

Université de Montréal

Conflicts and Order:

*Controversies over Municipal Solid Waste Incineration in China*

*Par*

Xixi Zhang

Département de sociologie, Faculté des arts et des sciences

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*Cette thèse intitulée*

**Conflicts and Order:**

***Controversies over Municipal Solid Waste Incineration in China***

*Présentée par*

**Xixi Zhang**

*A été évaluée par un jury composé des personnes suivantes*

**Sara Teitelbaum**

Président-rapporteur

**Pierre Hamel**

Directeur de recherche

**Louis Guay**

Membre du jury

**Alex Jingwei He**

Examineur externe



## Résumé

Au cours des dernières décennies, nous avons été témoins de la croissance des controverses relatives à l'incinération des déchets solides municipaux dans de nombreuses villes du monde. Cela est particulièrement vrai pour les grandes et moyennes villes en Chine. Diverses catégories d'acteurs, y compris l'État, les autorités locales, les acteurs du marché économique et de la société civile, tentent d'exercer leur influence sur la construction, l'extension et/ou l'opération des incinérateurs. Même si les controverses relatives à l'incinération des déchets solides municipaux abordées par le passé dans plusieurs disciplines, nous ne sommes pas en présence d'une véritable compréhension collective suffisante de la stabilité et du changement à l'échelle méso. La thèse traite de la question suivante: dans les débats et les affrontements autour de l'incinération, comment et jusqu'à quel point les interactions et les compétitions entre contestataires et adversaires contribuent-elles à définir un champ d'action stratégique où la structure industrielle et les politiques de gestion des déchets dominées par l'incinération sont remises en question ou reconduites ? Pour répondre à cette question, cette étude considère l'incinération des déchets solides municipaux en Chine sous l'angle d'un champ d'action stratégique. Elle essaie de clarifier ce qui se passe dans ce champ sous trois aspects: les acteurs, les actions stratégiques et les retombées politiques. Faisant appel à une démarche de recherche qualitative, un grand volume de données primaires et secondaires a été amassé, y compris 42 entretiens semi-structurés, 557 posts en ligne, des rapports de recherche, des documents d'archives, des rapports d'évaluation de l'impact sur l'environnement, des nouvelles en ligne, des données statistiques et des documents de politique. À l'aide de ces données, cette étude approfondi la compréhension des relations entre, d'un côté les acteurs s'opposant aux activités découlant de l'incinération – les contestataires – et, de l'autre, les adversaires dans le champ d'action stratégique, mettant en lumière leurs arguments respectifs. En outre, le processus par lequel les militants utilisent les réseaux sociaux pour la mobilisation du consensus a reçu une attention supplémentaire. De plus, cette étude a analysé l'évolution des interactions entre les militants et les décideurs politiques et a contextualisé la transformation du champ au cours des dernières décennies. Les résultats ont montré que les controverses autour de l'incinération des

déchets solides municipaux sont allées au-delà des préoccupations pour les intérêts personnels et le bien-être environnemental. Cela permet d'introduire des explications plus nuancées comparativement aux discours conventionnels concernant les protestations contre l'incinération, fournissant une compréhension systématique de l'activisme local. Cette analyse exploratoire a permis également de mieux comprendre la signification politique et sociale des controverses publiques à travers des pratiques locales de gestion des déchets. Dans un sens plus large, la thèse permet de revoir les notions usuelles à l'égard des relations entre conflits et ordre.

**Mots-clés** : incinération des déchets solides municipaux, champ d'action stratégique, action collective, ordre social, Chine

## **Abstract**

The past few decades have witnessed the growth of controversies regarding municipal solid waste (MSW) incineration in many cities around the world. This is especially true when it comes to large and medium-sized cities in China. Various categories of actors—including the state, local authorities, market actors, and the civil society—seek to exert their influence on the construction, expansion, and/or operation of incinerators. Even though the controversies over MSW incineration have been discussed across a range of disciplines in previous literature, we are not in the presence of a sufficient collective understanding of stability and change of the meso-level social order. This dissertation addresses the following question: How and to what extent do interactions and competition between pro-incineration and anti-incineration groups contribute to defining a strategic action field (SAF) where the incineration-dominated industrial structure and waste disposal policies are challenged or maintained? To answer the question, this study considers MSW incineration in China an SAF and attempts to clarify what is happening in this SAF from three aspects: actors, strategic action, and policy impacts. Based on a qualitative research design, a great volume of primary and secondary data were collected, including 42 semi-structured interviews, 557 online posts, research reports, archival materials, environmental impact assessment reports, online news, statistical data, and policy documents. With the help of collected data, this study deepened the understanding of the relationship between proponents and opponents in the field of incineration and shed light on their respective arguments. In addition, the process through which activists used social media for consensus mobilization was given additional attention. Moreover, by analyzing the dynamics of the interplay between activists and policy makers, this study revealed and contextualized the evolution of the SAF over the past few decades. The findings showed that controversies around MSW incineration had gone beyond the concerns for personal interests and environmental well-being. This allows to introduce more refined explanations compared to conventional discourses regarding anti-incineration protests and provide a more nuanced understanding of local activism. This exploratory analysis also helped to better understand the political and social significance of public controversies through local practices of MSW management. In a broad sense, this dissertation

makes it possible to review the usual conceptions with regard to the relations between conflict and order.

**Keywords** : municipal solid waste incineration, strategic action field, collective action, social order, China



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## **List of Abbreviations**

BOT: Built Operate Transfer

CCP: Chinese Communist Party

ICT: Information and Communications Technology

LDA: Latent Dirichlet Allocation

LULU: Locally Unwanted Land Use

MSW: Municipal Solid Waste

NGO: Non-Governmental Organization

NIABY: Not in Anybody's Backyard

NIMBY: Not In My Back Yard

NOPE: Not On Planet Earth

SAF: Strategic Action Field





*To those who are committed to a greener life*



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## General Introduction

The 21st century is the century of cities (Hall & Pfeiffer, 2000). A large number of cities—especially those in the Global South—are facing a series of environmental and health threats, such as deforestation, biodiversity loss, air pollution, water contamination, and waste crisis (Kacyira, 2012). All these environmental and health challenges date back to the Anthropocene (Biermann, 2020; Dryzek, 2016). Given that environmental issues are multidimensional, many political and economic choices have great impacts on the environment. Extensive economic and urban development largely threatens the ecological equilibrium.

The waste crisis is closely related to the current mode of economic and urban development. It is a part of a series of economic, political, social, and cultural problems we are facing. Waste management has therefore become increasingly prominent for decision makers (Bacot, Bowen, & Fitzgerald, 1994). As the world's municipal solid waste (MSW) piles up, incineration has been widely used in garbage disposal process in many countries, especially those with high population density (Kaza, Yao, Bhada-Tata, & Van Woerden, 2018). Incineration, also named as waste-to-energy or energy-from-waste, is a “thermal treatment” technology that converts waste materials into ashes, flue gas, heat, and electricity by combusting organic substances (X. Li, Zhang, Li, & Zhi, 2016; Wikipedia, 2020). Theoretically, incineration technology not only process a large amount of waste in a short time, but also provides energy for daily life and/or industrial production. In this sense, incineration perfectly cater to the needs of urban and economic development, at least according to the initial understanding of this technology.

Several European countries and Japan have practiced incineration technology since the 1960s (Rogoff, 2019). Recently, an increasing number of countries have decided to send MSW into incinerators (Botetzagias & Karamichas, 2009; Davies, 2008; Lang & Xu, 2013; Leonard, Fagan, & Doran, 2009; McCauley, 2009). As of 2018, there have been about 2,179 incineration facilities worldwide, most of which are located in Japan (1162), China (299), and the United States (84)

(Rogoff, 2019)<sup>1</sup>. These incineration facilities treated almost 11 percent of global waste, which can reach 22 percent in high-income countries (Kaza, Yao, Bhada-Tata, & Van Woerden, 2018, p. 34-36). Nonetheless, the application of MSW incineration for waste management or energy generation is controversial. In some cases, the implementation or operation of incineration plants encounter considerable resistance, especially due to environmental and health concerns (Johnson, 2013b; Lang & Xu, 2013; Laurian & Funderburg, 2014; Leonard et al., 2009; Nakazawa, 2017; Rootes, 2006).

The waste crisis has also brought huge challenges to China<sup>2</sup>. Since 2004, China has become the world's largest waste generator (The World Bank, 2012). To find a quick solution to overcome the crisis, turning to new technology, such as incineration, seems to be the best option. In this case, China's first MSW incineration plant was put into operation in 1988 (Mao, 2017). During the following two decades, the number of incinerators slowly increased. From 2012 onwards, MSW incineration has grown by leaps and bounds to deal with the rapidly growing amounts of waste (Shapiro-Bengtson, Andersen, Münster, & Zou, 2020; Jieying Zhang, 2015). During this period of time, many activists initiated mobilizations for the purpose of rejecting the implementation and/or operation of incinerators (Alpermann & Bondes, 2019; Bondes, 2019; Bondes & Johnson, 2017; Johnson, 2013b, 2013a; Johnson, Lora-Wainwright, & Lu, 2018; Lang & Xu, 2013; Yao Li, 2019; Steinhardt, 2019; Steinhardt & Wu, 2016; Wong, 2016b, 2019b). Although anti-incineration forces have raised strong objections to incineration, a large number of entrepreneurs, experts, and municipal officials remain convinced of the advantages of this technology (INAGES01, INAGES02, INAGES05, INAENT01, INAENT02, INAENT03, INBGES01, INBENT01, INCGES01, INCENT01, and INCCHE01). On the whole, conflicts between concerned actors emerge around the construction, extension, and/or operation of incineration plants. These protests emerging in China provide numerous and various empirical materials for understanding controversies over

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<sup>1</sup> Due to different data sources, the number of incineration plants in China is slightly different from the number in text below.

<sup>2</sup> This study discusses controversies over MSW incineration in mainland China. Taiwan, Hong Kong, and Macao are not included in the discussion.



incineration. It also allows to examine in depth in what ways it is possible to reconcile social and technological concerns.

Undoubtedly, China's choice of waste disposal methods represents a strategy that has significant impacts on environmental management. The employment of incineration technology is closely related to the broader issue of environmental regulation. It is well known that many Chinese cities are facing numerous and severe environmental problems, such as smog, water pollution, land degradation, and biodiversity loss. In the face of these environmental hazards, whether burning waste is an appropriate choice is a matter of crucial importance. The possible negative effects on the environment related to the use of incineration technology become an indispensable concern for the future. Although incinerators are able to deal with a lot of waste in a short period of time, it is important to underline that it may take a long time to bear the environmental consequences. In this sense, the choice of waste disposal method determines whether China can achieve sustainable waste management in the future. In a broad sense, China's choice of waste disposal method reveals a problem that other countries have to deal with in the near future (if not already). Experience of waste disposal from China can therefore provide a reference for other countries, especially for those trapped in the waste crisis.

At the core of the dissertation is an account of how actors with different attitudes towards burning MSW compete or cooperate to exert impacts on the dominant order of incineration industry and policy in China. In other words, this dissertation by articles aims to provide insight into social actors' efforts to fashion and maintain a meso-level social order in the field of waste management. The meso-level social order in this field refers to the waste disposal industry and waste management policies. To address the core concern regarding the stability and shift of the social order, it is important to make sense of what actors actually do to gain advantages in struggles for this order. And it is also necessary to figure out how the order maintain or change in response to contentions in a given social structure.

This dissertation is subdivided into five chapters in addition to a general introduction and a general conclusion. Chapter 1 presents the state of the question. This chapter first introduces why controversies over incineration in China need to be explored and who are the actors involved in

these controversies. After reviewing previous literature, such as discussions on NIMBY (Not In My Back Yard), science and technology, social movement, online activism, and popular protests in China, theoretical perspectives and concepts that can help understand the issue of incineration is presented. Then, the main research question is raised.

Chapter 2 turns to research strategies. Concretely speaking, it introduces how the research plan has been set and how strategies have been adjusted according to the difficulties and obstacles encountered during the research. First, this chapter shows in what ways a qualitative research design has been developed based on case studies. Then, it introduces how abundant primary and secondary data have been collected during a three-month fieldwork and the follow-up research. In the end, this chapter discusses how different techniques and tools have been used to analyze the collected data.

The three following chapters consist of three articles, which focuses on waste management (in particular the issue of incineration) in China. Article 1 (Chapter 3) is an exploratory study which aims to understand the application of incineration as a strategy to solve the waste crisis. It introduces the issue of waste management by referring to controversies over incineration observed in China. A field research was conducted in three Chinese cities where proposals for incineration plants aroused disputes between different categories of actors. The collected empirical data consist of 42 semi-structured interviews and materials provided by interviewees. By examining the dynamic process of the three cases, this study illustrates the conflicts and tensions caused by the strategy of waste disposal.<sup>3</sup>

Article 2 (Chapter 4) examines the newly constructed public space through analyzing the growing important role of social media in cyberspace. Given that social representations are no longer conveyed exclusively by the traditional media, this article pays attention to the circulation within the virtual space. Incineration, as a starting point for examining the evolution of waste disposal policies, is therefore scrutinized through online posts on a very important social media platform

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<sup>3</sup> The article entitled "Thinking of anti-incineration protest in strategic action fields: Three case studies in mainland China" was published in *Local Environment* in April 2021. It is available at:  
<https://www.tandfonline.com/doi/full/10.1080/13549839.2021.1916897>

(WeChat) in China. More specifically, this article clarifies in what ways activists formulate collective claims against the widespread use of incineration technology. Two data analysis software—Gensim and NVivo—are applied to perform a content analysis. This article aims to clarify how representations and values around the environment, especially regarding the issue of waste management, are constructed in this visual space and how they contribute to defining public policy.<sup>4</sup>

Article 3 (Chapter 5) aims to increase the knowledge of an environmental field. For that matter, waste management policies are considered through conflicts, confrontations, and compromises constructed around incineration. By reviewing a series of consecutive events, this article portrays the interactions and competition within and around the field of incineration. The dynamic processes present how activists mobilize support from the state and adjacent fields, and how they take advantage of an emerging crisis. The processes also reveal how developers and officials make changes in response to contentions. Thus, the dominant order of the field is confronted in practice by referring to an institutional reality, which includes a strong tradition and a certain degree of cohesion. Following this idea, this article attempts to explore what is possible to do given the specificities that characterize what is happening in China.<sup>5</sup>

The central research question of this study is intended to understand how several categories of actors interact with allies and adversaries in an arena to maintain or change the prevalent social order of waste management. To address this research question, the three main articles of this dissertation focus on the most significant components of waste management in China, namely, MSW incineration, and examine the relationships between actors in a field confronted with a major environmental crisis. The following is the analytical links between the three articles. Based on social movement studies and other important concepts of contemporary sociology, the three

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<sup>4</sup> The article entitled “Anti-incineration mobilization on WeChat: Evidence from 12 WeChat Subscription Accounts” was submitted to *Environmental Communication* in August 2020 and a revised version was sent in November 2020.

<sup>5</sup> The article entitled “Stability and change in strategic action fields: Municipal solid waste incineration in China, 1988-2020” was published in Volume 7, Issue 1 of *Chinese Journal of Sociology*. It is available at: <https://journals.sagepub.com/doi/full/10.1177/2057150X20980843>.

articles all regard waste management in China as a strategic action field (SAF). It means that all three articles are concerned with the conflicts surrounding the field order. Discussions are developed based on the construction of incineration plants from 1988 to 2020 and the wave of anti-incineration protests from 2006 to 2019. More specifically, the connections between these articles stem from the willingness to articulate the three dimensions of strategic action fields: actors, actions, and policy impacts of actions. These dimensions are three core concerns of this dissertation. By covering these concerns, this study can present a systematic survey on conflicts and order in the field of incineration. The following aspects are therefore considered: heterogeneous actors and their views on MSW incineration (actors), social mobilization against incinerators (actions), and stability and change of the dominant order (policy impacts). Article 1 seeks to understand the tensions between incumbents and challengers with the help of three cases selected from the wave of anti-incineration protests. To deepen our understanding of challengers, Article 2 is an extension of Article 1. It shifts the focus to consensus mobilization via social media and explores challengers' efforts in constructing and expanding a public space against incineration. The first two articles pay more attention to embedded actors and their actions. By examining their actions and key characteristics, these two articles attempt to understand actors' endeavours to give meaning of their behaviours. They discuss two specific issues—the why and the how—of local resistance against MSW incineration. Article 3 jumps out of specific cases and explores the evolution of the order from a macro perspective. It examines the diachronic process through which various forces vie for the dominant order around the implementation and operation of MSW incineration plants. By presenting a dynamic and intricate picture, it discusses the extent to which collective agency succeed in overcoming structural constraints. In sum, by discussing the above-mentioned concerns, the three articles are carried out to investigate the difficulties faced by social actors in their attempt to counter markets and dominant rationality. Together, these articles link the issue of incineration with broader topics of waste management, environmental regulation, and social solidarity.

In summary, this dissertation is dedicated to understanding conflicts and order within the field of MSW incineration. This chapter (General Introduction) provides a bird's-eye view of the background and purpose of the study. The rest of the dissertation is organized as follows: Chapter

1 introduces the context of the study and gives an overview of literature review. This chapter also presents the theoretical perspectives of the research before defining the research question. Chapter 2 looks at research strategies, which includes research design, selection of cases, data collection, and data analysis. The three following chapters (Chapter 3, Chapter 4, and Chapter 5) consist of the three articles mentioned previously that focus respectively on actors, actions, and policy impacts in the field of waste management in China. In the end, a general conclusion underlies the contributions and limitations of the study. It also presents some critical reflections.



# Chapter 1. The State of the Question

Focusing on cooperation or competition around MSW incineration in the field of waste management, this study wants to explore how diverse actors vie for promoting diverse concerns and values in the public space. This chapter is dedicated to contextualizing what is happening in China and introducing the theoretical perspectives that the research is based upon. The first section looks at the background under which MSW incineration has been subject to many controversies. It also explains why China was selected as the geographic location of this study and who are the main actors concerned about effects generated by the decision of burning garbage. The second section then reviews previous literature that is related to this topic. Subsequently, the third section introduces the theoretical perspectives based on which this research develops. And finally, the fourth section puts forward the research question and shows the research purposes.

## 1. Context of the Study

### 1.1 China as an Important Laboratory for Observing Controversies over Incineration

Since China implemented the Reform and Opening-up Policy<sup>6</sup>, economic development and urban sprawl have become distinctive characteristics. Accompanied by rising standards of living and growing urban population, a large number of cities, especially those with high population densities, were besieged by MSW. Taking Beijing as an example, about five hundred waste dumping sites were found distributed along Fifth Ring Road and Sixth Ring Road ten years ago (Jiuliang Wang, 2010). These sites encircled the entire city and almost formed an encirclement of MSW around Beijing. According to statistical yearbooks issued by the Ministry of Housing and Urban-Rural Development (2003, 2018), collected and transported MSW in Beijing increases from 3.214 million tons in 2002 to 9.248 million tons in 2017, at an average annual rate of about 7.3

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<sup>6</sup> The Reform and Opening-up Policy has transformed a planned economy into a socialist market economy in China.

percent. The Volume of MSW in Beijing in 2017 is almost three times that of 15 years ago (National Bureau of Statistics of China, 2018). From a national scope, waste disposal is a difficult problem as well. In the first decade of the 21st century, about half of the MSW across the county was not properly managed (Mao, 2017). According to a report, China generates over a quarter of the world's garbage in the early 21st century (The World Bank, 2012). The volume of garbage increases at an annual rate of 8 percent to 10 percent at that time (Balkan, 2012). In 2019, approximately 240 million tons of MSW was collected and transported in China, which is more than twice the amount collected and transported 20 years ago (National Bureau of Statistics of China, 2000, 2020).

China's choice of waste treatment technology is a matter of the future. On the one hand, the construction of waste disposal facilities influence the way through which urban administrators in China resolve the contradiction between the limited urban space and the ever-increasing urban population. This is closely related to Chinese people's quality of life and living conditions in the next few years. On the other hand, China's investment and construction of incineration plants represent a choice that will orient the world's future waste management system. With the increasing severity of the garbage crisis, many countries need to invest more in waste disposal. China's choice provides references for other countries plagued by waste. And China's efforts in waste sorting, waste recycling, and transformation of consumption patterns largely affect sustainable waste management on a global scale. In this sense, waste management in China has become a global concern.

At the beginning of the 21st century, the demand for waste disposal was increasing with the large quantity of waste. However, existing waste disposal facilities—mainly including landfill and composting—in China were not sufficient to cope with the fast-growing MSW. Many landfills reached their capacity limits, while composting took too much time (INBGES01). To find a quick way out of the predicament, both central and municipal governments turned to incineration. Stimulated by the *Twelfth and Thirteenth Five-Year Plan*<sup>7</sup>, MSW incineration has entered a stage

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<sup>7</sup> The Five-Year Plans are a series of social and economic development initiatives that have been issued by the Chinese central government since 1953.



of rapid development over the last decade. Many provinces formulated policies to encourage the implementation of MSW incineration projects. Provinces that did not develop a burning policy have incorporated incineration into local plans. Provinces that already had incineration plants have set radical development goals (National Development and Reform Commission and Minister of Housing and Urban-Rural Development, 2016).

Many major cities have expanded existing incineration plants or built new ones. A growing number of second- and third-tier cities have also given priority to incineration (Bondes, 2019). Being regarded as a space- and time-efficient waste disposal method, incineration technology was vigorously promoted. This phenomenon was called “Great Leap Forward<sup>8</sup> of incineration” (Zhang, 2015, p. 57). By the end of 2019, a total of 389 waste incineration projects were put into operation across the country, most of which were located in the eastern and southern areas of China (Zhu, 2020). A recently published statistical yearbook shows that 58 new incineration plants were built and put into use in 2019 alone (National Bureau of Statistics of China, 2020). In the same year, approximately 240 million tons of MSW was collected and transported across the country, of which 52.6 percent was sent to incinerators (National Bureau of Statistics of China, 2020). Nonetheless, burned garbage accounted for only 12.9 percent of the total treated MSW ten years ago (National Bureau of Statistics of China, 2010). According to a research issued by the World Bank, China’s shift to incineration in recent years has contributed to the increase in the amount of burned garbage from 0.1 percent to 10 percent in upper-middle-income countries (Kaza et al., 2018, p. 2). The entire country’s MSW incineration capacity will increase by about 30 percent in the next few years (Rock Environment and Energy Institute, 2020).

Although incineration was touted as a waste digester, it has encountered continuous criticisms and fierce resistance. For example, China’s radical development of MSW incineration was criticized for being at risk of overinvestments (Shapiro-Bengtson et al., 2020). More importantly, the implementation and operation of incineration plants aroused contentions in many cities.

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<sup>8</sup> The Great Leap Forward (Chinese: 大跃进; pinyin: *Da Yuejin*) is an economic and social campaign promoted by the Chinese Communist Party (CCP) from 1958 to 1962. It refers to actions that neglect objective laws and unrealistically pursue a high goal in a short period of time.

Starting from the opposition to Liulitun Incineration Plant in 2006, the wave of anti-incineration protests has swept dozens of large and medium-sized cities in China. Affected residents, environmentalists<sup>9</sup>, and technical experts have engaged in resistance against MSW incineration and appealed to a clean and healthy living environment. Compared with other types of popular protests, such as anti-nuclear campaigns, anti-PX<sup>10</sup> protests, and anti-dam movements, local opposition caused by incineration is unprecedented in occurrence, intensity, and the number of participants. For example, in 2014, people in Hangzhou collected signatures from more than 20,000 people to oppose a proposal for Jiufengshan Incineration Plant. Due to strong resistance, the construction of the plant was forced to postpone. In 2016, thousands of people gathered in front of the city hall of Gaoyao District to express their dissatisfaction with a proposal for an incineration project. In order to quell growing discontent, the local government stopped land acquisition for the project. In 2019, thousands of people took to the street to object to an incineration plant from being constructed in Wuhan. The conflicts between the public and the police attracted considerable media attention. In fact, the above-mentioned examples are just a few of anti-incineration campaigns that happened in recent years in China. According to my own database (see Appendix A), there were 95 identified anti-incineration protests occurring from 2006 to 2019. And more than half of the campaigns exceeded 1,000 participants. In brief, China is a relevant laboratory for observing controversies over incineration.

## **1.2 Actors Engaged in Controversies over Incineration**

In fact, disputes over incineration involves a wide range of stakeholders. Different categories of actors—mainly including the central government, local governments, incineration companies, technical experts, affected local residents, and environmentalists—have formed a complex interactive network of relations in the field of incineration.

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<sup>9</sup> In this study, environmentalists include both professionals working in environmental NGOs and grassroots environmental activists. There is a great number of independent activists working for environmental issues in China.

<sup>10</sup> “PX” is the abbreviation for paraxylene. This is a chemical feedstock that may endanger human health.

In this field, the central government formulates laws, regulations, policies and standards to provide general guidance for waste management. The State Council designated 16 government departments related to MSW management and their responsibilities (State Council, 2011). The Ministry of Housing and Urban-Rural Development, as the main authority at the national level, is responsible for the management of MSW disposal industry. The Ministry of Environmental Protection<sup>11</sup> plays a key role in the environmental impact assessment of MSW treatment facilities, the formulation of pollution control standards, and the supervision of pollutant discharge. The National Development and Reform Commission, together with the two ministries just mentioned, formulate national MSW management plans and coordinate comprehensive policies. The Ministry of Finance formulates fiscal and taxation policies to support MSW disposal. And the Ministry of Land and Resources (superseded by the Ministry of Natural Resources in 2018) is responsible for formulating land standards for MSW treatment facilities and ensuring the land supply for construction.

At the municipal level, the Bureau of Urban Management is responsible for collecting and transporting MSW and assisting the bid-winning company to build incineration plants (INAGES04). During the period of operation, the Bureau of Environmental Protection is committed to monitoring and controlling pollutant emissions. Although municipal governments are considered the main actor in charge of investment and management of incineration plants, the application of the build-operate-transfer (BOT) model<sup>12</sup> turns incineration companies into the main player. This model helps reduce local financial burdens through introducing social capital. Based on the BOT model, local governments transfer the rights of design, construction, implementation, and operation of a plant to a company by franchise and obtain waste disposal services from the bid-winning company. Municipal governments can take back the plant without compensation after 20-30 years, according to the contract they signed (INAENTO1). In this sense, business actors play

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<sup>11</sup> The Ministry of Environmental Protection was superseded by the Ministry of Ecology and Environment in 2018. Before 2008, it was known as the Environmental Protection Bureau (or the State Environmental Protection Agency according to the translation).

<sup>12</sup> The build-operate-transfer (BOT) model refers to a business form that introduces the investment of companies.

essential roles during the processes of building and running incineration plants, at least during the first few years. Incineration companies, in most cases, are state-owned companies or Sino-foreign joint ventures. In the initial stage of construction and operation, local governments largely rely on capital investment from these companies to meet the demand for a huge number of upfront costs (INAGES03).

Technical experts are an important source of information. Several university professors and engineers were initially involved in the field of incineration as technical experts. They were commissioned by the central government to evaluate the current status of the national waste management system and make remedial suggestions. These experts played an important role in formulating incineration-oriented policies and selecting the locations for building incineration plants (H. Wang & Nie, 2001a, 2001b). As problems related to incineration arose, a new group of experts entered the field and openly criticized the incineration-oriented policy (National Academy of Development and Strategy of Renmin University of China & Beijing Academy of Development and Strategy of Renmin University of China, 2017). These two groups of experts, with different views, compete for knowledge and scientific evidence on specific issues related to incineration through meetings, public discussions, conferences, and academic articles (The Beijing News, 2010).

Residents are the most numerous actors in the field of incineration. Some of them are victims of incineration plants in operation, and others oppose the proposal to build a new incineration plant. More specifically, local protests to incineration mainly involve the following two aspects. On the one hand, suffering from asymmetric information and environmental pollution, affected residents expressed distrust and dissatisfaction with the incineration plants in operation. On the other hand, considering the expected negative externalities, many people showed concerns about proposals for constructing new incinerators or extending the existing ones. Striving to reduce environmental pollution and to increase environmental benefits, they sometimes take institutional measures against incineration (including applying for information disclosure, administrative reconsideration, and litigation), and sometimes initiate extra-institutional

collective actions (including petitions, sit-ins, “peaceful strolls”<sup>13</sup>, and street protests) (INARES01, INARES03, INARES04, INBRES01, INBRES02, INBRES03, INBRES04, INBRES05, INBRES06, INCRES01, INCRES02, INCRES04, and INCRES05).

Recently, environmental lawyer, grassroots activists, and environmental NGOs have been more active in the field of incineration. Environmental lawyers mainly help affected residents to initiate environmental litigation to protect their rights (INCENV04). Grassroots activists have been engaged in local resistance and have provided assistance to affected residents. Constrained by resources, they may be involved in an individual case or a few cases (INAENV01, INCEVN03, INCENV04). Environmental NGOs, such as the Green Beagle, the Nature University, the Wuhu Ecology Centre, the Friends of Nature, and the China Zero Waste Alliance, are also active members of the anti-incineration community. They collected and translated scientific knowledge and informed the public about the technical and environmental risks of incineration. They also called for higher standards of pollution discharge and stricter supervision and regulation of incineration plants (INBENV01, INBENV02, INCENV01, INCENV02).

Various categories of actors cooperate, compete, and negotiate around the dominant order within the arena of MSW incineration. However, local residents and environmentalists do not share the same optimism over incineration technology with government officials or industrial representatives. On the issue of incineration, there is no uniform opinion among technical experts. Actors with different attitudes towards the issue of incineration interact in the field and seek to influence the order of waste management. This will be discussed in Chapter 3 and Chapter 5.

## **2. Literature Review**

Controversies over MSW incineration have already received the attention of scholars in multiple disciplines, including sociology, public administration, urban studies, and communication studies.

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<sup>13</sup> The opposition to a paraxylene (PX) plant happening in Xiamen in 2007 represents the first successful resistance against an unwanted urban infrastructure project in China. The peaceful stroll, invented by activists, has been regarded as a useful repertoire of contention and has been imitated hundreds of times in subsequent local protests.

Many researchers regarded resistance to incinerators as a kind of NIMBY syndrome (L. Hou & Liu, 2014; Y. Hu, Sun, & Chen, 2013; J.-W. Lu et al., 2019; Zheng, 2013). Certain scholars considered it an offshoot of environmental movements (Walsh, Warland, & Smith, 1997). Researchers also focused on the complex socio-technical system behind the controversies (Jieying Zhang, 2015). Others discussed the framing process in anti-incineration protests (Futrell, 2003; Walsh et al., 1997). This dissertation draws on concepts and approaches that have been discussed in several research fields, including NIMBY studies, science and technology studies, sociology of social movements, online activism research, and studies of popular protests in China.

## **2.1 NIMBY Studies**

Controversies around MSW incineration have been frequently discussed in NIMBY studies. The notion of NIMBY appeared in social science literature in the early 1980s. At that time, scholars used the NIMBY concept to describe suburban middle-class or upper-class homeowners' efforts to deny affordable housing in their communities and minority groups' struggles against hazardous waste landfills in their neighborhoods in North America (Matheny & Williams, 1985; Portney, 1984). It was not long before scholars realized that local resistance against unpleasant facilities or polluting projects had occurred in many parts of the world (Lesbirel, 1998; Rabe, 1994; H.-W. Shen & Yu, 1997; Welsh, 1993). Since then, NIMBY has been used to describe the community-based opposition to the siting of potentially hazardous facilities in neighborhoods. Research on this phenomenon involves a wide range of fields, such as sociology (Futrell, 2003; Shemtov, 1999; Wexler, 1996), public administration (Devine-Wright, 2009; Devine-Wright & Howes, 2010; Hager & Haddad, 2015; Lesbirel & Shaw, 2005), energy policy (Wolsink, 2007), and urban planning (Gleeson & Memon, 1994; L. M. Takahashi & Gaber, 1998).

Facilities that are likely to trigger NIMBYs (or NIMBYism) usually include projects with environmental risks (including landfills, chemical plants, oil refineries, and nuclear waste repositories) and stigmatized human service facilities (including prisons, detention centres, mental health facilities, homeless shelters, and drug treatment centres). For residents in affected communities, these proposed projects may inflict consequences that are perceived by residents as negative impacts on neighborhood livability (including odour, noise, dust, radiation, truck

traffic, water pollution, toxic chemicals, dis-amenities, and stigmatization) and/or decrease property values. These unpleasant projects often encounter resistance from local communities, which leads to political gridlock. Because of this, a number of researchers named these objections NIMBY syndrome (Dear, 1992; Gervers, 1987; Inhaber, 1998; Mazmanian & Morell, 1994).

In previous literature, the majority of studies explored opposition to the following types of facilities: wind farms (Schwenkenbecher, 2017), nuclear power plants (Greenberg et al., 2007), hazardous waste landfills (Gerrard, 1996; Kearney & Smith, 1994; Sherman, 2012), incineration (Hunter & Leyden, 1995; J.-W. Lu et al., 2019), and certain human service facilities (Gibson, 2005; Gleeson & Memon, 1994; L. Takahashi, 1998). Scholars tried to give explanations for the rise of NIMBYs, such as demographic factors (Benford, Moore, & Williams, 1993; Devine-Wright, 2005), wrong siting (Gerrard, 1996), landscape concerns (Schwenkenbecher, 2017), and the lack of trust in government or regulatory authority (Botetzagias & Karamichas, 2009; Snary, 2004). Based on these explorations, they also put forward several methods to “break the cycle of NIMBYism” (Devine-Wright, 2011, p. 19), such as compensation (Lesbirel, 1998), improving risk communication (L. Huang et al., 2018), and ensuring procedural justice (Ottinger, Hargrave, & Hopson, 2014; Schwenkenbecher, 2017; Simcock, 2016).

Recently, a growing body of literature has questioned the appropriateness of NIMBY (Kraft & Clary, 1991; Williams & Matheny, 1998; Wolsink, 2006). Several scholars indicated that it was not a well-defined concept (Devine-Wright, 2009; Steinhardt, 2019). In this sense, many researchers attempted to remove the negative assumptions that the NIMBY concept implies and looked at it in a more objective light. They regarded NIMBY as a kind of beneficial effort in response to coercive policies (Lesbirel & Shaw, 2005). Many other scholars worked to rectify the definition of NIMBY by emphasizing its positive impacts on technological development, public policy, and civil society (Aldrich, 2008; Hager & Haddad, 2015). For instance, they indicated that local activism might contribute to redefining public goods (Plantan, 2015), developing technological innovations (Schreurs & Ohlhorst, 2015), correcting experts’ miscalculations in environmental policymaking (McAvoy, 1998), commanding attention to environmental justice (Hager, 2015), and enhancing participatory governance (Hager, 2015).

While the NIMBY concept has evolved in the past few decades, it is criticized for being highly negative most of the time (Kraft & Clary, 1991). With this in mind, scholars have proposed to abandon its use (Burningham, 2000; Gibson, 2005). Others have attempted to reconceptualize local opposition and formulate certain alternatives (Boudet, 2011; Lober & Green, 1994), including NIABY (Not in Anybody's Backyard), LULU (Locally Unwanted Land Use), NOPE (Not On Planet Earth). In spite of these attempts, NIMBY and its alternatives has remained controversial. In this dissertation, the NIMBY concept will not be used to refer to anti-incineration campaigns for the following reasons. First, NIMBY is mainly used to describe preventive resistance against proposals for undesirable infrastructure projects. It excludes opposition to already built facilities (for example, an incineration plant in operation for several years) or resistance against further damages caused by expansion of previously completed projects (for instance, the phase 2 of an incineration plant). In this case, NIMBY cannot fully cover people's objections to the construction, expansion, and operation of certain undesirable projects. Second, NIMBY conveys a preconceived assumption. Scholars who use the NIMBY concept tend to characterize local resistance as either naively ignorant or cynically self-interested action that focus on one-time policy changes. Once labelled as NIMBYs, opponents of a specific project will be conceived of as being emotional and conservative. In this sense, activists may be regarded as obstructionist of public interest. Third, NIMBY contains local bias criticism. NIMBY label, to a great extent, implies that local protests are driven by parochialism and local protectionism (for example, see Michaud et al., 2008). The concept only refers to activism against projects in their community, which rules out general opposition to unpleasant facilities (no matter where they are located). Fourth, the NIMBY concept rests on a simplistic model of causal attribution. Fallacy of the single cause leads researchers to look for the single (or the main) explanation for local resistance. However, motivations against incineration plants may change from one case to another (for instance, size of the plant, distance to the facilities, or demographic composition of local residents) and in most cases, resistance comes from the mix of multiple motivations. In short, the NIMBY concept is not enough to describe the complexity of local activism. As indicated by Bruce A. Williams and Albert R. Matheny (1998, p. 172), local protests are sometimes "more complicated than the NIMBY label implies". From a general point of view, concerns of activists refer to broader economic and environmental



agenda (Johnson, 2016, p. 15) while NIMBY is too narrow to cover these claims and demands. Nevertheless, NIMBY studies should not be ignored when studying anti-incineration campaigns.

