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“Project Battle” or “Policy War”?: Protest, Advocacy, and the Outcomes of Environmental Contention in China

Phoebe Mengxiao TANG

Abstract: Over the past decade, several environmental protests against hazardous projects have been mounted across China. Though extensive scholarship has been devoted to the outcomes of environmental contention, a significant distinction between local government’s one-off decision change regarding the specific project and long-term, locked-in policy change towards better governance has largely been overlooked. Meanwhile, environmental contention in authoritarian China has largely been studied in terms of disparate episodes, making systematic observation and effective comparison difficult. Using crisp-set qualitative comparative analysis (csQCA), this article investigates the effect of social contention on shaping environmental governance, analysing 20 influential cases of environmental protests in China from 2007 to 2014. It demonstrates that environmental contention efforts often yield different fruits in their “project battles” than in their “policy wars.” Moreover, this study argues that environmental protests necessitate ample effort of public policy from a variety of social agents with multifaceted mechanisms and strategies, highlighting the significance of the protest–advocacy linkage in extracting better governance from local states in authoritarian settings.

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Keywords: China, environmental protest, policy advocacy, information transparency

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Introduction

Environmentalism in China has ushered in vast change in the past decade. Emerging environmental activism and local grievance-based environmental contention have posed both multifaceted sociopolitical challenges and opportunities for the authoritarian state. On the broad question of how environmental politics and policies in China have been shaped and reshaped, current literature reflects a revival of arguments between a traditional, state-corporatist framework (Unger and Chan 1995) and a new direction (Howell 2004) of Chinese state-society relations. Specifically, the state-oriented thesis of environmental authoritarianism (Beeson 2010) and the collaborative, society-driven theory of consultative authoritarianism (Teets 2014) both provide insight. However, existing scholarship falls short of an interactive framework that captures important mechanisms of interpenetration and mutual shaping of state and society (Yang and Calhoun 2007). Recent studies on Chinese politics in general have made exploratory efforts along the theoretical direction of constructing a model of state-society interaction. They have examined social agents' "strategic use of the law and formal institutions" (Tsai 2017, 2015; Distelhorst 2017; Johnson 2010) and discussed how popular protests may shape policy implementation (O'Brien and Li 2006) or policy adjustment (Cai 2010). Yet these studies have not treated outcomes of contention as the prominent theme with systematic analyses on the micro-mechanisms linking protests and policy output. Studies on environmental protest and governance can be a fertile field for theoretical specification for the aspect of state-society interaction.

In this article, I seek to answer two questions: 1) How effective is environmental contention in shaping the environmental governance of Chinese local states? 2) Why have some environmental protests resulted in policy changes while others have not? To investigate these questions, I first demonstrate a substantial difference between two kinds of "effectiveness" of protests: one is to extract a one-off concession from the government on the particular project and redress a specific grievance, which I call "decision change" or "winning the project battle," and the other is to stimulate the government to implement transparent, accountable, or inclusive environmental policy, which I call "policy change" or "winning the policy war." Second, I review existing explanations for decision change and policy change in environmental issues and highlight the variable of advocacy in

environmental campaigns. Third, I employ crisp-set qualitative comparative analysis (csQCA) to examine 20 influential cases of recent environmental protests in China from 2007 to 2014. Finally, I analyse the necessary and sufficient conditions for environmental protests to engender environmental-policy improvement at local levels and emphasise the role of social agents’ advocacy in stimulating better governance.

Without denying the indispensable role of a greening leviathan (Duit, Feindt, and Meadowcroft 2016), my study engages the theoretical dialogue of state–society interaction in general and emphasises the aspect of a socially constructed environmental authoritarianism. It demonstrates that Chinese local states have been actively refurbishing their governing tools with increasingly inclusive institutions of public participation mostly because they are passively compelled to do so by various societal thrusts.

Power in Protest: Decision Change vs. Policy Change

The power in people taking grievances to the streets is often examined by whether they can pressure local governments to make change, including decision change at the instance level or policy change at the institution level. Existing research has mostly focused on decision-specific outcomes defined by cancellation, relocation, or continuation of polluting facilities targeted by protests (Mertha 2008; Cai 2010; Li, Koppenjan, and Verweij 2016). By contrast, the research on policy outcomes – that is, institutionalised changes in environmental governance that have longer-term, broader-range effects, as opposed to an ad hoc compromise on a single case – is rare. This is not to gainsay efforts in recent studies that have begun to investigate the dimension of policy change beyond singular decision change as a protest outcome. In particular, the new development of the protest–advocacy linkage in environmental contentions has been increasingly recognised; this linkage is showcased by the mutual reinforcement of street mobilisation and policy advocacy (Steinhardt and Wu 2016), the vertical ties between local contenders and supra-local activists or environmental NGOs (Bondes and Johnson 2017; Sun, Huang and Yip 2017), or the strategy shift from a not-in-my-back-yard (NIMBY) approach to a broad policy-advocacy perspective oriented towards

the public interest (Johnson 2013a, 2013b). However, these studies are not intended to systematically establish the relationship between advocacy efforts and policy change in environmental governance.

Before I press forward, the importance of distinguishing policy change from decision change as the outcome of environmental protest is due further illustration. For one thing, it is often premature to operationalise protest outcome with decision change. Seemingly “successful” results, such as a local official’s oral promise to cancel a project, oftentimes represent political expediency for the purposes of public appeasement as the official is under imminent pressure; such results are at risk of reversion after social outcry subsides. Many empirical cases involve the scenario of secret resumption of projects temporarily halted when they were under protest (*Daily News Sina* 2015). For another, decision change to cancel or relocate the project, though remarkable, cannot capture nuanced contentious fruits borne in the process of protest. As noted in the cases below, protesters often hone their networking abilities and environmental expertise regardless of whether the project they oppose is cancelled or not. Additionally, some protests oppose the opaque decision-making process, such as fraud in environmental impact assessment (EIA) procedures, more strongly than the project per se (He, Mol, and Lu 2016). If an EIA report is repeatedly revised due to residents’ protests, it would be unfair to regard the protest as a failure only because the construction has continued.

In comparison, policy change is a more theoretically valid way to connect processes to outcomes. Instead of setting decision change as an abrupt ending point immediately after protest, examining policy change avoids artificially severing the long-term spillover effect of protests on public policy and allows us to observe whether achievements of social contention can be institutionalised by local states to upgrade environmental governance. Therefore, while “winning the project battle” is oftentimes characteristic of protesters using the state’s laws and terms to resist rightfully in a specific conflict, “winning the policy war” involves a renegotiation of the terms and facilitates the redress of generic grievances of the same type in the future.

The nonconformity between decision change and policy change is conspicuous in light of empirical evidence (see Table 6). Occurrence of policy change towards better governance does not necessarily go hand in hand with the occurrence of decision change. In other

words, a local government’s on-the-spot decision to compromise in a particular case by no means denotes a corresponding adjustment in environmental policy orientation. Existing research focuses on the “project battle” of environmental protests regardless of how they fare in the “policy war.” Yet the empirical world is replete with diverse scenarios where protests win the “project battle” but lose the “policy war,” or even lose the “project battle” but win the “policy war.”

