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Spatial meaning-making and urban activism: Two tales of anti-PX protests in urban China

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ABSTRACT

Urban space plays an important role in shaping the meaning-making process in relation to urban activism, especially for disorganized, sponta-neous, and short-lived protests occurring in authoritarian regimes. Taking protests against locally unwanted land use (LULU) projects as an example, this article examines how urban space shapes the meaning-making process in relation to 2 anti-paraxylene (PX) protests in Kunming and Maoming. Particular attention is paid to how residents' interpretations of the hazards of PX shaped the meaning-making process on social media. In the case of Kunming, a city with a long history of natural environmental conservation, the primary frame employed by residents was environment and health risks. In the case of Maoming, a large petrochemical industrial center with severe air pollution, residents expressed their opposition toward the PX project by emphasizing strong distrust in local government. Participants' differentiated meaning-making processes were shaped by the dual space of cities, namely physical conditions and associated meanings and place-bounded historical memories of daily life. This article contributes to the scholarship on cities and social movements by integrating the theories of space/place and the theory of framing to analyze the spatial meaning-making process in relation to urban activism in China and in transitional economies in general.

The studies of urban movements have long been isolated from the studies of social movements (Nicholls, 2008; Pickvance, 2003). Recently, scholars of urban studies have devoted significant effort to bridge the two fields by bringing cities into social movement studies (Nicholls, 2008, 2009; Uitermark, Nicholls, & Loopmans, 2012). Although these works are insightful, they represent a partial theory because they tend to equate the qualities of cities to networks and thus cannot satisfactorily explain the meaning-making process undergirding urban activism. To avoid rigidity in theorizing the qualities of cities (Allegra et al., 2013), this article conceives cities as a social space in which protests occur. Specifically, cities are seen as a dual structure that provides dwellers not only physical materiality but also past sociospatial memories for the present spatial meaning-making in relation to urban activism.

This synthesis between the theories of space/place (e.g., Lefebvre, 1991; Routledge, 1994) and the theory of framing (Benford & Snow, 2000) contributes to the scholarship on space/cities and social movements given that disciplinary barriers between human geography and social movement studies remain strong (Miller, 2000; Nicholls, 2007). As Sewell (2001) pointed out, social movement studies only episodically investigate the constitutive role of space in social movements. When they do take space into consideration, most studies mainly focus on mobilization and neglect the meaning-making process.

Disciplinary isolation has, to a great degree, limited our understandings of collective protests against locally unwanted land use (LULU) projects such as incinerators and chemical plants, a common type of urban movement (Castells, 2002). The explanatory inadequacy is especially revealing for protests in authoritarian regimes where professionalization of movements is very rare. In China, the authorities have been vigilant to attempts by individuals or social organizations in coordinating or organizing "mass disturbances" (Ho & Edmonds, 2008), and contention usually, albeit not always, unfolds as disorganized, spontaneous, and short-lived events (Chen & Kang, 2015; Johnson, 2010).[1] In these circumstances, social media have been used to aggregate personalized opinions and mobilize protests without referring to particular leaders or organizations (Y. Yang, 2016). Personal preference revelation on social media is a crucial act of framing to facilitate the development of popular protests in nondemocratic societies (Huang & Sun, 2016).

Though a number of studies have examined the meaning-making processes of opposition against potentially hazardous facilities in urban China (Lu & Chan, 2016; Munro, 2014; Van Rooij, 2010), they either focus on the aspatial sociopolitical mechanisms (Li, Koppenjan, & Verweij, 2016) or treat protests as homogenous events from a diffusion perspective (Zhu, 2017). In other words, extant studies neglect the nexus between cities and protest events and thus fail to understand the spatial variation of LULU protests.

This article brings cities back into urban activism studies and contends that the dual structure of urban space, in terms of its physical conditions and associated meanings, and place-bounded historical memories strongly shape people's sense-making of their living environment. When controversial siting disrupts place identity, urban space, by providing residents with material and symbolic references to interpret, evaluate, and cope with controversial facilities, shapes the spatial meaning-making process undergirding local opposition actions. This article draws on two anti-paraxylene (PX) protests in Kunming and Maoming to demonstrate the importance of the city–event nexus in shaping differential meaning-makings in relation to collective protests on social media platforms. It shows that the ostensibly similar mobilization process (Zhu, 2017) veils spatially bounded understandings of PX facilities and related activism on the part of local residents in these two cities. In doing so, this article contributes to the scholarship on cities and urban activism in nondemocratic settings and beyond.

Literature review

Environment-related protests in urban China

The past decade has witnessed the rise of environment-related protests in urban China. According to the Minister of Environmental Protection, the number of environmental mass disturbances had experienced an average annual increase of 29% from 1996 to 2011 (Ta Kung Pao, 2012). Many of these incidents consist of local opposition against the siting or construction of potentially hazardous facilities. This phenomenon is often referred to as the NIMBY (not-in-my-backyard) syndrome, which is driven by emotional or selfish impulses (Michaud, Carlisle, & Smith, 2008). However, the NIMBYism label has been challenged by researchers who found mixed incentives and goals among protest participants (Johnson, 2010; Lu & Chan, 2016). In fact, a number of factors have contributed to the rise of environment-related protests in urban China, including infrastructure investment boom due to rapid urbanization (Gu, 2016), rising environmental awareness among middle-class homeowners (G. Lang & Xu, 2013), and limited institutionalized channels for public consultation and participation (Johnson, 2013; W. Li, Liu, & Li, 2012).

Most environmental protests are informally organized with the aid of the Internet or Short Message Service and are mostly spontaneous and short-lived. In a restrictive political context, environmental nongovernmental organizations (NGOs) tend to self-censor and stay away from politically sensitive activities and thus play a limited role in protest organization (Ho & Edmonds, 2008; Spires, 2011; X. Sun, Huang, & Yip, 2017; Y. Yang, 2005). In the face of the authority's tight

control over civil society organizations or even individual protest leaders, social media have emerged as an important platform for popular protests. Social media provide a real-time, low-cost communication tool for information dissemination, deliberation, and mobilization (Huang & Yip, 2012; Sullivan & Xie, 2009) and can be used to aggregate personalized opinions and mobilize supporters in the absence of leaders or organizations (Huang & Sun, 2016; Y. Yang, 2016). As controversies successfully gain attention from a large number of citizens and escalate into influential mass disturbances, the central government, which is concerned about regime legitimacy and social stability, tends to intervene and urge local governments to change their behavior (Cai, 2010; Mertha, 2008). Under these conditions, local governments would recede and meet citizens' demands (Gu, 2016; Y. Li, Homburg, De Jong, & Koppenjan, 2016; Y. Li, Koppenjan, & Verweij, 2016).