## **2.2 Science and Technology Studies**

In contemporary society, scientific and technical developments widely affect our daily lives. A significant proportion of public controversies are related to technical decision-making. In science and technology studies, these controversies have been widely discussed. For decades, researchers have noticed that experts and the public often hold competing views on complex socio-technical issues (Nelkin, 1984, 1987), such as climate change (Guay, 2016; Hulme, 2013; Miller & Edwards, 2001; Yearley, 2009), genetically modified organisms (Dryzek, Goodin, Tucker, & Reber, 2008; Irwin, 2006; Murphy, Levidow, & Carr, 2016), and nuclear energy (Fang, 2014). Characterized by the uncertainty of knowledge, many scientific and technological issues are obscured by an “information haze” (Futrell, 2003, p. 359). In many cases, different interests, various cognitive frames, and even uncertain risks may raise disputes between experts and the public (Guay, 2005, 2018). Science and technology studies therefore focus on divergences closely related to the development of scientific research and application of technological innovations (Brown, 2009; Jasanoff, 1990, 2004; Maasen & Weingart, 2006; Pestre, 2006; Yearley, 2005).

Since the publication of *The Structure of the Scientific Revolution* (Kuhn, 1962), a realistic humanism had been introduced into science. Accordingly, the absolute authority of technically qualified elites in decision-making was challenged. In the early 1970s, “fundamental indeterminacies in knowledge” (Wynne, 1996, p. 45) was emphasized, and science and technology studies achieved in the Wave Two (Collins & Evans, 2002). Experts with scientific training was no longer regarded as the only resource for decision-making. Public debates and social movements questioned the citizen-expert dichotomy and sought to blur the dividing line between expertise and experience (Tesh, 1999). Technical experts were considered to be insufficient to solve complex issues, especially the socio-technical issues involving the interests of various groups (Hager, 1995). Meanwhile, the legitimacy of decision-making based on “folk wisdom, peer groups and traditions” (Krimsky & Plough, 1988, p. 107) was greatly promoted. On the one hand, the universal knowledge held by experts was not necessarily considered applicable

to local conditions. On the other hand, expert-led decision-making was criticized for neglecting the willingness and ability of social actors' participation in public affairs (Fischer, 1990; Wynne, 1996; Yearley, 2000). Considering that many decisions might have far-reaching impacts on human health and ecosystems, many scholars adopted deliberate, thoughtful, and conscientious attitudes towards the application of certain new technologies. They believed that traditional elites, such as politicians, entrepreneurs, and technical experts, were unlikely to put forward widely accepted proposals for complex socio-technical issues (Wolsink, 2010). Solution providers should be expanded beyond traditional decision-making authorities, especially in local affairs. On the one hand, many experts were found incorporating their personal preferences or political opinions into interpretations of scientific research. Their objective and fair images were widely questioned due to past scandals (Mazur, 1987; Oreskes & Conway, 2010; Travis, 1981). This explains why activists recruited a set of prestigious and sympathetic scholars and/or scientists from their own camps to offer alternative interpretations. On the other hand, expert-led decisions were criticized for paying little attention to affected people, especially marginalized populations. During the Wave Two, scholars pointed out that the participation of social actors could provide counter-expertise and local knowledge that helped to refine decision-makers' understanding of complex issues (Irwin, 2001; Wynne, 2016; Yearley, 2000). In this sense, researchers called for an "extended peer community" (Funtowicz & Ravetz, 1993, p. 740). Different actors (including international organizations, industry associations, local groups, the media, and ordinary people) were encouraged to participate in public affairs to ensure that various interests could be taken into account by decision makers (Ravetz, 2004).

Since the 21st century, science and technology studies had experienced the "expert's regress" and started the Wave Three (Collins & Evans 2002, p. 240). Scholars (Collins & Evans, 2002; Collins, Weinel, & Evans, 2010) reiterated the role of experts in technical decision-making since the engagement of "lay experts" (Prior, 2003, p. 43) cannot answer "how far should participation in technical decision-making extend" (Collins & Evans, 2002, p. 237). Experts were believed to remain authoritative in the specific field in which they were trained (Collins & Evans, 2007). Many studies indicated that experts still played an irreplaceable role in defining and characterizing complex issues (Collins et al., 2010). For that matter, researchers tried to "disentangle expertise

from political rights in technical decision-making” (Collins & Evans, 2002, p. 235) and emphasized the boundary and balance between experts and the public. More specifically, scholars admitted that experts and the public may refer to different types of knowledge about a same technical issue. This did not mean to deny the right of stakeholders, but emphasized the different roles played by experts with scientific knowledge. However, this division has also received a few critical responses (Jasanoff, 2003; Rip, 2003; Wynne, 2003). Recently, attempts to build bridges between science and technology studies and social movement studies have provided new possibilities for understanding how shifts in epistemic authority boost technological disputes and how these disputes reshape power relationships (Hess, 2009, 2015; McCormick, 2007; Moore, Kleinman, Hess, & Frickel, 2011; Welsh & Wynne, 2013).

Conflict over incineration projects is often discussed in science and technology studies. In many cases, disputes over MSW incineration were believed to be cognitive ambiguities caused by the uncertainty of scientific knowledge (Jieying Zhang, 2015). In many local protests, scientific knowledge and local experience cannot reach consensus in terms of environmental pollution and health hazards that may be caused by burning garbage. For example, although dioxins<sup>14</sup> have been confirmed by scientific research to be by-products of MSW incineration, there is no universally recognized safety standards and ways of measurement. It is the “undone science” (Frickel et al., 2010; Hess, 2009) that allows different interpretations of dioxins between experts and the public and leads to divergences. Therefore, in a complex socio-technical issue, science is not always taken for granted as an authority. Local knowledge can also gain legitimacy in the process of negotiation and competition. When discussing the application of controversial and risky technologies, it is worth examining how the boundary between traditional experts and the public is continuously delineated and redefined in disputes. Since this is an important step to understand how social actors frame controversies.

To some extent, the public seeks to participate in the decision-making process of waste management through the reproduction of knowledge. However, redefining the legality of a technology is only one aspect of their strategic action. Controversies over MSW incineration

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<sup>14</sup> Dioxins are a group of highly toxic compounds that are likely to be formed in incinerators.

actually refer to a broad range of topics. In this dissertation, existing literature in science and technology studies will be integrated into the overall research framework to help understand disputes over incineration technology.

### **2.3 Sociology of Social Movements**

At the outset, sociologists saw social movements as marks of social disorder. However, partly due to the rational choice theory introduced by Mancur Olson (1965), sociology of social movements has distanced itself from breakdown theory. At the beginning of the 1970s, noninstitutionalized collective action got rid of the “unconventional” label and were regarded as “politics by other means” (McAdam et al. 2001, p. 6). Since then, sociology of social movements has developed into a specialized field to explore people’s engagement in collective action (Gamson, 1975; McCarthy & Zald, 1977; Tilly, 1977), their relation with institutions through collective action (Hamel & Maheu, 2008; Hamel, Maheu, & Vaillancourt, 2000; Lustiger-Thaler, Maheu, & Hamel, 1998), and the impact of collective action on the political scene (Castells, 1983, 1996; Cohen & Arato, 1994; Giugni, McAdam, & Tilly, 1999). In this field, researchers try to answer the following questions: Who are the actors involved in controversies? What brings them into conflicts? By what means are activists able to define a common goal recognized by participants? What strategies do they use? To what extent and under what conditions are actors able to reverse inaction? What are the unanticipated effects of protest activities? Answers to these questions have developed into several theoretical perspectives. The following paragraphs will look at three important theoretical contributions that have formed in social movements studies.

The emergence of resource mobilization approach is largely based on the reflection on the theory of collective behavior (Gurr, 1970; Smelser, 1962). Instead of taking social movements as irrational or being involved in deviant behaviors, resource mobilization approach considers that these “extra-institutional entrepreneurs” are extensions of conventional politics (King & Soule, 2016, p. 414). Scholars believe that actors have rational conscious and their engagement in collective action are primarily based on cost-benefit calculation (McCarthy & Zald, 1977; Oberschall, 1973; Tilly, 1977). They argue that resentment itself is not enough for mobilizing collective action. To a great extent, resource availability is considered the key to successful

mobilization. Through this perspective, theorists attempted to find out the conditions that enabled grievances or misfortunes to be transformed into collective action. For example, many studies explored how organizations provided resources and established collective identity to ensure the continuity of movements (Morris, 1981, 1984). In addition, participation and recruitment were also important research topics of resource mobilization approach. A lot of scholars focused on the mobilization process through which people became members of a social movement (Klandermans, 1984; Klandermans & Oegema, 1987; Oegema & Klandermans, 1994), while others explored how social relations networks influenced participation in protest activities (Diani & McAdam, 2003; Gould, 1991, 1993). However, considering the society as an equal and fully competitive market makes resource mobilization approach fall into the trap of reductionism. Scholars questioned that this approach paid little attention to identity-related issues (e.g., see McAdam, Tarrow, and Tilly 2001).

For many sociologists, social movements are political struggles initiated by groups excluded from institutionalized system in order to defend their own interests or strive for new privileges. In this sense, the structural determinants of conflicts are emphasized. Paying more attention to the broad political and institutional environment, researchers proposed political process model to explore how structural conditions affected the emergence, forms, operation, and intensity of social movements (Kitschelt, 1986; McAdam, 1982; McAdam, McCarthy, & Zald, 1996; Tilly, 1977). They believed that “general features of a regime affect[ed] the opportunities and threats impinging on any potential maker of claims” (Tilly & Tarrow, 2015, p. 59). In this sense, a more favorable political environment (such as a reduction in repression, less bureaucratization of the state administration, and disagreements among political elites) might open a window of opportunity for collective action (Eisinger, 1973; Gamson, 1975; Tarrow, 1989, 1994). From this perspective, studies discussed how different types of regime (especially in an authoritarian context) influenced the construction of spaces for protest (Almeida, 2003; Chang & Vitale, 2013; Li, 2017; McAdam et al., 2001). And several comparative analysis helped elaborate the relationship between political conditions and protest activities (Giugni, 2004; Goodwin & Skocpol, 1989; Kitschelt, 1986; Kriesi, 1995; Rucht, 1994). Discussions from the perspective of political opportunity structure usually put the state at the centre of analysis. As Charles Tilly (2008, p. 5)

said, this perspective focused on “interactions in which actors [made] claims bearing on someone else’s interest, in which governments appear[ed] either as targets, initiators of claims, or third parties”. However, the state-centric assumption contained in political process model was questioned (Armstrong & Bernstein, 2008; Goodwin & Jasper, 1999).

While acknowledging the importance of necessary resources and political opportunities, scholars paid more attention to the cognitive liberation in understanding social movements (McAdam, 1982). In the 1980s, they sought to rediscover the importance of the actors’ subjective consciousness and called for a cultural turn (Gamson & Modigliani, 1989; Snow, Rochford, Worden, & Benford, 1986). In this case, frame approach received widespread attention. This approach is interested in “the actual interpretive work engaged in by movement actors and other relevant parties” (Snow, 2004, p. 380). It is therefore used to understand how individuals or collective actors “locate, perceive, identify, and label” (Goffman, 1974, p. 21) their concerns and correspondingly initiate social mobilization. On the one hand, frame approach inherits basic ideas of cognitive psychology and insists that how people act largely depends on how they think. On the other hand, frame approach draws inspiration from social constructionism and symbolic interactionism. In this sense, people’s understanding of the world is not a direct reflection of objects, events, or experiences that they encounter in real life (Snow, 2004). Instead, it must be constructed through an interactive process of interpretation. According to Klandermans (1997, p. 44), “the transformation of social issues into collective action frames...is a process in which social actors, the media, and members of a society jointly interpret, define, and redefine states of affairs”. Emphasizing the referential and symbolic meaning attached to events and actions, frame approach incorporates personal identity, subjectivity, and culture into social movement studies. In summary, the frame approach, in addition to available resources and open political opportunities, is a crucial step in turning grievances into action. It is mainly because of its descriptivist and phenomenological bias that frame approach has received varying degrees of criticism (Fine, 1995; Hart, 1996; Hess, 2015; Maheu, 2005; Oliver & Johnston, 2000; Steinberg, 1998, 1999).

From a general point of view, it can be said that resource mobilization approach, political process model, and frame approach present different ways of interpreting and conceptualizing social

movements. Each of them portrays a facet of extra-institutional collective action, including the role of emotions and psychological elements (Goodwin & Jasper, 2004; Goodwin et al., 2009; Gurr, 1970; Ritzer, 2007; Tarrow, 1998, p. 111), the selection of repertoires (McAdam et al., 2001; Tarrow, 1994; Tilly, 1977, 1979, 1993, 2004, 2005, 2006, 2008), the action networks (Passy & Giugni, 2001), and the engagement of the media (Klandermans, 1984). These preoccupations provide theoretical and methodological possibilities to understand the complexity of collective action. Nevertheless, to a certain extent, social movement studies have had a great deal of difficulties so far in overcoming the tension between structure and agency (Cefaï, 2007). For example, when it comes to the conflict with the state, the structuration of social life rest, first and foremost, on the state as if social actors cannot define themselves beyond it. Despite these divergences, sociology of social movements can provide many theoretical sources to develop this study.

## **2.4 Online Activism Research**

In recent years, with the emergence of the Arab Spring and the #MeToo movement, online activism has become an active research field (Della Porta & Mattoni, 2014; Denisova, 2017; Enjolras, Steen-Johnsen, & Wollebæk, 2012; Howard, 2013). The development of information and communications technology (ICTs) over the past few decades has expanded the capacity of information production and dissemination. In particular, the penetration of social media in people's daily lives has opened up a new space for public debate (Zorita, 2019). In the Web 2.0 era, people are no longer passive receivers of information. On the one hand, they proactively search for information they need; on the other hand, they produce content that affects the perception and behavior of others (Kern & Nam, 2009; Steinhardt, 2015; Vu, Do, Seo, & Liu, 2019). The proliferation of digital and social networking sites is believed to provide effective tools for activists (Ems, 2014; Juris, 2012). Taking advantages of the convenience and immediacy of social media platforms, such as Twitter, Facebook, YouTube, and TikTok, activists have created various digital arenas for controversial topics (Arlt, Rauchfleisch, & Schäfer, 2018; Comfort & Hester, 2019; Hendriks, Duus, & Ercan, 2016; Hutchins, 2016; Katz-Kimchi & Manosevitch, 2015; Trottier & Fuchs, 2014). Online mobilization via social media has therefore become a key strategy for many activists.

Unlike traditional mainstream media, social media are participatory and user-oriented (Tufekci, 2013). Many social networking sites serve as arenas for people with different views. In these online communicative spaces, “citizen journalists” (Luo & Harrison, 2019; Radsch, 2016; Wu & Wall, 2019) can bypass professionally trained journalists and reach a large audience in a short time (Lotan et al., 2011). Previous studies have found that online mobilization may enhance people’s awareness of a controversial issue through strategic mobilization. Online mobilization through social media platforms has therefore aroused great research interest (Breuer, Landman, & Farquhar, 2015; Enjolras, Steen-Johnsen, & Wollebæk, 2013; Harlow, 2012). According to prior literature, through “consensus mobilization” and “action mobilization” (Klandermans, 1984, p. 586), underrepresented individuals and groups can present their concerns, share relevant information, and motivate communal consciousness (Ems, 2014; Hendriks et al., 2016; Juris, 2012; Katz-Kimchi & Manosevitch, 2015; Trottier & Fuchs, 2014). In addition, they can also show public support to policy makers to advance agenda that suits their interests (Breindl & Briatte, 2013). However, previous studies have often been limited to discussions on the technological characteristics of digital tools (He, Boas, Mol, & Lu, 2017; R. Huang & Yip, 2012; Jost et al., 2018). More attention needs to be paid to activists’ creative use of media platforms.

Social mobilization in digital media settings is an interdisciplinary topic combining social movement studies and social media research. The knowledge accumulated in this field allows researchers to stand at the forefront of social and technological development, which benefits comprehension of the “personalized digitally networked politics” (Bennett & Segerberg, 2013, p. i). Exploring online activism can provide more possibilities to shed light on strategic action around MSW incineration, especially that in cyberspace.

## **2.5 Popular Protests in Contemporary China**

Although authoritarian regimes are not generally considered conducive to social engagement and provide few political opportunities for contentious politics, a large number of protests have occurred in China over the past few decades. Popular protests in contemporary Chinese society is therefore a topic of great concern in current literature (Cai, 2010; X. Chen, 2012; Yao Li, 2019; O’Brien, 2008; Perry & Selden, 2003; Tong, Lei, & Lei, 2013; Wright, 2018, 2019; Zhao, 2001). Prior



studies have addressed a variety of issues related to the student movement in 1989 (Yang, 2000; Zhao, 1998, 2000, 2001), labor protests (Estlund, 2017; Hurst, 2004; Lee, 2007; Pan, 2019; Su & He, 2010; Lu. Zhang, 2015), peasants' resistance in rural areas (Deng & O'Brien, 2014; L. Li & O'Brien, 1996; O'Brien, 2002), homeowner protests in urban areas (Cai, 2005; Cai & Sheng, 2013; Fu & Lin, 2014; Sheng, 2017; Shi & Cai, 2006), environmental conflicts (Deng & Yang, 2013; W. Li, Liu, & Li, 2012; Y. Sun & Zhao, 2007; Tong, 2005; Zhong & Hwang, 2016), and opposition to large infrastructure projects (He, Mol, & Lu, 2016; Hung, 2013). Inheriting elements from research made in the Western context, these studies have tried to make adjustments in order to provide theoretical guidance in line with the Chinese background.

In the field of popular protests in contemporary China, perspectives developed from the sociology of social movements were often used. Given the background of economic and social transformation, researchers believed that current institutional arrangements in China provided a political opportunity for dissidents to launch social protests (X. Chen, 2012; Elfstrom & Kuruvilla, 2014; Tong et al., 2013; Xie & Van Der Heijden, 2010). In terms of environmental conflicts, for instance, the expansion of the power of the Department of Environmental Protection in the central government, was considered to offer significant support for collective action related to environmental improvement and pollution prevention (Y. Sun & Zhao, 2007). Nevertheless, many researchers believed that Chinese society had limited political opportunity. For example, certain studies expressed concerns about the general tightening of political controls over the media, social organizations, and civil society after 2012 (Bondes, 2019; Steinhardt & Wu, 2016; Wright, 2018). In addition to political opportunities, the existing literature has also focused on the role of available resources in constant protests. Networks between activists have also been examined in recent literature (Bondes, 2019; Bondes & Johnson, 2017; Y. Lu & Tao, 2017). And the popularization of ICTs has been considered "the new dynamism of grassroots political change" (Yang & Calhoun, 2007, p. 211) and the fresh opportunities for digital activism (Cai & Zhou, 2016; Hung, 2013; J. Liu, 2013).

Although the sociology of social movements has provided several useful analytical tools, to a certain extent, it has been criticized for its inapplicability in understanding collective action rooted in non-Western realities (O'Brien & Li, 2006; Shi & Cai, 2006). The complicated and contingent

nature of protests requires more attention to the political, social, and cultural context in a given society. This is why a large number of scholars have suggested new theoretical perspectives and concepts to better explain the particularities of popular protests taking place in China. A large number of researchers have been dedicated to exploring salient features of these popular protests and proposing original interpretation mechanisms. Scholars first wondered why popular protests occurred. Based on James Scott's (1976) study of peasants in Southeast Asia, Elizabeth Perry (2001) used "moral economy" to analyze Chinese farmers' resistance against the tax burden in the countryside and laid-off workers' struggles in urban areas. She defined these protests as collective efforts for a basic subsistence or a decent livelihood. Similarly, a few scholars believed that motivations of collective action were more related to economic grievances instead of deprived individual rights (Tong et al., 2013). Others attributed the notable increase in protests to the ineffective dispute-resolution mechanisms in current institutional arrangements (Cai, 2020; X. Chen, 2012). In addition, attention was given to special strategies of activists. Kevin J. O'Brien and Lianjiang Li (2006) examined activists' claims and rhetoric tactics. They found that Chinese villagers were able to use laws, regulations, policies, directives, and other official discourses from higher-level authorities to defy decisions made by local officials. In this case, the success or failure of opposition significantly depended on the moral responsibility of local authorities (Cai, 2020). Researchers found that, to strive for more opportunities for success, activists clearly affirmed their recognition of the leadership of the Chinese Communist Party (CCP) and the legitimacy of the central government (Yanwei Li, Koppenjan, & Verweij, 2016). Previous studies also found the application of traditional symbols and cultural elements in protests (Haddad, 2015; Thornton, 2002). These findings showed that in rural environmental protests, "kinship, popular religion, moral concerns and ancient tales of justice serve[d] as important institutional and symbolic resources" (Jing, 2003, p. 208). Many researchers believed that Chinese activists not only understood what rights they should have, but also knew very well what strategies were effective. However, when activists faced a powerful interest group—for example, a strong industry alliance—they might turn to radical resistance (van Rooij, 2010). Moreover, the interactions between Chinese activists and the authorities as well as protests' impacts on policy implementation have caught the attention of many researchers (Heurlin, 2016; Yao Li, 2013, 2019;

Mertha, 2014; Su & He, 2010). Among these topics, much attention has been paid to the extent to which the size of protests affect the outcomes. According to a previous work, it was before all the protest size, not the timing or the demands, that determined the substantial responses from the authorities in the context of prioritizing social stability (X. Chen, 2012).

From a general standpoint, previous research has provided many useful perspectives to understand popular protests taking place in China. It is necessary to pay attention to unique characteristics of Chinese society, politics, and culture. These explosive analyses have shown possible ways to interpret empirical evidence from China, which are different from those created in the Western context.

## **2.6 Anti-Incineration Protests in China**

With the increase in the number of anti-incineration protests in China, scholarship has no longer been exclusively confined to cases in Western countries (Botetzagias & Karamichas, 2009; Campbell, 2002; Davies, 2008; Laurian & Funderburg, 2014; Nakazawa, 2017, 2018; Rootes, 2006, 2009; Walsh, Warland, & Smith, 1993). A growing number of researchers have set their sights on conflicts over MSW incineration taking place in China (Alpermann & Bondes, 2019; Bondes, 2019; Bondes & Johnson, 2017, 2017; Johnson, 2013b, 2013a; Johnson et al., 2018; Lang & Xu, 2013; Yanwei Li, 2017; Yanwei Li, Homburg, de Jong, & Koppenjan, 2016; Yanwei Li, Koppenjan, & Homburg, 2017; Yao Li, 2019; Steinhardt, 2019; Steinhardt & Wu, 2016; Wong, 2016b, 2016a, 2019b). The ever-growing anti-incineration campaigns in Chinese cities have sometimes been labelled as NIMBYs (J.-W. Lu et al., 2019; Zheng, 2013). They have also been considered to be associated with the rise of environmentalism (W. Li et al., 2012). In this sense, scholars have defined anti-incineration protests as environmental conflicts (Yanwei Li, 2017), environmental distribution conflicts (Johnson et al. 2018), environmental public interest campaigns (Steinhardt, 2019), or anti-siting campaigns (Johnson, 2016).

Previous studies mainly focused on five areas: political opportunities, motivations, networks, strategies, and outcomes. Wright (2018, p. 120) attributed the continuous emergence of protests to “disagreements among political elites” since elite solidarity largely determined political opportunities in Chinese context. Researchers also offered multiple explanations for why people

opposed to MSW incineration plants, such as psychological-emotional factors (Johnson, 2016), siting decisions (Johnson et al., 2018), health concerns (Johnson, 2013a), financial compensation (Johnson, 2013a), rising participatory demand (Johnson et al., 2018; Steinhardt & Wu, 2016). Interested in the spread of action frames across geographic space, several studies explored networks among affected residents, NGOs, journalists, lawyers and experts (Alpermann & Bondes, 2019; Bondes, 2019; Bondes & Johnson, 2017; Johnson, 2013a; Johnson et al., 2018; Lang & Xu, 2013). These studies found that both vertical and horizontal linkages helped mobilize geographically dispersed activists through integrating information flows, material resources, and successful experience (Bondes, 2019; Bondes & Johnson, 2017; Johnson, 2013b). In addition, studies paid attention to strategies used by activists, such as the development of environmental, ecological and health-related frames (Alpermann & Bondes, 2019; Johnson, 2013a), expert strategies (Johnson, 2013b), and depoliticization (Johnson, 2016). Moreover, a lot of attention was paid to interactions between activists and local government (Wong, 2016a). Responses of local officials to resistance was also a topic widely discussed (Johnson, 2016; Yanwei Li, 2017; Yanwei Li, Homburg, et al., 2016). Researchers further explored the extent to which resistance could change MSW management policy (Wong, 2019a). The research findings showed that protests themselves were not enough to be a direct cause of a particular policy change in China (Wong, 2016a, 2016b).

Although the ongoing anti-incineration protests in China have received increasing attention in recent years, there are several shortcomings in previous literature. First, relying on a single case or very small samples, many studies tended to be event-driven (Bondes & Johnson, 2017; Johnson, 2016; Johnson et al., 2018; Yanwei Li, 2017; Yanwei Li, Homburg, et al., 2016; Wong, 2016a, 2019b). Yet such a strategy cannot provide a full picture of conflicts over MSW incineration in China. Second, many previous studies failed to cover protests of varying intensity or scale. Rather, most studies surveyed large-scale and high-profile cases, for example, resistance against the Liulitun Incineration Plant (Zheng, 2013), the Panyu Incineration Plant (R. Huang & Yip, 2012), the Asuwei Incineration Plant (G. Hou et al., 2019), and the Panguanying Incineration Plant (Johnson et al., 2018). Other small-scale protests have not appeared on the radar of researchers. Focusing only on these influential cases may lead to a misunderstanding of the overall landscape of anti-

incineration campaigns in the entire country. Accordingly, exploring responses of the authorities through these cases might bias the results. Third, a large majority of studies examined protests that occurred before 2012 and did not cover recent data (Bondes, 2019; Yao Li, 2019). This leads to a lack of understanding of development and change regarding anti-incineration campaigns, especially considering new demands and contentious repertoires presented in recent collective action. This also leads to a lack of diachronic analysis in current literature. Research over a limited time span restricts the chance to understand the developments and transformation of the realm of MSW incineration from a coherent and dynamic perspective. In addition to what was discussed above, existing literature has left several questions unanswered: In controversies over MSW incineration, who are proponents and opponents? What are the main differences between them? How do they initiate strategic action to mobilize supports? And in what ways can anti-incineration forces change institutional structure in China?

Reviewing previous research (NIMBY studies, science and technology studies, sociology of social movements, online activism research, and studies of popular protests in China) raises an interesting question: How should we approach local resistance against MSW incineration plants in China? In other words, how to conceptualize conflicts in the field of waste management? Despite valuable contributions of previous studies, they have not provided a comprehensive framework allowing the diversity and multiple dimensions of the issue to be taken into account. For that matter, a new and comprehensive perspective is needed. This is what this study wants to explore at the theoretical level. Undoubtedly, it is more important to consider the interaction between actors as they face controversies defined either in social, technical, scientific and/or political terms. It means what can be learnt from the dynamic process of controversies over incinerators is far more significant than a mere technical choice. It is the challenge of public choices but also the definition of public space that is at stake. The following section will discuss how to integrate elements from several perspectives to help illustrate controversies over MSW incineration in China.

### **3. Theoretical Perspectives**

As discussed above, competition over MSW incineration is a complicated research topic that involves several subject areas and multiple kinds of scientific knowledge. To a great extent, it is a topic at the interface between social movement studies and environmental studies. Abundant research in these two areas—for example, social construction of environmental issues, frame contestations, and consensus mobilization of collective enterprises—has provided many useful theoretical sources. Nonetheless, the complexity of conflicts over incineration cannot be fully grasped by a single theory or concept. This section is therefore devoted to presenting the main notions used to analyze MSW incineration in China.

#### **3.1 Two Epistemological Foundations**

This dissertation is based on two theoretical pillars: (1) interactions between structure and agency; and (2) social constructionism. As general concerns of sociology in recent decades, they provide epistemological foundations for understanding conflicts in the field of waste management. The structure/agency debate runs through the entire history of classical and contemporary sociological theories (Bourdieu, 1990; Giddens, 1984; Habermas, 1987). The structure-agency approach, in fact, provides a possibility to interpret complex social phenomena. More details about this point will be presented in Article 1 (Chapter 3) and Article 3 (Chapter 5). For a long time, the sociology of social movements had a great deal of difficulties in understanding the tension between structural factors and the role of subjectivity in shaping collective action. Some theoretical perspectives, such as resource mobilization approach, pay close attention to structural factors. Others, for example, frame approach, give more attention to the subjective dimensions of the action and minimize the weight of structural constraints. In recent years, many researchers have suggested considering both structure and agency in social movement studies (Fligstein & McAdam, 2012; Koopmans, 2005). This provides the possibility for a more comprehensive theoretical perspective.

Social constructionism is “concerned with the analysis of social construction of reality” (Berger & Luckmann, 1967, p. 15). From this perspective, culture is an indispensable dimension for understanding the social world (Spector, Antonio, Ritzer, & Green, 1976; Spector & Kitsuse, 1973).

Social constructionists think that a social problem cannot “materialize” (Hannigan, 1995, p. 2) by itself. Rather, the processes of construction through collective “definition, negotiation and legitimation” (Hannigan, 2006, p. 31) are imperative. It is not only the interactions between actors, but also the historical and cultural norms of personal life that influence the process of social construction (Creswell, 2013). In other words, human behavior “depends on the way in which [individuals] understand or give meaning to their behavior” (Waters, 1994, p. 7) and to the world around them.<sup>15</sup> Paying special attention to information diffusion, social constructionism also believes that the media along with other resources are indispensable and useful (Gamson & Modigliani, 1989). The media are prominent in social construction because visibility is a key step to make public concerns as well as agenda setting possible. Within social movements, activists often turn to the media, considering their discourses as interpretive packages that make sense of symbolic struggles. They may use the media as a tool to “bridge public discourse and people’s experiential knowledge [by] integrating them in a coherent frame that supports and sustains collective action” (Gamson, 1995, p. 85). In the media space, crises and enemies are identified and defined, which is believed to translate abstract issues and goals into concrete targets and strategies. This will be discussed in a more detailed way in Article 2 (Chapter 4).

### **3.2 An Integrative Theory**

Although the two pillars discussed in the previous section provide epistemological foundations for this dissertation, an operationalizable theory needs to be constructed to help understand the multidimensional reality and the diversity of controversies over MSW incineration. A recent theoretical exploration made by Neil Fligstein and Doug McAdam (2011, 2012) has contributed to this. The theory of SAF provides a general perspective for analyzing “the underlying structure of, and sources of change and stability in, institutional life in modern society” (Fligstein & McAdam, 2012, p. 8). It borrows the concept of field from the work of Pierre Bourdieu (1979) and likens it to an arena where different categories of actors (with diverse interests, identities, and values) compete with each other for the maintenance or transformation of a meso-level social order. It

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<sup>15</sup> To be clear, social constructionism does not deny the objective existence of social problems. However, it pays more attention to the process of knowledge production in defining problems.

also integrates various elements from social movement studies, organizational theory, economic sociology, and historical institutionalism. According to Fligstein and McAdam (2012, p. 9), an SAF, as a “fundamental unit of collective action in society”, is similar to a social arena in which domination over the field order is up for grab. In this symbolic space, multiple organized actors—including incumbents, challengers, and internal governance units<sup>16</sup>—who are involved in a specific issue strive to influence collective decisions or policies. As a theory widely used in social movement research (Becker, Blanchet, & Kunze, 2016; Blanchet, 2015; Domaradzka, 2017; Domaradzka & Wijkström, 2016; Gastón, 2018; Neukirch, 2016) and institutional analysis (Canzler, Engels, Rogge, Simon, & Wentland, 2017; K. K. Chen, 2018; Evans & Kay, 2008; Köhrsen, 2018; Mey & Diesendorf, 2018; Moulton & Sandfort, 2017), the theory of SAFs has the following four characteristics.

First, the theory of SAFs succeeds in reconciling what was often seen as a duality between structure and agency. It believes that both objective conditions and subjective concerns are crucial. On the one hand, the theory recognizes that structure constrains or enables the choices of social actors. Under certain social arrangements, actors interact with one another by following a particular logic. Thus, opportunities and/or constraints in macro-social structures should be taken into consideration. On the other hand, the theory highlights the autonomy of actors by interpreting them as “potential agents of their own history” (Gamson, 1995, p. 90). It emphasizes social actors’ ability to make their own choice and influence social worlds.

Second, the theory adheres to social constructionism. Fligstein and McAdam (2012, p. 9) argued that an SAF “is a constructed meso-level order in which actors (who can be individual or collective) are attuned to and interact with one another on the basis of shared (which is not to say consensual) understandings about the purposes of the field, relationships to others in the field (including who has power and why), and the rules governing legitimate action in the field”. In

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<sup>16</sup> Governance units are internal to the field. They are charged with ensuring the smooth functioning of a field and defending the dominant order. In most cases, they share common interests with incumbents, and are committed to strengthening the position of incumbents. Governance units do not necessarily exist in every field. Neither do they necessarily play active roles in every field. Since the role of governance units is not prominent in this study, they are not discussed.



other words, the emergence and change of social order should not be taken for granted. Rather, the field order is a product based on shared understanding of actors. It means that the determination of the prevailing order largely depends on how people define it by reference to corresponding knowledge and power. The process of social construction provides interpretations and meanings for actors to legitimize their position, and implies the necessity of competition. To be clear, despite holding the social constructionist perspective, the theory of SAFs does not ignore the broader context in which the field order is embedded in. On the one hand, it helps understand the demands of actors with specific background knowledge and discourse systems. On the other hand, it contributes to thinking about how collective efforts of actors resonate with larger cultural, social, and political themes.

Third, the theory of SAFs emphasizes the importance of fluidity. Social dynamics remains the central concern of many social scientists (DiMaggio & Powell, 1983; Martin, 2003; W. R. Scott & Meyer, 1991). The theory of SAFs follows concerns on this dimension and pays special attention to the impetus to change social order. It believes that fields are fluid rather than congealed. When an SAF is relatively stable, it is less open for the powerless to negotiate. But when it is undergoing drastic changes, many opportunities are open to challengers. Thus, the condition under which actors are able to challenge the established order and advocate a new one is an important theoretical question. In addition, identities of embedded social actors may change over time. Correspondingly, the boundaries of the SAF may be redefined in the course of social interactions. It is therefore important to examine the process through which an issue is identified, perceived, and defined by social actors. Paying attention to the dynamic processes provides opportunities to understand how social grievances are brought into a public sphere and transformed into collective action. It also contributes to showing the process through which the dominant order develop and change within a given field. In sum, the theory of SAFs provides a coherent analytical path to explore stability and crisis in a given field. This aspect is examined specifically in Chapter 5 (Article 3).

Fourth, the theory of SAFs highlights the connections between fields. The theory indicates that “smaller fields [are] nested inside larger ones” (Fligstein & McAdam, 2012, p. 9). This means that no SAF exists independently of its surrounding environment. The opportunities and challenges

faced by an SAF usually come from state and non-state fields around it. As stated by Fligstein and McAdam (2012, p. 3), “any given field as embedded in a broader environment consist[s] of countless proximate or distal fields as well as states”. The embeddedness of fields (might be at different levels) reminds researchers to take into account the connections between fields and the relative positions of actors. The nested structure of fields is believed to have cross-field effects (Gastón, 2018). When crises in a given field get severe enough, they may spread to adjacent fields or smaller fields nested in it. In this sense, the theory of SAFs provides a valuable perspective to understand how a given field is affected by adjacent fields and the broader field environment. This characteristic is discussed in Chapter 5 (Article 3).