In this study, I approximate the concept of “policy change” in environmental governance from two angles: 1) local governments’ promulgation of new environmental laws or regulations, and 2) local implementation of environmental accountability policies. Details about the measurement of policy change vis-à-vis these two aspects will be covered in the methodology section. Admittedly, the publishing of new environmental rules and an improvement in information transparency do not guarantee that policy change achieved by protest will be securely enshrined as a higher standard of governance in the future. Yet it is a big step towards institutionalised protest outcomes from those ad hoc, fickle, and tokenistic decisions.

From Protest to Policy Change

Existing Explanations and Beyond

Owing to the fertile literature on contentious politics and social movements (Tarrow 1994; Tilly and Tarrow 2007), a variety of factors explaining contentious outcomes in China have been developed in existing studies. Among them, four conditions were pointed out that are relatively important in explaining variances in local governments’ decisions – project cancellation, relocation, or continuation – in environmental conflicts (Li, Koppenjan, and Verweij 2016).

- The scale of the protests: The larger the protest is, the more likely it is for protesters to reach their goals (Cai 2004). A well-known popular maxim – “big disturbance big resolution, small disturbance small resolution, and no disturbance no resolution” – reflects the widely believed association between larger-scale unrest and bigger compromises from governments.
- The form of protest, particularly in terms of whether violence occurs in the confrontation: Given that social stability is regarded as local officials’ top priority, scholars generally agree that use

of violence increases pressure on local governments and thus raises the protesters' chances of extracting concessions (McAdam 1983; Tarrow 1994).

- The cost for local governments to compromise: Local governments invoke a cost–benefit analysis in the face of collective social challenge (Cai 2010). The earlier the stage of the project is, the less costly it is for local governments to change course, and thus the more likely it is for the protest to succeed.
- The position of the central government: In the setting of an authoritarian regime with significant local discretion, social contention in China has long been characterised by protesters exploiting the tension between a legitimacy-oriented central government and interest-driven local officials (O'Brien and Li 2006). As long as there is no sign of central government support for the project, it is more likely for local governments to concede and protesters to prevail.

After enumerating these four conditions, Li, Koppenjan, and Verweij (2016) utilise csQCA to determine which condition or combination of conditions are necessary and/or sufficient for environmental protests to result in decision change. Specifically, they emphasise the impact of central-government support and the project stage on decision change of local governments. They identify “the absence of support from the central government” as the necessary condition and three sufficient paths that explain the occurrence of governmental compromise (Appendix 1).

However, these conventional variables have hindered explanations of the efficacy of popular protests in shaping the state's social-governing capacity. In particular, none of the four conditions above can convey effectively the policy-advocacy component of environmental campaigns, which is increasingly prevalent in protest cases across regions and issues. Therefore, my research introduces a fifth condition, the “advocacy variable” of environmental protest, to highlight the strategic role of policy-oriented social agents in bringing forth better governance.

Advocacy in Contention: Actors, Mechanisms, and Strategies

The advocacy dimension of the protest, as will be detailed in the analyses below, is broadly conceptualised to include the claims, agendas, propositions, and strategies of different types of social agents – who either initiate the momentum of protest, participate directly in demonstrations, or echo the public appeal following the protest – in order to explore broader meanings of protests beyond their immediate localities and concerns. Channelled through social networking of environmental non-governmental organisations (ENGOS) (e.g. Sun, Huang, and Yip 2017), proposal submissions by disgruntled state and academic elites (e.g. Johnson 2010), or online activism on the part of concerned netizens (e.g. Lu and Chan 2016), the claim-making or agenda-setting activities involved in advocacy efforts typically carry a strong tendency towards rationality rather than emotions (Johnson 2013b) and even demonstrate social agents’ “ownership” of the issue at hand through self-learned environmental expertise (Shemtov 1999; Lora-Wainwright 2013; Johnson 2013a). I hypothesise that the presence of advocacy efforts in or right after the protest contributes in general to policy change towards better environmental governance.

There are three prominent social agents that practise policy advocacy, the first of which are ENGOS. Although mainstream studies of Chinese politics have traditionally portrayed social organisations in China as weak, dependent, and non-confrontational, or a co-opted collaborator of the state at best, my research argues that some ENGOS have become capable of abstaining from leading protests at the outset yet swaying processes at critical moments, riding on protesters’ collective power, and turning a NIMBY opposition into a public interest-oriented campaign that translates to policy adjustment in environmental governance. I call such a participatory pattern “the afterward-intervening mechanism.”

The rise of Chinese ENGOS in recent decades, with their increased political leverage and manoeuvring space, can be attributed to the strategy of “embeddedness activism” (Ho 2007). Naturally, ENGOS with greater policy-advocacy opportunities tend to have better financial resources and connections to the party-state system (Zhan and Tang 2013). Although such a delicate position of ENGOS has drawn some critical concerns (Yang 2005; van Rooij 2010; Johnson 2010), gradually, by performing the afterward-intervening mech-

anism, ENGOs in some of the empirical cases have found a niche in environmental protests to bridge the power of collective action and subsequent policy advancement (Sun, Huang, and Yip 2017).

The second kind of social agents who actively practise environmental-policy advocacy are green-minded public figures, including political elites such as representatives to the National People's Congress (NPC) and members of the Chinese People's Political Consultative Committee (CPPCC), well-known scholars, media entrepreneurs, and entertainment figures. Among them, NPC representatives and CPPCC members are outstanding at exposing controversial projects by submitting opposition proposals to their respective bodies' annual meetings. These quasi-democratic formal institutions, traditionally perceived as a rubber stamp, have begun to play a bigger, albeit limited, part in responsive or consultative authoritarianism (Truex 2014; Malesky and Schuler 2010). I call this pattern a "beforehand-initiating mechanism," as these actors have the capacity in the beginning stages to arouse public attention, disseminate information on unlawful siting decisions, ignite opposition against opaque procedures, and garner sufficient momentum for collective action.

Last but not least, activists among ordinary citizens, usually the direct victims, constitute the third type of social agents for advocacy. All environmental protests involve directly affected citizens, but not all citizen participants employ advocacy strategies, which may be legal-based, technical-based, or policy suggestion-based. Citizen activists may practise legal-based advocacy by framing their opposition according to legal terms expressly stipulated in environmental legislation (e.g. the 2003 EIA law, and the 2008 Measures for Open Environmental Information) and emphasising procedural justice and right-to-information laws. They often solicit assistance from environmental lawyers to frame their legal claims. Meanwhile, citizen activists can also engage technical-based advocacy by educating themselves and producing research reports to counter governments' "official evidence." These activities are characteristic of a few anti-incineration campaigns in Beijing (Johnson 2013a). As for policy suggestion-based strategies – the highest degree of advocacy efforts – they are often employed by citizen activists in accordance with ENGOs to exert broader influence on policy change.