Though the mobilization and outcomes of environment-related protests have been widely examined, how urban citizens make sense of protests has received inadequate attention. Literature on environmental activism in rural China has touched this topic and highlights the importance of pollution experience, economic dependence, and social relations within communities (Lu & Chan, 2016; Van Rooij, 2010). However, the urban situation differs from its rural counterpart. Whereas rural residents suffer from serious pollution without realizing it, urban residents are sensitive to potential environmental hazards. Rural residents have close connections, economically or socially, with polluting industries and thus face the dilemma between pollution reduction and economic development. Urban residents have a relatively remote connection with polluting industries, which makes them more determined to battle against pollution. Whereas rural residents have limited resources to fight against pollution, urban residents are well educated and resourceful and can make better use of the Internet. In recent studies of anti-PX protests in Maoming, Y. Yang (2015) found that protest frames transformed from an "environmental issue" to a "hometown issue" and a "political issue" as a result of confrontation between residents and the local government, and Zhu (2017) found that local residents learned, via the Internet and media reports, from previous protests about grievance framing and mobilization strategies. They both stress the similarities of anti-PX protests across China and neglect the variation of the meaning-making process. In light of this, this article aims to enrich our understanding of citizens' meaning-making processes in environment-related protests, which are spatially differentiated, by integrating an urban (spatial) perspective into the analyses. To situate this study in the field of urban studies, the next subsection will review the literature on urban movements.

City and (urban) social movements

The concept of urban social movement was first introduced by Castells in the 1970s (Pickvance, 2003). For Castells (1977), cities of advanced capitalist societies were the space where labor forces were reproduced and where the state intervened to provide "collective consumption" essential for the reproduction of labor forces. Paradoxically, state intervention became a source of grievances and a cause for urban movements. In this way, urban movements were the expression of systemic contradiction and had the potential to bring about structural changes (Nicholls, 2008; Pickvance, 2003). In his later work, Castells (1983) broadened the scope of urban movements to include various collective actions around collective consumption, territory-based cultural identity, and local-level political self-determination. Urban movement's potential to bring about structural change was downplayed and more attention was paid to movement's ability to transform institutionalized urban meaning (Castells, 1983). Emphasis on urban movement's transformative effects (Castells, 1977) and its localized quality (Castells, 1983) has led to isolation of urban movement studies from social movement studies (Nicholls, 2008; Pickvance, 2003).

Recent works on urban studies have endeavored to bring dialogue between urban movement and social movement studies. It is contended that cities play a constitutive role in fostering general social movements because large and complex urban systems are conducive to forging strong and weak ties, making a variety of resources available to mobilization at various spatial

scales (Nicholls, 2008, 2009). The strategic significance of cities stems from their roles as incubators of relations and concentrations of social and symbolic power (Uitermark et al., 2012). Although these theories are insightful and appealing, they, in our opinion, tend to equate the qualities of cities to networks and thus limit their explanatory power. In reality, urban activism is not always organized and/or mobilized through social networks and civic associations (Bruun, 2013; Huang & Sun, 2016). In contrast, this article argues that urban activism can be seen as a meaning-making process embedded in daily life and in continuity with the wider political situation. The contextual and contingent nature of activism implies that "theoretical rigidities inherent to the assumptions about the intrinsic qualities of cities or social movements" (Allegra et al., 2013, p. 1) should be avoided; instead, a perspective of "site/event nexus" should be adapted to contextually analyze how the city as a space of resources available to activism participants who are able to make use of them (Allegra et al., 2013). To elaborate the conception of *city as space*, the next subsection will review the theories of space and place in relation to contentious politics before developing the analytical framework.

Space, place, and contentious politics

Interdisciplinary dialogues have, to a certain degree, led to a spatial turn in social movement studies (Daphi, 2014). Increasingly, studies have endeavored to explain how space enables and constrains the origins, dynamics, and outcomes of contention. For instance, Zhao's (1998) study of student movement in Beijing and Gould's (1991) study of insurgence in the Paris Commune have showed that spatial ecology plays a key role in mobilization processes. McAdam and Boudet (2012) investigated local opposition to energy projects in the United States and called for "putting social movements into their place" (p. 202). Recently, Said (2015) documented the political significance of Tahrir Square in the 2011 Egyptian revolution.

Nevertheless, the geographic constitution of social movements has received inadequate attention from the students of social movements (Auyero, 2006; Miller, 2000), and the conceptualization of space in this field varies (Auyero, 2006; Della Porta & Fabbri, 2016; Martin & Miller, 2003; Sewell, 2001; Tilly, 2000). In a review article, Tilly (2000) summarized five dimensions of space, including spatial configuration of built environment, spatial proximities and routines, spatial organization of power, symbolic meanings, and political significance of space endowed through political life and routines. Sewell (2001) also specified a variety of space-related concepts, including location and spatial differentiation, space and co-presence, time–distance, built environment, spatial routines, spatial meanings, spatial scale, and spatiality of power. In a more recent review, Auyero (2006) summarized four perspectives on space, place, and social movements: Space is a repository of social relations; built environment enables and constrains protests; spatial routines of daily life shape the developments of protests; and, finally, spaces are meaningful places.

In the field of urban studies, space and place are seen as integral to urban activism (Leitner, Sheppard, & Sziarto, 2008; Martin & Miller, 2003; Miller, 2000; Nicholls, 2009; Uitermark et al., 2012). One of the most influential theories of space was developed by Lefebvre (1991) to elaborate how space is socially produced. This theory dialectically ties the physical, mental, and social spaces together through the conceptual triad of spatial practice (perceived spaces), representations of space (conceived spaces), and representational spaces (lived spaces). Spatial practice embodies an association between daily routines and material space. Representations of space are abstract spaces that are tied to scientific knowledge and technological expertise; these are the dominant spaces orientated toward exchange values. Representational spaces are the dominated social spaces associated with symbols and images and are orientated toward use values and thus in tension with the representations of space. Accordingly, the production of space is a contradictory process, and the inherent contradictions give rise to contestation over the uses of space. Drawing on Lefebvre's (1991) theory, Stillerman (2006) demonstrated that the advance of abstract space provokes resistance from street-market vendors, and they build on spatial routines, a sense of place, and scale jumping to defend and

reconstruct their lived space. Though contested use of space is an important source of protests in (or about) cities, contestation over space is a complex process and should not been simply seen as resistance against the systemic domination of space (Zajko & Beland, 2008). Moreover, it is not clear how symbols and images associated with representational spaces come about and how the production of space shapes the dynamics of urban activism such as framing (Benford & Snow, 2000).

Place is a bundle of geographic location, material form, and invested meanings and values. Such a definition avoids the tendency of "geographical fetishism and environmental determinism" as well as "unbridled social constructivism" (Gieryn, 2000, p. 466). Routledge (1994) drew on Agnew's conceptualization and defined place in terms of locale, location, and sense of place. *Locale* refers to the settings of everyday social interactions and social relations, *location* refers to geographical areas, and *sense of place* refers to residents' subjective orientation toward the geographical areas. A recent study of protests against a large-scale infrastructure project draws on Lefebvre's (1991) spatial triad and the concepts of location, locale, and sense of place to analyze the interaction between the space of protest and identity building and finds that mobilization process not only appropriates the territory but also transforms the space and the associated meanings (Della Porta & Fabbri, 2016).

However, more works are needed to further our understanding of space, place, and social movements. As Sewell (2001, p. 51) pointed out, "Most studies bring in spatial considerations only episodically ... with rare exceptions, the literature has treated space as an assumed and unproblematized background, not as a constituent aspect of contentious politics." Similarly, Miller (2000) observed that the significance of geographic constitution of social movements is neglected, although notable exceptions exist, and the barriers to cross-fertilization between human geography and social movement studies remain strong. Nicholls (2007) lamented that geographers are slow to analyze contentious politics and calls on them to pay more attention to the geographical underpinning of the social and political processes in relation to social movements. These comments suggest that the geographic theories of space and place should be synthesized with the theories of social movements to enrich our understanding of the spatial dimensions of social movements.