### **3.3 Two Supplementary Concepts**

Although several concepts (such as episodes of contention, social skill, governance units) were created to help operationalize the theory of SAFs, two additional concepts (frame and consensus mobilization) can be added in this dissertation. Interestingly, these two concepts are taken from John Wilson’s (1973) work, which highlights the functions of ideology in social movements.

Frame approach provides a valuable perspective for both Chapter 3 (Article 1) and Chapter 4 (Article 2). As mentioned in the section of Literature Review, frame approach is one of the most inspiring explorations in social movement studies. It was proved to be useful in studying anti-incineration protests (Nakazawa, 2017; Y. Zhou & Yang, 2018). Focusing on the importance of the cognitive dimension, frame approach emphasizes meaning construction in movement-related activities and campaigns (Fisher, 1997; Snow & Benford, 1988, 1992; Snow et al., 1986, 1986). Framing is a strategic process through which people jointly question the existing order and legitimize their actions to change the order. Through innovative interactions, actors put forward competitive frames and give meaning to their collective action based on their own position, interests, identity, beliefs, and values. They identify their friends (or enemies) and build alliances (or battlefields) by interpreting others’ frames. Chapter 3 (Article 1) delineates the process through which the old order is challenged and the new one is proposed by examining framing tasks. And Chapter 4 (Article 2) illustrates the three core tasks of consensus mobilization by taking frame approach as one of the key notions.

The concept of “consensus mobilization” is discussed in Chapter 4 (Article 2) to shed light on the creative efforts of the anti-incineration community on social media. In social movement studies, mobilization is always the key to understanding the emergence of activism. This requires researchers to know “which are the people in demand of protest and how can they be reached” (Klandermans, 2013, p. 1). Different from action mobilization, consensus mobilization is dedicated to creating shared views of the challenge that people face. Consensus mobilization focuses on how people constructively interpret the *status quo* based on the meaning work they perform. Examining consensus mobilization helps to explain the social construction process through which collective awareness is shaped (Klandermans, 1984). In the case of incineration, consensus mobilization is a process of questioning the current incineration industry and waste disposal policies. It is worth mentioning that consensus mobilization does not necessarily lead to action mobilization, although consensus mobilization is usually considered a preparation for action mobilization.

#### **4. Research Question**

Based on the theoretical pillars mentioned in the previous section, this dissertation addresses controversies over incineration in China by connecting the theory of SAFs. The objective is to better understand how social and political actors redefine the field of waste management through collective action. This research is dedicated to answer the following question: **how controversies surrounding MSW incineration shape a strategic action field that enables various actors to compete for incineration-dominated industrial structure and waste management policies?** Until now, especially in China, this topic has been understudied. To answer this question, the dissertation is not only concerned with why people initiate collective action against incineration, but also how local protests are involved in collective endeavours to shape state institutions. More specifically, based on the central research question concerning the SAF of MSW incineration, this study seeks to shed light on the following topics: The identities of actors involved in controversies over waste incineration; The central concerns and arguments put forward by them; The strategies that social actors adopt to interact in a more or less conflictual way with adversaries; The claims introduced by activists for defining a space for public debate; The way in which activists influence decision-makers or overturn decision-making processes; And the extent

to which local challenges contribute to transforming broader public policies and institutional arrangements in China.

These elements are addressed by discussing examples of anti-incineration protests. In general, this research deliberates on the broad political and social significance of controversies surrounding existing industrial structure and waste disposal policies. Concretely speaking, the purpose of this dissertation is fourfold. First, this study wants to provide a more nuanced understanding of tension between diverse categories of actors involved in conflicts over MSW incineration (including central government, local governments, representatives of incineration industry, technical experts, affected local residents, and environmentalists). Additionally, it wants to explore state-society relations in contemporary China by examining the dynamic interactions between the state, market, and civil society in the SAF of MSW incineration. The third goal is to better understand the origin and processes of resistance against urban infrastructure projects in Chinese cities. Finally, this dissertation aims to test applicability and portability of Western theories, namely, the theory of SAFs, in a non-Western political setting. In sum, examining conflicts and order in the field of MSW incineration matters. It contributes to better grasp how people from diverse backgrounds may have different views on a particular public policy. It also benefits our comprehension of the state-society relationships during a period of environmental crisis and social transformation in China.

In conclusion, this chapter points out that competition surrounding MSW incineration in Chinese cities is an important but not well-explored area of research so far. It is a topic in the intersection of NIMBY studies, science and technology studies, social movement research, online activism research, and studies of popular protests in China. To understand the complexity of controversies over incineration in China, this study attempts to explore an interpretative theory, with supplementary concepts from existing literature. They can help elaborate the way through which social and political actors interact to improve the legitimacy and power.

## Chapter 2. Research Strategies

In order to operationalize the theoretical perspectives elaborated in chapter 1, this chapter is devoted to presenting research strategies. The first section looks broadly at the research design and methodological considerations. The second section introduces the way to enter the field and methods of data collection. Subsequently, the third section explains the data analysis process.

### 1. Research Design

Based on a qualitative research design, the objective of this study is to explore political and social significance of public controversies through local practices of MSW management. By calling upon evidence-based investigation and in-depth analysis, qualitative research makes it possible to dissect and deconstruct strategies of actors involved in waste management in China. It also provides opportunities to elaborate how industrial structure and public policies are at the centre of controversies regarding local public choices. In order to maximize the advantages of qualitative research, a case study method was used.

In social science research, the case study is a “separate research method” (Yin, 2009, p. 26) with its own research design. It is “an intensive analysis of an individual unit (as a person or community) stressing developmental factors in relation to environment” (Merriam-Webster Online Dictionary, 2020). Case study method is often used in in-depth empirical analysis, since it emphasizes close and detailed inspections of specific cases, their contextual conditions, and their development over time (Creswell, 2013). Being able to “deal with a full variety of evidence-documents, artifacts, interviews, and observations” (Yin, 2009, p. 11), the case study method is conducive to understanding complex social phenomena. More importantly, it “allows investigators to retain the holistic and meaningful characteristics of real-life events” (Yin, 2009, p. 4). Since the case study does not present a “sample” based on particular situations, this method is not constrained by statistical generalization. When researchers gather cases according to a theoretical proposition, this method can help generalize the interaction of objective and subjective factors involved in the production of social phenomena (Flyvbjerg, 2006; Gerring, 2007; Ragin & Becker, 1992). To reduce the vulnerability of the single-case research design and to extend research findings

beyond the single case, this study develops a multiple-case design. It does not treat each case as a whole study nor seek to raise independent conclusions from every case (Creswell, 2013). The purpose of integrating several discrete cases together is to generalize common results derived from these cases. Focusing on links between a set of cases, this study attempts to form an overall explanation of social processes through intensive analysis of similarities and differences of several interconnected events. General background and cultural factors are also taken into account, which helps develop a study based on “concrete [and] context-dependent knowledge” (Flyvbjerg, 2006, p. 224).

This dissertation examines controversies over MSW incineration happened in three cities and online mobilization initiated by 12 WeChat subscription accounts<sup>17</sup>. In the SAF of MSW incineration, actors are not isolated. In many cases, they are connected with people who share similar situations in varying ways. Examining similarities and commonalities across several cases allows for an overall understanding of the SAF of MSW incineration. Given that the central research question wants to understand how various categories of actors maintain or change a meso-level social order through controversies over incineration, the research design aims to address the following concerns: general characteristics of incumbents and challengers, their common demands in the field, and their influence on the order of the field. The rest of this section will separately introduce the research design used in three articles.

### **1.1 Controversies Over Incineration in Three Cities**

To answer the central research question, Article 1 uses a case study method to examine local conflicts. By reviewing the wave of anti-incineration protests, several potential cities were inventoried. Taking social impact, geographic distribution, and data availability into consideration, City A, City B, and City C<sup>18</sup> were selected to conduct field research (see Section 4 of Chapter 3 for

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<sup>17</sup> WeChat, a social networking application, provides subscription account service for sending messages and sharing information to subscribers. Subscription accounts examined in this dissertation are open to all WeChat users.

<sup>18</sup> According to the requirements of Comité d'éthique de la recherche-Société et culture (CER-SC) Université de Montréal, information that may reveal the identities of the interviewees (including names of cities, districts, incineration plants, interviewees) is anonymized in order to protect the safety of interviewees and reduce potential reprisals against them. The

more details on how to choose cities for fieldwork). Controversies over incineration that took place in these three cities are units of analysis in this article. Conflicts in these cities provide opportunities to capture the front line of the ongoing anti-incineration protests and the general characteristics of demands. Before starting the fieldwork, a preparatory work was done: for instance, searching for the geographic location, population composition, the level of economic development, and the state of local politics. In addition, the reputation and operation status of local incineration companies were investigated through the Internet.

## **1.2 Anti-Incineration Mobilization in 12 WeChat Subscription Accounts**

Article 2 aims to provide insights into online mobilization launched by anti-incineration forces. Since WeChat subscription accounts were frequently mentioned as vehicles for mobilization during the fieldwork, WeChat was selected as the research object. For operators, subscription accounts are broadcast media for sending messages and diffusing information. For subscribers, these accounts provide channels to obtain information regarding their concerns and sometimes share their concerns with friends through reposting. To have an initial insight into online anti-incineration mobilization, the accounts mentioned by interviewees were subscribed. Updates in these accounts were followed every day. After a period of observation, WeChat subscription accounts were confirmed to play significant roles in the sustained mobilization against MSW incineration. In spite of different degrees of professionalization, these accounts jointly package incineration as a matter that needs to be considered prudently. Taking advantages of WeChat, some residents, environmentalists, and experts build an online anti-incineration community. This community provides avenues for the public to understand the complexity of incineration issues and the risks of burning garbage. Some subscription accounts are used to recruit potential supporters and stimulate broader anti-incineration awareness in China.

On WeChat platform, subscription account operators can send posts to subscribers who then have options to rebroadcast these posts to their friends. Through point-to-point (through “Send

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three cities where the fieldwork is carried out are respectively named as City A, City B, and City C. Accordingly, interviews are coded by IN (meaning interview)+A/B/C (meaning City A, City B, or City C)+RES/ENV/GES/ENT/CHE (meaning resident, environmentalist, official, entrepreneur, or researcher)+number (meaning order of interview).

to Chat”), point-to-multipoint (by “Send to Group Chat”), and/or scattershot (via “Share with All in Moment<sup>19</sup>”) dissemination, many posts regarding MSW incineration have received widespread attention within a short period of time and turned into a hot topic very swiftly. More importantly, activists regularly publish new posts in their accounts to increase the viscosity of existing audiences and sustain public attention over time.

### **1.3 Evolution of the SAF of MSW Incineration**

Evolution of the SAF of MSW incineration is the core concern of Article 3. In this article, a historical analysis is applied to show step by step how the SAF emerges, develops, and changes in the Chinese context. Event-based analysis pays more attention to procedural information. Thus, the exploration regarding the evolution of the SAF is organized in a chronological order. The diachronic interactions between pro-incineration groups and anti-incineration alliances and impact from the state and proximate fields unfold the transformation of the SAF. Considering historical analysis overlap with case study in examining contemporary events (Yin, 2009), method of Article 3 is also in line with the overall research design.

## **2. Data Collection**

Since the very beginning of the study, news and online discussions has been one of the main sources to obtain information related to MSW incineration in China. After the research proposal was accepted by the jury of Examen de Projet de Thèse, several months were spent preparing the fieldwork. First of all, news (in English and Chinese) regarding controversies over incineration that emerged in mainland China in the past three years were accessed. These news were useful to identify target cities and potential interviewees. Then, an interview guide (see Appendix B) was designed based on the research purpose and the central research question. Third, following ethical principles, a written information and consent form (see Appendix C) was submitted to the ethical committee of Université de Montréal. Fourth, a letter of introduction (Chinese: 介绍信;

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<sup>19</sup> Moment is a space similar to the Facebook News Feed, which is used to share ideas, opinions, anecdotes of daily life and controversial topics with friends.



pinyin: *Jieshaoxin*)<sup>20</sup> was provided by Ocean University of China (see Appendix D). To be clear, although the ethical approval had clarified the purpose of the research, the use of the data, the principles of confidentiality, and the possible risks, the document in French from a Canadian university was not sufficient to support a fieldwork in China. In many cases, the endorsement of a reputable organization in China will make it easier to gain trust in the Chinese background. This is why the Letter of Introduction, as an important supplementary document, is required to be presented to the interviewees during the fieldwork.

Data collection began in early August 2018 in City A, City B, and City C. In order to understand interactions between diverse categories of actors, both pro-incineration groups and anti-incineration alliances were taken into consideration. More specifically, residents, environmentalists, municipal public administrators, entrepreneurs, and researchers were included in the interview plan. In the case of environmentalists, actors from diverse background were shortlisted, including employees of environmental NGOs and independent grassroots activists.

Despite a lot of preparatory works, the fieldwork did not go as smoothly as initially expected. This was really the case when trying to get access to intended government officials. At the beginning of the fieldwork, officials who were directly responsible for incineration projects refused to receive the request for interviews even if a Letter of Introduction from a well-known Chinese university clearly presented the intention and orientation of the research. The reasons for their refusal were numerous. First, it was not easy for them to take the time to be interviewed due to heavy workloads. As what was observed in their offices, the phones were ringing off the hook and documents to be processed were piled on the desks. Second, given that MSW incineration was a sensitive topic in China<sup>21</sup>, many officials did not want to take risks by making any so-called

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<sup>20</sup> The process of obtaining a letter of introduction is similar to apply for another ethical approval in China. This is mainly to ensure that a research is error-free, especially on the political front. When an organization, for example a university, issues a letter of introduction for an individual, it means that the organization guarantees actions of the individual. In fieldwork, an introduction letter allows a researcher to gain credibility and support.

<sup>21</sup> All kinds of collective actions are regarded as sensitive issues in China.

inappropriate remarks. Third, many officials were reluctant to talk to a student enrolled in a program provided by an overseas university. They did not want to get into trouble because of the interview. Since theoretically, being connected with people from overseas organizations without authorization from upper-level leaders was strictly prohibited in some government departments. These difficulties forced a change in the research strategy. A different way to enter the field was then required. According to researchers who had previous experience of fieldwork in China, personal networks play important roles in recruiting participants. Based on this consideration, three intermediaries (common acquaintances between interviewer and interviewees) were introduced through a personal network. These intermediaries included an official working in a municipal government, a researcher focusing on environmental policy, and a person working in an environmental NGO. With their help, it was easier to contact diverse categories of actors involved in controversies over MSW incineration.<sup>22</sup>

It turned out that the involvement of the three intermediaries was of great help in conducting the fieldwork. At the outset, an official working in the municipal Bureau of Statistics in City A provided many supports. Although his work was not related directly to waste incineration, he helped find an administrator (INAGES01) in charge of the implementation of an MSW incineration project. With the help of this administrator, several other administrators in City A and City B agreed to be interviewed. Then, a researcher (INACHE01) who was familiar with the field of waste management became the second intermediary. Through his network, it was possible to get access to many of his contacts, including four other researchers and some residents. The third intermediary was, in fact, a professional working in an environmental NGO. Before the fieldwork, what role environmental NGOs play in the field of MSW incineration was not clear. Ever since the person (INBENV01) in an environmental NGO agreed to support the study, it was surprising to find the prevalence of involvement by environmental groups and individuals around issues of MSW incineration. On the one hand, they are natural allies of affected communities. On the other hand, they have connections with some local officials and national ministries. For example, the

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<sup>22</sup> Following ethical principles, all interviewees are aged 18 years and over.

Nature University (an environmental NGO)<sup>23</sup> focuses on waste incineration projects across the country. It calls for information transparency in waste incineration industry through policy advocacy. It also investigates environmental pollution generated by incineration plants and initiates environmental litigation to help affected residents. By field research, Wuhu Ecology Centre has established a database of waste incineration plants in operation throughout the country and supervised pollution discharge of these plants. The centre also calls for a more transparent decision-making process and pollution information, which allows stronger public supervision. The China Zero Waste Alliance establishes an informal anti-incineration network linking up individuals and organizations concerned with incineration. The alliance criticizes MSW incineration from technological aspects. By showing technical risks of incineration, it challenges discourses that are dominated by officials and entrepreneurs. This organization also provides support and assistance for affected people. In addition, it introduces disputes around waste incineration into the field of governance in order to promote policy advocacy for sustainable waste management at the national level. Through networks built by these environmental NGOs, different categories of actors (including professional environmentalists, independent activists, local residents, industrial representatives, and a local official in City C) were included in the list of interviewees.

Many personal contacts with participants were established during the fieldwork. For instance, interviewees in City A and City C provided Environmental Impact Assessment Reports for incinerators in their own cities. Residents and environmentalists also sent messages to update information regarding the construction or operation of incinerators after the fieldwork was completed. The follow-up information makes it possible to update the collected data. In sum, primary data from in-depth interviews (see Appendix E) and secondary data (including texts, photos, and videos) from documentaries, media reports, research reports, policy documents, and contents on social media sites together constitute the entire database of this dissertation. They confirm and supplement each other to ensure the reliability and integrity of the database. The following section will present more details on the main data used in the three articles.

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<sup>23</sup> Natural University ceased its activities in 2018.

## **2.1 Semi-Structured Interviews**

42 semi-structured interviews constitute the main data of Article 1. Given that actors involved in controversies over incineration have diverse positions, different categories of actors were interviewed. Before interviews, the information and consent form in Chinese had been sent to potential participants to solicit their volunteerism in joining in the study (see Appendix C). The form explained the nature and objective of the study. It also indicated methods used to protect the privacy and confidentiality of participants. According to the above-mentioned interview guide (see Appendix B), descriptive and judgmental questions were asked. Descriptive questions aim to obtain basic information about incinerators and resulting protests, for example, planning process, capacity of incineration, details of environmental impact assessment, when and where the protests broke out, number of protestors, repertoires of contention, and degree of organization. Judgmental questions mainly explore why people defended or opposed incineration plants and what were the main arguments supporting their attitude towards the construction and/or operation of incineration plants.

With the help of the three intermediaries, trust with potential participants was successfully established, which ensured the validity and reliability of collected data. During the interviews, my personal opinions and preferences were deliberately hidden to avoid misleading interviewees. These efforts can help obtain accurate information regarding participants' attitudes towards incineration and their engagement in defending or opposing incineration projects. During the three-month fieldwork (from early August 2018 to late October 2018) and a supplementary investigation (in early 2019), 42 interviews were conducted. These interviews, ranging from 50 minutes to five hours, were recorded with permission.

## **2.2 Online Anti-Incineration Posts**

557 online anti-incineration posts from 12 WeChat Subscription Account are main data used in Article 2. In the digital age, social media are relatively inexpensive and convenient channels for communication. They have therefore become powerful weapons for activists. Article 2 mainly focuses on WeChat: one of the most influential social media platforms and Internet content providers in China. WeChat—similar in design to WhatsApp—was initially a messaging mobile

application devoted to providing instant text, voice, and video communication services. Merging multiple functions and mini programs afterwards (including games, health, wealth, transportation, hotels, shopping, and mobile payment), WeChat plays an important role in Chinese people's daily lives. It goes substantially beyond an instant messaging application. As a popular social media platform, WeChat has been considered to be a primary source of gathering information as well as a key venue of spreading knowledge. With one billion monthly active users (Graziani, 2018), WeChat has become one of the most widely used social media applications in China. According to a report, WeChat made up for 34 percent of mobile data traffic in China in 2018 and unsurprisingly dominated Chinese social media space (Iqbal, 2019).<sup>24</sup> High-intensity use has brought many opportunities for WeChat users to generate and disseminate alternative information.

To collect data regarding incineration, posts published by 12 selected anti-incineration subscription accounts (see Appendix F) were browsed. All posts plus meta-information (including dates, texts, photos, and links) were then manually exported. After removing duplicates, the final database contains 557 posts. Unlike web crawling using keywords, manual selection ensures the accuracy and validity of the collected data. The data derived from these selected posts constitute the database of Article 2. The data from social media reflect behaviors of activists (what they did) rather than attitudes of them (what they thought). These data help understand the long-term efforts of the anti-incineration community. More specifically, the 557 posts provide abundant information about environmental hazards of MSW incineration, scientific knowledge of incineration technology, examples of refusing waste incineration in Western countries, evidence of illegal land acquisition<sup>25</sup>, claims of activists, and proposed suggestions. In brief, the 557 posts

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<sup>24</sup> In the same year, Facebook made up only 14 percent of mobile traffic in North America (Iqbal, 2019).

<sup>25</sup> Land acquisition is the primary means used by governments to meet increasing land demand driven by rapid economic and urban growth in China (Ding, 2007). Illegal land use appears frequently in the process of land acquisition, for example, agricultural land displaced illegally by village cadres for the purpose of real estate development or the construction of large infrastructure projects.

serve as good materials for analyzing consensus mobilization initiated by the anti-incineration community in cyberspace.

### **2.3 Anti-incineration Campaign Database**

Anti-incineration campaign database is the main source of Article 3. To form a complete picture regarding the evolution of the SAF of MSW incineration in China, local campaigns that took place from 2006 onwards were examined by browsing online news in both Chinese and English. These news documented more than a hundred anti-incineration protests by the end of 2019, none of which had scaled up to the whole country. Drawing on these online data, 95 events was identified (see Appendix A). Although these events may not cover all anti-incineration campaigns in China<sup>26</sup>, they show the big picture of the anti-incineration wave.

In addition to information from online news and 42 interviews mentioned previously, supplementary data, including policy documents, statistical data, and research reports, also greatly contribute to Article 3. Government portal sites are important channels for collecting policy information (such as notices, regulation, and decision) and statistical yearbooks. Data from departments of central government—for instance, National Bureau of statistics, Ministry of Natural Resources, National Development and Reform Commission, Ministry of Ecology and Environment—were used to learn the current status and tendency regarding the policy of MSW incineration in the entire country. Information in municipal governments' website was employed to understand major policies at a regional level and the progress of incineration projects. In addition, research reports provided by interviewees supplement information with scientific evidence. In fact, these research reports that were regarded as scientific weapons for anti-incineration campaigns were widely circulated among activists. With the help of certain researchers, grassroots activists, and environmental NGOs, the following reports were collected: *the Report regarding Public Opinions on MSW incineration in Beijing* (Beijing Aobei Volunteer Research Group, 2009), *the Report for Environmental Responsibility Fulfillment of 428 Waste Incineration Plants* (Wuhu Ecological Centre, 2019a), *the Report on Information Disclosure and*

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<sup>26</sup> Cases that did not receive more than three media reports were excluded.

*Pollutant Discharge of 359 Waste Incineration Plants* (Wuhu Ecological Centre, 2018), *the Report on Information Application for 122 Waste Incineration Plants in China* (Wuhu Ecological Centre, 2013), and *the Assessment Report for Social Costs of Municipal Solid Waste Incineration in Beijing* (National Academy of Development and Strategy of Renmin University of China & Beijing Academy of Development and Strategy of Renmin University of China, 2017).<sup>27</sup>

### **3. Data Analysis**

Based on the research design, collected data are analyzed from three different angles: tension and conflicts between different categories of actors, consensus mobilization against incineration in cyberspace, and emergence and development of dominant order in the SAF of MSW incineration. The following paraphrases present the analysis process of the three articles.

#### **3.1 Analysis of Three Controversies**

Article 1 looks at disputes over MSW incineration with the help of data from semi-structured interviews. After the field research, all interviews were transcribed into a written text (320,756 words).<sup>28</sup> The qualitative data serve as good empirical evidence for identifying challengers and incumbents<sup>29</sup> and understanding competitive frames.

#### **3.2 Content Analysis of Consensus Mobilization**

Article 2 uses two different pieces of software to analyze 557 anti-incineration posts exported from WeChat platform. Initially, the application of the machine learning algorithms in computational social science was seen as an opportunity to analyze large amounts of data from 557 posts. Without a priori coding scheme, this new method is said to effectively reduce the subjective interference of researchers through automatic analysis. It also allows scholars to

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<sup>27</sup> These reports were originally written in Chinese.

<sup>28</sup> All interviews were conducted in Chinese, so as transcripts and analysis. Only excerpts presented in this dissertation were translated into English.

<sup>29</sup> This classification is just an ideal type. The identity of incumbents and challengers may change over time since it is largely based on their subjective understanding of the surrounding environment and their position in the SAF. Please see Chapter 3 for a detailed discussion.

analyze large amounts of text in a short period of time. Taking the most commonly used content analysis tool—Latent Dirichlet Allocation (LDA)—as an example, unsupervised machine learning algorithms allow the computer to automatically clusters words into latent topics through “reading” textual data. Many recent studies have shown that LDA is useful for thematic analysis from a large corpus (Jacobi, Atteveldt, & Welbers, 2016; Keller, Hase, Thaker, Mahl, & Schäfer, 2020). In this light, LDA, as a topic modeling tool, was used to extract 30 topics (see Appendix G). However, thematic analysis based on the machine learning algorithms can only give initial insights into the data collected from WeChat subscription accounts. It was not enough to deduct particular viewpoints or produce meaningful explorations that match exactly the research objective and the theoretical perspective. It was also difficult to understand the implicit meaning through specific keywords. For example, even though “information disclosure” was identified as a topic, the attitude of activists (positive or negative) nor their specific claims cannot be interpreted. In order to conduct a more in-depth analysis of the meaning contained in the gathered data, manual coding and a closer inspection was necessary. With the help of NVivo (see Appendix H), both explicit and implicit meanings of textual data were examined (see Appendix I).

### **3.3 Diachronic Event Analysis Within the SAF of Incineration**

Article 3 focuses on important events and key turning points within the SAF of MSW incineration in China to unfold interactions between diverse actors and impacts from related fields. These diachronic data contribute to an understanding of the long-term development of the SAF. In general, the analysis based on a timeline of important events is historically oriented.

In summary, this chapter presents the methodology design, collected data, and analysis paths. Although they were discussed separately, all kinds of data were complementary to each other in the analysis process. The complementarity arises from their connection to the same research question regarding the SAF of MSW incineration in China and the united theoretical perspective developed to answer this question. In sum, the collected data help elaborate how embedded actors compete to present their respective understanding of incineration and how they vie for controlling over the processes of knowledge production within the SAF. Around the core concern



of the dissertation, empirical results for each aspect of the concern will be presented in the next three chapters (Chapter 3, Chapter 4, and Chapter 5).



# Chapter 3. Thinking of Anti-Incineration Protests in Strategic Action Fields: Three Case Studies in Mainland China<sup>30</sup>

## Abstract

Local protests against municipal solid waste (MSW) incineration have become intractable problems in metropolitan areas worldwide. Based on the theory of strategic action fields, we adopt a comprehensive perspective to understand how controversies surrounding MSW incineration exert influence over the dominant order within the field. Adopting a qualitative research method, we conducted field research in three Chinese cities where proposals for incineration plants have aroused disputes between different categories of actors. The collected empirical data consist of 42 semi-structured interviews and materials provided by interviewees. By examining the dynamic process of protests between challengers and incumbents, we found that skilled actors fight over a meso-level social order—the waste disposal industry and waste management policies—through competition and cooperation. We also found a mix of instrumental and existential motivations in their involvement in the conflict. Our findings deepen understanding of contentions regarding waste management, thereby enriching the existing literature. In a broader sense, our analysis contributes to the discussion of how actors occupying different positions compete for dominance in a specific field, and can succeed, under certain circumstances, in shaping social action.

**Keywords:** municipal solid waste incineration, strategic action fields, challengers and incumbents, social skill, sense of uncertainty

## 1. Introduction

Municipal solid waste (MSW) disposal is a thorny issue that bedevils many cities around the world, especially in metropolitan areas. Regarded as a quick way to avoid the predicament of waste

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<sup>30</sup> This article was written in collaboration with Professor Pierre Hamel. He has signed the agreement of co-author, authorizing this article to be included in this dissertation. This article is slightly different from the version published in *Local Environment*.

management, incineration has been adopted by urban administrators in many countries, including Sweden, Germany, the Netherlands, Japan, and China (Rogoff, 2019). Along with the development of the incineration industry in these countries, controversies over the implementation and operation of incineration plants have also increased. As a global and growing phenomenon, anti-incineration protests have mainly been explored through NIMBY (Not-In-My-Back-Yard) and other concepts in environmental studies (e.g. in reference to the notion of environmental justice) and social movement studies (e.g. with reference to the concept of political opportunity structures). Despite increasing research, there is considerable room left to explore differences within and among actors embedded in controversies surrounding MSW incineration. A comprehensive perspective needs to be developed to help understand how these controversies exert influence over the meso-level social order within the field. Accordingly, we raise the following questions: in a competitive field where the incineration-oriented industry and waste disposal policies are at play, how do heterogeneous actors build alliances with their adherents and vie for the dominant order with their opponents? To answer this question, we turn to the theory of strategic action fields (SAFs) proposed by Neil Fligstein and Doug McAdam (2011, 2012). Applying a qualitative research design, we conducted field research in three Chinese cities where proposals for new MSW incineration plants, plans for expansion of existing plants, and/or operations of already-built incineration facilities have sparked controversies. These three cases help reveal the common dynamic and interplay that shape the prevailing order in the SAF of Chinese waste management.

Following the first introductory part, the remainder of this article is divided into six sections. The second section is dedicated to reviewing previous literature. The third section discusses the theoretical arguments of SAFs and the important concepts used in this analysis. The fourth section describes the selection of the three cases and collected data. The fifth section focuses on tensions between embedded social actors. The sixth part then analyzes the competition trajectory of actors and the sense of uncertainty surrounding MSW incineration. The final section offers concluding remarks and reflections.

## 2. Public Controversies over MSW Incineration

The emergence of controversies regarding MSW incineration in many countries and regions has aroused a great deal of academic interest. A growing body of research has focused on anti-incineration campaigns that have taken place in Ireland (Davies, 2008; Leonard, Fagan, & Doran 2009), England (Rootes, 2006, 2009), France (Laurian & Funderburg, 2014; McCauley, 2009), Greece (Botetzagias & Karamichas, 2009), Canada (Campbell, 2002), the United States (Walsh et al., 1997), Japan (Nakazawa, 2017, 2018), and China (H. Hu, Li, Nguyen, & Kavan, 2015; Johnson, 2013b; Lang & Xu, 2013; Y. Liu et al., 2019; Lora-Wainwright, 2014). In prior studies, anti-incineration campaigns have been regarded as a manifestation of the NIMBY syndrome, environmental movements, or popular protests.

Conflicts over waste incineration have been widely discussed in the NIMBY literature (Fredriksson, 2000; R. Huang & Yip, 2012; Kikuchi & Gerardo, 2009; Lam & Woo, 2009; Lang & Xu, 2013; Magnani, 2012). In these studies, people's adverse responses to proposals that might impose negative externalities on communities in nearby areas are defined as the NIMBY syndrome. The NIMBY concept was traditionally considered a highly negative and pejorative term that conveyed a preconceived assumption: people oppose a facility only when it is deployed in their community (Kraft & Clary, 1991). In this sense, developers, politicians, and even some media tended to characterise local resistance as either naively ignorant or cynically self-interested actions that merely sought to expel incinerators from neighbourhoods. Once labelled "NIMBYs", opponents of a specific project were considered irrational, emotional, egoistic, selfish, short-sighted, and/or conservative (Burningham, 2000; Hermansson, 2007; Nakazawa, 2018). Although the definition of NIMBY has undergone some changes in recent research (Batel & Devine-Wright, 2020; Fischel, 2001; Hager & Haddad, 2015), it remains a controversial concept. To avoid the assumptions of parochialism implied by the NIMBY concept, some scholars propose NIABY (Not-In-Anybody's-Backyard) as an alternative (Boudet, 2011; Lober & Green, 1994). Nevertheless, local protests often reflect more intricate and complicated mechanisms than implied by the NIMBY concept (Gibson, 2005; Sebastien, 2017, 2019; Williams & Matheny, 1998; Young, 2012). The concept has also been criticized for a lack of reflection on issues at a broader level (Burningham, 2000;

Freudenburg & Pastor, 1992), such as problems of policy design and institutional arrangement (Gibson, 2005; Sebastien, 2017, 2019; Williams & Matheny, 1998; Young, 2012).

Due to the cognitive bias implicit in the NIMBY concept, many scholars have turned to environmental studies and social movement literature for alternatives. Given that pollution, environmental hazards, and carbon emissions are usually targets of activists, protests around incineration have been seen as environmental public interest campaigns (Steinhardt, 2019), environmental distribution conflicts (Johnson et al., 2018), or environmental movements (Leonard et al., 2009; Rootes & Leonard, 2009). These studies tend to attribute anti-incineration protests to the unequal distribution of environmental risks and describe campaigns as collective efforts to pursue environmental justice. Nevertheless, it should be noted that anti-incineration protests in authoritarian countries are, in many cases, different from environmental movements in Western countries in terms of organization, value, collective awareness, and demands (Alpermann & Bondes, 2019).

In previous literature, scholars found that it is useful to refer to approaches elaborated through social movement studies that provide the possibility to understand the rise, organization, and strategy of resistance. For example, resource mobilization theory and political opportunity model have been employed to analyze the success or failure of anti-incineration campaigns in France, England, and the United States (McCauley, 2009; Rootes, 2006, 2009; Walsh et al., 1993). Wright (2018) attributed the continuous emergence of anti-incineration protests in China to “disagreements among political elites” (Wright, 2018, p. 120). Frame approach has also been employed to portray struggles for distributive fairness (Nakazawa, 2017). In addition, the concept of diffusion of contentions has been used to examine the horizontal and vertical links between anti-incineration forces (Bondes, 2019). However, when using theories of social movement to understand anti-incineration protests, it is important to note that activists, as observed in previous studies and our cases, do not necessarily challenge the state or power relations in the given political setting.

The NIMBY concept and several notions in the field of environmental studies and social movement literature have contributed to describing and apprehending the conflicts around

incinerators by revealing particular features of anti-incineration campaigns. Based on ideas from previous literature, the theory of SAFs (Fligstein & McAdam, 2011, 2012) develops a more comprehensive and interactive analytical path, positing that the competition and cooperation between various categories of actors in a given field is a dynamic process that revolves around the dominant social order. This helps understand the divergence between opposing actors and define the boundaries of conflicts.

### **3. Strategic Action Field as a Theoretical Perspective**

The theory of strategic action fields (SAFs) was elaborated by Fligstein and McAdam (2011, 2012) to provide a general perspective for understanding stability and transformation rooted in social life. The theory is a conceptual cluster that incorporates many important ideas of contemporary sociology, including the notion of field (Bourdieu, 1979; Bourdieu & Wacquant, 1992), the distinction between challengers and incumbents (Gamson, 1975), episodes of contention<sup>31</sup> (McAdam et al. 2001), and the role of organizations (W. R. Scott, 2008). Based on previous works (Bourdieu, 1990; Giddens, 1984; Habermas, 1987), the theory of SAFs reconciles structure and agency to overcome the false dichotomy between these two categories (Becker et al., 2016). On the one hand, the theory recognizes that structure constrained or enabled the choices of social actors. On the other hand, the theory emphasizes social actors' ability to make their own choice and influence social worlds. In brief, the theory of SAFs takes into account both structural conditions (such as the state, social institutions, organizations, resources, and rules) and micro-mechanisms (such as shared meanings and beliefs, collective identities and values, and a common language and culture) in explaining competition for the dominant order in a given field.

An SAF is a “constructed meso-level social order” (Fligstein & McAdam, 2012, p. 9) in which actors with varying levels of resources and various values strategically vie for a more advantageous position. SAFs, on the whole, “are the fundamental units of collective action in society” (Fligstein & McAdam, 2011, p. 3). In a given SAF, actors may compete over several different issues or

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<sup>31</sup> An episode of contention is an unstable and turbulent period when various actors compete for the dominant order of a field through sustained interactions. This period is characterized by chaos and turmoil.

concerns, which form the basis of the social order. In other words, the theory of SAFs hypothesizes that the dominant order of a field is the result of interplay between actors. As a relatively process-oriented theory, it believes that the persistence of an old order cannot be taken for granted, and the emergence of a new one does not finish overnight. Therefore, it defines an interpretative approach that helps address the dynamics of stability and/or change of an established order caused by the contentious interactions between actors with different resource endowments (Kungl & Hess 2021). Central elements of the theory—for instance, the distinction between incumbents and challengers, social skills, and the sense of uncertainty—serve as useful concepts for this study.