Overall, social agents, their participatory mechanisms, and advocacy strategies constitute a multifaceted advocacy dimension of enviro-

onmental protests. Their distinctions are not definite. Additionally, the combination of actors, mechanisms, and strategies in each case vary. Through the method of qualitative comparative analysis (QCA) detailed below, I argue that, among all relevant factors, the presence of advocacy efforts is necessary for environmental protests to compel the state to change policies towards better environmental governance.

Methodology: QCA

QCA is a set-theoretic method that helps discern necessary and sufficient causality with qualitative data in comparative research. It aspires to discover causal patterns across sociopolitical phenomena with a relatively small number of cases and allows for context-specific causal complexity, which may be both conjunctural and equifinal (Schneider and Wagemann 2012). Without attempting to overgeneralise causality outside the sample, QCA resorts to substantial knowledge and contextual backgrounds of cases obtained through in-depth case studies and avoids a black-box approach in abstract statistical models.

QCA works with binary (crisp-set QCA) or ordinal variables (fuzzy-set QCA). Due to sensitivity, limited availability, and compromised accuracy of data on contentious issues in authoritarian China, I use csQCA in this study with the Truth Table approach to organise data (Ragin 1987). Its data-analysis ability is based on Boolean algebra, with logical AND operator connoted by [*] (multiplication) and logical OR operator connoted by [+] (addition). The connotation for occurrence [1] and non-occurrence [0] of a condition [X] or the outcome [Y] are [X] and [\sim X], and [Y] and [\sim Y], respectively. The Truth Table analysis, using the fsQCA 3.0 software (Ragin and Davey 2016), produces three types of solution formulae: the complex solution, the parsimonious solution, and the intermediate solution. In the language of QCA, these solutions are differentiated by how the “logical remainder” – a combination of causal conditions that lacks empirical cases – is treated (Ragin and Sonnett 2004). I employ the complex solution in this study to avoid making assumptions about any hypothetical cases and depend exclusively on the empirical information at hand (Schneider and Wagemann 2012). The results of the analysis also report two important measures of QCA: “consistency” and “coverage.” “Consistency” assesses the degree to which the cases sharing a given condition or combination of conditions agree in dis-

playing the outcome – the theoretical strength of the subset relation – whereas “coverage” assesses the degree to which a condition or causal combination accounts for instances of an outcome – the empirical relevance of the subset relation (Ragin 2006).

Data Processing

In this study, I examine 20 cases of environmental protests that took place between 2007 and 2014 in urban China (Appendix 2). They cover an expansive geographic region of 10 provinces and municipalities and various types of unpopular projects as protest targets, including seven anti-incinerator cases (Panyu, Liulitun, Gao’antun, Asuwei, Wujiang, Tianjingwa, Wuxi), four anti-paraxylene (anti-PX) cases (Xiamen, Dalian, Kunming, Maoming), three against transport infrastructure projects (Beijing, Shanghai, Nanjing), two against nuclear power plants (Rushan, Jiangmen), and four against other power plants (Haining, Haimen, Shifang, Qidong). Data collection is mainly dependent on news reports, Chinese- and English-language academic articles, government documents of laws and regulations, publically accessible official datasets, and ENGO research reports.

The selection of these cases by no means presents the universe of environmental protests – sensitive statistics unknown to the public – from 2007 to 2014 in the whole country. Neither are these 20 cases in any way representative of the population of Chinese environmental protests based on any randomisation procedure. However, they are all significant and influential cases that have garnered a high degree of media exposure, academic interest, and social attention recently, and that might be emulated by potential environmental contenders in the future. In addition to the consideration of case impact, the decision to include or exclude any given case was based on practicality, according to information availability. Specifically, some cases were left out due to difficulties in obtaining enough empirical information for meaningful comparative analysis of important factors such as the attitude of central government, stage of the targeted project, or the policy-advocacy effort involved in the protest, while in other, more recent ones (e.g. the anti-PX protest in Jinshan, Shanghai, in 2015, or the “toxic land” case in Changzhou, Jiangsu, in 2016), adequate time had not passed to evaluate their impact on policy change by the time this article was completed.

The rest of this section introduces specifically how I process the 20 cases with the methods of csQCA. First, Table 1 below displays the 14 cases with the occurrence of policy change towards better environmental governance in the wake of popular protests, operationalised by 1) increased environmental information transparency in the subsequent one or two years, dependent on data availability, measured by the Pollution Information Transparency Index (PITI 2008/09-2015/16), or 2) environmental institutionalisation, measured by new promulgations of local environmental laws or regulations in the subsequent two years, given that institutionalisation usually lags. Since 2009, the Institute of Public & Environmental Affairs and the Natural Resource Defense Council have been assessing the country’s performance in disclosing information on pollutants and pollution sources at the prefectural level based on the Regulations of the People’s Republic of China on Open Government Information and the Ministry of Environmental Protection Measures on Open Environmental Information (trial) – the two milestone regulatory schemes for Chinese green transparency promulgated in 2008. With specified refinement each year, the assessment scope of the PITI usually consists of enterprise emission data, EIA information, routine supervision records, automatic monitoring data, and so on and so forth; these assessments are either published by the Environmental Protection Bureaus (EPB) of each respective city or acquired from information disclosure upon request, and then scored according to four evaluation criteria – systematic-ness, timeliness, comprehensiveness, and user-friendliness. As for new promulgations of local environmental laws and regulations, they are identified through keyword searches (环境保护, *huanjing baohu*, environmental protection) on Beidafabao (北大法宝), an online database of Chinese legal documents developed by Peking University. Notably, in a few cases, especially large-scale ones, the local governments did promulgate new environmentally relevant regulations after protests (e.g. Maoming, Haimen); yet, they were mainly focused on strengthening stability control and enforcing emergence measures in environmental crises, rather than geared towards public inclusion in environmental decision-making or policy-implementation processes. Thus, these new social regulations are not indicative of environmental institutional changes considered in this research.

Table 1. The 14 Cases with Policy Change as Protest Outcome

Case	PITI increase	New local environmental laws or regulations (within the following 2 years)
Xiamen (2007)	yes	Environmental Protection Regulation (Revised), Chapter 3
Dalian (2011)	no	Implementation Scheme to Carry out the Work of Environmental Education of All the People
Kunming (2013)	yes	Notice on Strengthening Environmental Monitoring and Law Enforcement
Rushan (2007)	yes	N/A
Haining (2011)	yes	Environmental Democracy: The gist of the “Jiaxing Model”
Qidong (2012)	no	Major-decision Notice on Detailed Regulations for Implementing Social Stability Risk Assessment (Nantong)
Panyu (2009)	yes	Opinion on All-round Promotion of Domestic Waste Management Work (Guangzhou)
Liulitun (2007)	no	Opinion on Encouraging Social Participation in Ecological Restoration (Beijing 2007); Opinion on All-round Promotion of Domestic Waste Management Work (Beijing 2009); Notice on the “Zhezi” Project on Promoting Domestic Waste Management Work (Beijing 2010)
Gao’antun (2008)	no	
Asuwei (2009)	yes	
Tianjingwa (2009)	no	Urban Management Bureau Experimental Scheme on Domestic Waste Sorting Work (Nanjing)
Beijing (2012)	yes	Notice on Further Strengthening the Management of EIA Institutes
Shanghai (2007)	yes	Opinion on EIA Public Participation (Trial) and three other notices concerning EIA management
Nanjing (2011)	yes	Urban Landscaping Regulations