Theoretical synthesis receptive to sociologists and social movement scholars in particular should treat space/place as an agentic player instead of a backdrop or a proxy for explanatory variables, such as economic or demographic features, which are already used by sociological analyses (Gieryn, 2000). Otherwise, empirical studies that employ the concept of space either diminish the explanatory power by conflating space with sociopolitical structures or ignore its constructive nature by reducing the concept of space to physical environment (Daphi, 2014). One way to avoid these problems is to conceive space as a dual structure constituted by materiality and spatial meaning-making process (Daphi, 2014; Lefebvre, 1991). As demonstrated by Ku's (2012) study of protests in Hong Kong, contestation over space is intertwined with the formation of counterdiscourse: on the one hand, contestation over the past and the present meanings of a place leads to the crystallization of new narratives; on the other hand, these new narratives are embodied in the material space and buttressed by activists' spatial practices. In sum, space/place is socially produced in a contestatory process, and this process transforms the social meanings of space/place, which are buttressed by both material conditions and spatial practices. Drawing on these theoretical insights and the characteristics of protests in urban China, the next subsection will elaborate the analytical perspective of this study.

Analytical perspective

Urban activism in China is embedded in residents' daily lives and often unfolds as disorganized, spontaneous, and short-lived events (Chen & Kang, 2015; Johnson, 2010) and develops in a nonlinear and unpredictable fashion (Bruun, 2013). In some cases, social media play a bigger role in mobilization than social networks and civic associations by producing resonant collective action frames (Huang & Sun, 2016). These characteristics imply that how participants make sense of activism by taking advantage of cultural resources available in urban space is a key to understanding spatial variation of popular protests. In line with this, the site/event nexus perspective

(Allegra et al., 2013) directs analytical attention from identifying essential qualities of cities/urban activism to analyzing participants' contextual meaning-making practices in relation to cities/contention. To further elaborate site/event nexus, this article draws on the insights from the theories of space (Daphi, 2014; Ku, 2012; Lefebvre, 1991) to conceive cities as a dual structure; that is, cities provide dwellers not only physical materiality but also past sociospatial memories for the present spatial meaning-making. This conception not only avoids treating space as a proxy for previously used explanatory variables (Gieryn, 2000) but also easily integrates with the social movement theory of framing (Benford & Snow, 2000). Specifically, it highlights two aspects of urban space of significance for framing, namely physical conditions and associated meanings and place-bounded memories.

In order to mobilize a group of participants, collective action frames are needed to highlight common problems, solutions, and rationales for actions (Benford & Snow, 2000). As shown by Martin's (2003) study of neighborhood activism, physical conditions prominently figure in place framing. Activism organizations link the physical features of neighborhoods with residents' daily lives. They either celebrate appealing landscapes or deplore unkempt ones to activate residents' responsibilities to the physical environment and to each other. Martin (2003) also found that place-oriented frames are more effective in revealing common problems and providing rationales for united actions than proposing solutions. One important underpinning of place frames is symbolic and affective meanings associated with places (Devine-Wright, 2009, 2012). Physical changes interrupt dwellers' place identities, trigger interpretation and evaluation of changes, and lead to place protective actions (Devine-Wright, 2009).

However, not only can place-based images, symbols, material artifacts, and discourses facilitate the development of environmental movements but movements also reproduce places by inventing new spatial discourse and practice, highlighting the importance of quality of community life, and turning "matters of facts" into "places of concerns" (Schaeffer & Smits, 2015, p. 146). The identities of participants in local opposition to infrastructure projects are not fixed but are redefined in the process of protests through the re-appropriation of space (Della Porta & Fabbri, 2016). In addition, physical conditions of a locality include not only the built environment but also the natural environment and ecosystem. For one, natural attractions have been commodified and become an integral element of urban space with the development of tourism industry (Deng, King, & Bauer, 2002); for another, with aggravated pollution, natural resources such as clean air are of significance in defining urban dwellers' identities (C. Sun, Kahn, & Zheng, 2017).

Scholarship on space and social movements, by and large, "does not attend to the historical making and meaning of space in relation to movements" (Said, 2015, p. 315). Said (2015) proposed historicizing space to understand how space over time comes to provide a meaningful context for the present protests, and it is, we argue, essential to tease out the duality of space. As Deaton (2015) showed that urban mobilization activates memories of past political struggles to connect with potential participants and to justify course of action. Similarly, the history of Tahrir Square in previous social movements and revolutions matters tremendously for the 2011 Egyptian revolution by providing a known target of protest, knowledge of occupation strategy, and spiritual inspiration (Said, 2015). Memories and folk stories are not static cultural resources but can be transformed into new narratives as a result of competing framing strategies. However, the significance of past memories is not confined to high-profile political events. A study of protest against a nuclear fuel processing facility demonstrated that protesters used experiences with government to justify their distrust in government's discourse (Huang & Sun, 2016). Arguably, past experiences with local governments, and urban conditions in general, are of significance for place protective actions because they provide familiar experiences to anchor unfamiliar potential changes and concrete experiences to objectify abstract discourse (Devine-Wright, 2009).

Based on the above discussion, this article will examine two anti-PX protests through the lens of space/place in a comparative–interpretive fashion (Allegra et al., 2013) and pay special attention to

how spatial meaning-making processes are intertwined with reference to physical urban conditions and residents' past experiences with cities.

Methods and data

Two anti-PX protests that occurred in the Chinese cities of Maoming and Kunming were selected to demonstrate the spatial variation of activism and connection with physical urban conditions and residents' past experiences with the two cities. The two cases occurred in consecutive years, which means that their exposure to the influence of previous anti-PX protests and the national-level political opportunities are similar and thus controlled. However, the two cases had distinctive urban conditions and represent two common types of cities in which influential anti-PX protests had occurred in the past decade. Whereas Maoming had suffered for a long time from industrial pollution, Kunming had not been polluted from the petrochemical industry. These similarities and differences increase the analytical leverage to disentangle the nexus between urban sites and protest events.

Qualitative data were collected through news reports, in-depth interviews, internal NGO documents, online forums, blogs, and Weibo tweets. News reports concerning the two PX projects were systematically downloaded through Wisenews, the largest news database in greater China. Fieldwork was conducted in July 2015. Ten interviews with environmental NGO leaders, environmental lawyers, and journalists were conducted, and internal NGO documents were collected. This study also examined blog posts and Weibo tweets of online protesters to obtain a holistic picture.

To guard against bias, the authors quantified the online prevalence of important collective action frames. Online data were mainly downloaded from Sina Weibo, the Chinese counterpart of Twitter, by a tailor-made Web crawler program.[2] Weibo tweets were downloaded as protests unfolded to minimize the censorship effect. To further reduce the bias caused by censorship, some deleted tweets were retrieved from https://freeweibo.com. The final data set included 6,113 tweets in relation to Maoming (March 15–April 23, 2014) and 11,455 in relation to Kunming (March 29–May 16, 2013). The authors used an automated content analysis technique (Hopkins & King, 2010) to quantify the prevalence of frames. Four thousand six hundred tweets were randomly sampled and manually coded to create a training set, and then the ReadMe package, (Hopkins & King, 2013) which implements the above-mentioned technique, used the information embedded in the training set to estimate the proportions of frames at aggregate level.