An SAF usually consists of two opposing camps: challengers and incumbents (sometimes with governance units). Incumbents are actors who currently dominate a field, while challengers are actors who occupy relatively inferior positions. Incumbents control the dominant logic of a field and have a relatively advantageous position. Thus, they are rarely motivated to alter the established order. In contrast, challengers are often powerless actors who are in less privileged positions and have little influence on the development of the field. When their positions come into conflict with those of incumbents, they seek to form an alliance to transform the configuration of the field. Both incumbents and challengers may consist of actors with various occupations, capacities, values, or forms of capital (Bourdieu, 2002). It is the common comprehension of their position that brings them together as a united group. However, it is worth noting that the identity of incumbents and challengers is not fixed but transformative because their position is largely based on their subjective understanding of a particular issue. In other words, the identity of actors might change with the development of an SAF. Similarly, they are also able to adjust their claim strategies according to the situation they face within an SAF.

As the microfoundation of the theory, social skill is a key conceptual element in understanding embedded actors. In an SAF, all actors need effective strategies to “sell” their concerns and induce cooperation. This is what social skill contributes to. Social skill is “the capacity for intersubjective thought and action” (Fligstein & McAdam, 2012, p. 4) based on the long-term accumulation of knowledge and resources. The theory of SAFs considers both challengers and incumbents involved in conflicts to be skilled actors able to identify their friends (or enemies) and build



alliances (or battlefields) by reading their environment and understanding the status quo. Based on their own position, interests, identity, beliefs, and values, skilled actors give meaning to their collective action and create coalitions to strengthen a common identity. To defend their privilege or improve their position, they have the ability to use strategies, often innovative ones, to restore the old order, or propose a new one in the service of collective ends. Examining social skills, such as discursive strategies, repertoires, and innovative actions, makes agency more explicit. This provides mothed to understand the role of agency in a given field.

In addition, the theory of SAF believes that fields are rarely stable or consistent. In many cases, a field includes disparate matters of concern and entanglements among competing forces. The theory of SAFs contends that every field is composed of multiple smaller sub-fields. Contentions in sub-fields affect the stability of the field. When a field experiences continuous turbulence and turmoil due to competition in a sub-field, a sense of uncertainty appears. The sense of uncertainty is a state in which people feel dissatisfied or uneasy with the *status quo* or the prospects of the field. It is a subjective judgement that people make about the instability of the dominant field or the unpredictability and uncontrollability of the situation they are facing. The sense of uncertainty arises when various actors cannot reach a consensus regarding the dominant order of a field. As long as divergences exist, the shared sense of uncertainty will persist.

In sum, the theory of SAFs has the following three advantages in understanding controversies over MSW incineration. First, the theory tends to regard the objective of collective action as a meso-level social order. This helps understand several specific goals within a unified framework. It also contributes to identifying the boundaries of the field (Ferns & Amaeshi, 2019). Second, the theory of SAFs does not regard the state as the context in which collective action takes place. Instead, the state and its agents—different levels of government—are considered active participants in public controversies. In this way, all embedded social actors (including the state, organizations, the media, and ordinary people) and their efforts can be taken into consideration. Third, the theory of SAFs is a process-oriented analytical path that focuses on how a social order moves back and forth in the course of competition. It assigns great importance to the fluidity of fields and actors. The social order for which actors fight may change over time. Further, engaged actors and their tactics may also transform accordingly. All these characteristics make the theory

of SAFs appropriate for comprehending how social cohesion is produced through competition and interaction between actors. In this sense, we use this theory to shed light on public controversies over waste incineration in China.

#### **4. Three Anti-Incineration Protests in Mainland China**

Rapid urbanisation has led to an increasing volume of MSW, which in turn has provoked a waste crisis. To overcome this crisis, incineration has been given priority in local waste disposal policies in many cities. According to a recently issued report, the number of incinerators grew from 122 in 2012 to 428 in 2019 (Wuhu Ecological Centre, 2019a).

The proposals for new MSW incineration plants, the plans for expansion of existing plants, and the operation of incineration facilities have sometimes spawned discontent and even protests. In 2006, thousands of people took to the streets to prevent the Liulitun Waste Incineration Plant from being constructed. Then, two events in Guangzhou and in Beijing in 2009 opened the wave of anti-incineration protests in mainland China. Based on news, we identified 95 anti-incineration campaigns from 1 January 2006 to 31 December 2019. To better examine the diachronic processes and unfold the detailed interactions, we conducted in-depth case studies by analyzing anti-incineration campaigns that occurred from 1 August 2015 to 31 July 2018. We first created a database composed of these campaigns. We then screened potential cases based on the following criteria: (1) disputes over incineration that have received broad exposure in the media, including traditional media and social media; (2) incumbent groups and challenger groups that have clear positions, and contentions that lasted for more than one month; and (3) different categories of actors (including municipal governments, companies, and affected residents) that responded to our interview requests.<sup>32</sup> We finally selected City A, City B, and City C from our database. The three cases were selected because they well demonstrated local controversies around incineration. They showed that actors had continuous interaction around the construction,

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<sup>32</sup> Collective action is regarded as a source of social instability in China. Protestors may be warned, frightened, threatened, and/or arrested depending on the situation. Thus, gaining access to people involved in protests is not easy. To a great extent, the availability of primary data limits the selection of cases.

expansion and operation of incineration plants, which provided rich and vivid evidence for understanding turbulences within the SAF.

We conducted intense fieldwork from August to October 2018. A snowball strategy was applied to recruit participants. Different from the sampling logic commonly used in surveys, this case study follows the replication logic that pays more attention to the validity rather than the quantity of the collected data (Yin, 2009). The data collection process pays more attention to ensure that each interview can provide detailed information for in-depth analysis. When the collected data was considered sufficient to answer the research question, we stopped recruiting new participants. With the help of three intermediaries (a municipal official, a researcher, and an environmentalist), we conducted 42 semi-structured interviews<sup>33</sup> with diverse categories of actors<sup>34</sup> (16 interviews with residents, seven with officials, eight with environmentalists, six with entrepreneurs, and five with researchers) during the three-month fieldwork and a supplementary research conducted at the beginning of 2019 (see Appendix E). These 42 interviews helped us understand the commonalities and differences within and between the concerned actors. Since qualitative research places greater emphasis on convincing and fine-grained analytical narrative than on statistical logic (Mason, 2012), we chose to focus on the depth, richness, and details of the data. From the transcripts of 320,756 total words, we managed to find evidence to address our concerns about the controversies over incineration. In addition to interviews, data collected from municipal government websites, environmental organization websites, social networking sites, and other sources (including photos, videos, and archives) provided by interviewees gave

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<sup>33</sup> All interviews were conducted in Chinese. We translated Chinese into English with a focus on presenting the original meaning. It is worth mentioning that Chinese (especially in spoken dialogue) does not have any verb conjugations, noun declension, or articles. We determined the temporal interpretation of sentences and singular (or plural) according to the context. We also added (definite or indefinite) articles, antecedents, and other conjunctions when translating the excerpts. In addition, for some content that may lead to ambiguity, we added supplementary information in square brackets. Nonetheless, we tried our best to minimize the loss of meaning caused by translation.

<sup>34</sup> Our interviewees do not necessarily live in City A, City B, or City C. Interviewees, especially researchers and environmentalists, who live in another city but are deeply involved in the three selected cases were considered in our research.

us a great deal of complementary information. The collected data were updated according to the development of the cases.

### *Case 1: Large-Scale Demonstrations in City A*

City A is a large city with a population of over 10 million (National Bureau of Statistics of China, 2020). Until 2018, all collected and translated MSW in City A were sent to landfills. The municipal government decided to build six incinerators to replace the overflowing landfills. The initial work began in District X.<sup>35</sup> In 2016, the municipal government planned to transform an abandoned cement kiln into an MSW incineration plant since the physical infrastructure was already in place. However, the proposal aroused dissatisfaction among local residents in September 2016. Without a positive response from the district government, a mass demonstration broke out in October. During that time, nearly 50,000 people (mainly farmers, self-employed businessmen, and students) took to the streets, and some angry residents gathered in front of the district hall to oppose the incinerator (INAGES03, 2018). Street protests lasted for two weeks and finally resulted in physical conflicts between police and protesters. Opposition temporarily put the proposal for the incineration plant on hold. However, in early 2018, the municipal government restarted construction in a new location, a few kilometres away from the original one (the abandoned cement kiln).

### *Case 2: Protests in City B*

City B is a mid-sized city with a population of almost five million (National Bureau of Statistics of China, 2020). It is a well-known supplier of agricultural products, of which rice accounts for a relatively high proportion. In January 2018, the local government's attempt to acquire rice paddy fields in District Y was rejected by farmers. Two months later, an MSW incineration plant began construction in the paddy fields. Frustrated farmers tried to start a dialogue with local cadres and

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<sup>35</sup> The administrative divisions of China consist of five levels: the provincial, municipal, county/district, township, and basic autonomy level. Although most anti-incineration disputes happened in a certain district or county and did not necessarily extend to the whole city, our research takes cities as geographic units since implementations of waste incinerators are usually based on urban planning and urban development policy at the municipal level, and protests were sometimes initiated in the name of the people in the entire city.

project developers. However, all of their questions were left unanswered. These farmers soon found that land used for the incineration plant had not been approved, and the estimated location was actually 5 km away from their paddy fields. Dissatisfied with the irregularities of the local government and the developer, farmers launched a three-month sit-in. In October, the local government announced a new location for the plant. Given that the new one was in a migratory bird sanctuary, farmers, residents living in nearby areas, and some environmentalists initiated another protest. In April 2019, a public hearing was held. However, despite strong opposition, the municipal government announced the approval of the incineration project the day after the hearing.

### *Case 3: Campaigns in City C*

City C is a large city with a population of nearly eight million (National Bureau of Statistics of China, 2020). A landfill was put into operation in District Z in 2003. Considering that the landfill was about to overflow, the municipal government decided to build an incineration plant next to the landfill in 2014. Having suffered from landfill pollution, some affected residents considered the incineration plant a similar threat. To stop the plant from being constructed, people in nearby communities launched a petition but failed. After the incinerator plant was put into operation, people living in surrounding areas found that it was illegally discharging leachate<sup>36</sup>. Farmers, workers, teachers, and self-employed businesspeople launched a protest in May 2017. In 2018, the municipal government declared that the incineration plant was not sufficient to treat the collected waste. A public hearing was held to discuss the construction of the second phase of the plant. During the hearing, residents showed evidence of improprieties and inconsistencies, such as identified forged questionnaires and consent forms, in the environmental impact assessment of the second phase, and expressed their opposition. Meanwhile, affected residents engaged in online resistance (including open letters to the public and personal statements by video) and offline efforts (including applying for information disclosure, administrative reconsideration, and litigation). The incineration plant was temporarily shelved in December 2018 to quell public discontent, but was restarted in April 2019. To better understand the predicament within the field

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<sup>36</sup> Leachate is a contaminant liquid that drains from incinerators.

of MSW incineration, taking a close look at the competition between incumbents and challengers and the dynamics of the field can be useful.

## **5. Competition between Incumbents and Challengers**

Examining differences within and among various actors is a prominent step in understanding disputes (Hess, 2015). MSW incineration, as a controversial issue, includes an extended range of stakeholders. In our three cases, incumbents (Fligstein & McAdam, 2011, 2012)—including municipal officials, entrepreneurs, and some researchers—usually insisted on the advantages of incinerators. For them, incineration is a good and efficient way of handling waste. More specifically, officials tended to “frame” (Benford & Snow, 2000; Fligstein & McAdam, 2012; Snow et al., 1986) incineration plants as livelihood projects which may increase employment and wealth and ease the waste crisis. Given the negative externalities of landfills, urban administrators promoted incineration and described it as the best available method for MSW disposal. By linking incineration with public health and urban security and showing expert endorsements, incumbents legitimized their proposals. As an administrator stated,

Due to the urban population growth, we have to build out many facilities to deal with garbage. I'll give you an example. Our city [City B] is already surrounded by thousands of tons of garbage. [...] But the urban space is limited. So, the sanitary landfill is no longer appropriate. We have invited many experts [to conduct investigations]. We listened to the opinions of the experts. We think that incineration is the only way to solve the problem of urban garbage. The construction of incineration plants is related to urban security. [...] Now, the mountains of garbage have brought us a severe urban crisis. If we don't use this quick and effective way, a plague will come soon. (INBGES01, 2018)

Industrial representatives made more efforts to highlight the credibility and reliability of incineration technology. As shown in previous studies, incineration has been promoted because it can eliminate large amounts of waste in a short time and generate energy (Y. Liu et al., 2020; Song, Sun, & Jin, 2017; Xin-gang, Gui-wu, Ang, & Yun, 2016). According to incineration companies, burning garbage is also a state-of-the-art technique that has proven safe in Western countries (INBENT01 and INCENT01). In this sense, some industry representatives called themselves “environmental solution providers” and “environmental resource managers” because

incinerators (also called waste-to-energy projects) were able to deal with both the waste crisis and energy problems. As an interviewee working in an incineration plant in City B reported:

We apply a fluidised bed incinerator. It's an advanced technology. It's different from the traditional grate furnace technology. You don't need to worry. Fluidised bed [incinerators] are environmentally responsible. There is no problem of incomplete combustion. [...] A closed container can reach up to about 900°C. High temperatures can destroy most toxins. Incinerators let toxins burn and vaporise. Also, we equipped the smokestack with some special devices. Since we wash the emissions, our plants produce very little air pollution. You should know that our technology is clean and reliable. Now, throughout the world, more than 400 facilities across 35 countries are using this technology. How can there be environmental pollution? We work here every day. [...] Our work is like magic. We turn garbage into energy—heating and electricity. It is a win-win [situation]. (INBENT01, 2018)

In order to promote incineration technology, local governments and enterprises have formed a pro-incineration alliance. The symbiotic networks between them mutually reinforce each other. However, challenger groups (Fligstein & McAdam, 2011, 2012), mainly including local residents, environmentalists, and some researchers, viewed incineration differently from industry representatives and municipal government bureaucrats. Dissatisfied with the existing order of waste management, they criticized the so-called public infrastructure and rational economic calculations. In general, challengers regarded incineration as an outdated technology and a threat to people's daily lives. One resident expressed her point of view as follows:

People in power impose their understanding of incineration on us. [...] We don't think it is a beneficial public infrastructure. We think it results in a waste of resources. [...] For governments and companies, it is a lucrative thing. They built the bad plant in our place. They don't care about the objections of common people. [...] Policy from above destroys our home. (INCRES02, 2018)

Skilled actors (Fligstein & McAdam, 2011, 2012) are considered capable of using the “discursive opportunity structure” (McCammon, Muse, Newman, & Terrell, 2007) to shape and stretch their position. In our cases, protesters sometimes extracted words from policy documents issued by the central authority or concepts frequently cited by the media, such as environmental justice, sustainable development, and the right to know, to reinforce their opinions. As a resident in City B noted:

Xi Dada [President Xi] has already said that clean water and lush mountain streams are invaluable assets comparable to the gold and silver of legends (Chinese: 绿水青山就是金山银山; Pinyin: *Lvshui Qingshan Jiushi Jinshan Yinshan*). Everyone knows the central government is very concerned about environmental protection. Nevertheless, they are building an incineration plant in a nature reserve. This clearly violates the policy of the state. (INBRES05, 2019)

During our fieldwork, we found that “moral weapons” (O’Brien & Li, 2005; O’Brien, 2008) were sometimes used in the fight against incineration. In all three cities, we noticed that residents linked their claims with the public interest and future generation to occupy the moral high ground. A statement from a resident in City A is one example:

Those people in power are used to making profits for themselves by oppressing the common people. We do not speak for ourselves. We are fighting for the public [of our city], for all Chinese people, for everyone on the planet, and for our children and grandchildren. (INARES04, 2018)

In recent years, the engagement of environmentalists has contributed to the establishment of an anti-incineration alliance which has brought pressure on incumbents. For these new actors, MSW incineration is far from being a one-size-fits-all solution to the waste crisis. Playing the role of the supervisor of a clean and healthy living environment, environmentalists not only enhanced the power of challengers, but also shifted strategies of action to policy advocacy. Their inputs strengthened the internal coherence of the anti-incineration position and provided common references to activists in different cities. Concerns of environmentalists mainly involve four aspects: negative environmental impacts, obstacles to the circular economy, unreasonable policy processes, and weak supervision mechanisms. These concerns were clearly mentioned by the following two interviewees:

Our [anti-incineration] organization covers all cities in China. We aim to reduce garbage sent to incineration plants and the number of incineration plants in the country. [...] An incineration facility may be cleaner than a landfill. However, this does not mean that incinerators do not emit toxic substances. Dioxins, mercury, and particulate matter still exist in emissions. [...] In the long run, incineration is not a way to achieve greater sustainability. (INCENV02, 2018)

During our investigation, we have found many problems [with incineration plants in operation], such as [improperly] low temperatures in the boilers, emissions that exceed the limits, and not releasing information on small-particle materials and toxic pollutants. [I will] give you another example: we



followed data from 46 incineration plants in April 2017 and found 6,686 illegal emissions in a month. This is only one month. Can you imagine, if things go on like this, how serious the problem in the country will be? (INBENV01, 2018)

It is worth underlining that incumbents and challengers are two ideal types. Although the establishment of anti-incineration and pro-incineration alliances helps unite actors with similar or same demands, such a coalition is not necessarily firm (Heiskanen, Apajalahti, Matschoss, & Lovio, 2018; Köhrsen, 2018; Kungl, 2015). Actors do not always take a consistent position across sub-fields (Canzler et al., 2017; Schmid, Knopf, & Pechan, 2016). They might occasionally vacillate between the two camps. Moreover, the group to which one belongs might change over time. As mentioned by Fligstein and McAdam (2011, 2012), embedded actors might have multiple purposes. On some occasions, a member of the incumbent group, for example, might change his/her initial position and become a member of the challenger group. The identification of actors within a field is largely based on their subjective understanding and recognition rather than objective criteria (such as occupation and economic status) that define who they are (Fligstein & McAdam, 2011, 2012). In this case, the boundaries of group identification—as incumbents or challengers—are not clear. Therefore, it is also necessary to analyze the differences within coalitions (Becker et al., 2016; Blanchet, 2015).

In analyzing the three cases, we found that officials and entrepreneurs in some circumstances expressed objections to MSW incineration, even though most of their colleagues supported incineration. An interviewee (INAGES05) exhibited ambivalence resulting from his double identity. As an urban administrator, he needed to consider how to solve the waste crisis in the entire district. Waste incineration was considered the optimal choice in this regard. Nevertheless, as a citizen, he saw a huge waste of resources through the burning of refuse without separating food scraps or recycling paper, plastic, and/or metal. Under such circumstances, MSW incineration is seen as a simple and crude method of waste disposal rather than a refined service.

We also met some supporters of waste incineration in the environmentalist network and resident groups during our fieldwork, while the majority of their colleagues, friends, or neighbours were in the anti-incineration camp. For example, an interviewee (INARES02) told us that thanks to the construction of an incinerator near his home, the relocation compensation allowed him to move

to a new place located close to the downtown area. According to him, the relocation gave him an opportunity to enjoy the amenities of urban infrastructure. In another interview, an environmentalist (INBENV03) said that incinerators were preferable to landfills because the former produced less unpleasant odour and fewer residues, which is why he did not join the protests against incineration. We have also found that some researchers (including researchers in environmental science, engineering, sociology, and public administration) have joined the controversies over MSW incineration. Their opinions on incineration varied. Some of them were involved in campaigns by highlighting the negative impacts of MSW incineration, while others provided laboratory evidence to support incineration technologies. This is largely related to the “fundamental indeterminacies in knowledge” (Wynne, 1996, p. 45). On the one hand, the emergence of a multiplicity of knowledge sources leads experts in various fields to develop different interpretations (Grundmann, 2017; Jensen, Lahn, & Nerland, 2012). On the other hand, the development of research constantly updates people’s knowledge, which leads to disputes in “undone science” (Frickel et al., 2010; Hess, 2009). In addition to identifying incumbents and challengers, it is also imperative to examine bones of contention within the field of MSW incineration.

## **6. Dynamic SAF and Sense of Uncertainty**

Fields marked by conflict usually involve struggles for multiple purposes (Candido, Soulé, & Sacomano Neto, 2019). MSW incineration, as a highly competitive SAF, is characterized by contestations in several sub-fields, which mainly includes the environment and health, land use, technology, information, and administrative processes. Sometimes controversies take place simultaneously across several sub-fields, while at other times they move from one sub-field to another. When a proposal for an incinerator is put forward, heterogeneous actors compete to enter the field according to their distinctive positions in line with their understandings, values, and interests. During this period, divergences and disagreements that occur in sub-fields result in a sense of uncertainty (Fligstein & McAdam, 2012). Uncertainty is crucial for understanding the dynamics of the SAF of incineration. In this section, we focus on the situational processes of controversies and highlight how competition and interaction travel from one sub-field to another over time.

First, most anti-incineration campaigns originate from concerns about health risks and environmental damages (Bondes, 2019; D. Sun, Wang, & Xie, 2004). In our cases, this is one of the most frequently mentioned topics around which challengers and incumbents have varying opinions and experiences. In essence, the understanding of the harm caused by incineration was contested. For residents, the reasons they defined incineration as a pollution source came from their everyday experiences and observations. They did not believe “so-called scientific data from an unknown laboratory” (INCRES01, 2018). During interviews, residents in all three cities mentioned that they were afraid of the dioxins which they might be exposed to in their daily lives (INARES03, INARES04, INBRES01, INBRES03, INCRES02, INCRES06). Thus, incineration is considered a threat to human health. Based on real-life experiences (Krimsky & Plough, 1988; Wynne, 1996; Yearley, 2000), residents draw a causal link between incineration and rising health hazards. This was clearly indicated by a resident in City C:

After the operation of a garbage landfill in 2003, we noticed more health problems. In our village, we have dermatoses, deformed babies, respiratory diseases, and cancers. Landfill and garbage incineration are the same. [...] They both pose a threat to our health. (INCRES03, 2018)

Environmentalists also reminded people living near incineration plants that they were surrounded by toxic pollutants. However, municipal officials and entrepreneurs claimed that the public was overreacting since little causal connection between health-related problems and the operation of incineration plants had been confirmed (INAGES01, INAGES05, INAENT03, INBENT01, INCENT01). Nevertheless, potential risks from long-term exposure to toxic chemicals from incinerators have received attention (P. Xu et al., 2019). According to one researcher (INBCHE01, 2018), despite the use of advanced technology, incinerators still emit mercury, lead, dioxins, and a variety of other toxic and hazardous substances, including carcinogens. By-products from incinerators, such as fly ash<sup>37</sup> and leachate, may also cause secondary pollution. Another researcher (INCCHE01, 2019) found that some incineration plants even burned coal to generate electricity as a part of illegal claims for energy subsidies. In this case, incinerators inevitably became new greenhouse gas producers rather than reducers of environmental pollution.

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<sup>37</sup> Fly ash is a fine toxic powder that is a by-product of burning waste in incinerators.

Second, siting of unpopular projects is often controversial (Nakazawa, 2017; Rootes & Leonard, 2009). This is also true in our anti-incineration cases. On the one hand, conflicts mainly revolved around the rationality of incineration plants siting. Many people thought that incineration plants would bring (or had brought) inconvenience to a large number of residents, such as foul odours from garbage trucks and incineration plants, the devaluation of property, a stigmatised community, and broken landscapes (INARES01, INCRES05, INCRES04, INCRES06). On the other hand, opposition to incineration plants was also related to dissatisfaction with illegal land acquisition, as shown in the case of City B. In the process of rapid urbanization in China, the growing demand for public services—especially large infrastructure projects (including MSW incineration plants)—has led to increasing need for land. However, fraud, irregularities, and collusion exist in the process of land acquisition (Hui & Bao, 2013). More interestingly, the attention of challengers has exceeded concerns for personal interests. They delegitimized the siting of incineration plants by charging that the plant occupies land in an ecologically fragile area, as pointed out by an environmentalist below (INBENV02, 2018). On this issue, responses from incumbents were usually weak. Challengers prevailed in this sub-field. In this relatively advantageous sub-field, many residents, researchers, and environmentalists jointly advocated controlling land use approval for incineration plants and moving incineration plants away from environmentally sensitive areas.

The [MSW incineration] plant in City B is located in a water source area. The plant in City C is located in a nature reserve. This is a national park. In City B, the site is different from the one [published] on the government website. [...] During the siting process and land acquisition, there are many problems. (INBENV02, 2018)

Disputes caused by public infrastructure projects inevitably involve the issue of technology (Mey & Diesendorf, 2018). In our cases, incumbents and challengers also debate the appropriateness of incineration as the main MSW disposal method. Incumbent groups tended to call incinerators “waste-to-energy” projects, and according to them, incineration technology is reliable (INAGES01, INAGES02, INAGES03, INBGES01). An administrator working in the Municipal Bureau of Urban Administration of City A stated:

Burning is a quick way to reduce garbage. This is much better than burying garbage in landfills. You see, by burning garbage, we are turning trash into cash [energy], so it is a complete recycling industry. Garbage in, problems solved. (INAGES02, 2018)

However, this argument has been challenged by many environmentalists and researchers. First, organic waste comprises a high proportion of MSW in China (Gu et al., 2015; H. Zhou, Meng, Long, Li, & Zhang, 2014). Given its high water content and low calorific value, organic waste is considered unsuitable for burning (INACHE01, INBENV01, INCENV02, INCENV03). According to opponents, investment in waste incinerators means that a large volume of waste will be burned. This may largely discourage the market and the public from separating and recycling waste. In the long run, the widespread use of incineration inevitably undermines sustainable waste management and circular economy goals. According to them, theoretically, sorting and recycling should be performed prior to incineration. However, reusable resources that had not been sorted out of the waste were destroyed in incinerators. As activists said, promoting waste incineration falsely suggested that burning waste in a boiler could completely replace other efforts of waste pre-processing and exploration, such as sorting, recycling, composting, and biomethanation. Activists believe that “waste-to-energy” technology can neither decontaminate garbage nor reduce garbage generation rates (INAENV01, INACHE02, INBENV01, INBENV02, INCENV03). Minimizing the generation of waste rather than eliminating waste quickly is considered the correct response to the waste crisis.

Fourth, conflicts over MSW incineration sometimes stem from an “information haze” (Futrell, 2003, p. 359). Challengers asked for direct and unfettered access to information about technology, risks, costs, and benefits. For instance, some residents in City C did not learn of the first phase of the incineration plant in their neighbourhoods, even though that phase had already been running for several months (INCRES01, INCRES02, INCRES03). Difficulties in accessing information led to anxiety and distrust. Thus, people were mobilized to fight for the right to know, which was considered an essential public right. Access to information about public affairs was mentioned by the interviewees as follows:

We came across the matter about the incineration plant from personal channels. Our families and neighbours were talking about this thing. We also overheard other information. But I think the government should at least involve us in the environmental impact assessment. (INCRES04, 2018)

We did not get any information until they started the construction [of the incineration plant]. Since then, we have thought of many ways to gain information about, for example, risks, damages, costs, and compensations. We asked [local] government as well as the company, but they didn't give us any answer. Those people did not treat us as citizens. [...] We hope they respect our right to know. [...] We should have been told [of a planned incineration plant] when we moved here. (INARES03, 2018)

However, local officials in all three cities believed they had no fault in information disclosure (INAGES05, INBGES01, INCGES01). They claimed that information related to incineration plants had been publicised on the government website, in accordance with the requirements of administrative regulations. They explained why some pollution information was not disclosed and indicated that the covered information involved "business secrets" (INCGES01).

Fifth, beyond the implementation and operation of incineration plants, conflicts were observed in the sub-field of administrative procedures. Challengers criticized the incomplete decision-making processes in incineration plants proposals. Residents in all three cities showed a strong willingness to participate in policy discussions and wanted to be able to influence urban public choices (INARES01, INARES02, INBRES02, INBRES03, INCRES03, INCRES04). In City A, residents in the affected communities were not consulted and considered it unfair that they were excluded from the formulation of the waste policy at the outset, and were not given a chance to voice their opinions. In Cities B and C, public consultation was merely a token formality. Even though residents expressed strong opposition at the hearing, their opinions were not taken seriously by administrators. In addition, many people were dissatisfied with the frivolity of the decisions made by local officials. They insisted that they had the will and ability to supervise local administrative procedures. According to them, more public supervision might reduce negligence and corruption in decisions related to MSW incineration projects (INBRES03, INBRES05, INBRES06).

We don't want policies from above. We want fair and open [decision-making] processes. Decisions [regarding the incineration plant] were made by only a few cadres...Who knows if there is any secret deal? [...] More participation [in decision-making processes] means more space for dialogue and more

opportunities to negotiate. Likewise, more efforts from our people will bring a more responsible government. (INBRES03, 2018)

However, some officials questioned the public's ability to participate in decision-making. They felt that the public had not been able to provide useful suggestions thus far (INAGES05 and INCGES01). As stated by a municipal official in City C:

To be honest with you, we didn't want to hold the hearing. But we must do it. Why? The state requires it. A crowd came here to quarrel and vent their frustrations. Then they went home. Their participation [in the hearing] didn't help our decision at all... After all, people's cultivation<sup>38</sup> should be improved. (INCGES01, 2018)

Confrontation around the definition of MSW incineration (as being either hazardous or beneficial) was in flux, which led to the boundaries of the SAF changing over time. First, the central government and municipal governments suggested building incineration plants to solve the garbage crisis. Incineration companies responded quickly, since turning waste into energy would accompany an increase in corporate profits. However, the implementation or operation of incinerators resulted in much dissatisfaction and many controversies among the population. When affected residents voiced their disagreements, an SAF of MSW incineration appeared. Initially, residents competed with local governments and companies over environmental pollution and land acquisition. With the participation of environmentalists and researchers, concerns have turned to technical defects in incineration. MSW incineration is regarded as a major obstacle to waste reduction and resource reuse. Governments and companies responded to these challenges by emphasizing the advantages of incineration, such as energy generation. Considering the difficulties of reaching consensus on technical superiorities or defects, activists shifted their strategy to policy advocacy regarding information disclosure and administrative processes. As the theory of SAFs (Fligstein & McAdam, 2011, 2012) indicates, skilled actors are able to change their actions according to circumstances. On the one hand, the new strategy

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<sup>38</sup> People's cultivation (Chinese: 国民素质; Pinyin: *Guomin Suzhi*) refers to people's courtesy, level of education, and civic consciousness. In this case, the local official talked about the improvement of people's cultivation regarding two things. First, he felt residents did not master effective communication skills or know the appropriate way to express their opinions. Second, he believed that since many residents are not well educated, they are not able to provide a useful contribution to decision-making.

towards information disclosure and administrative processes is not limited by the uncertainty of knowledge. On the other hand, this new strategy has lower political risks because it is in line with the state-recognized discourse system mentioned above. In sum, divergences prevailed among different categories of actors in the SAF of MSW incineration, and actors adjusted their strategy according to the responses of others. The SAF of MSW incineration was therefore shifting in search of reproducing “their local social order” (Fligstein & McAdam, 2012, p. 7).

## **7. Conclusion**

The past decade has witnessed tremendous growth in MSW and an explosive increase in anti-incineration protests in China. Construction, expansion, or operation of an incineration plant often encounters resistance. Concerns about the prospects of the dominant order keep the field in turmoil. During the processes of competition for the dominant order, skilled actors advocate their distinctive understanding by producing knowledge and packaging opinions based on their own position. Confrontations regarding incineration are unfolding across multiple sub-fields. In some cases, challengers prevail in one sub-field but are at a disadvantage in another. Based on their understanding of the environment, they may move to a more favorable sub-field to improve their advantages.

In this article, we focused on the application of incineration as a strategy to solve the waste crisis in China. Conflicts over incineration were examined based on 42 semi-structured interviews. Additional data, such as information from the Internet and other sources, were used to supplement and verify data from interviews. Based on collected data, we analysed the divergences between actors. For residents in affected communities, waste incineration is unpleasant, dangerous, and even destructive. For environmentalists, it is a major obstacle to realizing ecological preservation, waste reduction, and resource reuse. For enterprises, incineration is a mature technology. Turning waste into energy brings huge profits to enterprises. For local governments, burning is a fast and low-cost solution for the urban waste crisis. However, siting disputes around incinerators are a major challenge because they might lead to planning failure and political gridlock. For the central government, incineration plants can alleviate the waste and energy crises to some extent. However, the increasing number of local anti-



incineration campaigns might generate social unrest at a regional level. For researchers, the development and accumulation of scientific knowledge in epidemiology, chemistry, and environmental science contributes to more advanced incineration technology. Nevertheless, the environmental and social impacts of waste incineration remain contested. Tensions between incumbents and challengers and dynamics of the field order are produced by convergences of diverse positions. MSW incineration, as a highly competitive SAF, involves several concerns that go far beyond the pursuit of self-interest or economic compensation. Fundamentally speaking, challengers and incumbents vie for a meso-level social order: waste disposal industry and waste management policies. Drawing on the theory of SAFs, we integrated the current fragmented literature on anti-incineration protests and deepened understanding of contentions related to MSW incineration.

Although competition between challengers and incumbents in the SAF of MSW incineration is ongoing, several minor cultural transformations and policy changes have been observed. The central government has begun to solicit public opinions when formulating policies. To avoid political gridlock, many local governments have paid more attention to public participation. Some incineration companies have set an Open Door to provide the public with scientific knowledge about incineration. Environmental organizations have shifted their involvement from radical opposition to policy advocacy. Both environmentalists and the public have reflected on the ways and the extent to which they can participate in public decision-making. During their involvement in controversies over incineration, an increasing number of people have paid attention to the issue of MSW and consumerism, and have been involved in innovative practices for reducing waste. In this sense, we have reason to expect anti-incineration activism to reshape the space and the way in which we live in the long term (Hamel, 2014).

Modern societies consist of countless interconnected fields (Bourdieu, 2000). The analysis of a certain field contributes to our understanding of the larger field in which it is embedded. The theory of SAFs offers a heuristic insight that encourages research on strategic action across multiple fields (Candido et al., 2019), which is increasingly recognized but scarcely explored. When actors' positions in various sub-fields diverge, it is difficult for them to reach a consensus on the overall order of the field. Focusing on cooperation and competition among various

categories of actors, the theory provides ideas to understand how the dominant order of a field is contested, changed, or enforced through interplays in sub-fields. As a process-oriented perspective, the theory of SAFs provides valuable accounts of complex social dynamics as well as a mix of instrumental and existential motives. This comprehensive approach benefits research on collective action across disciplines and empirical contexts. Apart from MSW incineration, to varying degrees, many large infrastructure projects (such as highways, airports, wind farms, oil refineries, nuclear power stations, detention centres, mental health facilities, and drug treatment centres) have triggered social and political tensions. As adjacent fields (Fligstein & McAdam, 2011, 2012), they share many common characteristics with the SAF of MSW incineration in many ways. Our study is therefore compatible with research on other proximate fields. In sum, the theory of SAFs is reproducible in studies of local resistance against large infrastructure projects in China, as well as controversies in different corners of the world. We believe our study contributes to the exploration of meso-level institutional and policy processes in a given SAF. We are convinced that research on public and environmental disputes can benefit from such reflexive attempts, especially when conflicting positions, goals, interests, and values between multiple stakeholders are difficult to regulate and reconcile.

# Chapter 4. Anti-Incineration Mobilization on WeChat: Evidence from 12 WeChat Subscription Accounts

## Abstract

The role of social media as a mobilization tool has been widely discussed in the digital age, yet empirical evidence on the online consensus mobilization around environmental issues in a relatively restrictive political setting remains largely unexplored. In this study, my aim is to understand how activists strategically harness social media to take collective initiatives and to stimulate communal awareness against current waste disposal industry and waste management policies in China. Using a content analysis method, I examined 557 posts from 12 anti-incineration WeChat subscription accounts with the help of NVivo and Gensim software. In reference to social constructionism and social movement theories, I argue that consensus mobilization includes three core undertakings: identification, demonstration, and resolution. Investigating the anti-incineration discourse production on WeChat contributes to a more nuanced comprehension of online mobilization in an authoritarian context. And the results have practical implications for environmental-related activism via social media.