In the next step, I translate case information into membership scores in sets (variables) of csQCA, the process of which is called calibration of set membership scores (Ragin 2008; Schneider and Wagemann 2010). As detailed in Table 2, qualitative anchors (the set membership scores of “0” and “1” in csQCA) are specified for calibrating the outcome and the five explanatory variables. Specifically, for the variable of “central position,” the positions of the State Council or Chinese national mass media (e.g. the *People’s Daily* and the *Xinhua News*

Agency) after the occurrence of protests are taken to interpret and approximate the attitude of the central government (Li, Koppenjan, and Verweij 2016). Statements in national media trying to vindicate the debated projects and criticising the “mass incidents” are indicative of the presence of support (calibrated as “1”), while statements ordering local governments to reconsider the project according to the public concerns, or pointing out an increase in public environmental awareness, or urging local officials to balance inter-governmental, competing priorities between economic development and environment protection, and so on, indicate the absence of support (calibrated as “0”). For the variable of “policy advocacy,” the condition of main interest in this study, I calibrate cases as “1” if any kind of social agents (e.g. ENGOs, public figures, or activists among citizens) engaged policy-advocacy efforts (e.g. legal-based, technical-based, public suggestion-based) to voice their opposition and advance their agenda – whether narrow or broad – before, during, and/or after protest. Cases without any documentation of such efforts are calibrated as “0.”

Table 2. Calibration of Set Membership Scores

(1) Outcome variable (O)			
Set	Indicator	Case	Score
Presence of policy change	Promulgation of new local environmental laws or regulations	Xiamen, Dalian, Kunming, Haining, Qidong, Panyu, Liulitun, Gao’antun, Asuwei, Tianjingwa, Beijing, Shanghai, Nanjing	1
	Increase in local environmental information transparency	Xiamen, Kunming, Rushan, Haining, Panyu, Asuwei, Beijing, Shanghai, Nanjing	1
Absence of policy change	No promulgation of new local environmental laws or regulations; AND no increase in environmental information transparency	Maoming, Jiangmen, Haimen, Shifang, Wujiang, Wuxi	0

(2) Variable: protest scale (L)			
Set	Indicator	Case	Score
Large-scale	Protests with more than 5,000 participants ^{a)}	Xiamen, Dalian, Maoming, Haimen, Shifang, Qidong, Wujiang, Wuxi	1
Small-scale	Protests with fewer than 5,000 participants	Kunming, Rushan, Jiangmen, Haining, Panyu, Liulitun, Gao'antun, Asuwei, Tianjingwa, Beijing, Shanghai, Nanjing	0
(3) Variable: protest form (V)			
Set	Indicator	Case	Score
Violent	Presence of casualties or injuries	Maoming, Haining, Haimen, Shifang, Qidong, Wuxi	1
Peaceful	Absence of casualties or injuries	Xiamen, Dalian, Kunming, Rushan, Jiangmen, Panyu, Liulitun, Gao'antun, Asuwei, Wujiang, Tianjingwa, ^{b)} Beijing, Shanghai, Nanjing	0
(4) Variable: project stage (E)			
Set	Indicator	Case	Score
Early	Planning / research stages, or initial construction	Xiamen, Maoming, Rushan, Jiangmen, Haimen, Shifang, Qidong, Panyu, Liulitun, Asuwei, Wujiang, Tianjingwa, Beijing, Shanghai, Nanjing	1
Late	Substantial investments, or before / trial / in operation	Dalian, Kunming, Haining, Gao'antun, Wuxi	0
(5) Variable: central position (S)			
Set	Indicator	Case	Score
Presence of support	Presence of support for the project	Dalian, Kunming, Maoming, Gao'antun	1
Absence of support	Absence of support, or silence, or contradictory position	Xiamen, Rushan, Jiangmen, Haining, Haimen Shifang, Qidong, Panyu, Liulitun, Asuwei, Wujiang, Wuxi, Tianjingwa, Beijing, Shanghai, Nanjing	0

(6) Variable: policy advocacy (A)			
Set	Indicator	Case	Score
Present of advocacy	Presence of policy advocacy efforts by ENGOs activists, political elites, academics, media campaigners, and/or other involved protesters	Xiamen, Dalian, Kunming, Rushan, Haining, Qidong, Panyu, Liulitun, Gao’antun, Asuwei, Tianjingwa, Beijing, Shanghai, Nanjing	1
Absence of advocacy	Absence of policy advocacy efforts by above-mentioned activists	Maoming, Jiangmen, Haimen, Shifang, Wujiang, Wuxi	0

Note: a) Numbers of protests can only be approximated since there is no official data on this. I work with the cross-over point of 5,000 participants
 b) Although violence occurred, the influence was limited (Li, Koppenjan, and Verweij 2016).

Table 3. The Truth Table Generated by the fs/QCA Software

Row	Conditions					Outcome	Cases
	L	V	E	S	A		
1	0	0	1	0	1	1	Rushan, Panyu, Liulitun, Asuwei, Tianjingwa, Beijing, Shanghai, Nanjing
2	0	0	0	1	1	1	Kunming, Gao’antun
3	0	1	0	0	1	1	Haining
4	1	0	1	0	1	1	Xiamen
5	1	1	1	0	1	1	Qidong
6	1	0	0	1	1	1	Dalian
7	1	1	1	0	0	0	Haimen, Shifang
8	1	1	0	0	0	0	Wuxi
9	0	0	1	0	0	0	Jiangmen
10	1	0	1	0	0	0	Wujiang
11	1	1	1	1	0	0	Maoming

Note: L=protest scale, V=protest form, E=project stage, S=central support, A=policy advocacy, O=outcome, i.e. policy change in environmental governance.

After this procedure, the calibrated data was able to be entered into a dichotomous data matrix (Appendix 3), ready for use in the fsQCA software with the Truth Table Algorithm, as displayed in Table 3. Finally, the Truth Table Algorithm produces the results of conjunctural causal paths from environmental protests to policy changes in environmental governance, which include the necessary conditions (Table 4) and sufficient solutions (Table 5).

Analyses and Results

Occurrence of Environmental Policy Change: Necessity Analysis

In the necessity analysis, the threshold of “1” is used to exclude all contradictory configurations (Schneider and Wagemann 2012). As the results in Table 4 indicate, policy changes occur only when the protests involve advocacy efforts during environmental campaigns. Other factors, with consistency rates less than “1,” fall short of being a necessary condition for the outcome.

Table 4. Analysis of Necessary Conditions for Policy Change

Conditions	Consistency	Coverage
L	0.21	0.38
~L	0.79	0.92
V	0.14	0.33
~V	0.86	0.86
E	0.71	0.67
~E	0.29	0.80
S	0.21	0.75
~S	0.79	0.69
A	1.00	1.00
~A	0.00	0.00

Note: The “~” in front of the letter means non-occurrence or absence of the condition.