Four frames were coded and systematically analyzed in this article, namely, environmental/health risks, siting controversies, distrust in propaganda, and information deficit. They were selected for analyses because they have been widely mentioned by NIMBY literature or were highly pertinent to the two cases. Studies of NIMBY protests have shown that residents often express concerns about environmental and health risks posed by potentially hazardous facilities (Easterling & Kunreuther, 1995; Margolis, 1996). In addition, they tend to question either the scientific justification or environmental justice of a siting decision (Devine-Wright, 2005; Van Der Horst, 2007). In addition, there have been high levels of distrust in project managers or governments (Hunter & Leyden, 1995; Kasperson, Golding, & Tuler, 1992). In China, distrust in local governments is common (Huang & Sun, 2016), and residents often cast doubt on their capacity to supervise and their willingness to allow adequate public participation. Lastly, residents often express concerns that they are uncertain about the siting, construction, and operation of the proposed facility due to information deficit and demand more information disclosure (Futrell, 2003; Johnson, 2011).

Different frames of two anti-PX protests

The siting of paraxylene chemical plants has become a controversial issue in urban China. Paraxylene, an intermediate product of the petrochemical industry, is a chemical of low toxicity widely used for producing polyester fibers and plastic bottles. China's rapid industrialization has

Table 1. Social media frames in Maoming and Kunming.

Frames	Maoming (March 15–April 23, 2014)	Kunming (March 29–May 16, 2013)
Environmental/health risks	1.0%	**42.2%**
Siting controversies	<0.2%	**25.1%**
Distrust in propaganda	**18.5%**	2.6%
Information deficit	**26.0%**	<0.1%
Number of downloaded Weibo tweets	6,113	11,455

Prominent frames are highlighted in bold

generated huge demand for PX that goes beyond existing production capacity ("Can We Stop Developing the PX Industry?", 2013). As a coping strategy, the state proposed 10 more PX plants to be constructed in the next decade (Caixin Net, 2011). The siting of PX plants, however, encountered severe resistance. Since 2007, residents in Xiamen, Dalian, Ningbo, Kunming, Chengdu, Maoming, and Shanghai have protested against PX projects.

This article focuses on two anti-PX protests in Kunming and Maoming and pays attention to the differential collective action frames. Analyses of Weibo tweets associated with these two cases showed different prevalence of frames (Table 1). Frames of environmental/health risks and siting controversies were mentioned more frequently in Kunming than in Maoming. Automated content analysis showed that 42.2% of tweets mentioned environmental or health risks in the Kunming case, whereas the number in the Maoming case was only 1%. A keyword search of the downloaded tweets indicated that in the case of Kunming, 18.7% (2,137) of tweets referred to the words *environment* and *air quality*, 5.4% (621) to *cancer*, 1.2% (133) to *respiratory illness*, and 2.6% to *future generation*. In all, the proportion of risk frames in Kunming was significantly higher than that in Maoming. Although frames of risk were commonly used, they were not necessarily used in tandem with the frame of economic development. A keyword search of the downloaded tweets found that only 1.4% of tweets mentioned the word *economic/economy* in the Maoming case and 3.8% in the Kunming case. In both cases, less than 1% of tweets mentioned the words *housing price*. One potential explanation is that the two protests were citywide actions and protesters were marginally impacted by the PX facilities from an economic perspective.

Analyses showed that 25.1% of tweets disputed the rationales undergirding the siting decision, contending that Kunming's climate and geographical conditions (e.g., wind direction, water resources) made the city an inappropriate site for the PX project. In contrast, the percentage of tweets mentioning siting rationales was less than 0.2% in Maoming.

Distrust in government propaganda, which is narrowly defined and only refers to project-related distrust, was one of the most common frames in Maoming. Automated content analyses indicated that 18.5% of tweets expressed distrust in local government's propaganda for the PX project. They either questioned the publicity regarding PX production's low toxicity or cast doubt on the government's willingness and capacity to supervise the project and control attendant pollution. In addition to distrust in relation to government propaganda, another dimension of distrust might derive from violent confrontation during the protest, which had not been included in the above definition. To obtain a comprehensive picture, a keyword search of the downloaded tweets was conducted and found that about 8.7% of tweets mentioned the word *violence/violent*. In contrast, the proportion of tweets expressing distrust in government propaganda was only 2.6% in Kunming. A keyword search showed that 0.3% of tweets mentioned the word *violence/violent*. A comparison showed that distrust due to violent confrontation was associated with the unique protester–police interaction in Maoming.

Moreover, analyses suggested that 26% of tweets in Maoming mentioned information deficit. They criticized Maoming's municipal government for not disclosing sufficient, project-related information, imposing one-way propaganda, lacking two-way communication with the public, and

controlling public opinion by deleting "sensitive" Weibo tweets. However, this frame accounted for less than 0.1% in Kunming.[3]

The case of Kunming: Lived experience and perceptions of environmental risks

The delicate ecosystem and environmental NGOs

Kunming is well known for its natural and living environment. It is located in the middle of Yunnan–Guizhou Plateau with three sides surrounded by mountains and the Dian Pool (Figure 1), the largest plateau lake in Yunnan province and the sixth largest freshwater lake in China, to its south. With mountains blocking cold air from the north and the Dian Pool moderating the temperature and humidity, Kunming enjoys pleasant weather throughout the year and thus is entitled to the reputation as the "Spring City." Kunming also boasts a diverse ecological system of over 3,000 types of seed plants, 400 types of flowers, various vegetation, and several wild animals of national-level protection (Zheng, Wu, & Han, 2009). Kunming also has high-quality air. According to the Kunming Environmental Protection Bureau, the air quality maintained an excellence rate of over 90% from 2003 to 2016 ("Kunming Has Maintained 13 Years in a Row With the Excellent Rate of Air Quality Over 90%," 2016). The natural environment has made Kunming one of the hottest tourist destinations. In 2013, it received 1.2 million overseas tourists and 54.8 million domestic tourists, generating more than 51.6 billion yuan in revenue (Kunming Government, 2015). The geographic layout, pleasant climate, and diverse ecosystem provide dwellers with material reference for protest frames.