**Keywords:** consensus mobilization, social media, discursive construction, municipal solid waste incineration, WeChat

From the Arab Spring to the #MeToo movement, social media have shown tremendous power to foster action alliances and provide resources for collective action (Della Porta & Mattoni, 2014). Although social media are proven to be a key element in explaining successful mobilization in the digital age (Denisova, 2017; Howard, 2013), attempts to better understand the cognitive dimension of social mobilization initiated by activists via social media platforms have been relatively scarce. This is especially true in exploring environment-related online awareness campaigns in less liberal countries.

Falling into the techno-centric trap, previous literature sometimes attributed the success of social mobilization to the application of digital technology (e.g., see Liu, 2019; Pang, 2018). However,

human agency also plays an indispensable role in the process of mobilization. I therefore develop my interpretative framework, based on social constructionism and social movement theories, to scrutinise activists' creative practices in motivating public controversies through social networking sites. More specifically, I focus on an online anti-incineration community on WeChat—one of the most influential social media platforms and Internet content providers in China—and raise the following question: In contemporary Chinese society, how do skilled actors conduct discursive practices on social media to stimulate communal awareness against the incineration-oriented industrial structure and waste disposal policies? To what extent can the collective efforts of the anti-incineration community on WeChat promote our understanding of consensus mobilization in an authoritarian context? To shed light on the formation of collective awareness against municipal solid waste (MSW) incineration, I analyzed 557 posts from 12 WeChat subscription accounts (online sites for sending messages and sharing information with subscribers).

This article comprises five sections. The first reviews the literature on protests triggered by social media. The following section provides a critical theoretical discussion and introduces three key tasks of consensus mobilization. The third part deals with methodology and data, including the technical characteristics of WeChat and the 12 selected subscription accounts. The fourth section delves into the three tasks of anti-incineration mobilization. The final part offers concluding thoughts and reflections.

## **1. Literature Review**

In the digital age, Internet-based media is considered a vehicle for civic engagement and a medium of the new network society (Castells, 2002; Kerbel & Bloom, 2005). With instant, open, creative, interactive, participatory, and user-oriented features, certain social networking sites (such as Facebook, Twitter and YouTube) have become essential tools for disseminating information, expressing opinions, and pressuring policymakers (Arlt et al., 2018; Comfort & Hester, 2019; Hendriks et al., 2016; Hutchins, 2016; Katz-Kimchi & Manosevitch, 2015; Trottier & Fuchs, 2014). The growing number of social media platforms, characterized by user-generated content, has given individuals—especially underrepresented groups and activists—a fresh chance to voice

their concerns and sometimes to spur collective action. Recently, the electronic repertoire of contention for online environmental activism has drawn extensive attention, for instance, in the field of nuclear projects (Guo, Li, & Chen, 2019; R. Huang & Sun, 2016), energy facilities (Hendriks et al., 2016; Katz-Kimchi & Manosevitch, 2015), excavation of natural resources (Doğu, 2017), and climate change (Thorson & Wang, 2019).

Social media have experienced an enormous upswing in China over the past decade. With the popularity of digital technology, China has become the world's largest and most active social networking market (Statista Research Department, 2019). The role of social media in making collective claims and organizing contentious politics has received enduring attention from scholarship (Han, 2018; Yang, 2009; S. Yin, 2018). For instance, some studies have found that social media's potential has grown beyond individual use (such as socialising and entertainment) and reshaped public space; this includes protecting architectural and cultural heritage (Volland, 2011), defending environmental rights (Hung, 2013) and fighting corruption (Sullivan, 2014). The rise of social media has created a new form of social interaction between the state and society. With its relatively decentralised structure, social media have promoted many online controversies. Concomitantly, many studies have focused on the role and implications of social media for empowerment. Previous literature indicates that social media allow access to information flows (Liu, 2013), facilitate public debate and problem articulation (Volland, 2011), weaken propaganda and information control (Hung, 2013), question the hegemony of official discourses (Gleiss, 2015), challenge authoritarian rule (Lei, 2011), and influence policymaking (Tsai & Wang, 2019). These qualities make social networking sites important places of resistance.

In the digital age, online activism has become an unavoidable and substantial topic embedded in social movement and new media studies. Despite a large body of research, social media have often been regarded as an objective condition for collective action (Breuer, 2016; Eltantawy & Wiest, 2011; Howard, 2010; R. Huang & Yip, 2012; Lim, 2012; J. Liu, 2019; Tufekci & Wilson, 2012). Given the challenges caused by techno-centrism, many researchers have called for more attention to actors' creative employment of social media in the study of digital politics (Mattoni, 2017; Mutsvairo, 2016; Radsch, 2016). In particular, it is imperative to investigate how activists strategically use social media platforms to raise collective consciousness in response to grievances

and win supports in a relatively constrained political setting. Consensus mobilization in an online space within an authoritarian system therefore requires dedicated research.

## 2. Theoretical Perspective

The structure/agency debate has long been one of the central themes in social theory (Bourdieu, 1990; Giddens, 1984; Habermas, 1987). In social movement studies, structural factors and material resources have been widely discussed by researchers who use resource mobilization approach (McCarthy & Zald, 1973, 1977; Oberschall, 1973) and political process model (McAdam, 1982; Tilly, 1977). Nonetheless, many scholars realized that social movements are associated with symbolic production (Gusfield, 1981; Melucci, 1989). As the micro foundation for understanding collective action, agency should be valued (Fligstein, 2001; Ganz, 2009; Jasper, 2004). In attempts to reverse unfavorable situations, actors play a crucial role in initiating collective action. Relatively powerless actors have to motivate others to gain an advantageous position and more resources. Even if there are grievances, collective action will not happen unless social actors successfully mobilize support. Emphasizing the importance of agency, many scholars have proposed examining cognitive praxis for the success of mobilization (Gamson, 1995; Snow & Benford, 1988; Snow et al., 1986).

The process of mobilization is, inevitably, highly selective. Actors need to adapt effectively to the specific audience that they wish to mobilize. In this sense, social skills matter. Social skill is “the capacity for intersubjective thought and action” (Fligstein & McAdam, 2012, p. 4). It involves a set of instruments that activists use to make sense of their concerns, values, motivations, and claims. People who are able to engage others in conflict are considered skilled actors (Fligstein, 2001; Fligstein & McAdam, 2012). Skilled actors can not only understand their environment (including who their opponents are and what resources they have), but also provide a collective identity and cultural framework to persuade potential participants to join them. For activists, “consensus mobilization” (Klandermans, 1984, p. 586) is the very first step in collective action.<sup>39</sup> This is

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<sup>39</sup> According to Klandermans (1984), social mobilization involves two components: (1) consensus mobilization and (2) action mobilization. With the former, activists persuade potentially mobilizable audiences to support their positions and preferences. Correspondingly, with the latter, activists encourage and stimulate support to join collective action.

because the prevailing situation must be clearly perceived and defined before it can generate collective action. Consensus mobilization is a cognitive and epistemic preparation for collective action. In the frame approach, consensus mobilization was further illustrated as “diagnostic framing” and “prognostic framing” (Snow & Benford, 1988, p. 199-120).<sup>40</sup> This illustration helps shed light on the cognitive and epistemic dimensions of consensus mobilization. It is worth noting that consensus mobilization in my study does not involve an individual level analysis. I do not mean to analyze the participants’ psychological mechanisms. Instead, the practical process through which skilled actors persuade potentially mobilizable audiences to support their positions and preferences is the main concern.

In addition, the discursive dimension is essential for understanding the social construction process through which collective awareness is shaped. In this sense, it is necessary to explore how social constructionism contributes to consensus mobilization research. Social constructionism believes that the public’s understanding of a troublesome situation needs to be constructed (Spector & Kitsuse, 1973). An issue will not become part of the public agenda unless it is widely recognized as a public controversy, even if it is crucially important (Gusfield, 1981). When examining the collective definition for social problems, Wiener (1981) proposed three processes: animating the problem, legitimizing it, and demonstrating it. Similarly, Best (1989) believed that it was necessary to analyze the claims themselves, the claims-makers, and the claims-making process in order to understand how a social problem raised widespread concerns. In environmental studies, some scholars were committed to answering how a worrisome condition drew public attention and invoked action (Cracknell, 1993; Hannigan, 2006; Solesbury, 1976). They paid special attention to how actors use rhetoric to present their claims and persuade their audiences, such as in “definitions, examples, numeric estimates” (Best, 1987, p. 104), “rectitude or rationality” (Best, 1987, p. 104), the rhetoric of “loss” (Ibarra & Kitsuse, 1993, p. 37), “entitlement” (Ibarra & Kitsuse, 1993, p. 39), “endangerment” (Ibarra & Kitsuse, 1993, p. 39),

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<sup>40</sup> In frame approach (Snow & Benford, 1988), the process of the attribution of meaning was defined as three steps: diagnostic framing, prognostic framing, and motivational framing. Motivational framing is in alignment with action mobilization illustrated by Klandermans (1984), which is not the concern of this research.

“unreason” (Ibarra & Kitsuse, 1993, p. 40), and “calamity” (Ibarra & Kitsuse, 1993, p. 41). To a large extent, the use of rhetoric helps fashion and package a certain claim in order to cater to the target audience. This is instructive to shed light on the discursive dimension of consensus mobilization.

In a broad sense, a controversy cannot immediately be transformed into collective action unless participants are widely mobilized in consciousness. Consensus mobilization is a process of collective construction made by a group of activists who are connected by a common comprehension of the situation they are facing. Equipped with social skills, these activists not only master the logic of claims-making, but also know the administrative structure and the political and cultural circumstances in which they struggle. Based on frame approach and environmental constructionism, I define the three core tasks of consensus mobilization as follows: identification, demonstration, and resolution.

Identification is a step by which activists discern existing problems or primary threats. It is similar to the diagnostic framing proposed by Snow and Benford (1988). According to them, diagnostic framing is “a diagnosis of some event or aspect of social life as problematic and ... [an] attribution of blame or causality” (Snow & Benford, 1988, p. 199-200). During the identification process, activists need to define the situation they face as an unpleasant one at the outset. Next, demonstration is the undertaking of bringing awareness and understanding of the identified problem to an audience, especially to potential adherents. In this step, activists package their claims by implementing rhetorical strategies. Skilled actors need to ensure that their strategies “resonate with cultural narrations” (Snow & Benford, 1988, p. 200) of potential audiences. In this light, they must know how to formulate arguments with reference to the target audience and how to make their viewpoints operate in specific cultural circumstances and institutional settings throughout the process of demonstration. Then, resolution is also a key task for consensus mobilization. This step is akin to “prognostic framing” (Snow & Benford, 1988, p. 199). Resolution is a process of proposing solutions and determining countermeasures. Usually, skilled actors suggest solutions based on causal attributions, and accordingly focus on their target. It should be noted that activists do not necessarily launch consensus mobilization in a particular order. In most cases, these tasks intertwine and overlap, rather than following a sequential process.



### 3. Methodology and Data

Along with economic development and population concentration, large and medium-sized cities in China are facing the accelerated growth of MSW. To find a quick way to deal with increasing MSW, both the central government and municipal governments have turned to incineration. However, the construction and operation of incinerators have often been criticized. Opponents have not only carried out street protests, but have also mobilized the public on social media. WeChat is one of the most widely used mobilization tools.

As one of the most popular social media applications in China, WeChat has one billion monthly active users (Graziani, 2018; Ren, 2018). High-intensity use has brought many opportunities for WeChat users, especially environmental activists, to generate and disseminate alternative information (Deluca, Brunner, & Sun, 2016). In this sense, WeChat plays an important role in promoting an online public sphere (Tu, 2016). In addition, WeChat is based on users' personal networks and relational ties (such as close friends, family members, and acquaintances), which makes it a relatively effective platform for producing knowledge and a reliable channel for disseminating information.

Built on the WeChat platform, subscription accounts serve as broadcast media through which users can bypass journalists or opinion leaders to express their personal opinions and beliefs. User-generated content provides exposure to subjects not covered by the mainstream media. A subscription account operator can send posts to subscribers, who are allowed to rebroadcast these posts to a specific friend or a set of friends. In this way, WeChat provides a convenient method for point-to-point or point-to-multipoint communication. Sharing on WeChat Moments offers a scattershot circulation service to reach all of one's friends; it rapidly imparts one's concerns to thousands of people. In terms of acquiring and spreading information, the platform architecture of WeChat helps reduce the cost of transmission across geographical boundaries to a great extent.

Making use of WeChat's popularity in China, many anti-incineration subscription accounts have been created to pass on information about anticipated risks, procedural flaws in administration, and toolkits for action. By reading posts, potential activists can gather technical and medical

expertise, as well as learn about others' experiences (in other Chinese cities and in other countries). As ever more issues related to incineration are discussed, various categories of actors have built an online anti-incineration community on WeChat. Due to the Internet censorship system, activists rarely launch action mobilization—for instance, announcing the time and place of street protests—in this community. Instead, they pay more attention to consensus mobilization in order to reduce political risks and avoid their accounts being blocked. This offers unprecedented opportunities to capture the dynamic processes through which activists mobilize social support based on the meaning work they perform.

Since this online anti-incineration community draw my attention, I started to subscribe to accounts related to incineration and followed up on updates daily. Given that some posts (especially those containing sensitive content) may be deleted from WeChat, I copied the text, photos, and links of every post, and saved them on my computer as soon as I came across an update. Inevitably, some posts were not collected due to the censorship system. In addition, I backtracked to the original publishers of reposts (originally posted on other subscription accounts) to expand the selected accounts. The list of accounts was confirmed by three accounts operators to maximise the anti-incineration accounts that appeared on my radar.<sup>41</sup> To ensure the quality of the gathered data, I cleansed them by reviewing and filtering all accounts according to the following criteria: (1) The selected account should crystallise objections to the existing waste policy or the implementation of waste incineration plants; (2) The selected account should have at least ten anti-incineration posts as of 20 November 2019. Data screening helped me to identify 12 WeChat subscription accounts that showed diversity, including one account created by affected residents living near a proposed incineration plant in Jiujiang, one founded by environmental impact assessment engineers, one account of an activist network, two belonging to independent environmentalists, and seven belonging to environmental NGOs (see Appendix

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<sup>41</sup> Although the anti-incineration community has not become a formal organization, activists are fully connected with each other by meeting and exchanging information regularly. Confirmation from three key activists can, to a great extent, ensure the integrity of the sample.

F).<sup>42</sup> In addition to the Chihu Jiayuan account, other accounts are not limited to a single incineration plant. Overall, 557 posts (2,848 words per post on average) from these 12 accounts came to constitute this study's database. These posts cover dozens of anti-incineration protests from 2009 to 2019. A total of 44 incineration plants were criticized in these posts.

The data I gathered from the 12 subscription accounts permitted me to access to a great deal of information on anti-incineration claims, which provided me with valuable empirical evidence to understand the discursive practices in cyberspace. Adopting a deductive approach, data analysis revolves around three dimensions of consensus mobilization—identification, demonstration, and resolution—mentioned in the section of Theoretical Perspective. A coding scheme was therefore defined for an in-depth analysis with NVivo software (see Appendix H). Based on a fieldwork conducted in previous research, targets of the online anti-incineration community were identified as technology itself, incineration companies, and local governments at the onset. In this sense, identification and resolution were decomposed into the following six nodes: technical defects, unreliable companies, irresponsible local governments, suggestions for companies, suggestions for local governments, and other suggestions. In terms of the task of demonstration, I referred to rhetorical strategies summarised by the literature mentioned in Section 2 of this chapter to develop the following four nodes: importance, legitimacy, feasibility, de-politicisation. The ten nodes were further disassembled into 25 sub-nodes to help deepen the understanding of the discursive practices performed by activists. Before coding, two methods were used to ensure the reliability of the pre-defined coding scheme. Initially, I carried out a thematic analysis by running a natural language processing model—the latent Dirichlet allocation (LDA)—with Gensim software. I first extracted text from 557 posts. In the second step, I cleaned the data by removing author names, date of publication, and links. In the next steps, I pre-processed the textual data through

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<sup>42</sup> All of the selected WeChat subscription accounts have original Chinese names. Their English names is kept, if available.

Otherwise, their names was marked in pinyin. Since some accounts have changed their names several times, the names used on 20 November 2019 was selected.

tokenization. Based on JIEBA tokenizer<sup>43</sup>, the whole corpus yielded 732,328 tokens from 1,586,104 characters. Then, in the fourth step, tokens that appeared on a list of 755 stop words<sup>44</sup> were removed. The cleaned corpus ended up with 448,671 tokens. Finally, I ran LDA to request 30 topics.<sup>45</sup> The software automatically clustered words into latent topics. These topics were used to examine the “ready-made” nodes and sub-nodes, which helped make sure that no important concern of activists was missed. In addition, in the course of coding content into existing nodes, the pre-defined coding scheme was further revised and adjusted according to what the textual data present. With the help of examination through the results of topic modeling with Gensim and revision during the coding process, I tried to minimize deviations and reduce prejudice that may be caused by subjective bias. Finally, the 557 posts were scrutinized with the help of NVivo, which shows discursive strategies of activists to mobilize collective awareness against incineration. In the statistical results, references indicate the number of times a sub-node appears in the database (see Appendix I). Counting conveys the extent to which a given concern was discussed by activists. The more times a concern was mentioned, the more important it was.

#### **4. Consensus Mobilization on WeChat**

Consensus mobilization entails three core tasks, addressed previously: (1) identification; (2) demonstration; and (3) resolution. First, activists need to define an issue as a problem that requires future attention. The second step involves presenting the issue in a persuasive way. Finally, the third step requires the development of potential solutions. This section unpacks the three interrelated tasks of anti-incineration mobilization, through which activists have unleashed the potential of WeChat.

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<sup>43</sup> JIEBA tokenizer is a tool for word boundaries detection and segmentation. Since Chinese is written without spaces between successive characters and words, I need to use this tool to split the text into words.

<sup>44</sup> Stop words are words that appear frequently but have no substantive meaning. According to the characteristics of the whole corpus, I defined several words that are not informative to supplement Baidu Stop Words list. Excluding these stop words can help reduce computing time and improve the accuracy of the topic modeling.

<sup>45</sup> The Latent Dirichlet Allocation algorithm recommend choosing 10-30 topics. I tried to set the topic amount to 10, 15, 20, 25, 30. It transpired that requesting 30 topics worked best.

## 4.1. Identification

Identification permits activists to define matters that make them unhappy and dissatisfied. Formulating the problem of incineration through identification contributes to a collective interpretation of the worrisome *status quo*. By stressing the severity and urgency of the matter, activists make people aware of the troubles they face.

### *Technical Defects*

As many posts indicate, incineration produces many pollutants (including smoke, dioxins, heavy metal, sulphur dioxide, carbon monoxide, nitrogen oxides, and hydrogen chloride) that might lead to long-term threats to food safety (453 references). Activists also suggest that it is difficult to control the emissions of greenhouse gases and toxic substances because many incineration plants still use traditional technology. For example, dioxins generated from incomplete combustion have a detrimental impact on the natural environment and human health, as pointed out in one post:

[A doctor] found some problems in villagers' medical records in recent years: rising respiratory disease and rhinitis among children, a dramatic spike in lung cancer and gastric cancer rates, and a high increase in diseases among young people. This alarming finding scared people living around the plant. (ZW20150408)

Additionally, although MSW incineration plants are also known as waste-to-energy projects, the power engendered by incinerators is considered inefficient (89 references). As many posts point out, collected MSW is unsuitable for burning or generating electricity because of the high proportion of organic waste. In a broader sense, incineration technology is not seen as a sustainable method of waste disposal (187 references), as indicated by a post:

When it comes to reducing carbon emissions, burning garbage is obviously not the best waste disposal method. Carbon dioxide emissions from anaerobic digestion are only one twentieth that of incineration. Although the carbon footprint from incineration plants is a little lower than landfills, burning garbage is not a wise choice. (EC20140804)

Although incineration can quickly reduce the volume of MSW, many activists believe that it cannot ultimately solve the waste crisis. According to them, sending waste to incinerators cannot

lower MSW generation rates; instead, it causes people to think that they have found a way to eliminate waste, which in turn fuels the growth of MSW.

### *Unreliable Companies*

Waste incineration companies are often considered irresponsible and unreliable. Some posts report that many incineration plants do not provide information on pollution to the public, as required by national laws and regulations (97 references). For those who do disclose emissions data, activists sometimes find obvious mistakes and/or false information. In addition, irregular operation of incineration plants is widely criticized (412 references). Many companies have been found to illegally discharge leachate and dump fly ash. As shown in a report posted on WeChat:

Through fieldwork, [Wuhu Ecology Centre] found some [evidence of] mishandling, as follows: discharging untreated leachate, unsafe fly ash disposal, and mixing hazard waste with MSW. [...] According to a one-month survey, Wuhu Ecology Centre found 6,686 illegal emissions from 46 incineration plants in April 2017. (WH20180830)

### *Irresponsible Local Governments*

Online complaints sometimes target local governments or officials in the following four aspects: (1) the locations of incineration plants; (2) land expropriation; (3) the bidding process; and (4) public participation. First, numerous activists (especially environmental impact assessment engineers) have indicated that the choice of locations of many incineration plants is problematic. The land approved for incineration plants is controversial (422 references), either because it has significant ecological value or because it has a high population density. Second, local governments are occasionally blamed for failing to perform their administrative duties (97 references). For example, pollution from incineration plants is attributed to widespread regulatory failures that prevail in the field of environmental management. By comparing mandatory procedures for project authorisation with the procedures executed by local governments, some officials' efforts to endorse incineration plants are defined as irregularities. Third, activists periodically blame local officials for the lack of transparency surrounding the bidding process (176 references). Due to closed bidding, many people worry about collusion between local governments and the incineration industry. Fourth, activists denounce local governments for a lack of public

consultations (87 references). Many posts point out that residents living in nearby areas have not been involved in decisions regarding the construction of incineration plants. Activists express dissatisfaction with being excluded from decision-making processes, especially those closely associated with their daily lives. As the following example shows,

Jiujiang Waste Incineration Project was forcefully carried forward by local officials without seeking public opinion, demonstrating a scientific basis, or following legal procedures. (CH20180520)

## **4.2. Demonstration**

Given that successful consensus mobilization relies heavily on the ability to present an issue to an audience, especially to potential adherents, demonstration is crucial. During this task, activists adopt rhetorical strategies to raise the visibility of problems caused by incineration.

### *Importance*

By linking with widespread public concerns, many posts describe incineration as a crucial problem that matters to ordinary people. First, activists link MSW incineration to the health effects of pollution (693 references), one of the most worrisome topics for an overwhelming majority of Chinese people (Wike & Parker, 2015). Activists point to the ills of waste incineration by giving examples of the ever-growing incidence of disease (mainly birth defects, respiratory ailments, and cancers) in neighbourhoods situated next to incineration plants. By presenting instances of illness and death (sometimes with photos), experiential knowledge of affected residents was disseminated to the audience. Potential risks to which people might be exposed were no longer abstract. Second, the construction of incineration plants is sometimes associated with illegal land expropriation (476 references), which, in China, is closely tied to the livelihood of the public and to social justice. Since fraud, irregularities, and collusion frequently occur in the process of land expropriation (Ding, 2007), numerous people have experienced deprivation and are thus sensitive to this particular kind of injustice. In this sense, as long as a plant is linked to public health or land acquisition, its importance can be quickly recognized. For example, once health problems caused by an incineration plant in Hainan were revealed by the Huanan Huanjing Baodao account (mentioned in Appendix F), the post (HB20190302) had nearly 50,000 hits in just a few days. When dissent went viral due to circulation in WeChat Moments, anti-incineration claims broke down

geographic boundaries and swiftly received national attention. In general, such efforts help to build a collective consciousness of the issues at stake.

### *Legitimacy*

Activists also attempt to justify and legitimize their anti-incineration position. First, compared to face-to-face interviews, written posts are more rational and restrained. By using dispassionate language (e.g. by citing quantitative data), many accounts—especially those of environmental NGOs—try to convey an objective and neutral image. Instead of moral indictments or emotional expressions, scientific knowledge and factual experiences (452 references) are frequently employed. Anti-incineration groups often quote scientific literature from leading journals, as well as reports from well-known research institutions (e.g. a report on the social cost of waste incineration conducted by researchers at Renmin University of China), to provide evidence and expertise to establish a direct causal link between the operations of incinerators and negative consequences. Second, given that effective mobilization is aligned with a broadly held value or norm in a specific social context, many posts aggregate anti-incineration arguments into a state-recognized discourse system, such as sustainable development and ecological civilization<sup>46</sup> (374 references). O'Brien and Li (2006) elaborated on this in their concept of “rightful resistance”, where, in order to frame their confrontations, activists sometimes refer to national development agendas, policies, existing laws, regulations, and ordinances issued by the central government or local governments. As presented in the following post:

Article 4 of “Environmental Access Conditions for the Construction of Domestic Waste Incineration Projects (Trial)” issued by the General Administrative Office of Ministry of Environmental Protection clearly stipulates: it is forbidden to construct domestic waste incineration projects in nature reserves, scenic spots, drinking water sources, permanent basic farmland, and other areas prohibited by national and local laws, regulations, standards, and policies from locating pollution projects. (CH20180522)

In this sense, opposition to incineration is perceived as advocacy for more sustainable and eco-friendly policies for MSW disposal, that are in line with long-term national strategic goals.

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<sup>46</sup> Ecological civilization is a philosophical idea that looks for harmony between the environment and humanity. It was written into the Chinese constitution in 2018.



Interestingly, state leaders' statements are sometimes mentioned as a source of authority since they are greatly congruent with China's "discursive opportunity structure" (McCammon, Muse, Newman, & Terrell, 2007, p. 725). As shown below:

President Xi has already said that "lucid water and lush mountain are not only invaluable assets comparable to the gold and silver of legend but also an important guarantee for public health. The party and governments at all levels must attach great importance to the problem of environmental pollution..." (HB20190727)

Third, activists connect anti-incineration perspectives with the public interest (264 references) to expand their claims and draw extensive attention because public support provides possibilities to achieve policy goals. In this sense, great efforts have been made to transform localized problems into an issue of social injustice. As many posts show, activists turn MSW incineration from a local grievance involving only the narrow interests of a specific group into a public problem that concerns a large group of Chinese people in a broader social system. They also frame anti-incineration struggles as efforts that benefit the masses.

### *Feasibility*

For successful consensus mobilization, it is necessary to describe the immediate situation as a problem that can be addressed. In this way, activists set expectations for potential participants. In many cases, anti-incineration campaigns are defined as feasible actions. Many accounts publicize collective action occurring in other locations (105 references) that become essential sources of knowledge for further mobilization. Information sharing makes the audience aware that anti-incineration forces exist in many cities, and local opponents have also become embedded in a recent wave of anti-incineration protests. By showing how activists in other regions halt or modify proposals for incinerators, these account operators hope to convey the positive message that it is possible to challenge local decisions. Moreover, repertoires used by these predecessors provide a proven toolkit within a specific political system. In this sense, some subscription accounts offer politically acceptable strategies (83 references) for those concerned about incineration, for instance, resistance against a PX plant through "peaceful strolls". In sum, posts on feasibility and advisability illustrate that problems caused by incineration are not

inevitable outcomes of social and economic development. On the contrary, they can be reversed through collective efforts.

### *De-politicisation*

Activists keep discourse production politically acceptable, given the restrictive political context. De-politicisation has become a consensual strategy among most accounts operators (93 references). Although Chihu Jiayuan account used to upload videos of sit-ins, as well as photos of slogans aiming to create “visual injustice symbols” (Olesen, 2013, p. 5), thereby building emotional resonance, such a strategy has been less frequently employed in recent posts. Given political risks, their discourses are limited to permissible levels through self-censorship. More specifically, more moderate and less threatening language is frequently used because radical remarks and political criticism might be considered challenges to state power, which could lead to their accounts being removed or blocked. In addition, local officials rather than the central authority are targeted by activists. In most cases, attempts to prevent incineration plants from being built are described as apolitical local struggles or policy advocacy campaigns. To reduce the risk of being suppressed, many activists repeatedly affirm their recognition of the authorities’ legitimacy. As a post indicated:

To be honest, we [environmentalists] are not the enemy of government. In terms of environmental protection, government at all levels remains the main force. Our position is consistent with government and the public. (CX20180401)

### **4.3. Resolution**

Along with defining and presenting problems of incineration, it is also essential to remedy this issue through resolution via an alternative action agenda. Although discourses coded into sub-notes of resolution are not as numerous as those of identification and demonstration, they have shown a growing trend in recent years. This section deals with proposed suggestions for a better MSW disposal method.

### *Suggestions for Companies*

Activists attempt to push incineration companies to do a better job by upgrading technology, standardizing operations, and providing more transparent information on pollutants. Activists call on companies to close down out-of-date incinerators to control the discharge of pollutants and to mitigate industrial hazards (33 references). They also urge companies to publish pollution and operational data in accordance with national requirements (61 references). Moreover, activists believe that companies should shift their attention away from saving costs and more toward creating a positive image through strict adherence to industry standards (72 references).

### *Suggestions for Local Governments*

Activists also try to impose pressure for policy change at the local level. When it comes to making suggestions to local governments or officials, the reconsideration of siting and more public participation is often mentioned. Given the negative externalities of MSW incineration, activists argue that the siting of incineration plants should minimize impacts on the environment, the economy, and the population (47 references). Activists also assert that local governments should take more effective steps to integrate public consultations into decision-making (e.g. by holding public hearings). They believe that affected residents should be engaged in decisions regarding the planning and construction of incineration plants (71 references). According to them, once a plant is in operation, local communities and third-party institutions should be incorporated into the supervision management system. In addition, activists call for more sustainable waste disposal policies (243 references). They maintain that fundamental methods of solving the problem of MSW include sorting and recycling, instead of sending all waste to incinerators by skipping the pre-processing steps. As suggested by Friends of Nature:

We recommend the following: promote waste sorting; formulate separation techniques based on local conditions; improve the system and mechanism [of waste management]; establish a full-process management system for sorting, transportation, recycling and disposal; integrate MSW recycling networks and renewable resources recycling networks; advance waste reduction; and maximise resource use. (FN20170105)

My analysis, grounded in activists' online discourse, demonstrates that consensus mobilization does not primarily aim to remove incinerators from neighbourhoods based on a calculation of individual interests. Accordingly, anti-incineration groups (especially affected residents) often do

not mention economic or material compensation (only 14 references). It is possible that activists may legitimize their anti-incineration stance by concealing claims that would label them as NIMBYs. In previous research, opposition against incineration plants has been defined as the NIMBY syndrome (Hsu, 2006; Malinauskaite et al., 2017; Jiangli Wang, Lang, Huang, & Wei, 2018). However, my investigation of the posts on WeChat indicates that compensation for personal interests is not the core motivator for arguments against the construction of incinerators. In addition, identification and resolution are not limited to concerns regarding environmental well-being. Criticism of ecological damage and environmental regulation failures are only some of the topics highlighted by anti-incineration activists. The concerns of activists also involve transparency, accountability, and public participation. Thus, neither NIMBYs nor environmentalism accurately describes the concerns of anti-incineration forces. Contentions over MSW incineration constitute a strategic action field (Fligstein & McAdam, 2011, 2012) composed of a set of overlapping subfields, including the application of incineration technology, land use, property values, public health, public participation, and sustainable development.

## **5. Conclusion**

Taking an actor-centered perspective, this study has scrutinised the consensus mobilization of anti-incineration campaigns on WeChat. Based on conceptual elements in social movement studies and social construction research, I have dissected the discourse production of anti-incineration mobilization by looking at 557 posts in 12 WeChat subscription accounts founded by affected residents, environmental impact assessment engineers, an activist network, independent environmentalists, and environmental NGOs. Activists who are dissatisfied with the current methods of MSW disposal and management have gradually united to become an anti-incineration community and have made efforts to raise collective consciousness. Through identification, MSW incineration is constructed as a violation of individual rights, ecological environment, public health, and social justice. Based on strategic demonstrations, activists increase the salience of incineration issues and added legitimacy to their anti-incineration positions. Finally, some suggestions and alternative solutions were proposed. In sum, skilled actors broke through geographic boundaries and circulated alternative information to a large

audience with the help of WeChat. This raises public awareness and guides public opinions in preparation for offline anti-incineration campaigns.

By examining online anti-incineration discourse, I shed light on the three core tasks of consensus mobilization. These tasks provide several explanatory factors for understanding the meaning work of awareness campaigns and the formation of an online discursive space. This analysis shows that activists are no longer passive receivers of information in cyberspace. They may break down the monopoly on knowledge held by powerful elite groups through producing alternative content that affects and motivates the public. More specifically, my research shows that WeChat allows different categories of social actors—who are not limited to public administrators, industrial representatives, or experts—to bypass professionally trained journalists and traditional opinion leaders and initiate anti-incineration mobilization. By giving voice to dissent, the consensus mobilization process helps to reshape people's perception of incineration and put incineration issues on the public agenda. In sum, the three tasks reveal where disagreements stem from and how they are formulated via social media.

This research is at the intersection of social movement studies, environmental studies, and new media studies. It contributes to a comprehension of how social movement actors deal with digital technologies to initiate consensus mobilization. Theoretically, it enriches online activism literature by extending social constructionism to mobilization research. More specifically, I paid extra attention to rhetorical strategies based on frame approach, which introduces a new dimension to the knowledge of consensus mobilization. By examining the three core tasks of consensus mobilization, future research can better understand how activists mobilize social support through a creative manipulation of symbols. In addition, this study makes a new exploration of methodology. It provides an innovative path for discourse analysis by combining machine learning algorithms with manual coding. In contrast to previous social movement studies that focused on successful mobilization experience, my analysis deals with the ongoing processes of mobilization. This avoids omissions caused by backward induction. In this way, my study provides practical methods to observe and analyze the dynamic mechanisms and entire courses of consensus mobilization. More importantly, from a practical perspective, anti-incineration activism is the epitome of many disputes over urban infrastructure projects in Chinese cities. This

study can be extended to other similar cases to understand how activists respond to the construction and implementation of undesirable projects. The three core tasks that I illustrate could be used by various activists as a toolkit for defending their stance on a specific issue in cyberspace.

Finally, the following observations can be made. The quality of content generated by different WeChat official accounts varies. Accounts founded by large environmental organisations show a certain degree of professionalism in their efforts to fight for the support of the audience. They tend to use research data, scientific knowledge, laws and regulations, and examples from developed countries to demonstrate their opposition to incineration. Their mobilization was more embedded in the criticism of industry and policies in a broad sense. However, accounts created by grassroots activists and residents tend to emphasize the environmental and health hazards of certain incineration plants and present irregularities in the construction and/or operation of plants. On the whole, consensus mobilization made by the anti-incineration community does not target the state or political regimes. In the entire process of mobilization, depoliticization is always a principle that they follow. Their recognition of the central authority is repeatedly emphasized. In this light, resistance to unpleasant infrastructure projects is not politically destructive, which ensures the mobilizing role played by the online community. This is in alignment with the position of mainstream media journalists. In today's Chinese society, public opinion highly recognizes the legitimacy of the state and the central government (Liu & Raine, 2016). Nonetheless, some questions deserve further research: What are the roles of professionally trained journalists and online activists in the development of the incineration industry? What are their respective positions when reporting on the issue of incineration? What are the implications of these differences? In sum, this study enhances the theoretical understandings of consensus mobilization in an authoritarian context and provides empirical implications for environmental-related activism on WeChat.

# Chapter 5. Stability and Change in Strategic Action Fields: Municipal Solid Waste Incineration in China, 1988-2020<sup>47</sup>

## Abstract

The theory of strategic action fields (SAFs) is a perspective from which to better understand the emergence, stability, and change of the meso-level social order. However, the transferability of this theoretical perspective requires additional empirical evidence. Therefore, this study regards municipal solid waste (MSW) incineration in China as an SAF, in which various forces vie for the dominant position around the construction and operation of incineration plants. Given that all fields are embedded in a shifting social and cultural context, I analyze the interactions and competitions between incumbents and challengers. I then examine a series of consecutive events in the SAF, such as the emergence of the waste crisis, the development of MSW incineration, and consequential episodes of contention. I also investigate other factors that may affect the prospects for stability and shift of the SAF, including actions of the state, influences of other related fields, and large-scale crises. By tracing the development trajectory of the SAF of MSW incineration, I discuss the applicability of the theory of SAFs in understanding an underexplored field in China.