Among the 14 cases where policy-advocacy efforts are present alongside the environmental protests (Table 3, shaded area), a variety of activists employed multiple strategies to varying degrees to corroborate their oppositions. For instance, the anti-incinerator cases of Panyu

and Asuwei and the anti-PX protest in Kunming are most distinct with their advocacy direction at promoting broad public interest and providing policy suggestion (Johnson 2013a, 2013b; Steinhardt and Wu 2016), while the campaign against the nuclear power plant in Rushan still resembles a typical NIMBY case, with its legal- and media-based advocacy energy strictly confined to opposing a specific siting decision (Zeng, Dai, and Wang 2014). As a result, the Panyu, Asuwei, and Kunming cases harvested both the promulgation of new environmental regulations and increased implementation of information-transparency policy after protests (see Table 1). Furthermore, the Public Consultative and Supervision Committee for Urban Waste Management was established in Guangzhou (Wong 2016), which highlights the profound impact of the Panyu protest on public participation in environmental governance at a higher institutional level. In comparison, although the city of Weihai, where the Rushan protest took place, improved in its information-transparency record (the PIII score increased from “45.4” in 2008 to “51.1” in 2009/10), no environmental law or regulation was issued locally to consolidate the fruit of the campaign.

As for the actors of advocacy, there are three salient types: First, when the tide of protests ebbed, NGOs, realising that relocating PX projects or incinerators to remote or suburban areas after urban opposition is not a sustainable solution, pick up the undertaking of policy suggestion beyond parochial interest. In the wake of the Panyu protest, Beijing-based NGOs such as Friends of Nature, Green Beagle Environmental Institute, and the Nature University provided mentorship for the campaigners in Guangzhou to redirect their focus onto policy recommendations for the municipal government. A new local NGO, Eco Canton, was established in 2012 as a formal organisational structure to carry out long-term, cross-regional policy initiative for urban waste management (Lang and Xu 2013; Wong 2016; Steinhardt and Wu 2016). Similarly, after the Kunming protest, two influential and active local NGOs, Green Watershed and Green Kunming, launched an advocacy coalition – also with NGOs in Beijing – to push for a more transparent decision-making process with public monitoring and consultation in deciding any future PX projects.

In contrast to these high-profile, post-protest advocacy efforts, however, many other NGOs with fewer resources and connections

limit themselves to the realm of conservative strategies, focus on localised concerns, and stay vigilant about any “mass incidents.” For instance, the Ocean Commune for Environmental Protection in the Rushan case collected thousands of signatures of opposition online and submitted them to the State Environmental Protection Administration (SEPA) (He 2008). The Dalian Association of Environmental Protection Volunteers conducted evidence collection at the site of the broken dyke near the PX plant before the Dalian protest (*Minzhu yu Fazhi* 2011). In the Xiamen case, the Green Cross Association, the city’s only ENGO, publicly adopted a neutral stance on the matter. In the Liulitun protest, Beijing NGOs distanced themselves from the campaign despite being approached by residents (Johnson 2010).

The second type of salient advocacy actor is public figures, such as political elites, journalists, and entertainers, who have played an important role in encouraging public discussion and assembling social momentum to initiate collective action or reinforce the campaign. For instance, in the Xiamen case, Zhong Xiaoyong, a local blogger and columnist, was devoted to publishing media reports in the initial stages of the campaign. In addition, Zhao Yufen, a Xiamen University professor, submitted a proposal to the CPPCC’s annual meeting, together with 100 other members, to question the adjacency of the PX plant to residents (Zeng and Jiang 2008). It was only then that the citizenry became aware of the project, which was hitherto quietly under construction. The Nanjing case garnered sympathy and support from sports commentators, movie directors, television hosts, and even a political commentator and member of Taiwan’s Kuomintang Party (中国国民党, Zhongguo Guomindang), which has historically been associated with Nanjing (Meng 2011). NPC representatives, CPPCC members, and former officials also played similar roles in the Qidong case (Lu and Chan 2016), the Liulitun case (Johnson 2013a), and the Shanghai case. Especially in the anti-maglev protest in Shanghai, Wang Mengshu, an NPC representative and a renowned academician at the Chinese Academy of Engineering, not only called for broad social opposition based on his political prestige but made good use of his technical expertise to challenge the scientific reliability of the project (Finance.ifeng 2009).

Activists among ordinary citizens comprise the third type of indispensable actors in policy advocacy. In the cases of Panyu, Liulitun, Asuwei, and, to a lesser degree, Gao’antun, citizen campaigners have

gradually acquired contentious savvy, become legal and technical experts on waste disposal through self-study and networking, and shifted their strategy from a NIMBY-style opposition to broad advocacy on consultative incineration policy (Johnson 2013a, 2013b). In Nanjing, citizen representatives of the affected homeowners framed their opposition towards the Tianjingwa project on legal terms and repeatedly invoked the EIA law to demand public hearings during the prolonged contentious process (Yang 2009). And in the Shanghai case, the solid middle-class community of affected residents, with a strong sense of being part of a global society, even wrote to German chancellor Angela Merkel and requested her intervention, given that German companies Siemens and ThyssenKrupp were part of the maglev-construction consortium they were fighting against (Stern 2013: 92).

Overall, these cases of protest–advocacy linkage in environmental campaigns demonstrate how one-off street actions can evolve into policy advocacy for environmental transparency and public participation in policymaking. The ENGOS, public figures, and active citizens, resonating with and supplementing each other at different aspects in their advocacy efforts before, during, and after protests, have achieved successful results in the “policy war” at the local level. Generally speaking, although ENGOS usually cautiously estrange themselves from local protests for the sake of their very survival, they are more passionate about general environmentalist interest and better positioned to promote public policy in an afterward-intervening fashion. Public figures and all sorts of political as well as social elites are most effective in exposing the controversial project, arousing public attention, and playing a beforehand-initiating role in the campaigns. As for active citizens, they may penetrate the whole process and flexibly exert their collective clout on the direction of issues at hand.

Occurrence of Environmental Policy Change: Sufficiency Analysis

As for sufficient causality for the occurrence of policy change after environmental protests (Table 5), the Truth Table generates the following solutions: $\sim V * E * \sim S * A + \sim V * \sim E * S * A + L * E * \sim S * A + \sim L * V * \sim E * \sim S * A \rightarrow O$. This complex solution formula, in the format of “multiple conjunctural causation” (Ragin 1987), contains four combinational paths, each of which leads sufficiently to the occur-

rence of policy change. In other words, except the presence of advocacy (A), which is the necessary condition according to the necessity analysis above, all other factors are insufficient (I) but non-redundant (N) parts of a condition that is itself unnecessary (U) but sufficient (S) for the occurrence of environmental policy change (the so-called INUS causes in Mackie 1980). The perfect consistency scores of these four paths (i.e. all “1”s) denote that there are no contradictions in the data.

