, costs of responding are high due to the lack of legal protection.

These two sets of weaknesses are mutually reinforcing. For both local governments and enterprises, the value of the pollution database and PITI depends in part on whether the information leads to greater pressure from either the central government or society – and in both cases the cost/benefit calculus and feedback mechanisms are weak. Additional interventions are needed to strengthen the impact of the new information on these sections of the targeted transparency action cycle. For example, one additional reason for MNCs to rely on IPE’s pollution database is the audit protocol created by the Green Choice Alliance – particularly since enterprise violations are removed from the pollution map once the audit has been successfully completed (thereby raising both the expected benefits to taking action and enhancing the feedback loop). Ningbo EPB’s practice of sending the list of enterprise violators to the People’s Bank of China similarly raises the expected costs of inaction for enterprises. Shenzhen EPB’s efforts to engage the public helps to align incentives within the bureaucracy. The experience of Fuguo and Timberland shows how NGOs and MNCs can form partnerships to effect change in situations when angry citizens are disempowered. The potential future impact of the pollution maps and the PITI on environmental outcomes, then, depends in part on whether or not additional interventions can be created to alter the valuation, cost/benefit and feedback segments of the transparency action cycle for relevant users.

Implications for accountability relations

The limited welfare improvements resulting from NGO action have not been accompanied by straightforward shifts in accountability relations. IPE’s pollution database turns out to be exerting accountability pressures on firms not via the state (whose interests may be too closely linked to firms or who may have weak enforcement or bargaining power) or citizens (who either do not have much use for the information or have weak options to exert pressure), but through the international supply chain. MNCs have a direct means of raising the costs of non-compliance, bypassing the weakness of state-enterprise accountability relations. The Green Choice audit process, when it has been used, has proven effective in changing business practices – but by making business accountable to the NGO alliance, rather than to consumers or the state. In other words, the location of accountability has shifted out of government offices to the IPE website

and to the GCA, with MNCs proactively referring their suppliers to IPE's audit process and requesting for their suppliers' corrective action to be published on the website. The implications for these changes are as yet ambiguous, especially since these new processes, while stark, remain marginal. If these processes were to become mainstream, they would have the perverse effect of replacing, rather than complementing, state scrutiny over business. If the MNCs were in time to shift their manufacturing bases out of China (driven by rising costs as China's economy continues to modernize), then it is unclear if either the state or citizens would be able to fill in the gap in monitoring and enforcement.

The PITI rankings appear similarly to have strengthened municipal governments' accountability to the NGOs conducting the ranking, rather than central-local state relations. The PITI evaluation nevertheless provides potentially valuable information to central agencies, and thus may allow these NGOs to play a more influential role in the national policy process. This result would support observations in other studies about the growing pluralization and networked nature of the environmental policy process in China (Mertha 2008; Wu 2002). The value of the NGOs' initiatives to citizens, however, is less clear. The lack of NGO autonomy limits state accountability. Without greater political space, the development of civil society organizations will naturally be skewed to favor those that are able to effectively negotiate and coordinate with state agencies rather than those directly confronting or challenging the government. Other environmental NGOs in China similarly focus their efforts on enforcing national policies, focusing on gaps between the policy requirements and implementation on the ground (Interview C, 1/11/11; Interview G, 1/13/11). The PITI is one example of an NGO initiative that engages the policy process, especially at the level of local governments, but is of lower value, compatibility and comprehensibility to society at large. Without greater political space for civil society, it is unclear if the MEP's efforts to mobilize public scrutiny against local government and business can be fully effective.

Aside from concerns over NGO autonomy, effective accountability via transparency requires reform in other parts of the state. In particular, weaknesses in the judicial system undermine the potential impact of NGO and citizen action. The fact that the court system falls under the authority of the Chinese Communist Party limits the ability of citizens and civil society to hold

the state to account (Ma and Ortolano 2000, 90). At the local level, courts report to the local government head just as EPBs do, which makes the legal system subject to the same weaknesses that prevent EPBs from properly enforcing environmental regulation (Economy 2005, 108). One interviewee pointed out that “China’s got some of the best environmental laws in the world. But they’re just a pile of sand. You can’t build anything out of them because nobody applies them” (Interview B, 1/1/11).

Finally, the OEI measures themselves are circumscribed by particular weaknesses that weaken accountability. The first is an ambiguity within China’s legal and policy framework between secrecy and transparency. The fact that the State Secrets Law and the Archives Law hold more legal weight than the Open Government Information regulations creates mixed signals for government officials. The lack of specific guidelines on what information should be disclosed and when information can be withheld gives government agencies ample room to interpret the measures to suit their interest. Second, the burden of disclosure is placed on government rather than enterprises, reducing direct incentives for enterprises to be accountable for their pollution activities.