**Keywords:** Strategic action fields, social order, China, municipal solid waste, incineration

## 1. Introduction and Research Question

The theory of strategic action fields (SAFs) is an integrated theoretical perspective based on social movement studies and new institutional theory. Focusing on competitions between a set of actors in a given field and interactions between related fields, the theory of SAFs seeks to understand the emergence, stability, and change of the meso-level social order. Previous literature has employed this theoretical perspective to explore how collective actions (Domaradzka, 2017; Gastón, 2018) or exogenous changes (Pettinicchio, 2013) affect the policy

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<sup>47</sup> This article is slightly different from the version published in *Chinese Journal of Sociology*.

community and policy implementation systems (Moulton & Sandfort, 2017) over time. Although it has been almost ten years since the theory was elaborated, empirical investigations in the Chinese context are still insufficient (except for Alpermann, 2014; Lei, 2016; Modell and Yang, 2018). Therefore, I look at a series of consecutive events happening within and around the field of MSW incineration in China to supplement the theory of SAFs with additional elements.

In this study, I regard the MSW incineration in China as a specific SAF and analyze the historical evolution of the SAF, including the emergence of the waste crisis, the application and promotion of MSW incineration, episodes of contention, and resulting adjustments and changes. The following question is then addressed: To what extent do ongoing competition and interaction around MSW incineration bring about changes in the field? My aim is to explore the applicability of the theory of SAFs in understanding the development and transformation of incineration-oriented waste disposal policies in China. More specifically, I explore the ways in which the theory of SAFs can be useful in interpreting stability and changes in the field of MSW incineration and in which aspect it is insufficient to provide an effective theoretical tool.

The article is organized as follows: The first section presents an introduction to the research question and research objectives. The second one is dedicated to the theoretical basics and conceptual elements of SAF. The next section dwells on the choice of data and methods. In the fourth section, I focus on the ongoing interactions between incumbents, challengers, and the state within the SAF of MSW incineration in China. The fifth section discusses impacts from proximate fields and larger fields and examines the transformation of the SAF. The final section offers some concluding remarks and theoretical reflections.

## **2. Strategic Action Fields as a Theoretical Perspective**

An SAF is a constructed meso-level order in which actors carry out individual or collective action to influence the state of the field. The theory of SAFs is elaborated by Fligstein and McAdam (2011, 2012) to analyze the formation, stabilization, reproduction, and transformation of social order achieved by strategic collective action in a given arena. In other words, Fligstein and McAdam wanted to provide a general theory for understanding how social actors cope with adversity, redefine power relations, and shape a new order in a given field. As an integrated analytical



framework, the theory of SAFs has received significant attention and been applied to social movement studies (Gastón, 2018; Özen & Özen, 2011), as well as institutional analysis (Moulton & Sandfort, 2017; Naqvi, 2017). It borrows conceptual elements from structuration theory (Giddens, 1984), field theory (Bourdieu, 1979; Bourdieu & Wacquant, 1992), institutional theory (Powell & DiMaggio, 1991; W. R. Scott & Meyer, 1983, 1991), network analysis (DiMaggio & Powell, 1983; Passy, 2003; Powell, White, Koput, & Owen-Smith, 2005), and social movement theories (Benford & Snow, 2000; Gamson, 1975; McAdam et al., 2001; Snow & Benford, 1988; Snow et al., 1986; Tilly, 2004). Based on previous research, the theory of SAFs pays extra attention to the relationship between structure and agency. In this sense, both macro structural factors (including political regime, institutional arrangement, and cultural backgrounds) and micro human behaviors (including individuals' identities, values, interests, discourses, and shared meanings) are considered crucial dimensions in understanding what happens in an SAF.

To unfold the processes of contention, Fligstein and McAdam (2011, 2012) assert that it is essential to identify incumbents (sometimes along with governance units) and challengers: main actors within a given SAF. According to them, incumbents are privileged actors who dominate a field, while challengers are actors who occupy relatively inferior positions within the field. More specifically, incumbents are like "members" proposed by Gamson (1975). They control most political, cultural, and economic resources of a field. Incumbents usually occupy privileged positions and control the dominant rules of the field on terms favorable to them. Since the order by which an SAF operates is largely defined by them, this group of actors tends to keep the field stable and continue to profit from the established order. In contrast, challengers are excluded or marginalized people who "lack the basic prerogative of members" (Gamson, 1975, p. 140). Because challengers occupy a relatively inferior place and holding insufficient resources, their interests are rarely recognized within the existing order. Having different interests and logic (including identities, beliefs, values, and positions) than incumbents, challengers are looking for opportunities to change the current order. In this light, challengers may frame an alternative interpretation of the field. When strong enough, they will dominate the field and generate a new order oriented towards their needs.

Competition between incumbents and challengers constitutes the key dynamic within SAFs. Based on this idea, the theory of SAFs reconciles structure and agency to overcome the false dichotomy between these two categories. Having macro-considerations, the theory puts every single field into its structural mechanisms and emphasizes the limitations and/or opportunities of the broader systematic context. In the work of Fligstein and McAdam (2012, p. 9), an SAF is likened to a “Russian doll” because it consists of multi-size fields, and smaller fields are nested inside larger ones. When a wide field receives a huge impact from the outside, embedded fields could be affected. Here, it is essential to notice that this wide field is nested inside an even larger field and inevitably influenced by the larger one. Taking MSW incineration as an example, when the total amount of MSW (larger field) increases, the incineration industry (wide field) is likely to encounter a boom period, and incineration plants (small field) may get higher benefits accordingly. And vice versa, once a larger field experiences any dramatic event or destructive shock, the wide field, as well as the small fields embedded in it, will be under attack. For instance, when a country (large field) is hit by a war or economic crisis, these shocks could easily bring chaos to the waste disposal industry (wide field), which eventually impacts incineration plants (small field). The theory of SAFs regards the state as a system encompassing a series of fields. Given a “state’s unique claim to exercise sovereignty within a designated geographic territory” (Fligstein & McAdam, 2012, p. 67), its role as the arbiter of rules also affects non-state fields. Thus, the theory of SAFs argues that it is imperative to take the state into special consideration when examining non-state SAFs. Usually, incumbents lobby the state to produce rules in their favor. During episodes of contention, they can look to the state to help restore stability of the SAF. Similarly, challengers can also make demands on the state. When challengers seek to reshape the order within a given SAF, they take their grievances to the state. The state, forced to be involved in conflicts, will “adjudicate disputes in the interests of existing organized powers” (Fligstein & McAdam, 2012, p. 76) within the SAF.

In addition to structural factors, the theory of SAFs also pays attention to collective agency. Underlining the autonomy of actors (including incumbents and challengers), the theory suggests that social actors’ attempts to defend or challenge an existing order rely on “social skill” (Fligstein, 2001, p. 105). Skilled actors can take appropriate action based on their understandings of

opponents and prevalent circumstances. This means that they can learn tactics and adjust their actions in response to moves made by others. They sometimes take innovative actions or propose new frames to achieve a breakthrough. Incumbents with social skills can defend the existing order by cooperating with their allies. When a field is relatively stable, it is less accessible for negotiation by the powerless. For challengers, social skill may compensate for a lack of power and resources. Skilled challengers are those who have the capacity to act in innovative ways and mobilize support from potential adherents. Through strategic action, they have opportunities to subvert the existing order and promote a new one.

According to Fligstein and McAdam (2012, p. 84), an SAF is a meso-level social world within which actors in diverse positions “are engaged in an iterative strategic dance”. Their efforts are dedicated to gaining an advantageous position and striving for more resources through the interactive processes of controlling social order in a given SAF. If challengers succeed in altering the existing order, they might introduce a new logic and reshape power structures within the field. However, if challengers meet strong defenses from incumbents, their failures may lead to the restoration or reinforcement of the prevailing order. The theory of SAFs reminds researchers to consider institutional constraints or opportunities within a given field. It also provides a perspective from which researchers can consider how actors build a coalition to challenge or defend an established order in the field. The theory of SAFs contends that all fields are fluid, since interactions and contestations always exist in fields. Social structures, power relationships, and actors’ identities are not fixed but in a state of flux. Internal competitions and external shocks might bring changes into a specific field, and field production, evolution, development, and/or transformation reshape the relations between actors embedded in the field.

### **3. Methods and Data**

To understand the dynamics of SAFs, I focused on MSW incineration in China. I made this choice for the following reasons: First, the SAF of MSW incineration in China and the main actors within the field can be clearly defined. The events that occurred in this SAF during the past few years could provide a wealth of empirical data. Second, MSW incineration in China is a fiercely controversial and competitive arena in which the dominant order is up for grabs. Actors’

interpretive frames are elaborated through confrontations in several different fields, such as the environment, technology, and land use. These ongoing conflicts lead to feelings of uncertainty regarding the order, which is a key feature for episodes of contention and the transformation of an SAF. Third, the SAF of MSW incineration constantly changes. Since 2006, the implementation and operation of incineration plants have caused nearly 100 protests in China. Corresponding responses have been made by companies, local governments, and central government. This provides good opportunity to understand how the dominant order of an SAF develops over time. Fourth, the theory of SAFs is predominantly based on Western social facts and theoretical research. Although it has been examined by empirical evidence from Western democracies such as the United States (K. K. Chen, 2018; Gastón, 2018; Pettinicchio, 2013) and Europe (Domaradzka, 2015, 2017, 2019; Domaradzka & Wijkström, 2016, 2019; Kauppinen, Cantwell, & Slaughter, 2017), little is known about the applicability and transferability of this theory in a centralized context.

To shed light on emergence, development, and transformation within the SAF of MSW incineration in China, I reviewed anti-incineration campaigns that took place from 2006 to 2019 by reading online news written in Chinese and English. Thereafter, 95 protests were identified. They all meet the three following criteria: 1) controversies over MSW incineration exist; 2) activists were mobilized to join in contentions; 3) The protest succeeded in receiving attention from more than three medias.<sup>48</sup> These protests constituted the database of this study, providing comparable data to track changes happening within the field over time. More specifically, I not only focused on strategic interactions between pro-incineration alliances and anti-incineration forces, but also examined impacts from related fields. Extra attention was paid to important events and key turning points to create a timeline regarding the evolution of the SAF. To a great extent, these diachronic data contributed to an understanding of the long-term development of the SAF of MSW incineration.

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<sup>48</sup> More than three media reports make cross-checking possible, which, first of all, can ensure the authenticity of the protest. Media coverage also ensures that sufficient data is collected to restore the entire story of campaign. Therefore, protests that were not reported by over three media were not considered in this study.

Materials collected included both primary data and secondary data. Primary sources came from 42 semi-structured interviews (320 756 total words of transcripts) conducted during a three-month period of fieldwork from August to October 2018 and a supplementary research carried out at the beginning of 2019. In addition, secondary data collected from websites and social media; libraries (including related scholarly research); and archives (including local chronicles, and national and local statistics yearbooks) were crucial sources of information. Data were presented in multiple formats, for example, interview notes, digital pictures, videos, reports, dissertations, books, articles, and archival documents. Data from different sources can be mutually verified to present a relatively complete and accurate picture of confrontations within the field of MSW incineration.

## **4. The Strategic Action Field of MSW Incineration**

### **4.1 The Waste Crisis**

Since China implemented the Reform and Opening-up Policy in 1978, people's living standards, as well as their level of consumption, have greatly increased. In particular, the acceleration of urbanization from the beginning of the 1990s resulted in rapid growth of populations in urban areas. The economic development and lifestyle transformation led to a boom in materialism and consumerism. What followed was millions of tons of MSW, characterized by a high proportion of organic waste and recyclable waste (D. Q. Zhang, Tan, & Gersberg, 2010). Due to the rapid growth of collected and transported MSW, some landfills have reached their capacity limits while others are about to overflow.

At the end of the 1990s, the Environmental Protection Bureau (1998) indicated that MSW disposal and management was a thorny issue since the volume of MSW in urban areas was particularly compelling. In 2004, China "surpassed the United States as the world's largest waste generator" (The World Bank, 2012). However, both landfill and composting—two major methods of garbage disposal before 2005—were unable to handle the fast-growing MSW. Facing a large amount of untreated MSW, the state and the media admitted that China had fallen into a waste crisis (N. Xu, 2009). Taking Beijing as an example, about 500 waste dumping sites were found distributed along

Fifth Ring Road and Sixth Ring Road at the end of the first decade of the 21st century (Jiuliang Wang, 2010). Since 2016, the growth rate of MSW has further accelerated (see Figure 1). In 2018, collected and transported MSW in the entire country was approximately 228 million tons, which is more than three times the amount collected and transported in 1990 (National Bureau of Statistics of China, 2019). Even worse, underdeveloped garbage disposal facilities and the incomplete MSW management system have caused additional environmental pollution and health degradation. This ever-deepening crisis puts enormous pressure on both the central government and municipal governments. Thus, MSW management has become an extremely urgent issue in China.

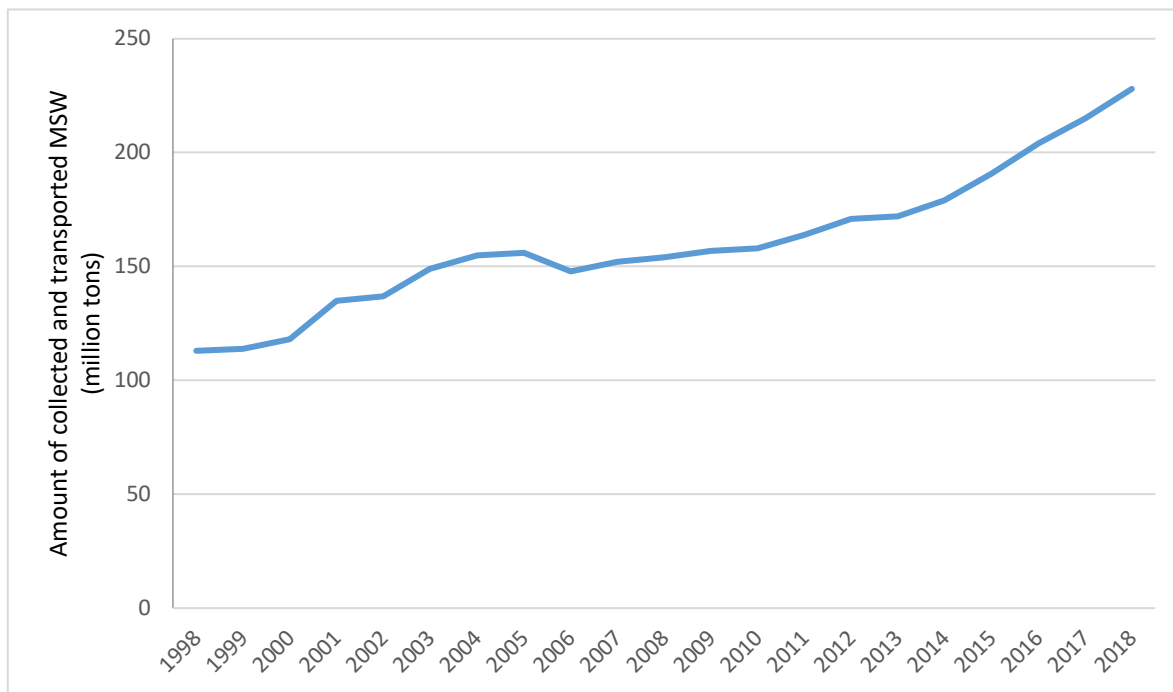


Figure 1. – The growth trend of the total amount of MSW collected and transported across the country from 1998 to 2018 (Source: author’s own compilation using data from *China Statistical Yearbook*)

## 4.2 Construction and Expansion of MSW Incineration Plants

Since the 1980s, both high-level leaders of the state and municipal officials have tried various waste disposal and management methods, including landfill, composting, sorting, and incineration (Mao, 2017). At the very beginning, landfill and composting were widely used.

However, with an increase in the amount of MSW, the disadvantages of landfill and composting gradually emerged. Landfills require a lot of accessible land, while composting takes a long time. From the beginning of 2010, many urban administrators turned to incineration in the hopes of resolving the waste crisis. MSW incineration is a technology that burns waste and turns it into ash, smoke, heating, and electricity. This technology not only deals with large volumes of garbage within a short time but also generates energy. Therefore, it has been labelled “waste-to-energy technology”. In this case, municipal officials have regarded incineration as a panacea and given priority to this technology.

In 1988, China’s first incineration plant was completed in Shenzhen. During the next decade, the number of incineration plants increased at a steady pace (Mao, 2017). Incinerators sporadically appeared in certain economically developed regions. From the beginning of the 21st century, MSW incineration had received much support from the central government. In 2000, the *Technical Policy for MSW Treatment and Pollution Prevention and Control* issued by the Ministry of Construction (2000)<sup>49</sup> regarded incineration as one of the main MSW disposal methods. Given that the evaluation of local government performance is linked to the capability of waste disposal, incineration was widely promoted by some municipal officials. In 2006, MSW incineration was admitted as a renewable energy project that was supported by national and local finance. Many cities have further increased the investment ratio in MSW incineration projects. Some of them have tried to pursue an all-in-incinerator policy.

In 2011 the State Council approved the *Opinions on Further Strengthening Municipal Solid Waste Disposal* and announced that cities with limited urban space and high population density should give priority to MSW incineration (General Office of the State Council, 2011). The National Development and Reform Commission (2012) issued the *Notice on Improving the Price Policy for Waste-to-Energy* in the following year, which clearly supported the development of MSW incineration. At this point, more municipal governments used incineration as a space- and time-efficient strategy for overcoming the waste crisis. In addition, the *Twelfth Five-Year Plan* confirmed the MSW incineration policy and planned to increase the proportion of incineration

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<sup>49</sup> Ministry of Construction was superseded by the Ministry of Housing and Urban-Rural Development in 2008.

from 20 percent to 35 percent in the entire country (General Office of the State Council, 2012). An explosive growth of incineration plants followed starting in 2012 (see Figure 2). According to a report issued by Wuhu Ecology Centre (2019b), the number of incineration plants grew from 122 (2012) to 428 (2019).<sup>50</sup> By 2015, over 40 enterprises had entered this field and invested in plants in China (Yun Li, Zhao, Li, & Li, 2015).

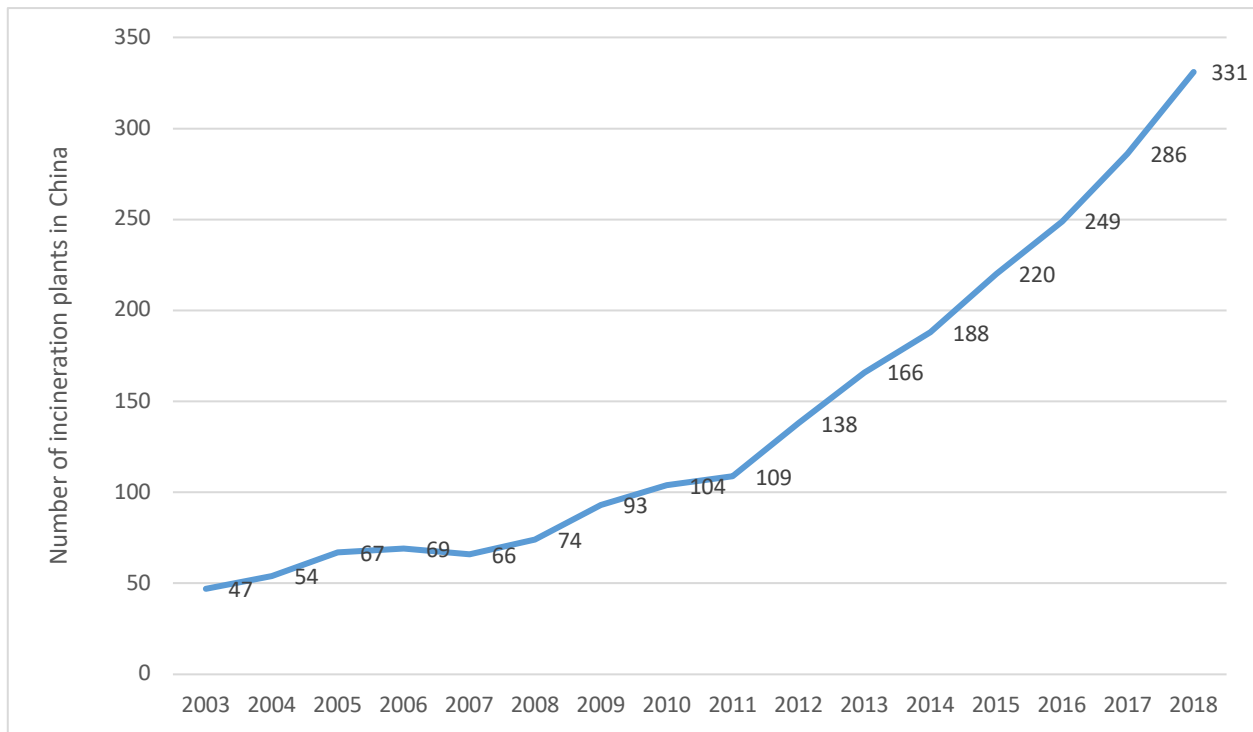


Figure 2. – The growth of MSW incineration plants in China (Source: author’s own compilation using data from *China Statistical Yearbook*)

### 4.3 Episodes of Contention (2006-2019)

The implementation and operation of MSW incineration plants have caused multiple problems. Since the beginning of 2000, the risks of incineration were gradually recognized, and hence criticism began to appear. According to a survey, 12 out of 17 incineration plants’ gas emissions exceeded national standards (D. Sun et al., 2004). In 2006, some people in Beijing took a strong

<sup>50</sup> Due to different statistical methods, the data published by the Wuhu Ecological Centre and those provided by the National Bureau of Statistics are slightly different.



stand against the Liulitun Waste Incineration Plant. This resistance is commonly considered the first anti-incineration campaign in China. It received widespread media coverage and public attention. Some experts—for example, Zhangyuan Zhao (an environmental scientist), Jun Xia (an environmental lawyer), and Da Mao (an environmental historian)—began to intervene in debates over incineration technology and administrative procedures. Through their efforts, the incineration issue has received attention from a large audience, which promoted debates on the public agenda. In 2009, a protest against the Asuwei Waste Incineration Plant in Beijing and opposition to the Panyu Waste Incineration Plant in Guangzhou started episodes of contention over MSW incineration in China. Thereafter, actors in different regions mobilized and joined various forms of resistance against incinerators to prevent or reduce the negative effects of burning garbage.

Collective actions in Guangzhou largely encouraged anti-incineration activism in other cities and provided many useful lessons for subsequent campaigns. Activists who opposed the Panyu Waste Incineration Plant set up a local environmental NGO and provided supports to other anti-incineration groups in Guangzhou. In the same year, certain influential environmental NGOs—such as the Friends of Nature and the Global Village Beijing—introduced the issue of MSW on their own agenda. Two environmental NGOs—the Wuhu Ecology Centre and the Green Beagle—became pioneers and were actively involved in controversies around MSW incineration. Born out of the Green Beagle, the China Zero Waste Alliance was founded in 2011. It is a network of activists and environmental groups, including 91 institutional members and 23 individual members.<sup>51</sup> The network linked up affected communities and promoted dialogues between people who are concerned about MSW disposal and management. These people range from environmentalists to researchers, media professionals, and lawyers, as well as affected residents. As anti-incineration frames and tactics have spread, an increasing number of residents and environmentalists have been mobilized to oppose proposals for constructing or expanding MSW incineration plants. Over the past 15 years, a wave of anti-incineration protests has swept the

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<sup>51</sup> The China Zero Waste Alliance has been growing in recent years. The number of members provided in this article is the data published at the China Zero Waste Alliance annual meeting on December 6, 2019.

country. Anti-incineration activism reached a peak in 2016 (see Figure 3). Nevertheless, challengers are less powerful than incumbents in China. Taking a waste disposal seminar held in 2010 as an example, only one of the 32 experts who participated in the seminar pointed out the risks of incineration and expressed objections (The Beijing News, 2010). Among the expert groups, there were far fewer cautious sceptics than technological optimists.

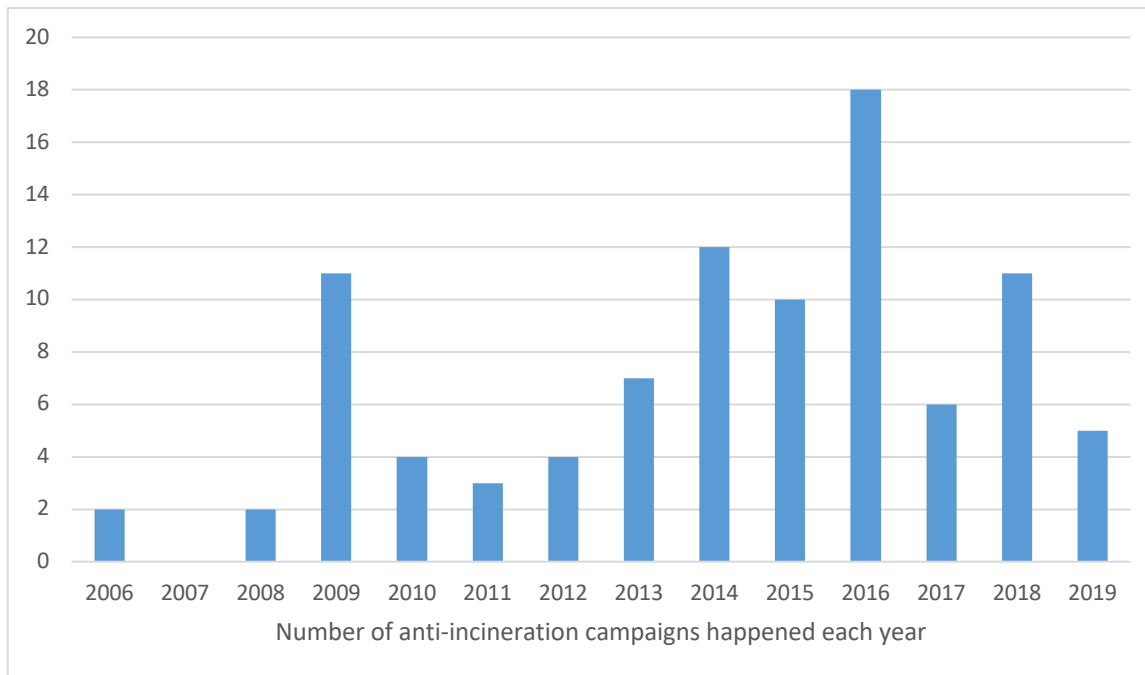


Figure 3. – Identified anti-incineration campaigns in China (Source: author’s own compilation)

#### 4.4 Interactions around MSW Incineration

According to the theory of SAFs, incumbents and challengers are main actors who interact continuously with each other within a given field. In the SAF of MSW incineration, incumbents predominantly include local governments, companies, and certain experts. They generally share a common understanding of MSW incineration and maintain a relatively consistent position. They have formed a pro-incineration coalition and together promoted the incineration industry. For them, burning garbage in incinerators is a space- and time-efficient method of dealing with the increasing piles of MSW. On the contrary, challengers hold thoughtful and conscientious opinions regarding incineration technology. The anti-incineration groups mainly include affected residents, environmentalists, and environmental NGOs. For them, burning garbage, especially unsorted

garbage, may cause serious environmental degradation, health damage and other social problems. Generally speaking, the interests and objectives of the pro-incineration coalition are defined by functionality, efficiency, and profitability, while concerns of anti-incineration groups mainly involve sustainable development and social justice.

State actors, as special and powerful forces, have fundamental impacts on most non-state fields. In the SAF of MSW incineration, the state involves some functional organs of the central government, such as the National Development and Reform Commission, the Ministry of Environmental Protection, and the Ministry of Housing and Urban-Rural Development. The state responds to demands of incumbents and challengers and plays the role of mediator to balance the two forces in the SAF of MSW incineration. Here, it is worth mentioning the complex central-local government relations in China (Qi & Zhang, 2014). As the local executive organs of state administration, local governments report to higher-level governments. However, the implementation of national policies by local governments does not necessarily reflect the intention of the central government due to administrative and fiscal decentralization and localization (J. Shen, Luo, & Wu, 2020). In terms of MSW incineration, municipal governments usually belong to the pro-incineration camp on account of employment opportunities, economic performance, and actual needs of MSW disposal. As an official stated in an interview, if urban administrators cannot figure out what to do with piles of garbage, “a plague will soon come” (from an interview coded as INBGES01, 2018). Yet the central government has been caught up in a dilemma on this issue, especially over the last decade. On the one hand, the central authority promoted the development of the incineration industry because more than one-third of Chinese cities had been besieged by MSW (China Daily, 2013). Piles of MSW have brought huge challenges to the whole country. On the other hand, some opposing voices came up in certain departments of the central government. Because burning waste may pollute the air, soil and water, some measures to restrict emissions have been introduced. More importantly, social stability is the top priority and an important concern of the state. When an incineration project caused massive protests, the central government intervened and stopped the construction of the plant. Given that the position of the state has been ambiguous, both pro-incineration coalitions and anti-incineration groups are fighting for support from the state (see Figure 4).

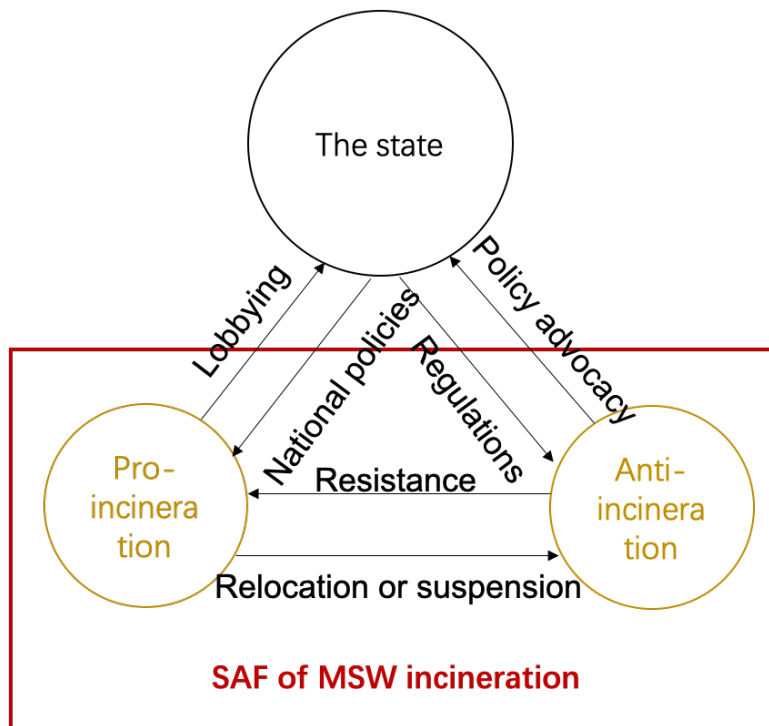


Figure 4. – Interactions around MSW incineration (Source: author’s own compilation)

Like many disputes over proposals for large facilities, competition between incumbents and challengers within the SAF of MSW incineration has revolved around environmental risks, technical controversies, land acquisition, information openness, supervision system, and administrative processes. Challengers initiated both institutional (including applying for information disclosure, administrative reconsideration, and litigation) and extra-institutional collective action (including online and offline protests) to prevent incineration plants from being constructed or from going into operation. In response, incumbents sometimes made compromises, such as suspension, relocation, or cancellation of a proposed incinerator. This is mainly because the performance of local governments is largely linked to social stability. Local officials may be denied promotion once there is a persistent or large-scale protest. The pressure to maintain social stability sometimes made local governments side with local residents and environmental NGOs. In the face of collective action, incineration companies sought to obtain more resources and defend the prevailing order. In 2016, the National Waste Incineration and Power Generation Industry Alliance was established (Jie Zhang, 2016). This alliance unites multiple large and powerful companies together (including Everbright International, Zheneng

Jinjiang Environment, the China Energy Conservation and Environmental Protection Group, the Shanghai Environment Group, and Shenneng Environment), which greatly enhances pro-incineration forces.

These efforts proved effective. By packing themselves as environmental solutions providers and environmental resource managers, many incineration companies, with joint force from local government, strove for support from the state. With sustained lobbying efforts from the pro-incineration alliance, the superiorities of incineration were accepted by the central government. Concomitantly, functional organs of the central government have promulgated a series of policies that favor MSW incineration. First, the BOT model vigorously promoted by the central government has helped reduce local financial burdens by introducing social capital. Then, the *Thirteenth Five-Year Plan* (National Development and Reform Commission and Minister of Housing and Urban-Rural Development, 2016) set an ambitious goal—increasing the proportion of incineration to 54 percent of all collected and transported MSW across the country by the end of 2020. This plan has finally facilitated an all-in-incinerator policy in many large and medium-sized cities (from an interview coded as INAENT01, 2018).

In the contest between incumbents and challengers, anti-incineration forces also strove to win support from sympathizers in the central government. They leveraged national leaders' concern for the environment to enhance the legitimacy of the anti-incineration position. To quell the criticisms of activists, and, more importantly, to prevent massive confrontations, the state implemented certain regulations. In 2014, the Ministry of Environmental Protection (2014) revised the *Standards for Pollution Control on the Municipal Waste Incineration* to increase standards for the emission of dust, NO<sub>x</sub>, HCl, SO<sub>x</sub>, dioxins, and heavy metals. To achieve new emission standards, many incinerators (especially those using old technology) had to upgrade their flue gas cleaning systems. Waste incineration plants across the country underwent technological upgrades and transformations during these few years. In 2017, the regulatory policy was further refined to ensure that incineration plants stuck to the new rules (Wuhu Ecological Centre, 2017). The new regulatory policy included three tasks: installation, display, and connection. First, plants should install automatic monitoring equipment. Second, electronic displays of plants should publish pollutant emissions and incinerators operating data in real time

and make sure information is accessible to the public. Third, real-time monitoring equipment of incineration plants should be connected to the supervision systems of environmental protection departments at all levels. In addition, the central government rolled out a new regulation to control pollution emissions from incinerators. If an MSW incineration plant violates emission standards, subsidies will be cut or suspended (Ministry of Finance and Ministry of Ecology and Environment, 2020). In this way, the state further improved environmental levels at incinerators and strengthened supervision over the incineration industry.

## **5. Stability and Change within the SAF of MSW Incineration**

The theory of SAFs indicates that fields are rarely stable. The impetus to change exists even in the most stable SAF. In addition to emphasizing tensions between different actors within a field, the theory also attaches importance to other external fields that have vertical and horizontal interconnections with a given field. Links between fields include “resource dependence, mutual beneficial interactions, sharing of power, information flows, and legitimacy” (Fligstein & McAdam, 2012, p. 59). When the internal dynamics within the field are not enough to change the balance of power, inputs (including ideas, identity, resources, and shocks) from outside the field may create opportunities for transformation, and hence become the driving force for a new order. In brief, the stability or change of a field is closely related to fields around it. SAFs “are generally destabilized by exogenous shock[s] originating from other strategic action fields, invasion by other groups of organizations, actions of the state, or large-scale crises such as wars or depressions” (Fligstein & McAdam, 2012, p. 189). Like many other controversial issues, MSW incineration is embedded in a dense and interlaced network. To understand the prospects for the stability and crisis within this SAF, it is necessary to overcome the “field-centric bias” (Fligstein & McAdam, 2012, p. 58) and take external relationships into consideration. In addition to interactions between incumbents and challengers and the intervention of the state, turbulence from adjacent fields and/or broader field environment might break the balance of the existing order (see Figure 5). It should be noted that the horizontal fields (including landfill and anti-PX) and vertical ones (energy supply, MSW disposal, pollution control, habitat protection, consumerism, and environmentalism) shown in Figure 5 are only examples to shed light on the dependency and nesting relationships between the SAF of MSW and other fields. In fact,

proximate and broader fields discussed in this study are only some examples, and fields related to incineration are more numerous.