Table 5. Analysis of Sufficient Conditions for Policy Change: Complex Solution

	Raw coverage ^a	Unique coverage ^b	Consistency	Cases
1. $\sim V^*E^*\sim S^*A$	0.64	0.57	1	Xiamen, Rushan, Panyu, Liulitun, Asuwei, Tianjingwa, Beijing, Shanghai, Nanjing
2. $\sim V^*\sim E^*S^*A$	0.21	0.21	1	Dalian, Kunming, Gao’antun
3. $L^*E^*\sim S^*A$	0.14	0.07	1	Xiamen, Qidong
4. $\sim L^*V^*\sim E^*\sim S^*A$	0.07	0.07	1	Haining
Solution coverage ^c : 1				
Solution consistency ^d : 1				

Note: a. measures the proportion of memberships in the outcome explained by each term of the solution.
 b. measures the proportion of memberships in the outcome explained solely by each individual solution term.
 c. measures the proportion of memberships in the outcome that is explained by the complete solution.
 d. measures the degree to which membership in the solution, i.e. the set of solution terms, is a subset of membership in the outcome. For calculation details, see fa/QCA manual.

Path 1, which is the combination of peaceful protest, early-stage project, absence of central support, and policy-advocacy efforts (1. $\sim V^*E^*\sim S^*A$), captures causal dynamics in nine out of the 20 cases in total, and thus reports the highest coverage score in the data. Together with Path 3, which is the combination of large-scale protest, early-stage project, absence of central support, and policy advocacy (3. $L^*E^*\sim S^*A$), these two causal combinations account for almost 80

per cent of the cases (11 out of 14) with the occurrence of policy change. These findings are consistent with conventional wisdom, which maintains that environmental protests are more likely to “win the project battle” if targeted projects are in their early stage and if the central government does not evidently support the project. In other words, treating either policy change or decision change as protest outcome, results demonstrate that project stage and central support tend to be more important conditions than the scale and form of protest. Here the only added value seems to be that when protests against early-stage projects, without central support, are joined with additional advocacy efforts, they are very likely to win both the “project battle” and the “policy war.”

However, the Asuwei case is somewhat distinct, as the protest did not lead to a clear-cut decision change. The incinerator project they targeted stayed in limbo for only a few years after the protest and was resumed in 2015 (Wei 2015). Yet its impact on local environmental governance at the policy level is manifest. In 2010, the Beijing municipal government (2010) issued the Zhezi Project on Promoting Domestic Waste Management Work, which underlined the necessity of establishing an information-transparency regime for waste facilities. The Zhezi project denotes the type of important administrative task in Chinese governments that is featured with necessity of completion within a specified time limit. It often involves coordination among multiple governmental departments and demonstrates the importance the government attaches to the issue. Meanwhile, the capital’s PITI score also increased significantly after the Asuwei protest (from “43.5” in 2009/10 to “72.9” in 2011). As argued above, this case suggests the unreliability of treating decision change as protest outcome solely and highlights the unique value of taking policy change into consideration.

If inconsistency between the “project battle” and “policy war” in the assessment of protest outcome is not perceivable in most cases covered by Paths 1 and 3, the three cases covered by Path 2 can most evidently expose the salience of such a discrepancy. The cases of Dalian, Kunming, and Gao’antun, combining conditions of peaceful protest, late-stage project, central support, and policy advocacy (2.~V*~E*S*A), all failed to pressure local governments to cancel or relocate the projects. Specifically, the targeted projects were either under substantial investment (Kunming) or in the operational stage

(Dalian, Gao'antun). Moreover, the central government signalled its support of the projects in all three cases: in the Gao'antun case, the State Council supported SEPA's position of not disclosing the full EIA report to residents, given company secrets (Johnson 2013a); in the Dalian case, the National Development and Reform Commission framed the protest as a result of unsafe production rather than environmental hazard; in the Kunming case, national media propagated the harmlessness and economic necessity of the project (Li, Koppenjan, and Verweij 2016). In spite of adverse conditions and the futility of attempting to cause a change in the government's decision, these three protests succeeded in ushering in better environmental governance at a policy level. The Kunming Municipal Party Committee and government promulgated the Notice on Strengthening Environmental Monitoring and Law Enforcement in 2015 (Kunming Municipal Party Committee 2015), with emphasis on information disclosure. The PITI score of Kunming also increased in the next year (from "13.8" in 2013 to "30.2" in 2014/15; note that the PITI adopted a few major adjustments of assessment for the year of 2013 and onward). The Dalian government initiated new implementation measures on environmental education in 2013 especially geared towards public participation of citizenry, social media, and NGOs (Dalian Municipal Government 2013). And the Beijing government, concerned with the case of Gao'antun, issued the Suggestion on All-Round Promotion of Domestic Waste Management Work in 2009 (Beijing Municipal Party Committee 2009), which also mentioned the importance of collecting public opinion and expanding public participation for the policymaking process of urban waste management.

Lastly, Path 4 covers the single case of Haining, the combination of small-scale and violent protest, late-stage project, absence of central support, and advocacy efforts (4. $\sim L^*V^* \sim E^* \sim S^*A$). The Haining protest is worthy of exceptional explanation due to the afterward-intervening role of the Jiaying Confederation of Environmental Protection (JCEP), a government-organised NGO. In this case, advocacy efforts by local NGOs or residents were scant except that the JCEP reportedly investigated the pollution problem after the protest. This symbolic motion was in tune with local officials' environmental agenda for political performance of that time. Later on, the so-called "Environmental Democracy of the Jiaying Model" was broadly propagandised and promoted across Zhejiang Province to encourage local

integration of administrative and civil resources for environmental protection (Shen 2014).

Non-Occurrence of Environmental Policy Change: Necessity and Sufficiency

The results of necessity and sufficiency analyses of the protests with no policy change are displayed in Appendices 4 and 5, respectively, as supplements to this study. The absence of advocacy efforts is the necessary condition for policy changes not to occur in the aftermath of environmental campaigns. The complex solution to non-occurrence of policy change is $\sim V * E * \sim S * \sim A + L * V * \sim S * \sim A + L * V * E * \sim A \rightarrow \sim O$.

For the six cases of no policy change, governments made concessions to protesters and changed their decisions in three instances: Maoming, Shifang, and Wuxi. For the remaining three cases – Jiangmen, Haimen, and Wujing – governments also suspended projects to appease heightened social grievance but resumed them later. These empirical cases clearly demonstrate that protests, especially large-scale ones (Wuxi, Maoming, Shifang, Haimen), may achieve volatile success in the “project battle” but capture no spoils in the “policy war.” Regrettably, without bringing in policy improvement, these one-off protests can hardly exert long-term clout on local environmental governance.

Conclusion

This article has examined the protest–advocacy nexus in environmental contention and the resultant policy change at the level of Chinese local states. It has contributed to the scholarly debates on environmental protests and politics in China in terms of three important aspects. First, it distinguishes between decision change and policy change, and thereby specifies the difference between local officials’ one-off compromises on particular unwelcome projects, which had previously been somewhat misleadingly lumped under policy change, and longer-term, institutionalised change in environmental governance. As shown in Table 6, the two types of contentious outcomes are contradictory to each other in seven out of the 20 cases under this study (the bottom left cell and the top right cell). Even when they

appear in conformity, the causal mechanisms linking protest conditions to these two types of outcomes may significantly differ. It therefore makes sense to conceptualise environmental contentions with distinct achievements in “project battles” and “policy wars.”