Kunming's ecosystem, however, is vulnerable, and water shortage has become an urgent crisis. The Dian Pool had been severely polluted since the 1980s. With rapid industrialization and urbanization, domestic and industrial sewage has exceeded the lake's self-purification capacity and thus broken the ecological balance. From 1996 to 2015, Kunming's municipal government invested over 50 billion yuan aiming to control the pollution of Dian Pool. Yet, it repeatedly failed to meet the targets. The water remained severely polluted due to the high rate of pollution and the lake's low environmental capacity ("The Government Repeatedly Failed to Meet the Targets of Controlling the Pollution of the Dian Lake, and in Spite of 50-Billion-Yuan Investment Within 20 Years, the Water
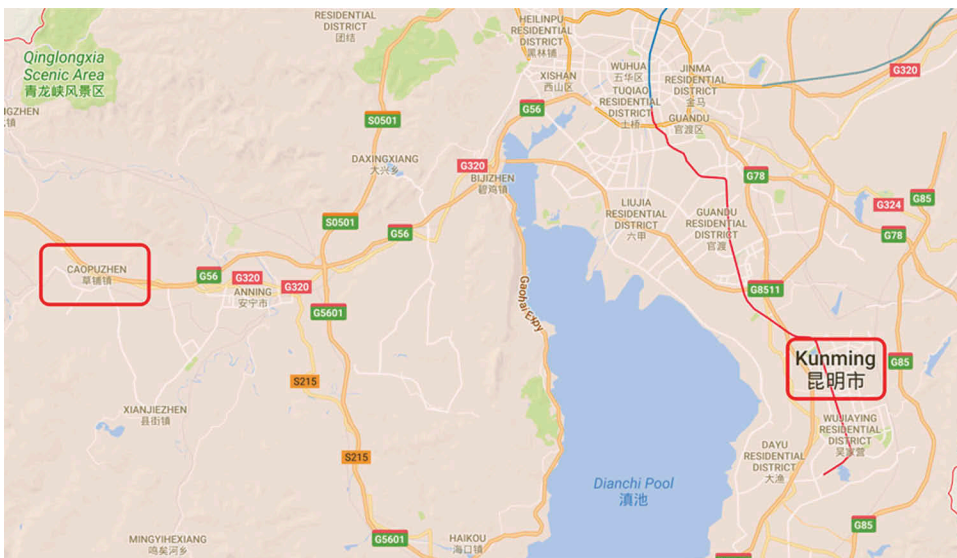

Figure 1. Location of the Anning PX project.

Quality Remained Severely Polluted," 2016). The pollution of Dian Pool together with plateau terrains and forest degradation have caused severe drought throughout Yunnan since 2009. In 2013, over 12 million people in Yunnan were affected by drought, among which 3.4 million had difficulties accessing drinking water ("Water Depletion Has Become the Bottleneck of Yunnan, and the Hidden Trouble of Ecological Water Depletion Has Surfaced," 2013). Kunming was no exception, and it had become one of the 14 most water-scarce cities in China.

The diverse and vulnerable ecosystem has made Yunnan an attraction for environmental NGOs from home and abroad. Environmental NGOs have been welcomed by the local government because Yunnan needed help from international NGOs to alleviate critical environmental and social problems (Teets, 2015). It was reported that over 200 international NGOs registered and operated in Yunnan, a number surpassing those of Beijing and Shanghai ("Over 200 International NGOs Operation in Yunnan," 2007). Environmental NGOs have played an important role in enhancing environmental awareness and encouraging citizen participation in environmental protection. For instance, Green Kunming, a local environmental NGO, has been organizing the monthly Dian Pool Day event since 2009. From 2009 to 2011, over 800 citizens participated in this event to visit the watershed of Dian Pool, monitor water quality, record pollution levels, write news reports, and make suggestions to local government departments. This kind of experience with and knowledge of ecological vulnerability provides an experiential anchor for protest frames.

Environmental debates of the PX project

In 2008, the China National Petroleum Corporation (PetroChina), an oil giant owned by the Chinese central government, planned to construct a 10-million-ton oil refining plant in Caopu Zhen of Anning City, a county-level city administered by Kunming (Figure 1). The refining plant, which was a station of the China–Burma oil and gas pipeline construction, was regarded as part of a national energy safety strategy aiming to develop overland oil and gas supply in southern China. The project would also benefit Yunnan by relieving the oil and gas shortage and bringing in considerable revenue. Investment in the project reached 20 billion yuan. After put into use, the refinery would produce an annual output of 200 billion yuan, equivalent to 20% of Yunnan's gross domestic product (GDP; "Hundreds of Billion GDP Behind the Refinery Project in Kunming," 2013). PetroChina began the construction in 2010 and obtained the approval for the environmental impact assessment from the National Environmental Protection Bureau 2 years later.

The project surfaced publicly in February 2013 when the Kunming Daily, a local newspaper, published an article entitled "PetroChina's Yunnan Project Has Been Approved by National Development and Reform Commission, and Anning Would Become the Oil Center in Southwest China." The news aroused public concern that the project would bring about pollution to the environment and hazards to people's health. One particular concern was the production of PX, a downstream product of oil refining, which was regarded as toxic and had caused protests in other cities like Xiamen, Dalian, and Ningbo. On March 29, Kunming's municipal government held a press conference on the progress of construction. The government spokesman stated that the 10-million-ton refinery project had passed the strictest examination and approval. Fifty-three major research projects regarding safety, water conservation, earthquake, environmental impact, and production technology had been conducted in the past 5 years (Yunnan Net, 2013).

Local government's scientific propaganda was challenged by environmental experts who highlighted that given Kunming's vulnerable ecosystem, the project would exceed the city's environmental capacity and led to irreversible environmental damage ("Hundreds of Billion GDP Behind the Refinery Project in Kunming," 2013). Although the role of experts and NGOs in amplifying this frame could not be denied, their participation and influence, to a great degree, hinged upon the factual reference to the urban space because involvement in protests was politically sensitive (Ho & Edmonds, 2008; Spires, 2011), and the experience of two local environmental NGOs was a case in point. On April 18, Green Kunming and Green Watershed went to Anning to conduct

fieldwork. The two NGOs were invited by the township government to have a conversation. During that conversation, local officials mentioned the environmental capacity issue and promised that the government would conduct total emission control by shutting down 70 small-scale polluting chemical plants ("Whether the PX Project Will Be Sited in Anning Kunming Will Consult Public Opinion," 2013). But when the two NGOs asked the local government to disclose the environmental impact assessment report, which was supposed to be the most authoritative assessment of environmental risks inherent in the project, the local government refused on the ground that the report was classified as a national secret ("Whether the PX Project Will Be Sited in Anning Kunming Will Consult Public Opinion," 2013). Through online forums, blogs, and Weibo, citizens expressed their concerns of environmental and health hazards to be brought about by the PX project and the inappropriate siting, which would not only cause air pollution by locating 40 km upwind of Kunming but also exacerbate Kunming's drought problem (because it is a water-intensive industry).

In late April, details of a prospective protest began to spread through social media platforms such as QQ groups, Weibo, and Wechat. On May 4, 3,000 participants gathered in Nanping Square, located in the center of Kunming, to demonstrate their opposition. Participants wore "NO PX" masks, chanted slogans, and held banners such as "The Spring City Refuses Pollution Projects." The protest proceeded peacefully and no violent confrontation was reported. Kunming's municipal government held another press conference on May 10, during which the general manager of Yunnan Petrochemical Corporation stressed that the corporation strongly valued environmental protection and would invest 3.2 billion yuan in environmental protection, accounting for 15% of total investment (China News Net, 2013). However, the public cast doubt on whether these promises would be fulfilled and continued to express their opposition through online platforms. Kunming's municipal government adopted a variety of measures to control public opinion, which aggravated public discontent and triggered a second protest. On May 16, 1,000 participants gathered in front of the provincial government to express their discontent. This protest led to traffic disruption and arrests. Soon, the mayor of Kunming promised to halt construction until the public reached a consensus.