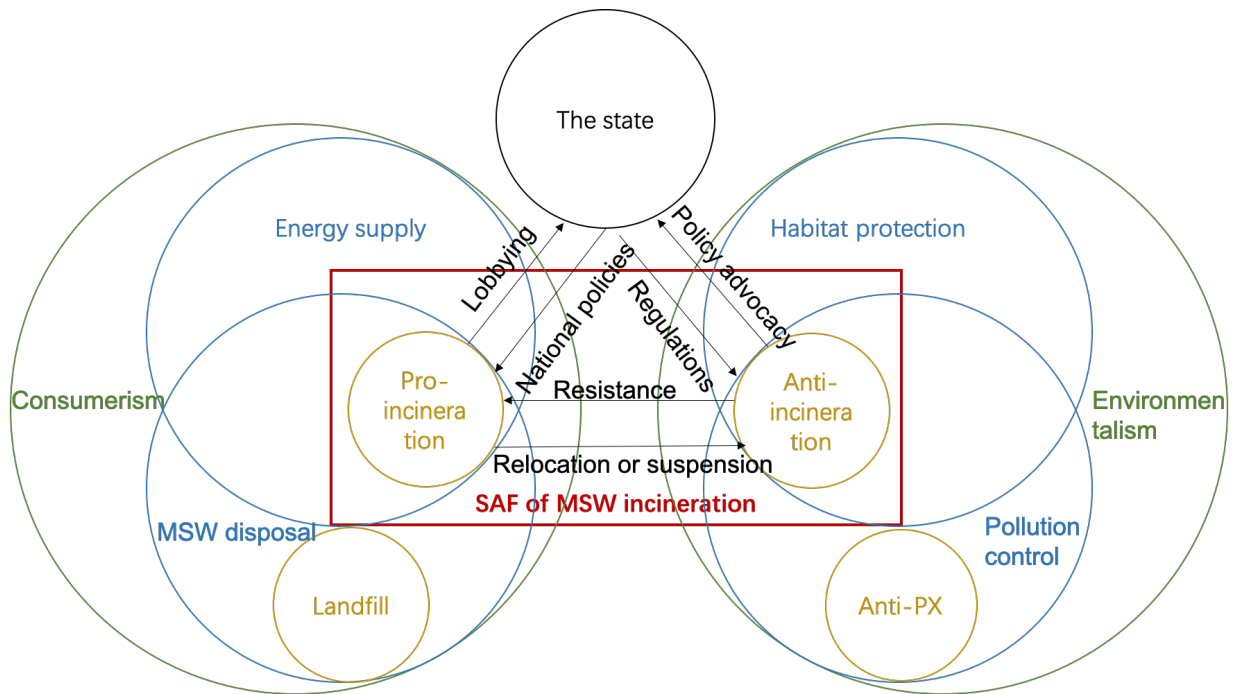


Figure 5. – The SAF of MSW incineration, its proximate fields, and larger fields in which it is embedded (Source: author’s own compilation)

### 5.1 Influences from Proximate Fields

According to the theory of SAFs, all fields are inextricably linked with the adjacent ones. Fields sharing direct social relations influence each other. More specifically, the theory supposes that changes occurring in a field are likely caused by fluctuations in its proximate fields, especially in those located within a closer social space. For instance, landfill is a proximate field that has horizontal and competitive relationships with the SAF of MSW incineration. As indicated by many municipal governments, incineration is an alternative to landfill because landfill puts a lot of pressure on urban land supply and produces environmental pollution (from interviews coded as INAGES02, INBGES01, INCGES01, 2018). In this regard, many cities claimed that they need to build more incineration plants to diminish dependence on landfills. However, over the past decade, both landfills and MSW incineration plants have experienced a sound momentum of development. The amount of waste sent to landfills and incinerators shows an upward trend as well (see Figure

6). Landfills and incinerators were supposed to compete for limited MSW resources since they were regarded as alternatives to each other. Yet the larger field in which they are nested continues to expand. As the total amount of MSW waste grows, incineration and landfill have not played a zero-sum game thus far.

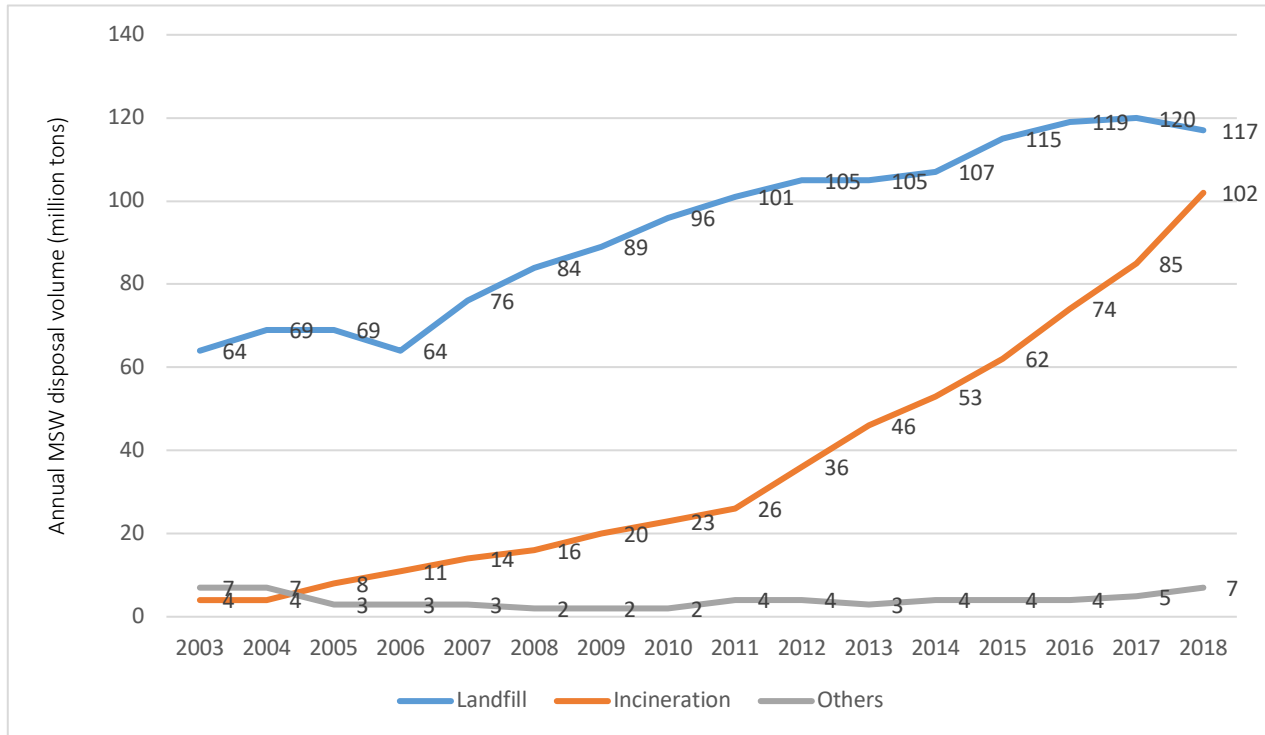


Figure 6. – The amount of MSW treated in different ways each year (Source: author’s own compilation using data from *China Statistical Yearbook*)

Anti-incineration forces sought to obtain supports from two groups of adjacent fields. They first turned to sorting, recycling, and composting fields. In recent years, some cities have begun the practice of waste sorting. In this case, some companies working on waste sorting and recycling have recently joined the anti-incineration camp. Despite favorable policies, the financial support received by sorting and recycling companies has been far less than that received by the incineration industry (from an interview coded as INBENV02, 2018). Due to the limited scale of these new allies, the strength of the anti-incineration groups has not been greatly improved. In the second place, anti-incineration forces tried to seek sources from other types of local activism, including resistance against industrial factories, maglev trains, high-speed rails, and nuclear



power plants. For protestors, these projects are “unnecessary, technologically unsound, or environmentally and socially destructive” (Hager & Haddad, 2015, p. 1). Negative effects (including odor, noise, dust, radiation, and stigmatization) from these projects could threaten their health, safety, and/or property value. Taking anti-PX projects as examples, collective actions in several cities provided valuable experience for anti-incineration activism. Especially, “peaceful strolls” and other moderate methods invented by activists of the anti-PX campaign occurring in Xiamen during 2007 have been regarded as effective repertoires of contention in the Chinese context. In the subsequent anti-incineration protests, these repertoires were imitated and recreated. These fields, operating at the same level, have formed cooperative relations in terms of controlling negative impacts from undesirable large facilities. Nevertheless, local activism was largely restricted by the Chinese political setting. From a general point of view, although anti-incineration forces allied themselves with several external actors, they were less powerful than pro-incineration alliances. Incumbents were larger in number and more politically connected, while challengers and their allies were at a disadvantage in these aspects. In this case, challengers have adjusted their action strategies and devoted more efforts to policy advocacy for sustainable alternatives. They have changed their slogan from “refusing to burn garbage” and “eliminating incinerators” to “refusing to burn unsorted garbage” and “updating incinerators” (from an interview coded as INBENV02, 2018).

## **5.2 Impacts from Larger Fields**

In addition to proximate fields, the broader field environment has significant impacts on fields embedded in it. The theory of SAFs argues that the establishment of a new order in an SAF largely relies on the “resolution of the broader underlying conflict” (Fligstein & McAdam, 2012, p. 101). Especially when a broader field is altered by the introduction of new resources or ideas, impacts are likely to spread to smaller fields. In other words, changes in higher level fields are likely to bring opportunities for transformations within lower level fields. As shown in Figure 5, incineration is hierarchically nested in two larger fields: MSW disposal and energy supply. On the one hand, incineration meets the growing needs of MSW waste disposal. In this sense, incineration plants enjoy many preferential policies, including free land-use, prioritized commercial bank loans, construction subsidies, waste disposal subsidies, fly ash treatment

subsidies, and leachate treatment subsidies. On the other hand, incineration has been listed as a renewable energy technology. Many incineration companies are also eligible for power generation subsidies, tax breaks, and/or premiums from reducing carbon emissions. With favorable policies in the larger fields, not only have state-owned enterprises been involved in the incineration industry but also a growing number of joint ventures and local companies have joined the SAF.

Anti-incineration activism is embedded in two larger fields: pollution control and habitat protection, as presented in Figure 5. Opposition to incineration sometimes stems from concerns about the air, water, and soil pollution caused by burning waste. As people's knowledge about pollutants and toxic chemicals increases, individuals and organizations have increasingly joined the collective efforts to control pollution. In addition, many activists oppose large facilities because they occupy land in an ecologically fragile area. For example, incinerators located in national parks, nature reserves, and/or water source areas have confronted strong opposition from local residents and environmental NGOs (from an interview coded as INBENV02, 2018). In this sense, anti-incineration protests have resonated with endeavors to protect ecosystems and animal habitats.

From a broader perspective, the popularization of MSW incineration is a product of consumer culture. In contemporary society, many people are addicted to material consumption and pay little attention to the issue of waste disposal. As for the incineration industry, many companies promote advanced technology and indicate that it can eliminate large amounts of garbage in a very short period. In this case, people do not feel guilty for irrational material consumption, nor worry about the consequences of the waste crisis. As Fligstein and McAdam (2012, p. 96) indicate, it is difficult for "culturally 'embedded' actors to shift worldviews dramatically". Without reflection on consumerism, the ever-increasing MSW feeds the growing number of incineration plants. On the contrary, anti-incineration forces are deeply influenced by environmentalism. Many efforts against incineration stem from concerns for human health, animal rights, and non-living matter. Environmentalists were once considered an active force who were most likely to bring changes into public administration and promote democratic transformation of Chinese politics (Kuo, 2013; Steinhardt, 2019; Steinhardt & Wu, 2016). However, the growth of

environmentalism has encountered many restrictions. Most environmental NGOs remain localized and geographically dispersed. In this sense, it is difficult to initiate cross-regional cooperation and mobilization. Until today, environmentalists have not become an independent force who can bring transformative changes to political and institutional arrangements. Anti-incineration activism, as a field nesting in that of environmentalism, has also faced many obstacles.

### **5.3 Status of the SAF of MSW Incineration**

Through examining the 95 identified anti-incineration campaigns in China, I found that local resistance could barely succeed in closing or relocating incineration plants. For example, in 2011, the Panguanying Waste Incineration Plant was stopped under pressure from local resistance, which was then considered a successful example of local campaigns (Johnson et al., 2018). But the plant was restarted in 2019, and the daily waste disposal capacity was increased from 700 tons to 900 tons (L. Chen, 2020). Similar cases are ubiquitous—opposed plants are either moved to a more remote location (to ensure they encounter less resistance) or restarted after several years. Opposing a given incinerator in a certain area has not proved to be an effective method for reversing the incineration-oriented waste disposal policy on a national scale. From a general perspective, the number of MSW plants is still at a stage of rapid growth for the time being. In particular, under the incentive of the *Thirteenth Five-Year Plan* (National Development and Reform Commission and Minister of Housing and Urban-Rural Development, 2016), many cities have invested a lot of human, material, and financial resources in planning and building incineration plants. As shown in Figure 7, except for Tibet, other provinces have incorporated incineration into local policies. Provinces that did not apply incineration technology—such as Liaoning, Gansu, Qinghai, Ningxia, and Xinjiang—planned to burning garbage. Provinces that already had incineration plants—Anhui, Guangdong, Jiangxi, and Hunan—set radical development goals. Economically developed provinces are more dependent on the incineration technology. In eastern areas of China, the number of incineration plants can be expected to grow significantly. In large and medium-sized cities in the central and western areas, MSW incineration will likely gradually play a more predominant role in waste disposal. From a general viewpoint, the previous order in the SAF of MSW incineration seems to have been re-established.

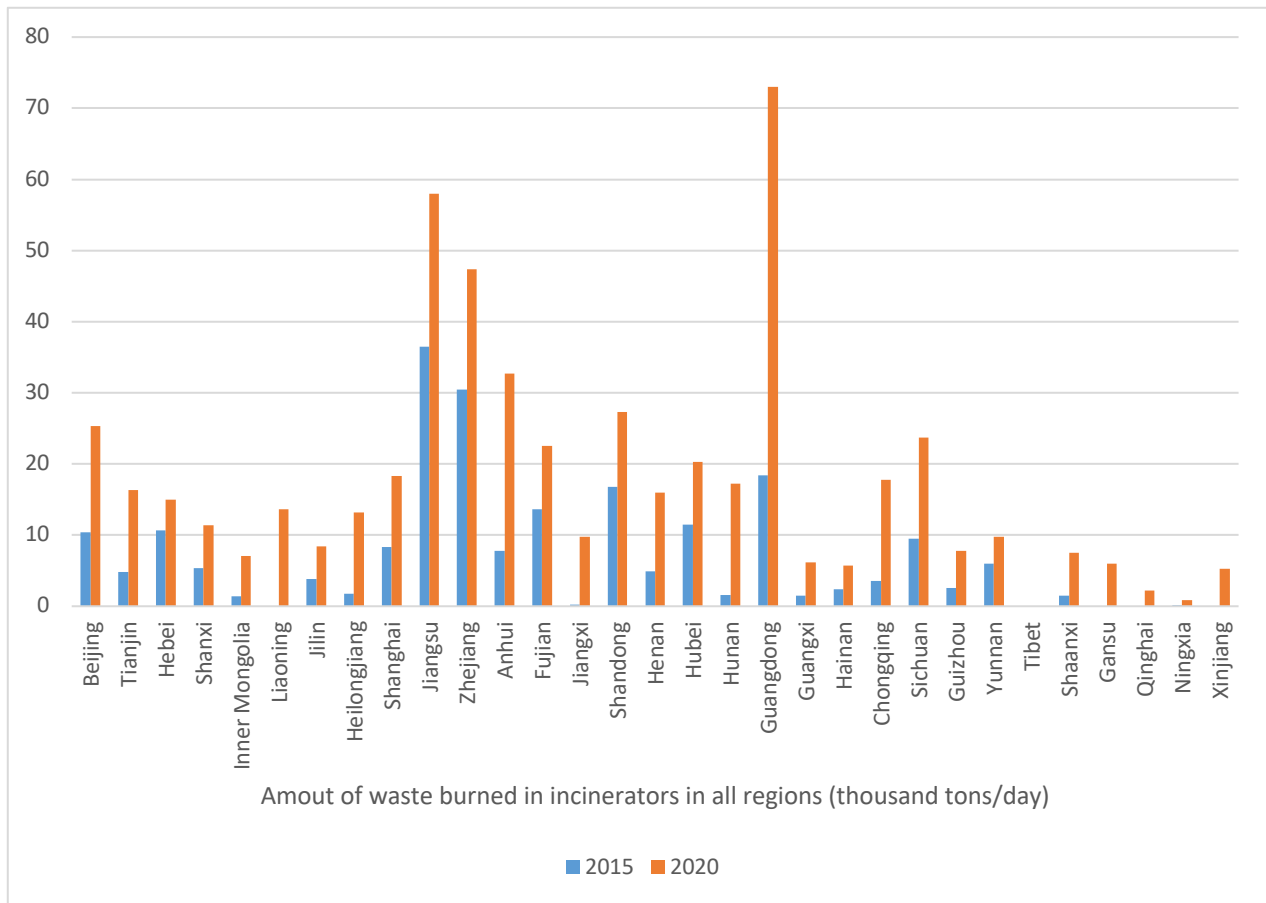


Figure 7. – A comparison of the actual amount of waste burned in incinerators in 2015 and the planned amount of waste burned in incinerators in 2020 in all regions (Source: author’s own compilation using data from *Thirteenth Five-Year National Planning for the Construction of Environmentally-Sound MSW Disposal Facilities*)

## 6. Concluding Remarks

In this study, MSW incineration policy is conceptualized as an SAF. To understand stability and change of the existing order in the SAF, I examined both internal and external dynamics. More specifically, within the SAF of MSW incineration, incumbents and challengers have struggled for a dominant position. Pro-incineration forces sought to defend their privileged position and maintain their advantages. In contrast, the anti-incineration community produced an alternative understanding of MSW incineration and tried to change the dominant order in the SAF. The state

responded to these two competing groups in different ways, trying to find a balance between them. In addition, given the interconnections between fields and the embeddedness of these fields, some adjacent fields and larger ones that are tightly coupled with MSW incineration have been discussed.

The theory of SAFs contends that four factors may contribute to the transformation of a field: opposition from the challengers, actions of the state, influences of other related fields, and large-scale crises caused by macro events (Fligstein & McAdam, 2012). Through examining the wave of anti-incineration campaigns in China, my analysis showed that the first three potential factors of destabilization have brought about some piecemeal changes and minor fixes. As for exogenous shocks, the COVID-19 pandemic, which has had huge impacts on almost all aspects of Chinese society, is in line with the definition of a macro event and also related to incineration. Taking this opportunity, many members of the anti-incineration community called for refining waste sorting and collection, especially hazardous medical waste. However, large amounts of used medical wastes—for instance, used masks, gloves, and coverall suits—were sent to incinerators since the coronavirus was proved to weaken in a high temperature environment (Abraham, Plourde, & Cheng, 2020). In early 2020, the central government announced that some medical waste could be sent to MSW incinerators (Ministry of Ecology and Environment, 2020). Although the epidemic has forced policy makers to pay more attention to MSW incineration and make partial adjustments to previous rules, we have only seen stricter supervision and management regarding waste collection and transportation. Dramatic shift, like the impact of the Fukushima nuclear disaster on nuclear policies, has not been observed. Here, I do not exclude the possibility that the epidemic will change people's lifestyles in the future and thus affect the SAF of MSW incineration. Yet impacts of the epidemic require further investigation and research. In sum, factors that have replaced the existing order within the SAF have not been observed.

From what has been discussed above, I found that competition within the SAF of MSW incineration and impacts from fields around it allow conflicts to be alleviated within the dominant order. Fundamentally speaking, this provides further chances to perpetuate the *status quo*. As shown in the SAF of MSW incineration, burning waste still dominates garbage disposal, despite a few policy adjustments. It seems that the shocks from the COVID-19 pandemic also failed to open

windows of opportunity to transform the initial order and subvert the current structure of the SAF. In some extreme cases—for instance, when the whole country confronts a serious public health crisis caused by incineration—challengers may expect the elimination of the technology. Yet these extreme cases are difficult to imagine. In this sense, it must be asked: to what extent do interactions within a field and impacts from the surrounding environment help us to understand the stability and change in the field? It is still unclear under what circumstances we can expect minor adjustments and under which conditions there will be a radical transformation.

I argue that the case of MSW incineration in China has demonstrated the effectiveness and validity of the theory of SAFs, but only partially. On the one hand, I believe the theory offers an insightful perspective into complicated political processes. It paves the way for a dynamic analysis of competition between challengers and incumbents in a specific SAF. It also emphasizes potential effects from surrounding fields. In the case of MSW incineration in China, it is very instructive in portraying the confrontations within the SAF and impacts that the field receives over time. On the other hand, the theory of SAFs still has some shortcomings. First, it remains unable to highlight the root cause that threatens the prospects for stability of a field. More specifically, the theory leaves the following question unanswered: to what extent can factors inside and outside an SAF destabilize the existing order or restructure incumbent-challenger relations? As mentioned in a critique by Goldstone and Useem (2012, p. 44), the theory of SAFs is “unable to distinguish between routine change within a social order and a crisis that challenges that order”. Second, taking the state as a unified actor, the theory of SAFs ignores the complexity of political processes. Returning to the case of MSW incineration in China, the central and local governments are not simply in a top-down hierarchical relationship but in a symbiotic one. As discussed above, the central government needs to balance development and environmental protection, while municipal governments are more concerned about local economic growth. In this case, the central and local authorities are in a contest over policy options, which produces a dynamic form of politics. Meanwhile, disagreements may exist among political elites. Some officials in the central government have realized the problems of MSW incineration. Challengers saw this political opportunity and tried to unite these sympathizers. In sum, I suggest that different considerations from political elites, especially local officials, need to be given special

consideration when using the theory of SAFs to investigate China's contentious politics. Thus, the interaction and competition that take place in the SAF of MSW incineration in China can be regarded as a four-sided game between the central government, local authorities, business, and civil society. In this case, an interesting question arises: What kind of combination between these four sides can fundamentally change the order within an SAF? Exploring this question provides possibilities for understanding complex politics.

In a broad sense, stability and change of social order remains a core concern of sociology. In many cases, the maintenance of a routinized order is attributed to path dependency (Dryzek, 2016). This means that the existing order restricts the emergence of a new order. On the one hand, the broad social and cultural structure in which an SAF is embedded rarely changes radically. On the other hand, the cost of changing the established order within an SAF is very high, which reinforces the trend of maintaining the *status quo*. In other words, the order of an SAF is largely determined by its initial distribution of resources and formulation of the rules in the field. Even if the existing order is proved to be problematic after a while, it may persist for a long period due to the high costs inherent in processes of change. Thus, many people stick to the functioning modalities of the order because they benefit from its persistence. Nevertheless, understanding how to break path dependency rooted in the existing social and political system and how to shape a new order in a given field have attracted considerable interest from scholars. For instance, in social movement studies, many efforts have been made to explore how collective action brings about change in political fields (Amenta, Caren, Chiarello, & Su, 2010; Andrews, 1997, 2001; Giugni, 1999, 2004; Giugni et al., 1999; Giugni & Yamasaki, 2009; Kane, 2003). Nonetheless, until today, answers to these questions have not provided a sufficient understanding of policy impacts of popular protests in a larger sense. As my study demonstrates, it is necessary to invest more efforts to deepen our knowledge of processes involved in the transformation of social order.





# General Conclusion

Economic development and urban expansion in China are accompanied by population growth and environmental degradation. Dealing with collective action related to environmental issues in China, this dissertation focuses on conflicts and order in the SAF of MSW incineration. In this chapter, the first section reviews the analysis conducted in previous chapters. The second section then turns to theoretical and empirical implications of this study. In the third section, limitations of data are discussed. Finally, the fourth section reflects on anti-incineration protests and the political and cultural environment in which they are embedded.

## 1. Summary of the Study

Due to the growing number of incinerators in large and medium-sized cities, the past fifteen years have witnessed that various categories of actors cooperate, compete, and negotiate around the dominant order within the field of MSW incineration in China. Those who were dissatisfied with the current industrial structure of incineration and incineration-oriented waste policies mobilized collective action in order to propose an alternative rule. As a result, challengers introduced their preoccupations into the political agenda. In some cases, they managed to change the initial proposals made by project developers and/or local authorities. Nonetheless, incumbents believed that incineration was a panacea to get rid of the waste crisis. In most cases, they succeeded in maintaining their dominant position. From a general point of view, this dissertation by articles provided a more nuanced understanding of controversies surrounding MSW incineration in present-day China.

The General Introduction briefly explained the background and objectives of the research. The structure of the dissertation was also presented.

Chapter 1 introduced background of the study and reviewed previous literature. It also discussed the theoretical perspectives for assessing tension and conflicts around incineration. The main research question was then raised.

Chapter 2 looked at the methods and data used for this study. Research design, collected data (including semi-structured interviews, online posts, an anti-incineration campaign database, research reports, policy documents, and some supplementary data), and data analysis process were all presented in this chapter.

Chapter 3 shed light on bones of contention surrounding MSW incineration based on three cases. Although embedded actors had various concerns, they shared a common goal: occupying an advantageous position within the given field. The analysis conducted in this chapter clarified why some people considered and interpreted MSW incineration as something worrisome while others not. These findings clearly revealed the sources of tension and conflicts in the realm of MSW incineration in China: political and industrial elites turned primarily towards growth and efficiency, while civil society was more sensitive to environmental degradation and social injustice in daily lives. By setting the boundaries between different dimensions of controversies, the analysis carried out in this chapter helped understand where disputes came from and in what ways they could be addressed.

Drawing on 557 posts from 12 WeChat subscription accounts, Chapter 4 looked at the mobilization process through which anti-incineration collective awareness was shaped in a virtual space. Identification, demonstration, and resolution were confirmed as three key tasks of consensus mobilization in cyberspace. Analysis in this chapter found that anti-incineration forces had a strong ability and desire for publicity and social learning. Skilled activists were able to effectively use social media tools to legitimize their claims and win public support. In addition, activists' discursive construction was not limited to expelling incinerators from neighborhoods or stopping pollution from incinerators. Other concerns, such as public participation and sustainable development, were also included in their collective claims and initiatives. This coincided with findings of Chapter 3.

Chapter 5 examined the variable efficacy of the theory of SAFs in understanding stability and change of the dominant order in a given society. By reviewing the history of incineration in China between 1988 and 2020, this chapter provided an overview of emergence, evolution, and change taking place within the SAF of MSW incineration. This analysis helped comprehend the extent to

which internal and external dynamics had the potential to reshape the field order. More importantly, it presented the diversity if not the complexity of the political scene in China.

Together, the above-mentioned chapters illustrated what was happening in the SAF of MSW incineration in mainland China through a comprehensive examination. Interactions and competition between technology optimists and cautious skeptics were portrayed. This contributed to shedding light on the rationality beneath the discontent expressed by activists and the resources they successfully mobilized for improving their situation. This also helped understand the extent to which developers and officials made changes in response to social resistance and opposition. In a broad sense, the comprehensive examination clarified in what ways local activism made it possible for state institutions to adhere to the principles of responsibility and accountability.

According to what was discussed above, resistance against MSW incineration was not necessarily a singular phenomenon that could be explained by exclusively pursuing personal interests or environmental well-being. Instead, it involved multiple considerations. To be clear, although disputes over MSW incineration became an important topic in public debates, activists did not attempt in any way to challenge the political system or the institutional arrangements prevailing in mainland China. To a large extent, anti-incineration campaigns were limited to policy implementations at the local level. In most cases, challengers kept their actions within permissible boundaries and depoliticized their claims. Nevertheless, collective action may bring political risks to participants. Many challengers therefore shifted their actions from direct resistance against a single project to a more progressive and cooperative approach, such as policy advocacy.

In addition, by reviewing anti-incineration campaigns and responses made by local governments and project developers, this study found that the current situation was rarely reversed. Even if many activists with limited resources successfully engaged in protests and voiced their claims, it was not easy for them to block or remove incineration projects. Based on the anti-incineration protest database, this study found that only a limited number of local governments and companies grudgingly accommodated claims of activists and abandoned their initial proposals for incineration plants. Most of these compromises were made under pressure to maintain social

stability. Some local government and companies ignored local resistance and continued the proposed projects. They eased the conflicts by postponing the projects, which was defined as “reactive strategies” (Bondes & Johnson, 2017, p. 519). Many projects were resumed after a period of suspension.

From a general point of view, it is fair to say that collective action is hardly a direct driving force for policy changes in China. This is in line with previous literature regarding the consequences of social movement in Western countries (Chabanet & Giugni, 2010; Giugni, 2004; Giugni & Yamasaki, 2009). However, this contradicts other studies that overestimate the prospect of anti-incineration activism in China (Bondes & Johnson, 2017; Lang & Xu, 2013). In sum, the overall analysis on the SAF of incineration suggests that the potential for activists to challenge the existing order is greatly restricted by the dirigiste decision-making system and exclusive political arrangements.

## **2. Implications of the Study**

### **2.1 Theoretical Implications**

Focusing on conflicts and order in the SAF of MSW incineration, this dissertation advanced the understanding of collective action related to environmental issues. Concretely speaking, this study represented an endeavour to explore the theoretical applicability of social movement studies and environmental research by drawing on empirical evidence of anti-incineration campaigns in China. Taking both macro mechanisms and micro factors into consideration, this exploration found that the theoretical model developed by Fligstein and McAdam (2011, 2012) could provide a comprehensive and dynamic approach to help understand the complex political process in a highly competitive field. Other concepts, such as consensus mobilization, framing, and sustainable development, were also instructive. This analysis approach can be extended to adjacent and/or broader fields to explain other environmental conflicts in China, for instance anti-PX protests and anti-nuclear activism.

In addition, this study explored a new possibility to understand contentious politics in authoritarian countries. Theoretically, non-democratic regimes largely restrict the occurrence of

collective action (Tilly & Tarrow, 2015). Authorities usually take coercive measures to suppress protests. However, the past few years have witnessed various forms of popular protests in dozens of cities in China (Cai, 2010; X. Chen, 2012; Yao Li, 2019; O'Brien, 2008; Perry & Selden, 2003; Tong & Lei, 2013; Wright, 2018, 2019; Zhao, 2001). The consideration of both structural factors and collective agency helped address this phenomenon. The emergence of protests can be attributed to recent political opportunities since the state allows some space (albeit limited) for expressing dissatisfaction and demands in the form of collective action (Chung, 2012; Yao Li, 2017). The autonomy of actors also contributed to the occurrence of protests. When people felt resentful towards the dominant order of a given field, they were able to engage in strategic action. From a general perspective, the majority of local protests avoided political confrontations. They did not involve in radical actions nor regard the state as the main target. Instead, their concerns and claims were largely related to reflection on market-oriented values and/or inadequate public participation. Activists' knowledge and capabilities provided the possibility for them to strive for more favorable conditions. Knowing the political tolerance in the specific regime setting, activists can strategically avoid direct or outright confrontations with the state by using creative "contentious repertoires" (Tilly, 1993, p. 253).

By analyzing anti-incineration mobilization on WeChat, this dissertation also explored an analytical approach to investigate the huge potential of social media in contentious politics. Content analysis combining machine learning and manual coding provided a useful method to elaborate how activists controlled the practices of information production and dissemination within a virtual space. This study proved that examining the employment of digital repertoire in strategic action can help comprehend online mobilization. In a broad sense, it brought a scholarly dialogue between social movement studies and social media research.

## **2.2 Empirical Implications**

In addition to theoretical contributions, this dissertation has some empirical implications. First, this study highlighted the importance of understanding the issue of MSW incineration. It emphasized that the investment in incineration technology and construction of MSW incineration plants might have huge impacts on the future waste management system and the urban spatial

structure. The widespread application of incineration technology will largely affect China's sustainable waste treatment in the next few decades. And public policies regarding incineration will be of great significance to social rights and welfare of Chinese populations. The level of public participation, especially the proportion of affected residents, will determine the extent to which future public policies can reduce social inequality and injustice. In sum, this study showed that incorporating public concerns about the negative externalities of incineration into decision-making considerations and choosing sustainable waste disposal methods might help improve citizens' life conditions and enhance their welfare.

The second empirical contribution of this dissertation is closely related to policy implementation. The acceleration of urbanization in China resulted in the geographic concentration of population, industry, and capital in a limited space over only a few decades. The concentration created pressing need for building out waste disposal facilities. However, local resistance against incineration projects ultimately resulted in political gridlock at the local level. This study provided a big picture of what was happening in the field of incineration, which could help urban administrators figure out where the gridlock comes from. More specifically, this study found that activists were rarely motivated only by instrumental demands, which was contrary to the general interpretation made by incumbents.

Third, this study portrayed the diachronic process of the emergence, continuity, and change of the SAF of MSW incineration from an empirical standpoint. However, disputes over MSW incineration are a small piece of evidence in the big story about local opposition to urban infrastructure projects in China. These kinds of protests are associated with social solidarity and stability. For local authorities, collective action, even in peaceful ways, is considered a threat to social stability. Both central government and local authorities have allocated a large amount of resources to screen, detect, and block protests. In this case, understanding why these protests occur can provide public administrators with relevant knowledge.

Fourth, opposition to the implementation and operation of incinerators has taken place in many countries. Although this study was conducted in the Chinese context, it could offer information and materials for those (for example, researchers and policy makers) interested in the issue of

incineration to help them understand some important aspects, including identity of incumbents and challengers, disputes between them, strategies for consensus mobilization, and stability and change of the field order. The methods used in investigating controversies over incineration could be applied to studies in other contexts.

### **3. Limitations of the Study**

Although this dissertation has made several theoretical and empirical contributions, it suffers from some limitations. The first limitation involves the establishment of the anti-incineration campaign database. Given that the 95 identified anti-incineration protests were hand-collected based on online news, it is possible that the database omitted some unnoted protests that were not covered by the media. Limited by censorship, mainstream media in China rarely report on protests and grievances. This may result in some events being excluded from the database.

The second limitation of this study refers to the inherent shortcomings of using social media for consensus mobilization. Although the interactive feature of social media usually enables information sharing and exchange between individuals from different geographic regions, consensus mobilization via social media is not a panacea. It excludes some potential audiences, such as people who cannot access the Internet. In the case discussed in Chapter 4 (Article 2), collective efforts on WeChat could not reach individuals who do not use WeChat, albeit that this is a small group in China.

In addition, the study regarding consensus mobilization based on 12 WeChat subscription accounts shows weakness. Although social media is characterized by openness and interactivity, a method to explore interactions on social networking sites was not found. In other words, textual data from 557 posts can only be used to explain how activists constructed MSW incineration as a worrisome problem. But this analysis cannot tell how these posts reshaped the audience's perception of incineration. This problem mainly comes from the design of the social platform. More specifically, the architecture of WeChat greatly reduces users' participation in controversial topics. Different from other social networking sites, WeChat has no hashtag (using #) and limited mention (using @) features. To some extent, this restricts the exchange of ideas and in-depth discussions about a particular topic in the cyberspace provided by WeChat. In addition, comment

areas provided by subscription accounts cannot promote positive interactions. Theoretically, subscribers and other readers can write down their opinions and reflections in the comment area below every post. And the author is also allowed to respond to comments and provide supplementary information for matters not covered in the post. However, according to the design of WeChat, all comments are subject to further review from the author of the post before being posted. This mechanism largely impedes immediate discussions and continuous dialogues around the content of the posts. It may also restrict free debates and silences pluralistic arguments. Since readers' response can barely be accessed, it is difficult to know the effectiveness of the mobilization. And due to little information of action mobilization, it is not easy to examine interactions between people interested in incineration issues on this platform. The extent to which the consensus mobilization on WeChat affects people's understanding of MSW incineration and their action to resist incineration was therefore unexplored. Correspondingly, this study did not find a suitable method to build the causal link between consensus mobilization and action mobilization.

#### **4. Reflections**

Exploring the conflicts and order in the SAF of MSW incineration provides an opportunity to reflect on local activism taking place in mainland China. In response to anti-incineration protests, local governments and/or project developers may shut down the offending plants or change the proposed siting plans. Some people regard these concessions—such as suspension, relocation, or cancellation of incinerators—as a kind of “win” of activists. However, it seems unavoidable to raise the following question: To what extent those so-called victories are really the case? Answers to this question mainly involve the following aspects: First, incinerators, defined as urban infrastructure projects, are costly. Suspension or cancellation of these large facilities may waste public resources if considering financial investments and/or officially approved land occupation (for example, the case of Panyu Incineration Plant). Consequently, employment opportunities and/or economic development goals set by local governments may be affected. Second, relocation of incinerators may have unexpected negative impact on social fairness and justice, especially when it comes to poor and marginalized populations. Under the pressure of resistance, the unpopular facilities are likely to be moved to underdeveloped regions or remote areas where



locals are less likely to complain or resist (for example, the case of Liulitun Incineration Plant). Third, resistance to a specific project only undermines a proposal or a plan in the short term, as observed in the case of Likeng Incineration Plant and Panguanying Incineration Plant. No one-off policy adjustment can fundamentally change the dominant order that prevails in the SAF of MSW incineration. As long as incineration is regarded as a panacea by the state and local authorities, the construction and operation of incineration plants will not stop. For that reason, challenges to a single incineration plant will not shake the current industrial structure or waste disposal policies. Of course, this is not to say that collective efforts against MSW incineration are insignificant. Anti-incineration protests not only sparked public debate about waste disposal policies, but also promoted broader environmental concerns and debates.