Table 6. Protest Outcomes: Project Battle vs. Policy War

Policy war / Project battle	Winning	Losing
Winning	Xiamen, Rushan, Panyu, Liulitun, Tianjingwa, Beijing, Shanghai, Nanjing, Haining, Qidong	Maoming, Wuxi, Shifang
Losing	Dalian, Kunming, Gao’antun, Asuwei,	Jiangmen, Wujiang, Haimen

Note: In the cases of Kunming, Jiangmen, Wujiang, and Haimen, projects were suspended after protests but resumed later. In the case of Asuwei, the decision about the project remained uncertain for a few years after the protest until was resumed in 2015.

Second, rather than depending on ad hoc and unstable decision change to assess protest outcome, this study has resorted to policy change – operationalised by improvement in transparency-policy implementation and new promulgation of environmental rules – as the indicator of a profound protest for advancing environmental governance. Using the method of csQCA, it has identified advocacy efforts as the necessary condition for policy change and delineated four sufficient paths, each combining different conventional factors of popular protest in China, for environmental protests to be translated into institutionalised policy adjustments. Admittedly, QCA based on the 20 cases cannot be stretched to make a sweeping causal argument that attributes policy change to the protest–advocacy linkage solely; and the findings with this method have by no means discredited the effect of conventional variables (scale, form, cost, and the attitude of the central government) in the complex and holistic political processes of popular protests. Yet my study has stressed the necessity – rather than sufficiency – of the advocacy variable for policy change, and explored plausible micro-mechanisms of advocacy

strategies with methodological refinement, which other research has begun to uncover but not yet been able to specify.

Third, the present study has exhibited a multifaceted realm of various social agents (ENGOS, public figures, activists among ordinary citizens) practising manifold strategies (legal-based, technical-based, policy suggestion-based) and mechanisms (beforehand-initiating and afterward-intervening) for policy advocacy, which goes beyond grievance-based, NIMBY-natured local contentions. It thereby enriches the new insights on a trend of mutually reinforcing dynamics of protest and policy advocacy that highlight the role of social forces in inducing environmental policy change, even though they remain weakly coordinated and decentralised.

How significant might the emerging protest–advocacy linkage be for environmental politics and state–society relations in authoritarian China in general? In one sense, the prospect of increased and deepened protest–advocacy ties can be limited. In an increasingly restless society under one-party rule, ENGOS have to abstain from organising popular protests directly and maintain a distance from them, lest their very survival and delicate niche of “embeddedness” be jeopardised (Ho and Edmonds 2007). Meanwhile, except for a few influential ones like the Friends of Nature and Green Watershed, ENGOS that are capable, resourceful, and determined enough to exert clout in policy change are pitifully rare across the country. In addition, the involvement of government-organised ENGOS after the protest, such as the JCEP in the Haining case, may lead some cautious observers to doubt the genuine nature of social agents engaging popular power and argue for the mechanism of state co-optation instead.

On the positive side, however, the study suggests that the sobering sociopolitical condition of Chinese ENGOS in China has also stimulated them to seek broad strategic alliances with green-minded elites, media, and activists among ordinary citizens, and to piggyback on local people’s collective power to renegotiate the terms of local environmental governance of the state. This is not to say there has been a retreat of the state; instead, the evidence emphasises the role of social collaboration with the state and stresses a socially created aspect of environmental authoritarianism. Moreover, going beyond the established argument for fragmentation and pluralism of Chinese authoritarianism, which contends that governmental agencies or regime insiders seamlessly ally with NGOs, the public, and the press to

oppose certain developmental projects (Mertha 2008), my study implies that, even when sympathetic regime insiders are hard to identify and the central government is supportive of the projects (e.g. Dalian, Kunming, Gao'antun), grievance-based local protests – with the contentious orientation shifting from parochial interests to public concerns at the institutional level – can still succeed in improving policy in spite of failing to stop the projects themselves. Collectively and gradually, environmental activism in the form of the protest–advocacy conjunction may amount to an indispensable dimension of the state-led yet society-shaped Chinese environmental authoritarianism.

Finally, although due to the limit of the methodological design of this study I have refrained from claiming that the protest–advocacy linkage influences national policy, the findings here have obvious implications for environmental governance in far-reaching regions beyond those directly affected by the protests. Contentions diffuse, and so do public policies (Tarrow 2010; Zhang 2015; Bondes and Johnson 2017; Zhu 2017). Horizontally, in the aftermath of the high peak of anti-incinerator protests in 2009, the municipal governments in Guangzhou, Beijing, and Nanjing all promoted “Domestic Waste Management Work,” a policy response to respective protests locally but also a response that suggests that learning processes and spillover effects of popular resistance and public policymaking can transcend localities. Vertically, an influential, large-scale protest might induce an upward scale shift in policy response at different governmental levels. For instance, after the protest in Qidong, which is under the jurisdiction of Nantong Municipality, not only did the Nantong EPB issue the Major-Decision Notice on Detailed Regulations for Implementing Social Stability Risk Assessment, but the Jiangsu Provincial Department of Environmental Protection (2012) promulgated the Suggestions on Feasibly Strengthening Public Participation in Environmental Protection of Construction Projects, which further specified the announcement, questionnaire, and media coverage requirements for EIA approval. What is more, the Ministry of Environmental Protection also issued a new requirement promptly after the protest that all EIA reports submitted to EPBs should be accompanied by an abridged version made directly available to the public (Feng and Wang 2012). These implications, therefore, might be indicative of the directions for future research on the dynamics of protest and policy diffusions. It would be particularly important for such research to

expound on the role of the contentious protest–advocacy linkage in promoting transregional and supra-local policy change in the environmental governance of the Chinese state.

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Appendix

Appendix 1. Summary of Findings in Li, Koppenjan, and Verweij (2016)

Conditions of the protest	Sufficient paths	Outcome
<ul style="list-style-type: none"> • Scale (<i>large or small</i>); • Form (<i>violent or peaceful</i>); • Cost (<i>early or late</i>); • Position of the central government (<i>support or not</i>) 	1) absence of central support + presence of large-scale scale + strong violent protests + late stage of the project 2) absence of central support + absence of violence + early stage of the project 3) absence of central support + early stage of the project + absence of large-scale protests	Occurrence of government decision change (i.e. project cancellation or relocation)
	<i>Necessary</i> condition: absence of central support	

Appendix 2. List of the 20 Cases of Chinese Environmental Contention in this Study

1. *The Xiamin Case*

In June 2007, tens of thousands of citizens peacefully rallied against a PX plant, which was under its early construction stage, in Xiamen, Fujian Province. The protest forced the government to relocate the project to Zhangzhou, an inland city in the province.

2. *The Dalian Case*

In August 2011, a storm broke the dyke around an operational PX plant, sparking the fear of toxic leakage and a peaceful protest of more than 10,000 residents in Dalian, Liaoning Province. After the city government's initial promise to close the plant, operation was later resumed.