Risk perceptions from indirect knowledge and lived experience (or lack thereof)

A key factor underlying the protests was residents' risk perception of the refinery project. Given that Kunming had long been a tourist city, local residents lacked lived experience with oil refining plants and associated pollution issues. As Ms. Mei, the leader of Green Kunming put it, "The air quality of Kunming has been nice. If it gets worse, Kunming residents would have no idea how to deal with it because they have never lived in a polluted environment" (Interview, July 15, 2015). The lack of direct experience with the oil refining industry meant that Kunming residents' understanding of the project was largely based on their assessment of potential risks. The risk perception was shaped by an interactive process in which online discussion of the project intertwined with residents' lived experiences with the appealing landscape. Environmental debates had been a central theme in discussion of the controversy. NGOs and experts provided professional opinions in questioning the siting, which not only resonated residents' concerns but also provided scientific and legal evidence to support these concerns.[4] The accumulated perceptions of risks eventually drove residents to take to the streets.

The interaction of residents' lived experiences and online discussion concentrated on two aspects. The first contrasted residents' experiences of Kunming's beautiful landscape with potential pollution from the refinery project. As a famous tourist destination and ecological reserve, Kunming's residents had been proud of their hometown due to the pleasant weather, good air quality, and favorable living environment and thus were sensitive to potential threats such as the oil refining plant. "I grew up in Kunming and I love the city very much. If the oil refining plant is constructed in

Anning, the blue sky and white cloud, and the green mountain and blue river will no longer exist" (Weibo 20130426).

As the debate went public, information on toxicity from PX production and its environmental impact began to mount on the Internet, which aggravated residents' fears that the proposed project would damage their cherished environment.

> I hear that the refinery produces an output of 10 million tons. The oil refining process will produce exhaust containing benzene-related carcinogens. Kunming is located downwind of the plant and its air will be severely polluted. Hope the environmental protection department can give us an explanation on how severe the pollution will be. We breath the air and we have the right to know. (Weibo 20130316)

Such impression was further strengthened after it was found that the construction of PX plants had been repeatedly opposed in other cities.

> The oil refining plant was driven away from Dalian, Xiamen, and Shifang, and now it will be located in Anning. Once put into use, the hazardous chemical plant will not only severely pollute the air, vegetables, and water of Kunming but also harm people's health. (Weibo 20130325)

It is clear that the physical landscape and associated reputation as well as pleasant daily life anchored the frame of risks, and this frame was further buttressed by Kunming's surrounding geographic layout.

The second theme centered on residents' experience with Kunming's ecological vulnerability, which was intensified by online discussion of the project putting additional pressure on the city's environmental capacity. Kunming residents had witnessed the serious consequences of disturbing ecological balance. The pollution of Dian Pool, which had not yet been under control despite decades of governmental effort, had cost Kunming heavy economic and environmental losses. In addition, the above-mentioned drought problem further worsened the situation. These experiences made Kunming's residents respect their environment: "I really miss the Spring City when I was a kid. The pollution of Dian Pool broke the myth of Spring City. The drought caused the rising of Kunming's temperature. Aren't these the revenge of the nature?" (Weibo 20130507).

When environmental experts pointed out that the oil refining project would exceed Kunming's environmental capacity and exacerbate ecological vulnerability, this risk frame resonated with residents' lived experiences and diffused quickly.

> A large-scale oil refining project is to be constructed in a tourist city which has suffered from drought for years, hardly had access to drinking water, and mainly depended on lakes for drainage. If the plan is implemented, it may lead to the deterioration of the ecology which in turn may quickly make itself the subject of relocation. (Weibo 20130424)

By linking the climate and geographical constraints (e.g., wind direction, water resources) with the inappropriate siting decision, this frame gained high levels of resonance and was widely adopted by the public. For instance, a Weibo user framed it this way:

> Three sides of Kunming are surrounded by mountains and only the south side slopes gently, which forms a peculiar climate environment. If the oil refining plant is constructed in the south in an upwind position, all poisonous air can never be blown away. The pollution to Kunming's air and environment cannot be absorbed for the next few decades. (Weibo 20130505)

It is obvious that the sense of risk was rooted in, and heightened by, the past lived experience with ecological vulnerability.

The cherishment of the pleasant living environment, lack of lived experience with industrial production, and worry over the breakdown of the delicate ecological balance derived from past lived experiences such as drought and water shortage contributed to the prevalent risk frame in the Kunming case. The situation was different for the case of Maoming, where protesters mainly framed their opposition in terms of distrust in government propaganda that contradicted with their past lived experience in a heavily polluted industrial city.

The case of Maoming: Pollution experience and distrust in government propaganda

The polluted oil city

The city of Maoming in Guangdong Province is known as "the oil city in the south" for its large-scale petrochemical industry. According to the 2014 National Economy and Social Development Statistical Bulletin, Maoming's petrochemical products constituted half of its major industrial products, which were defined as products of enterprises with an annual producing capacity of greater than 20 million yuan (Maoming News Net, 2015). From 2000 to 2007, Maoming maintained 12% annual GDP growth, to which the petrochemical industry contributed a substantial share. Maoming Petrochemical Corporation was a branch of the China Petroleum and Chemical Corporation (Sinopec), an oil grant owned by the the Chinese central government. Maoming Petrochemical Corporation was established in 1955 before Maoming was designated as a prefecture city. With development over the past decades, Maoming Petrochemical has become the largest refining–chemical integration base in southern China. It generates over 100 billion yuan in annual income and pays over 20 billion yuan in taxes to the city of Maoming and Guangdong Province.

However, the petrochemical industry had caused serious pollution to the city. A large number of petrochemical plants concentrated in western Maoming's two industrial districts led to a high density of pollution sources. City planning further worsened the situation. Residential neighborhoods were blended in industrial districts in order to make full use of the space. Many residential neighborhoods were less than 500 m away from the petrochemical plants, far below the stipulated standards (H. S. Lang & Xu, 1980). Concentrated petrochemical production and unscientific spatial planning had led to environmental pollution and negative effects on health. A report pointed out that exhaust gas from the plants included poisonous elements such as carbon monoxide, chlorine, and sulfur dioxide, the pungent odor of which could frequently be smelled. The poor air quality has caused serious health issues. Local residents reportedly suffered from diseases such as low leucocytes, arrhythmia cordis, and respiratory illnesses (H. S. Lang & Xu, 1980). The mixed land use and the long-term experience of pollution provided a breeding ground for protest frames, and the trustworthiness of these frames was further supported by local government's slow response to the pollution problem.

It was reported that local governments were aware of the pollution hazards, but the mitigating efforts were slow and inadequate partly because establishing buffer zones meant large-scale relocations, which would incur financial costs. Equally important was that the local leaders, whose promotion was largely dependent on economic performance, valued GDP growth more than environmental protection. In 2009, the Maoming Petrochemical Corporation filed an application to the Guangdong Provincial Environmental Protection Bureau for an increase in oil refining capacity from 10 to 20 million tons, adding seven sets of new devices. The Guangdong Provincial Environmental Protection Bureau, which was not qualified to approve such a project, approved the expansion plan. In 2010, the National Environmental Protection Bureau overturned the approval, pending a further environmental impact assessment. In addition, the National Environmental Protection Bureau demanded widening the buffer zone from 800 m, which was previously stipulated by the Guangdong Provincial Environmental Protection Bureau, to 1,300 m. Until 2013 when the new devices were put into use, Maoming's municipal government only approved the relocation plan of the first batch of 120 households, and 1,786 households within the 800-m zone had not been relocated (Liu, Wang, & Huang, 2013).