VII. Conclusions

Transparency policies have become increasingly popular tools of regulation across the world. However, the pathways through which they alter stakeholder incentives and generate change are not well understood. This paper has examined the role of NGOs in using China’s new environmental transparency measures, focusing on the strengths and weaknesses of various accountability channels between state, enterprise and society, and identifying the successful pathways through which change occurs. NGOs have been able to affect environmental governance in clear but marginal ways, when stakeholder incentives have been aligned.

The impact of NGO actions remains limited, first because the value that local governments and enterprises place on NGO information and action depends on factors such as the influence of EPBs within the bureaucracy, the type of leadership in place and the potential impact of NGO

actions on bargaining relations between state and enterprise. Second, the expected costs of responding to disclosed information continue to outweigh benefits. For the MEP, enforcement costs remain high. For local governments and enterprises, the cost-benefit calculus depends once again on government type, and state-enterprise bargaining relations. The resulting user-discloser relations are therefore highly dynamic, leading to changes (or lack thereof) that are not easily predictable. Specific examples of success further highlight the importance of bringing in additional interventions and having multiple actors working through multiple pathways, in order to overcome existing weaknesses in accountability relations.

Finally, the relationship between transparency, accountability and democracy is not always straightforward. In the Chinese context, the pathways where positive change has occurred have not mapped directly onto improved accountability. Accountability has shifted to the MNC-NGO channel in the case of the pollution database (by-passing the state), and to the local government-NGO channel in the case of the PITI (by-passing the MEP).

ANNEX A – Regression Analysis: Factors affecting 2009 PITI Scores

Table A-1 below shows OLS regressions of 2009 PITI scores on a range of different explanatory variables. The factors which show up as consistently statistically significant are: unemployment as a share of population; sulphur dioxide intensity; government revenue as a share of GDP; average output per enterprise as a share of gross industrial output; loans to the industrial sector; average output per *domestically funded* enterprise as a share of gross industrial output, share of secondary industry in GDP; and education indicators.

Table A-1. Factors affecting 2009 PITI Score

VARIABLES	2009 PITI SCORE				
	(1)	(2)	(3)	(4)	(5)
Ln GDP per capita	3.24 (3.94)	4.43 (2.95)	-0.84 (3.02)	0.99 (3.20)	3.85 (2.81)
Unemployment (% population)	-6.68** (2.59)	-6.90*** (2.50)	-5.51** (2.32)	-6.00** (2.43)	-6.81*** (2.59)
SO2 emissions (tons thousands) / Gross industrial output	-6.68*** (2.25)	-3.61* (1.92)	-2.47 (2.02)	-3.10 (1.97)	-3.80* (1.99)
Waste water discharge (tons millions) / Gross industrial output	-1.66 (3.17)	-1.11 (3.01)	-1.83 (3.25)	-2.68 (3.29)	-0.27 (2.95)
Government revenue (% GDP)	0.92** (0.38)	0.75** (0.38)			0.60* (0.36)
Government deficit (revenue minus expenditure) (% GDP)			0.33*** (0.10)		
Government expenditure (% GDP)				-0.05 (0.18)	
Average output per enterprise (% gross industrial output)		-20.44*** (5.70)	-20.71*** (5.68)	-22.61*** (5.75)	-16.12*** (5.70)
Loans to industrial sector (% GDP)					0.32*** (0.09)
Average annual wages (RMB)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)
% population enrolled in higher education institution	0.58 (0.56)	0.48 (0.55)	0.69 (0.55)	0.74 (0.55)	0.24 (0.50)
% population enrolled in secondary school	2.47* (1.47)	2.40* (1.41)	2.12 (1.33)	2.00 (1.36)	3.29*** (1.23)
% population enrolled in primary school	-1.49** (0.59)	-1.46** (0.58)	-1.11* (0.57)	-1.09* (0.59)	-1.72*** (0.53)
Constant	18.95** (8.40)	21.40*** (8.11)	17.85** (8.39)	16.77** (8.21)	15.68** (7.85)
Observations	109	109	109	109	109
R-squared	0.39	0.44	0.43	0.41	0.51

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sources: 2009 PITI Score from NRDC and IPE; Economic indicators calculated from 2008 CEIC data