3. *The Kunming Case*

In May 2013, two large protests took place against a PX project in the An'ning Industrial Park in Kunming, Yunnan Province. The mayor announced the suspension of the project, but later the planning of the project was resumed.

4. *The Maoming Case*

In March 2014, local citizens in Maoming, Guangdong Province, rallied in front of the municipal government compound to protest against a PX project. The estimation of overall participants varies from a few thousand to ten thousand. Project was suspended after protest upon further investigation.

5. *The Rushan Case*

From March to December in 2007, the property owners of the Yintan Community in Rushan, Shandong Province, mobilized against the Hongshiding nuclear power project and challenged its controversial siting. The number of participants is unknown but estimated to be small. The project was cancelled in the end.

6. *The Jiangmen Case*

In July 2013, about one thousand residents took to the streets in Jiangmen, Guangdong Province, and gathered outside the municipal government's headquarters against a proposed uranium-processing facility. The city's Communist Party chief later promised to scrap the project.

7. *The Panyu Case*

From October to December in 2009, about 500 residents peacefully protested against an incineration power plant in Panyu, Guangdong Province. A network of activists and groups thrived, attracting public attention and proposing policy suggestions. The local government was pressurized to relocate the project.

8. The Liulitun Case

In June 2007, a peaceful demonstration of more than 1,000 local residents took place in front of the headquarter of the State Environmental Protection Administration (SEPA) in Beijing to protest against the Liulitun Incinerator in Haidian District. Eventually the local government confirmed that the project would be relocated.

9. The Gao’antun Case

From August to October in 2008, residents mobilized against the Gao’antun Incinerator in Chaoyang District, Beijing. The project was virtually completed by the time of protest. Residents focused their opposition on legal issues. Several peaceful “strolls” of a few hundred protesters were organized. Ultimately, they failed to prevent the incinerator from operating.

10. The Asuwei Case

In September 2009, more than one hundred residents of the Aobei Community in Changping District, Beijing, converged at the Agricultural Exhibition Center to protest against the Asuwei Incinerator. Later, activists proposed waste management policy suggestions. The project remained in limbo for several years and was re-started in 2015.

11. The Wujiang Case

In October 2009, as many as twenty thousand residents in Wujiang, Jiangsu Province, occupied an incinerator plant and confronted several thousand policemen. The city government suspended the construction after protest. Yet reports show operation was resumed in 2016.

12. The Tianjingwa Case

In February 2009, about 100 residents protested against the Tianjingwa Incinerator in Nanjing, Jiangsu Province. Some people from local EPB used force to suppress it. The plant under planning was finally relocated.

13. The Wuxi Case

From April to May in 2011, a large-scale protest of about 10,000 local villagers occurred against a waste incinerator, which was in its trial operation, in Wuxi, Jiangsu Province. There was substantial violence in the confrontation between protesters and anti-riot police. Eventually, the project was dismantled.

14. The Beijing Case

From June to December in 2012, in Chaoyang District, Beijing, over 100,000 residents in 34 neighbourhoods along the proposed Beijing–Shenyang high-speed railway (HSR), in a variety of public protest activities, including a demonstration of more than 1,000 participants, decried EIA fraud. As a response, the Ministry of

Environmental Protection rejected the third EIA report of the project and commanded further adjustment.

15. The Shanghai Case

From March to April in 2007, worried about a 22.5-meter safety zone, residents along the proposed Shanghai–Hangzhou maglev line in Minhang District, Shanghai, organised weekly demonstrations of more than 500 participants at the city and district governments. The project was eventually cancelled.

16. The Nanjing Case

In March 2011, a few hundred citizens gathered for a peaceful sit-in in front of the city library in Nanjing, Jiangsu Province, to protest against the cutting down of phoenix trees, regarded as the symbol of the city, to make way for a new subway line. On the following day, the local authority ordered that the line be altered.

17. The Haining Case

In September 2011, approximately 500 local villagers protested against a solar panel plant (JinkoSolar) in Haining, Zhejiang Province, which was accused of contaminating a nearby river and causing the high cancer rate of the village. Some violence occurred during the protest. The plant was ordered to suspend production until it constructed a proper waste-processing facility.

18. The Haimen Case

In December 2011, thousands of residents blocked the freeway in Haimen, Guangdong Province, to protest against a coal-fired power plant. Violence occurred in the confrontation with police. The project was temporarily suspended after the protest but was reportedly resumed later.

19. The Shifang Case

In July 2012, thousands of protesters against a local copper plant in Shifang, Sichuan Province, which was in its planning and early construction stage, stormed a government building and smashed vehicles. Police reportedly shot tear gas and stun grenades into the crowd. The local government then announced termination of the project's construction.

20. The Qidong Case

In July 2012, thousands of citizens in Qidong, Jiangsu Province, took to the streets, demanding the cancellation of the Oji Paper Company's pipeline project, which would dump industrial waste water into the neighboring sea. Protests ended after the government promised to permanently scrap the project.

Appendix 3. Data Matrix

Row	Case ID	Conditions					Out- come
		L	V	E	S	A	O
1	Xiamen	1	0	1	0	1	1
2	Dalian	1	0	0	1	1	1
3	Kunming	0	0	0	1	1	1
4	Maoming	1	1	1	1	0	0
5	Rushan	0	0	1	0	1	1
6	Jiangmen	0	0	1	0	0	0
7	Panyu	0	0	1	0	1	1
8	Liulitun	0	0	1	0	1	1
9	Gao’antun	0	0	0	1	1	1
10	Asuwei	0	0	1	0	1	1
11	Wujiang	1	0	1	0	0	0
12	Tianjingwa	0	0	1	0	1	1
13	Wuxi	1	1	0	0	0	0
14	Beijing	0	0	1	0	1	1
15	Shanghai	0	0	1	0	1	1
16	Nanjing	0	0	1	0	1	1
17	Haining	0	1	0	0	1	1
18	Haimen	1	1	1	0	0	0
19	Shifang	1	1	1	0	0	0
20	Qidong	1	1	1	0	1	1

Note: L=protest scale, V=protest form, E=project stage, S=central support, A=policy advocacy, O=outcome, i.e. policy change in environmental governance.

Appendix 4. Analysis of Necessary Conditions for no Policy Change

Conditions	Consistency	Coverage
L	0.83	0.63
~L	0.17	0.08
V	0.67	0.67
~V	0.33	0.14
E	0.83	0.33
~E	0.17	0.20
S	0.17	0.25
~S	0.83	0.31
A	0.00	0.00
~A	1.00	1.00

Appendix 5. Analysis of Sufficient Conditions for no Policy Change: Complex Solution

	Raw coverage	Unique coverage	Consistency	Cases
$\sim V * E * \sim S * \sim A$	0.33	0.33	1	Jiangmen, Wujiang
$L * V * \sim S * \sim A$	0.50	0.17	1	Wuxi, Haimen, Shifang
$L * V * E * \sim A$	0.50	0.17	1	Maoming, Haimen, Shifang
solution coverage: 1				
solution consistency: 1				

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