Propaganda of the PX project

The pollution could hardly hold back the oil city's pace of growth. According to the "Guideline for Promoting the Development of Western Guangdong Districts" issued by the Guangdong provincial government in 2009, Maoming was positioned as a world-class petrochemical base. One crucial step

to achieve this was to improve the industrial chain. In 2011, Maoming's municipal government proposed a grand plan in the 12th Five-Year Plan that aimed to increase the annual capacity of oil refining to 40 million tons and of ethylene to 2 million tons and to establish a new set of devices to produce 600,000 tons of PX annually. The PX project was jointly constructed by Maoming's municipal government and the Maoming Petrochemical Corporation. The total investment exceeded 3.5 billion yuan.

The PX project was approved by the National Development and Reform Commission in October 2012. However, it was not until early 2014 that the PX project became a public issue. Given that the siting of PX projects had encountered mass opposition in cities like Xiamen, Ningbo, and Kunming, Maoming's municipal government realized that Maoming's PX project might be opposed by local residents and thus made advance preparation of a series of publicity on the PX project in hope of reducing the possibility of protests. On February 27, 2014, the *Maoming Daily* published the first publicity article entitled "Green High-End Products From Maoming Petrochemical Corporation Enter Into Tens of Thousands of Households." Following this, Maoming's propaganda department initiated one month of intensive publicity. The *Maoming Daily* published a series of articles to popularize knowledge of PX, including "Unveil the Mystery of PX" (2014), "Is PX Hazardous" (2014), "Shall We Continue to Develop PX Projects" (2014), and "The Truth About the PX Projects" (2014). These articles attempted to send the message that PX was of low toxicity according to national and international standards and would not do harm to health or environment. On March 18, Maoming's municipal party committee held a learning conference and invited an expert from the Chinese Academy of Engineering to talk about how to regulate and control the risks in PX production. The lecture was televised by Maoming TV and Maoming Petrochemical TV to the public every day. However, the abstract expert opinion had not convinced the public, which was in stark contrast with the Kunming case, in which expert opinion in alignment with the urban condition and past lived experience gained high levels of resonance.

In addition to media propaganda, other measures were adopted by Maoming's municipal government to preempt potential protests. One measure was to demand that the public sign an agreement letter to support the PX project, not believe or spread rumors, not express oppositional opinions, and, more important, not participate in protest activities in relation to the project ("31 Days Before Maoming PX Incident," 2014). It was regarded as a successful lesson learned from the city of Jiujiang in Jiangxi Province. Since mid-March, the employees of petrochemical and education systems as well as students had been asked to sign the letter. The signing process was conducted with tacit coercion because the students and employees were told that if they refused to sign, there would be negative effects on college entrance examination and career promotion ("31 Days Before Maoming PX Incident," 2014).

On March 27, Maoming's municipal government held a promotion conference with 50 invited opinion leaders and active netizens considering that influential Internet users had played a crucial role in past anti-PX protests. The conference was supposed to proceed in a closed-door manner, but one invited website disclosed information regarding the conference. As a result, around 250 active netizens appeared at the conference, which was far beyond the government's expectation. During the conference, the government spokesman behaved in a tough and arrogant manner and provoked opinion leaders and active netizens. Attendees exchanged contacts with each other and formed an informal opposition network.

The contradiction between messages from media propaganda, agreement signing and promotion conference, and residents' past lived experiences of industrial pollution enhanced concerns about the PX project. In the next few days, messages about prospective protests began to circulate among Maoming residents through the social media platform of Wechat. On March 30, 1,000 residents gathered in front of the building of the Maoming Party Committee to express their opposition. The protest lasted for 4 days during which violent confrontations between participants and police led to 44 arrests. On April 3, Maoming's municipal government convened a press conference and promised

that the PX project was only in the stage of publicity and that the project would not be initiated before the public reached a consensus.

Distrust derived from the contradiction between propaganda and lived experience

A key protest frame leading to this anti-PX opposition lies in residents' distrust in Maoming's municipal government. As mentioned previously, the distrust originated from the contradiction between residents' lived experiences and the pollution and publicity by Maoming's municipal government. the Maoming had been a city of heavy industry since 1955 when the Maoming Petrochemical Corporation was established. The experience of living in Maoming had anchored residents' perceptions of the city with industrial pollution, disease, and the government's poor performance. However, in the PX publicity, Maoming's municipal government bombarded the public with "scientific evidence" that was inconsistent or contradictory with residents' lived experiences. This contradiction led to distrust in the government. As the publicity became more intense, local residents became more determined to protest against the project.

The primary contradiction was between residents' past experience of pollution and disease and the government's propaganda of the harmlessness of PX production. In the eyes of Maoming residents, the city had been heavily polluted by the petrochemical industry.

> If you have been to Maoming, you would have known how poor the air quality is. Maoming is a city of petrochemical industry. Most of the equipment has been in use since the 1950s. You can see fires burning around the huge chimneys from very far away. Once entering the city, the pungent odor instantly went into your respiratory tracts. (Tianya, 20140407)

Moreover, Maoming's residents had connected air pollution with experience of illness. They constantly complained that the industrial pollution had impaired their health, among which respiratory diseases were the most common.

> I grew up in Maoming. When in school, every time I took a physical examination, I was diagnosed with the same disease, sphagitis. Many of my classmates were diagnosed with rhinitis. Why? Because of industrial pollution! Hasn't my hometown been polluted enough? PX project! Which on earth is more important, government performance or citizens' health? (Weibo, 20140328)

Maoming's propaganda department, however, emphasized the harmlessness of PX by referring to scientific evidence. The article entitled, "Unveil the Mystery of PX" (2014) stated that "according to international standards, PX was not categorized as hazardous chemicals. It belongs to the category of 'possible carcinogens' the same as coffee." This statement contradicted the understanding of Maoming's residents that was formed through their daily experience. The PX/coffee analogy was widely refuted by residents,

> You [government] said that PX is as safe as a cup of coffee. But has it ever occurred to you that drinking a cup of coffee does not equal to drinking coffee all the time? The PX project is very close to the neighborhoods. Can you [government] deny that people who drink coffee 24/7 will die sooner than people who don't? (Tianya, 20140405)

Elevating experiential contradiction provided a basis for refuting both the harmlessness and prodevelopment arguments.

The second contradiction was between residents' past experience of the poor performance of the corporation and the government in alleviating pollution and the government's propaganda regarding environmental and social responsibility the two would take in the proposed project. In the article entitled, "Green High-End Products From Maoming Petrochemical Corporation Enter Into Tens of Thousands of Households" (2014), Maoming Petrochemical Corporation was depicted as being dedicated to not only low-carbon and clean production but also social responsibility. This benevolent image, however, did not fit with its past image in the minds of residents.

> Since I was a kid, I had suffered from rhinitis. Half of my classmates, relatives, and friends also suffered from this disease. Every time the weather changed or caught a cold or cried, I could only breath with my mouth. I

have to always prepare several packages of tissues with me. For so many years, the petrochemical corporation hasn't made any compensation to us. We don't have the capacity to account for what the corporation has done to us. (Tianya, 20140401)

Maoming's residents blamed not only the corporation but also the local government for the pollution. Recently, it was exposed by the media that the 1-million-ton ethylene expansion project by the Maoming Petrochemical Corporation was publicly criticized as a major case violating environmental protection regulations in 2012 and 2013 and was ordered to be rectified by the Guangdong Environmental Protection Bureau and the Guangdong Supervision Department ("Maoming Petrochemical Corporation Was Publicly Criticized and Ordered to Rectify Again Due to Environmental Issues," 2013). In addition, in 2008, the corporation was required by the National Environmental Protection Bureau to relocate households within the stipulated buffer zone to fulfill the minimum standards of environmental protection. However, until the outbreak of Maoming's anti-PX protests, the relocation had not been finished (Liu et al., 2013).