VARIABLES	2009 PITI SCORE				
	(6)	(7)	(8)	(9)	(10)
Ln GDP per capita	-0.17 (2.94)	1.32 (3.26)	6.34* (3.25)	6.53* (3.45)	4.72 (3.51)
Unemployment (% population)	-5.76** (2.42)	-6.16** (2.54)	-6.88*** (2.50)	-6.85*** (2.58)	-5.43** (2.43)
SO2 emissions (tons thousands) / Gross industrial output	-2.95 (2.12)	-3.47* (2.06)	-3.93** (1.73)	-4.27** (1.74)	-4.63*** (1.69)
Waste water discharge (tons millions) / Gross industrial output	-0.89 (3.13)	-1.45 (3.14)	-1.05 (2.82)	-1.48 (3.15)	-0.87 (3.10)
Government revenue (% GDP)			1.08** (0.48)	1.10** (0.50)	1.32*** (0.48)
Government deficit (% GDP)	0.24** (0.12)				
Government expenditure (% GDP)		-0.02 (0.20)			
Average output per enterprise (% gross industrial output)	-16.37*** (5.74)	-17.54*** (5.73)	-18.61*** (5.29)		
Loans to industrial sector (% GDP)	0.33*** (0.09)	0.37*** (0.09)	0.34*** (0.10)	0.34*** (0.10)	0.37*** (0.10)
GDP of primary industry (% GDP)			0.01 (0.17)	0.01 (0.17)	-0.08 (0.19)
GDP of secondary industry (% GDP)			-0.13*** (0.05)	-0.12*** (0.05)	-0.13*** (0.05)
GDP of tertiary industry (% GDP)			0.03 (0.06)	0.02 (0.06)	0.01 (0.07)
Average output per domestically funded enterprise (% Gross industrial output)				-18.81*** (5.45)	-15.77*** (5.78)
Average output per foreign funded enterprise (% Gross industrial output)				1.78 (4.75)	0.90 (5.30)
International tourism revenue (% GDP)					8.44 (5.36)
Domestic tourism revenue (% GDP)					-0.22 (0.14)
Average annual wages (RMB)	0.00** (0.00)	0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
% population enrolled in higher education institution	0.40 (0.51)	0.41 (0.51)	-0.39 (0.52)	-0.41 (0.53)	-0.55 (0.57)
% population enrolled in secondary school	3.08*** (1.15)	3.05** (1.18)	3.07** (1.39)	3.03** (1.41)	2.61* (1.46)
% population enrolled in primary school	-1.46*** (0.51)	-1.46*** (0.53)	-1.63*** (0.62)	-1.61** (0.62)	-1.53** (0.63)
Constant	12.65 (8.20)	11.67 (7.95)	32.18** (13.78)	32.8** (14.14)	40.82*** (14.39)
Observations	109	109	109	108	103
R-squared	0.49	0.49	0.55	0.55	0.58

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Sources: 2009 PITI Score from NRDC and IPE; Economic indicators calculated from 2008 CEIC data

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ENDNOTES

¹ The 12th Five Year Plan, released March 2011, places a high priority on climate change, energy and environmental issues. The 11th Five Year Plan for Environmental Protection identified the prevention and control of pollution as a top priority, and repeatedly stresses the importance of building a resource-saving and environmentally-friendly society.

² See, for example, Neuman, Laura, and Richard Calland. (2007). "Making the Law Work: The Challenges of Implementation." In Ann Florini ed., *The Right to Know: Transparency for an Open World*. New York: Columbia University Press. As another example, www.freedominfo.org, the global network of freedom of information advocates, explicitly supports the right to know and for freedom of information as a way of strengthening democratic governance.

³ For literature on China's transparency regulations, see Jamie Horsley 2004, 2007a, 2007b, 2010; Hubbard 2008

⁴ Targeted transparency policies are different from right-to-know policies in that they are designed to achieve a particular social outcome and change specific behaviors.

⁵ These functions are taken on by agencies such as provincial general offices, the Ministry of Supervision, the General Auditing Administration and the State Statistical Bureau

⁶ The cadre management system might provide another layer of tools to align central and local official incentives. However, analysis by Pierre Landry (2003) suggests that provincial authorities are using promotion not so much to select good cadres or reward strong governance performance, but rather to reduce localism and to allow junior officials to be promoted more rapidly through the ranks.

⁷ Evidence of the relationship between education levels and PITI performance is contradictory. An increase in the percentage of population enrolled in secondary schools is associated with higher PITI scores, while an increase in the percentage of population enrolled in primary schools is associated with lower PITI scores. These findings could be spurious, driven by demographic changes within cities, or the result of weak links between education and environmental issues.

⁸ Another explanation is that governments in cities with higher levels of unemployment may be more reluctant to disclose information for fear of potential destabilizing effects. Governments may also be more focused on reducing unemployment as a higher priority, and therefore give less attention to OEI implementation.

⁹ Broadly measured by the average output per domestically funded enterprise as a share of gross industrial output.

¹⁰ Economies with average output per enterprise that are 1% higher as a share of gross industrial output are associated with PITI scores that are almost *16-points* lower. The magnitude of difference in PITI scores for this variable is far larger than any of the other explanatory variables.

¹¹ In so doing, it addressed one key weakness that the OEI measures would not have been able to tackle, namely the lack of quality and substance of existing standards such as ISO 14000 certification. ISO certification no longer provided a credible signal about a firm's environmental performance, given the regular practice of submitting false paperwork, widespread corruption and the overall commodification of the certification process. Shao, Maria. (2009). & Asiawaterproject.org