Maoming's residents interpreted these experiences by emphasizing local government's lack of capacity and willingness to supervise the giant corporation. The following blog posts highlighted this sentiment:

If existing plants fail to pass environmental protection requirements, how can you expect that PX will not produce more pollution? (Tianya, 20140408)

The problem lies in that no matter how good a project is, the government will not consider to avoid environmental pollution and protect people's safety, but to make money from it and to block the circulation of information when something goes wrong. (Tianya, 20140401)

These quotations showed that government performance influenced residents' interpretation of government propaganda through past lived experience, and it was the lived experience that provided a basis for projecting future government performance in relation to the PX plant.

Discussion and conclusion

This article aims to bring cities back into urban movement studies. It argues that the qualities of cities should not be equated to social networks; instead, cities are better seen as a social space in which protest events occur. Drawing on the theories of space and place, this study contends that protest space consists of both physical conditions and associated meanings, as well as place-bounded historical memories. These urban conditions are of significance for urban protests in authoritarian contexts and are capable of shaping people's meaning-making processes in relation to protests against locally unwanted land use by providing protesters with material and symbolic references to interpret, evaluate, and cope with controversial facilities. This argument is substantiated by comparing two anti-PX protests in the Chinese cities of Kunming and Maoming.

Though the cases of Kunming and Maoming were both high-profile protests against the siting of refinery plants, the frames adopted by protesters were not the same. Analyses of Weibo tweets found that environmental/health risks and inappropriate siting were two prevalent frames in Kunming, whereas distrust in government propaganda and information deficit were the most common in Maoming. Further qualitative analysis demonstrated that the differentiated understandings of the siting disputes were derived from different urban landscapes and associated lived experiences of dwellers. Kunming is known for its pleasant weather, beautiful scenery, fresh air, as well as vulnerable ecosystem manifested in the past experience of drought and water shortage. Situated in this urban setting, Kunming residents were sensitive to maintaining ecological balance to avoid future environmental risks. This type of urban experience shaped online discussion regarding the PX project, which in turn enhanced residents' prior understandings of the urban conditions. This interactive process eventually led to the prevalent frames of risks and inappropriate siting.

Maoming, on the other hand, is an industrial city faced with severe pollution problems. Maoming residents, who had long suffered from industrial pollution, witnessed that the local governments and

corporations had done next to nothing to mitigate industrial hazards and harbored discontent with the local authorities that had gradually accumulated in the past years. The stark contrast between the past lived experience and the intense government propaganda that stressed the harmlessness of PX and efforts to promote clean production aroused high levels of distrust among protesters and thus backfired. These unique urban conditions also explain, at least partially, why the preemptive measure of agreement signing, which had been successfully deployed by Jiujiang, failed in Maoming.

This article, by comparing two cases in Kunming and Maoming, contributes a nuanced understanding of anti-PX protests in China. It demonstrates that the conception that sees anti-PX protests as a family of similar events is inadequate (e.g., Zhu, 2017). Such conception not only veils the differential collective action frames across cases but also fails to explain the spatial variation in urban activism across cities. This explanatory inadequacy is partially attributed to the overemphasis on mobilization and the neglect of meaning-making practices undergirding protest events. In an authoritarian society where civic organizations are tightly regulated and play a limited role in organizing protests, meaning-making is of great significance, if not more important than mobilization, in understanding protest events, especially in the social media era when protests can gradually emerge around resonant online frames (Huang & Sun, 2016; Y. Yang, 2016). Moreover, this article contends that meaning-making in relation to urban activism is closely intertwined with the qualities of cities and urban experience. By connecting collective action frames with urban conditions, this article enhances our understanding of framing processes in urban activism. As Benford and Snow (2000) pointed out, frame resonance depends on "the apparent fit between the framings and events in the world"(p. 620). In order to obtain resonance, frames need to fit into or activate participants' daily life experiences prior to the activism. It is difficult, if not impossible, to adequately understand the meaning-making process in relation to urban activism without referencing urban space.

This article contributes to the scholarship on space and urban activism given the disciplinary barriers between urban studies and social movement studies. First, it demonstrates that space plays a significant role not only in mobilization (Gould, 1991; Zhao, 1998) but also in meaning-making, which has been relatively neglected. For another, it enriches the conception of space as a dual structure (Daphi, 2014), at least in the field of social movement studies. Unlike Daphi's (2014) illustration that primarily emphasizes the material reference in spatial meaning-making, this article proposes to analyze spatial meaning-making by emphasizing the importance of social meanings and lived experience in the duality of space. Specifically, it teases out the duality of urban space by tracing urban experiences *prior to* the activism and connecting them with the present claims-making. In doing so, it suggests a viable approach to theorize the relationship between the cities and general social movements given that large and complex urban systems are shaped by vast numbers of social processes in the past, which in turn supply ample cultural resources available to protest participants. Furthermore, this article demonstrates that historicizing space should pay attention not only to high-profile historical political struggles and events (Said, 2015) but also to the shared memories of daily urban life. The urban life of the past endows urban space with social meanings, and the accumulation of social meanings provides a meaningful context for the present protests and strongly shapes the resonant protest frames in urban activism.

This study does not claim that elements such as experts, NGOs, and government performance play no role in anti-PX protests in China and these two cases in particular. They were not included in the conception of space here because sociologists (social movement scholars in particular) have cautioned against treating space as a backdrop or a proxy for political, economic, or demographic variables (Gieryn, 2000; Sewell, 2001). Inclusion of these elements in the analytical framework would not help to advance the scholarly dialogue between urbanists and sociologists. Moreover, evidence from the two cases seems to suggest that material conditions and lived experience in urban space mediate the effects of expert (NGO) participation and government performance, a preliminary finding that warrants further investigation.

Notes

1. In light of these characteristics, this article uses the terms *urban activism* and *popular protests* interchangeably to refer to the Chinese counterpart of social movements.
2. Only Weibo tweets were used in the quantitative analyses for two reasons: first, it is very difficult, if not impossible, to systematically collect all relevant posts from the Internet, and it is more feasible to examine posts from an influential online platform; second, Weibo has been one of most influential battlefields for public events in China since 2010, and online posts on this platform can effectively reflect the public mood toward influential controversies. Given that blog/forum posts were more detailed without the limit of 140 characters, they were used in the qualitative analyses.
3. It should be noted that not all downloaded Weibo tweets were pertinent to the PX controversies. Quantitative analyses estimated that approximately half of the tweets in Maoming and one third of tweets in Kunming were noise that happened to contain the keywords. Fortunately, the conclusion still holds even if we rescale the frame proportions.
4. Although NGOs had to a certain degree sustained the oppositional action beyond street protests (Sun, Huang, et al., 2017), their role in shaping online frames should not be overexaggerated. Analysis showed that only 0.16% of Weibo tweets mentioned Green Kunming.

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