Environmental activists were once considered an active force that stood at the forefront of social change and political processes in China (Kuo, 2013; Steinhardt, 2019; Steinhardt & Wu, 2016; Yang, 2005). And collective action for a better and healthier living environment was proved to be largely tolerated by the authorities (Wright, 2018). However, anti-incineration activism along with other local resistance related to environmental issues has not shown signs of becoming a driving force to stimulate profound institutional transformation. For now, local protests related to environmental concerns have not yet received sufficient supports from the state or civil society. It is still difficult for local activists to break through the limitations of current institutional arrangements and reverse the prevailing norms of administrative procedures. First, civil society in China remains weak. Social mobilization and activism has not obtained enough resources or support to enhance its legitimacy. Although some action networks have emerged, they remain informal, disorganized, isolated, and localized in most cases. No unified goal or identity has been formed on the basis of these networks. Second, resistance has been largely bounded in terms of size and intensity due to the political setting. Expanding local disputes into national grievances is facing obstacles and risks since cross-region mobilization has been considered “a political taboo” (Bondes 2019, p. 227) within the Chinese political context. The authorities have tried hard to prevent mass protests and demonstrations on a national scale. It is highly unlikely that geographically confined campaigns develop into unified nationwide movements as observed in Western societies. For now, most contentions in China average only between ten and 100

participants (Göbel, 2019, p. 37). Activists do not have sufficient ability to bargain at the national level.

From another point of view, the subjectivity and values of environmental activism should be taken into account. For the time being, Chinese environmental activists does not seek to change the political system. Thus, it is unlikely to expect environmental activism to become an independent force able to bring far-reaching changes in the current political and institutional arrangements. The existing power relations or social structure has not shown signs of coopting environmental activists into local management and/or national governance. Prospects for subversive transformation remain highly constrained by institutional path dependence (Dryzek, 2016). On the whole, most popular protests (except those in autonomous regions and special administrative regions) do not weaken the state or threaten the regime (Cai, 2020).

As mentioned by Peter L. Berger and Thomas Luckmann (1966), institutions tend to reproduce once it is created. There is a large amount of inertia that limits the possibility of transformation. In order to break the institutional path dependence (Dryzek, 2016), turning to reflexivity may be a good option. Reflexivity refers to the capacity of learning from failure and altering one's place in the social structure, which ultimately requires overthrow of the established order (Giddens, 1990, 1991). In the case of incineration, reflexivity (or the capacity for self-transformation) can be seen as a fundamental driving force for the change of the SAF. In essence, efforts towards sustainable waste disposal strategies should not be considered a fixed list, but rather an initiative effort coming from constant reflection on the following tensions: efficiency vs. fairness; consumerism vs. environmentalism; economic growth vs. social well-being; a hierarchical decision-making model vs. a dialogic policy processes.

Controversies surrounding MSW incineration provide opportunities to think about what kind of life we want: consume more or consume better? In other words, do we want to continue the "throw-away" society<sup>52</sup> or do we wish a sustainable way of life? So far, there is insufficient awareness of the environmental and social impacts of the growing MSW. This may prevent people

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<sup>52</sup> "Throw-away" society refers to the social state of producing and employing single-use items without restraint.

from reflecting on their daily lives and taking appropriate actions. On the whole, managing waste in a sustainable way is the surest way to livable cities. It is necessary to think about how long the consumerist culture that threatens our living environment can have *le haut du pavé*. In the long run, further ambitious actions to pursue alternatives—for example, using less single-use plastic products, cutting down on food waste, and promoting waste sorting and recycling—and head towards a zero-waste society<sup>53</sup> are undoubtedly indispensable.

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<sup>53</sup> “Zero waste is a set of principles focused on waste prevention that encourages the redesign of resource life cycles so that all products are reused” (“Zero Waste,” 2020).



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## Appendices

### Appendix A: Database of Anti-Incineration Campaigns

Year	City	Location	Seize of protest <sup>54</sup>	Proposal	Response to protests	Status
2006	Beijing	Liulitun	Large	A new plant	Relocation	Abandoned
2006	Shenzhen	Qingshuihe	Small	A plant in operation	N/A	Operation
2008	Jiaxing	Pinghu	Small	A plant in operation	N/A	Operation
2008	Beijing	Gaoantun	Medium	A new plant	Relocation	Operation
2009	Beijing	Dongcun	Small	A new plant	N/A	Operation
2009	Beijing	Asuwei	Small	A new plant	Suspension	Operation
2009	Guangzhou	Panyu	Small	A new plant	Relocation	Operation
2009	Wujiang	Pingwang	Large	A new plant	Suspension	Operation
2009	Wuhan	Panlongcheng	Small	A new plant	N/A	Operation
2009	Guangzhou	Huadu	Small	A new plant	N/A	Operation
2009	Shanghai	Jiangqiao	Small	A new plant	Suspension	Operation
2009	Qinhuangdao	Panguanying	Medium	A new plant	Suspension	Approved
2009	Nanjing	Jiangbei	Large	A new plant	Suspension	Construction
2009	Shenzhen	Baigehu	Small	A new plant	Suspension	Operation
2009	Shenzhen	Longgang	Small	A plant in operation	Update	Operation

<sup>54</sup> The size of anti-incineration protests are indicated as small (less than 1,000 participants), medium (1,000 to 5,000 participants), and large (more than 5,000 participants).

2010	Beijing	Sujiatuo	Small	A new plant	Suspension	N/A
2010	Guangzhou	Likeng	Small	Expansion	N/A	Operation
2010	Guangzhou	Foshan	Small	A new plant	Suspension	Operation
2010	Dongguan	Qingxi	Small	A new plant	N/A	Construction
2011	Guangzhou	Panyu	Small	Restarting a cancelled plant	Relocation	Operation
2011	Dongguan	Humen	Large	A new plant	Relocation	N/A
2011	Wuxi	Huangtutang	Large	A new plant	Suspension	Operation
2012	Guangzhou	Huadu	Small	A new plant	N/A	Operation
2012	Qingyuan	Huadu	Large	A new plant	N/A	Operation
2012	Beijing	Nangong	Small	A new plant	N/A	Operation
2012	Shanghai	Jiading	Small	A new plant	N/A	Operation
2012	Shanghai	Songjiang	Medium	A new plan	N/A	Operation
2013	Qinhuangdao	Panguanying	Medium	A new plan	Suspension	Approved
2013	Guiyang	Baiyun	Small	A new plan	Relocation	Operation
2013	Huizhou	Huiyang	Small	A new plan	N/A	Operation
2013	Guangzhou	Huadu	Medium	A new plant	N/A	Operation
2013	Hangzhou	Binjiang	Small	A plant in operation	N/A	Operation
2013	Puning	Jinzao	Medium	A new plant	N/A	Operation
2013	Leqing	Liushi	Small	A plant in operation	N/A	Operation
2014	Suining	Taoyuan	Small	A new plant	N/A	Operation
2014	Wujiang	Pingwang	Small	A plant in operation	N/A	Operation
2014	Shenzhen	Longgang	Medium	A new plant	N/A	Operation

2014	Zhanjiang	Lianjiang	Small	A new plant	N/A	Operation
2014	Wuhan	Guodingshan	Small	Restarting a plant	N/A	Operation
2014	Hangzhou	Yuhang	Large	A new plant	Suspension	Operation
2014	Huizhou	Boluo	Medium	A new plant	Suspension	Operation
2014	Shantou	Chaonan	Medium	A new plant	N/A	Operation
2014	Guangzhou	Baiyun	Small	A new plant	N/A	N/A
2014	Guangzhou	Luogang	Small	A new plant	N/A	Operation
2014	Nanchong	Jialing	Medium	A plant in operation	N/A	Operation
2014	Xiangtan	Jiuhua	Medium	A new plant	Relocation	Approved
2015	Sanming	Yongan	Large	A plant in operation	N/A	Operation
2015	Langfang	Anci	Medium	A plant in operation	N/A	Operation
2015	Dongguan	MaChong	Small	A new plant	N/A	Operation
2015	Yangchun	Chunwan	Large	A new plant	N/A	N/A
2015	Ningbo	Xiangshan	Small	A new plant	N/A	Operation
2015	Luoding	Langtan	Large	A new plant	Cancellation	N/A
2015	Puning	Yunluo	Medium	A new plant	N/A	Operation
2015	Hangzhou	Qiandaohu	Small	A new plant	N/A	Operation
2015	Wuhan	Panlongcheng	Medium	A new plant	N/A	Operation
2015	Taizhou	Sanmen	Small	A new plant	N/A	Operation
2016	City A	District X	Large	A new Plant	Relocation	Operation
2016	City C	District Z	Small	Expansion	N/A	Construction
2016	Yiyang	Nanxian	Medium	A new Plant	N/A	Approved
2016	Taizhou	Sanmen	Small	Expansion	N/A	Construction

2016	Jiaxing	Haiyan	Large	A new Plant	Suspension	Operation
2016	Haikou	Wanning	Medium	A new Plant	N/A	Construction
2016	Dongguan	Tangxia	Medium	A new Plant	N/A	N/A
2016	Shantou	Chaoyang	Large	A new Plant	N/A	Operation
2016	Zhaoqing	Gaoyao	Large	A new Plant	Suspension	Approved
2016	Xiantao	Zhengrenkou	Large	A new Plant	Suspension	Operation
2016	Qianjiang	Zongkou	Small	A new Plant	N/A	Construction
2016	Nanjing	Liuhe	Large	A new Plant	Suspension	Approved
2016	Tianjin	Jixian	Small	A new Plant	N/A	N/A
2016	Qingdao	Xiaojianxi	Small	A new Plant	N/A	Operation
2016	Ganzhou	Wangmudu	Medium	A new Plant	N/A	Operation
2016	Wujiang	Pingwang	Small	A plant in operation	N/A	Operation
2016	Shenzhen	Honghualing	Small	A plant in operation	N/A	Operation
2016	Xi'an	Lantian	Large	A new Plant	Relocation	Operation
2017	Zhaoqing	Lecheng	Medium	Restarting a cancelled plant	N/A	N/A
2017	Qingyuan	Feilaixia	Large	A new plant	Cancel	N/A
2017	Beijing	Lujiashan	Small	Expansion	N/A	N/A
2017	Shaoyang	Longhui	Small	A new plant	Suspension	N/A
2017	Yongzhou	Xingtian	Medium	A new plant	N/A	Approved
2017	Huizhou	Boluo	Medium	Expansion	N/A	Operation
2018	City B	District Y	Medium	A new plant	N/A	Approved
2018	Shangrao	Poyang	Small	A new plant	N/A	Construction

2018	Longyan	Changting	Medium	A new plant	N/A	Approved
2018	Anshan	Tengao	Medium	A new plant	N/A	Approved
2018	Huanggang	Xishui	Large	A new plant	N/A	Operation
2018	Harbin	Shuangcheng	Small	A plant in operation	N/A	Operation
2018	Yulin	Luchuan	Small	A plant in operation	N/A	Operation
2018	Xiangtan	Hekou	Large	A new plant	N/A	Construction
2018	Quanzhou	Yongchun	Medium	A new plant	N/A	N/A
2018	Anqing	Taihu	Large	A new plant	Relocation	Operation
2018	Xinyi	Hedong	Small	A new plant	N/A	Approved
2019	Yunfu	Yunan	Large	A new plant	Cancellation	N/A
2019	Zhonshan	Nanlang	Small	A plant in operation	N/A	Operation
2019	Xiantao	Zhengrenkou	Small	A plant in operation	N/A	Operation
2019	Wuhan	Xinzhou	Large	A new plant	N/A	N/A
2019	Qionghai	Jiaji	Medium	Expansion	N/A	Construction

## Appendix B: Interview Guide

Guide d'entretien (French)

N° de dossier (codé par le chercheur)

Nom, prénom :	
Date de l'entretien :	
Début et fin de l'entretien :	
Notes prises par :	

### Introduction – Première partie

1. Je me présente.
2. J'explique l'objectif de la recherche, risques et inconvénients, avantages et bénéfices, confidentialité, et droit de retrait.
3. J'explique le processus de l'entretien, y compris la durée, la prise de notes, la prise d'enregistrements, et le droit de poser des questions.
4. Le participant (ou la participante) lit le formulaire d'information et de consentement et donne son accord verbalement.

## Questions descriptives – Deuxième partie

1. Quel est l'incinérateur en cause dans l'activité (opposition ou soutien) à laquelle vous avez participé ?
2. Quel est l'état actuel de cet incinérateur concernant : la planification, l'acquisition de terrains, la construction, l'opération, l'expansion, ou la suspension ?
3. Connaissez-vous la surface au sol et la capacité de traitement de cet incinérateur ?
4. Cet incinérateur a-t-il fait l'objet d'une étude d'impact sur l'environnement ?  
Avez-vous participé ?
5. Quand a eu lieu l'action collective contre l'incinérateur ? Qui sont les militants ?
6. Quelle est l'ampleur de la protestation ? Combien de temps a-t-elle duré ?
7. Quelles stratégies les gens ont-ils utilisées pour protester ? Sont-ils organisés ?
8. Comment les gouvernements et les entreprises réagissent-ils aux manifestations ?

### Questions de jugement – Troisième partie

1. Quelle est votre attitude face à cet incinérateur ?
2. Pourquoi soutenez-vous ou vous opposez-vous à cet incinérateur ? (e.g. préoccupations de risque environnemental, justice sociale, et/ou la dévaluation de la propriété)
3. Quelles mesures avez-vous prises pour soutenir ou vous opposer à cet incinérateur ?
4. Si vous soutenez la construction de l'incinérateur, veuillez indiquer les avantages que vous y voyez.
5. Si vous soutenez l'incinérateur, quels efforts avez-vous déployés pour la construction ou l'opération de ce projet ?
6. Si vous êtes contre les incinérateurs, quelles sont vos revendications ? (e.g. suspension d'installation, déménagement de projet, réinstallation des résidents, et/ou compensation économique) ?
7. Si vous êtes contre les incinérateurs, quels efforts avez-vous déployés pour empêcher la construction ou l'opération de ce projet ?
8. Quelles sont les ressources qui supportent votre soutien ou opposition ?



(Chinese)

## 访谈提纲

文件编号（由研究者编写）

受访者姓名：	
受访日期：	
起止时间：	
记录人：	

### 第一部分：介绍

1. 进行自我介绍。
2. 解释研究的目的、风险和不便，优势和好处，保密性和退出权。
3. 解释访谈过程，包括持续时间、如何记笔记、如何录音、提出问题。
4. 受访者阅读知情和同意书，书并给予口头同意。

(Chinese)

## 第二部分：描述性问题

1. 您参加的（支持或反对）活动涉及哪座焚烧厂？
2. 该焚烧厂现在处于什么阶段，规划、征地、建设、运行、扩建还是停工？
3. 您知道这座焚烧厂的占地面积和处理能力吗？
4. 这座焚烧厂是否经过环境影响评价？如果是，您是否参与其中？
5. 针对焚烧厂的抗议是什么时候发生的？反对者都是谁？
6. 抗议的规模有多大？持续了多长时间？
7. 抗议者采取了什么策略？他们是否是有组织的？
8. 政府和企业如何回应抗议

(Chinese)

### 第三部分：判断性问题

1. 您如何看待这座焚烧厂？
2. 您为什么支持或反对这座焚烧厂？（例如，环境风险、社会公正、财产贬值）
3. 您采取了什么措施来支持或反对这座焚烧厂？
4. 如果您支持焚烧，请给出支持的理由。
5. 如果您支持焚烧厂，您为它的建设和运行做了哪方面的努力？
6. 如果您反对焚烧，您的诉求是什么？（例如，停工、项目搬迁、居民安置、经济补偿）？
7. 如果您反对焚烧厂，您为阻止它的建设和运行做了哪方面的努力？
8. 您支持或反对焚烧厂的努力获得了哪些资源的支持？

## Appendix C: Information and Consent Form



### FORMULAIRE D'INFORMATION ET DE CONSENTEMENT

#### « Conflicts and Order : Controversies over Municipal Solid Waste Incineration in China »

##### **Qui dirige ce projet?**

Moi, Xixi Zhang. Je suis étudiante au doctorat à l'Université de Montréal au Département de sociologie. Mon directeur de recherche est Pierre Hamel, professeur au Département de sociologie lui aussi.

##### **Décrivez-moi ce projet**

Mon projet a pour but de mieux comprendre comment les acteurs différents interagissent autour l'incinération en Chine. Pour ce faire, je compte rencontrer dizaines de personnes ayant participé à des controverses comme vous.

##### **Si je participe, qu'est-ce que j'aurai à faire?**

Vous aurez à participer à une entrevue avec moi durant laquelle je vous poserai dizaine questions sur le processus (y compris vos discours et pratiques) de votre participation (ou participations) à des activités liées à l'incinération. L'entrevue devrait durer environ 60 minutes et avec votre permission, je l'enregistrerai sur téléphone portable afin de pouvoir ensuite transcrire ce que vous m'aurez dit sans rien oublier. Si vous préférez que je ne vous enregistre pas, je pourrai simplement prendre des notes.

##### **Y a-t-il des risques ou des avantages à participer à cette recherche?**

Il n'y a aucun risque à répondre à mes questions. Cependant, il se peut que votre expérience désagréables sur l'incinération. Si vous le souhaitez, vous pouvez simplement décider de ne pas répondre à ces questions et même mettre fin à l'entrevue.

Vous ne serez pas payé pour votre participation et vous n'en retirerez aucun avantage personnel. Votre participation pourrait cependant nous aider à mieux comprendre comment les activistes communautaires pensent de l'installation des grands projets en Chine.

##### **Que ferez-vous avec mes réponses?**

Je vais analyser l'ensemble des réponses que tous les participants m'auront données afin d'essayer de voir s'il y a des façons et stratégies précises qui utilisées par développer des controverses autour l'incinération. Les résultats feront partie de ma thèse de doctorat.

##### **Est-ce que mes données personnelles seront protégées?**

Oui! Aucune information permettant de vous identifier d'une façon ou d'une autre ne sera publiée. De plus, les renseignements recueillis seront conservés de manière confidentielle. Les enregistrements et les transcriptions seront gardés dans mon bureau à l'Université de Montréal et seuls mon directeur de recherche et moi-même en prendront connaissance. Les enregistrements et toute information permettant de vous identifier seront détruits 7 ans après la fin de mon projet. Ensuite, je ne conserverai que les réponses transcrites, mais sans aucune information concernant les personnes qui me les auront données.

Les résultats généraux de mon projet pourraient être utilisés dans des publications ou des communications, mais toujours de façon anonyme, c'est-à-dire sans jamais nommer ou identifier les participants.

**Est-ce que je suis obligé de répondre à toutes les questions et d'aller jusqu'au bout?**

Non! Vous pouvez décider de ne pas répondre à une ou plusieurs questions. Vous pouvez aussi à tout moment décider que vous ne voulez plus participer à l'entrevue et que vous abandonnez le projet. Dans ce cas, vous pourrez même me demander de ne pas utiliser vos réponses pour ma recherche et de les détruire. Cependant, une fois que le processus de publication des données sera mis en route, je ne pourrai pas détruire les analyses et les résultats portant sur vos réponses, mais aucune information permettant de vous identifier ne sera publiée.

**À qui puis-je parler si j'ai des questions durant l'étude?**

Pour toute question, vous pouvez me contacter au numéro suivant +86-18615327391 ou à l'adresse suivante [xixi.zhang@umontreal.ca](mailto:xixi.zhang@umontreal.ca). Plusieurs ressources sont à votre disposition.

Ce projet a été approuvé par le Comité d'éthique de la recherche en arts et en sciences de l'Université de Montréal. Pour toute préoccupation sur vos droits ou sur les responsabilités des chercheurs concernant votre participation à ce projet, vous pouvez contacter le comité par téléphone au 514 343-7338 ou par courriel l'adresse [ceras@umontreal.ca](mailto:ceras@umontreal.ca) ou encore consulter le site Web : <http://recherche.umontreal.ca/participants>.

Si vous avez des plaintes concernant votre participation à cette recherche, vous pouvez communiquer avec l'ombudsman (c'est un « protecteur des citoyens ») de l'Université de Montréal, au numéro de téléphone 514-343-2100 ou à l'adresse courriel [ombudsman@umontreal.ca](mailto:ombudsman@umontreal.ca) (**l'ombudsman accepte les appels à frais virés**).

**Comment puis-je donner mon accord pour participer à l'étude ?**

Veillez lire la déclaration du participant. Si vous êtes d'accords avec la participation, mettez une croix dans le carré de OUI. Pour préserver votre confidentialité, vous n'êtes pas obligés de signer le formulaire. Tous les renseignements identificatoires seront remplacés par un code. Je vous laisserai une copie du formulaire que vous pourrez conserver afin de vous y référer au besoin.

**CONSENTEMENT**

**Déclaration du participant**

- Je comprends que je peux prendre mon temps pour réfléchir avant de donner mon accord ou non à ma participation.
- Je peux poser des questions à l'équipe de recherche et exiger des réponses satisfaisantes.
- Je comprends qu'en participant à ce projet de recherche, je ne renonce à aucun de mes droits ni ne dégage les chercheurs de leurs responsabilités.
- J'ai pris connaissance du présent formulaire d'information et de consentement et j'accepte de participer au projet de recherche.

Je suis d'accords                      Oui                       Non

**Engagement du chercheur**

J'ai expliqué les conditions de participation au projet de recherche au participant. J'ai répondu au meilleur de ma connaissance aux questions posées et je me suis assuré de la compréhension du participant. Je m'engage, avec l'équipe de recherche, à respecter ce qui a été convenu au présent formulaire d'information et de consentement.

Signature de la chercheuse : \_\_\_\_\_ Date : \_\_\_\_\_

Nom : \_\_\_\_\_ Prénom : \_\_\_\_\_

(Chinese)



### 信息表和同意书

《冲突和秩序：中国城市固体废物焚烧争议》

- 谁负责这个项目？

我是张曦兮，蒙特利尔大学社会学系的博士生。我的导师是Pierre Hamel教授，他也在社会学系工作。

- 描述这个项目

我的项目旨在更好地了解在中国，不同行动者如何对焚烧产生不同的态度。为了完成我的研究，我打算找几十个像您一样参与过焚烧争议的人。

- 如果参加这个项目，我需要做什么？

您如果接受我的访谈，我会在大约60分钟的时间里向您询问有关您参与的有关焚烧的活动过程。访谈大约包含十余个问题。如果您同意，我会用手机记录我们访谈的过程，以方便我整理访谈内容，而不遗漏一些细节。当然，如果您不愿意，我也可以只对访谈进行书面记录。

- 参与本研究是否有任何风险或好处？

回答我的问题没有任何风险。但是，谈论争议过程可能会让您回忆起不愉快的经历。如果您愿意，您可以决定不回答这些问题或随时终止访谈。

您的参与不会获得报酬，您也不会从中受益。但是，您的参与可以帮助我们更好地了解在我国，社区如何看待大型基础设施的建设。

- 我的回答将用来做什么？

我将分析所有访谈对象给我的回答。目的是看看人们如何使用特定方式和策略展开有关焚烧的辩论。研究结果将成为我博士论文的一部分。

- 我的个人资料会受到保护吗？

是的！任何与您身份相关联的信息都不会公开。此外，我收集的信息都将保密。录音和同意书将保存在我在蒙特利尔大学的办公室，只有我的导师和我才会知道。所有和访谈相关的记录将在项目结束7年后销毁。此后，我只保留访谈记录，没有任何人会通过我的研究追溯到您。

我的研究结果会用于学术交流或公开发表。但所有内容都会进行匿名化处理，即没有人能够通过我的研究找出访谈对象。

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这个项目已经经过蒙特利尔大学科学与艺术伦理委员会的审查。  
项目编号 CERAS-2018-19-071-D

Page 1 sur 2

- 我是否必须回答完所有问题?

不! 您可以跳过某一个或几个问题。您也可以随时决定不再参与访谈并停止参与我的项目。如果是这样, 您甚至  
可以要求我不要将您的回答用于我的研究并销毁它们。但是, 一旦研究数据获得发表, 我将无法终止。但您的个人  
信息一样不会被公开。

- 如果有疑问, 我可以联系谁?

如有问题, 可以拨打 [ ] 联系我, 或通过电子邮件 [xixi.zhang@umontreal.ca](mailto:xixi.zhang@umontreal.ca) 与我联系。

这个项目已经经过蒙特利尔科学大学科学和文化研究伦理委员会的审查。有关您的权利或在您参与过程中遇到任何  
问题都可以联系 514 343-7338 或通过电子邮件 [ceras@umontreal.ca](mailto:ceras@umontreal.ca) 联系该委员会。同时, 您还可以访问以下网址:  
<http://recherche.umontreal.ca/participants>。

如果您对本研究的参与投诉, 您可以联系蒙特利尔大学监察员, 电话号码 514-343-2100 (监察员接受对方付费电话)  
或电子邮件地址 [ombudsman@umontreal.ca](mailto:ombudsman@umontreal.ca)。

- 我怎么能同意参加这项研究?

请阅读参与者的陈述。如果您同意参与, 请在表示“同意”的正方形中打钩。为了保护您的信息, 您可以口头表示  
您的同意, 也无需在表格上签字。所有涉及您个人信息的内容将被代码替换。我将给您一份表格副本以供将来参考。

#### 同意

##### 参与者声明

- 我知道, 在决定参与之前, 我有一些时间思考。
- 我可以向研究者提问, 并要求满意的答案。
- 我了解通过参与此研究项目, 我不会放弃任何我的权利, 也不会免除研究人员责任。
- 我已阅读此信息和同意书并同意参与该研究项目。

我同意:      是                       否

##### 研究员承诺

我向参与者解释了参与研究项目的条件。我尽我所能回答了他提出的问题并确保了参与者的理解。我承诺尊重在此信  
息和同意书中达成的协议。

研究者签名: \_\_\_\_\_

日期: \_\_\_\_\_

姓: \_\_\_\_\_

名: \_\_\_\_\_

## Appendix D: Letter of Introduction

(Chinese)

### 介绍信

您好！

兹有中国海洋大学法政学院毕业生张曦兮前往贵单位进行城市固体垃圾焚烧与环境政策等方面的调研。

该项目是学生的博士论文研究。旨在更好地了解不同群体对垃圾焚烧厂的不同看法。学生承诺该项目没有任何风险，所有收集的信息都只用做科学研究，并被严格保密。

请予以接洽

中国海洋大学法政学院

2018年8月12日





## Appendix E: Lists of Interviews

N°	City	Identity of interviewee	Activity	Code used in excerpts
1	A	Administrator in district government	Monitoring implementation of an incineration plant	INAGES01
2	A	Administrator in district government	Collecting and transforming municipal solid waste	INAGES02
3	A	Administrator in district government	Maintaining social stability	INAGES03
4	A	Administrator in district government	Environmental impacts	INAGES04
5	A	Administrator in municipal government	Municipal solid waste disposal	INAGES05
6	A	Manager of an incineration plant	Operation of an incineration plant	INAENT01
7	A	Employee of an incineration plant	Putting waste into incinerators	INAENT02
8	A	Employee of an incineration plant	Monitoring and controlling incinerators	INAENT03
9	A	Employee of an incineration plant	Treating leachate	INAENT04
10	A	Resident	Petition and march	INARES01
11	A	Resident	Getting compensation to relocate	INARES02
12	A	Resident	Petition and march	INARES03
13	A	Resident	Petition and march	INARES04
14	A	Independent environmentalist	Providing supports for activists	INAENV01
15	A	Researcher	Policy advocacy	INACHE01
16	A	Researcher	Providing policy consultation for municipal government	INACHE02

17	B	Administrator in municipal government	Municipal solid waste disposal	INBGES01
18	B	Employee of an incineration plant	Propaganda	INBENT01
19	B	Resident	Sit-in	INBRES01
20	B	Resident	Sit-in	INBRES02
21	B	Resident	Sit-in	INBRES03
22	B	Resident	Sit-in	INBRES04
23	B	Resident	Filing administrative litigation	INBRES05
24	B	Resident	Applying for information disclosure and administrative reconsideration	INBRES06
25	B	Environmentalism in a NGO	Following and monitoring operation status of incineration plants	INBENV01
26	B/C	Environmentalism in a NGO	Reporting illegal actions of incineration plants	INBENV02
27	B	Environmentalism in a NGO	Providing consulting services for incineration companies and local government and promoting environmental education	INBENV03
28	B	Researcher	Providing policy consultation for municipal government	INBCHE01
29	C	Administrator in municipal government	Municipal solid waste disposal	INCGES01
30	C	Employee of an incineration plant	Putting waste into incinerators	INCENT01
31	C	Resident	Open letter, applying for information disclosure, litigation	INCRES01
32	C	Resident	Open letter, online statement	INCRES02
33	C	Resident	Providing supports for offline protests	INCRES03

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34	C	Resident	Applying for information disclosure and administrative reconsideration	INCRES04
35	C	Resident	Petition, practicing sorting and recycling at home	INCRES05
36	C	Resident	Shooting pollution	INCRES06
37	C	Environmentalism in a NGO	Organizing online protests	INCENV01
38	C	Environmentalism in a NGO	Popularizing harms of incineration by providing scientific evidence	INCENV02
39	C	Independent environmentalist	Lecture tour regarding sustainable waste disposal	INCENV03
40	C	Independent environmentalist	Connecting residents with environmental NGOs, lawyers, and media	INCENV04
41	C	Researcher	Presenting benefits of waste incineration	INCCHE01
42	C	Researcher	Studying environmental risks of waste incineration and providing strategy guidance for activists	INCCHE02

## Appendix F: List of Anti-Incineration WeChat Subscription Accounts

Account code	Account name	Goals and aims	Operator	Number of anti-incineration posts	Total views of all posts	Number of views of the most popular post
AD	Anti-Dioxin	Providing information for public participation to prevent pollution from dioxins	An environmental group	17	17,278	3,659
CH	Chihu Jiayuan*	Preventing a waste incineration plant from being built	Residents in Chihu	27	71,848	11,063
CX	Chuhe Xinnong	Publishing fieldwork notes and essays on sustainable development	An independent environmentalist	19	119,192	45,017
EC	Eco Canton	Promoting waste sorting and management in Guangzhou	A local environmental NGO	12	4,497	2,449
DG	Dongxi Gushi	Working on waste-related issues	An independent environmentalist	22	23,400	3,537
FN	Friends of Nature	Building a new connection between humans and nature	An environmental NGO	21	57,582	38,013
HB	Huanan Huanjing Baodao	Protecting the environment in southern China	An environmental group	25	303,715	85,107

HQ	Huadong Huanjing Qianxian	Focusing on protecting the environment and preventing pollution	An environmental NGO	10	42,306	17,003
SK	Shenbian Kaifa Zaozhidao*	Supporting public participation and preventing pollution	A group of environmental impact assessment engineers	21	46,757	17,499
TX	Tianxia Wufen	Stopping waste incineration	An environmental NGO	256	404,218	27,089
WH	Wuhu Ecology Centre	Promoting public participation in environmental protection and sustainable waste management	A local environmental NGO	81	24,275	1,673
ZW	Zero Waste Alliance	Promoting the theory and practice of zero waste in China	An environmental NGO	46	25,409	3,673

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\* WeChat subscription accounts that have been removed from the WeChat platform.

## Appendix G. List of LDA Topics

Topic	Word1	Word2	Word3	Word4	Word5	Word6	Word7	Word8	Word9	Word10
1	中	环境	污染	企业	二噁英	生活	项目	垃圾焚烧厂	公众	会
2	中	排放	生活	环境	处理	垃圾焚烧厂	飞灰	二噁英	进行	项目
3	中	环境	垃圾焚烧厂	二噁英	排放	焚烧厂	生活	污染	项目	监测
4	项目	中	生活	污染	垃圾焚烧厂	环保	环境	问题	赤湖	焚烧厂
5	信息	公开	垃圾焚烧厂	环境	排放	企业	生活	项目	监测	焚烧厂
6	垃圾焚烧厂	污染	环境	生活	项目	中	老城	居民	飞灰	公开
7	项目	环境	污染	信息	企业	公开	中	垃圾焚烧厂	环评	生活
8	环境	垃圾焚烧厂	项目	污染	中	环保	排放	生活	二噁英	企业
9	项目	垃圾焚烧厂	焚烧厂	中	企业	生活	没有	处理	环评	环境
10	项目	垃圾焚烧厂	环境	排放	二噁英	污染	环评	问题	生活	中
11	二噁英	项目	污染	中	环境	生活	垃圾焚烧厂	处理	排放	问题
12	生活	垃圾焚烧厂	信息	监测	公开	处理	中	环境	排放	企业
13	项目	垃圾焚烧厂	中	生活	排放	飞灰	处理	环境	建设	监测
14	垃圾焚烧厂	二噁英	焚烧厂	环境	排放	环保	信息	污染	企业	项目
15	垃圾焚烧厂	生活	污染	处理	环境	中	二噁英	排放	一个	没有
16	生活	项目	环境	处理	环评	污染	老城	建设	规划	企业
17	生活	垃圾焚烧厂	环境	污染	企业	公开	焚烧厂	信息	飞灰	中
18	环境	生活	处理	中	污染	垃圾焚烧厂	会	飞灰	老城	企业

19	项目	环境	中	环评	污染	二噁英	排放	问题	生活	公开
20	中	项目	污染	环境	飞灰	垃圾焚烧厂	焚烧厂	生活	排放	处理
21	垃圾焚烧厂	生活	环境	项目	污染	中	环评	企业	公开	焚烧厂
22	垃圾焚烧厂	信息	生活	环境	公开	监测	企业	飞灰	污染	标准
23	垃圾焚烧厂	公开	企业	信息	监测	环境	二噁英	中	生活	飞灰
24	项目	垃圾焚烧厂	二噁英	污染	焚烧厂	环境	中	公开	环评	生活
25	垃圾焚烧厂	项目	生活	中	焚烧厂	环保	垃圾分类	污染	处理	没有
26	项目	中	污染	环境	生活	焚烧厂	排放	处理	垃圾焚烧厂	进行
27	中	垃圾焚烧厂	生活	项目	污染	环境	焚烧厂	环保	没有	一个
28	垃圾焚烧厂	信息	项目	公开	中	生活	监测	企业	环境	排放
29	中	生活	垃圾焚烧厂	飞灰	项目	问题	处理	污染	垃圾分类	环评
30	垃圾焚烧厂	公开	生活	中	问题	环境	污染	项目	垃圾分类	信息

## Appendix H: Coding Scheme Used in NVivo

Core task	Node	Sub-node
Identification	Technical defects	Pollution
		Inefficiency
		Unsustainability
	Unreliable companies	Information asymmetry
		Mishandling
		Wrong siting
	Irresponsible local governments	Irregular administrative processes
		Information asymmetry
		A lack of public participation
		The detrimental health effects of pollution
Demonstration	Importance	Land expropriation
		Science and fact
	Legitimacy	Laws and mainstream values
		Public interest
		Successful experiences
	Feasibility	Action toolkits
		De-politicisation
Resolution	Suggestions for companies	Technology upgrades
		Information openness
		Standardised operations
	Suggestions for local governments	Responsible siting
		Public participation
		Sorting and recycling
	Other suggestions	Economic compensation
		Cancelling subsidies



## Appendix I: Analysis Results of Consensus Mobilization

Core task	Node	Sub-node	Files	References
Identification	Technical defects	Pollution	321	453
		Inefficiency	35	89
		Unsustainability	95	187
	Unreliable companies	Information asymmetry	58	97
		Mishandling	157	412
	Irresponsible local governments	Unreasonable siting	133	422
		Irregular administrative processes	68	97
		Information asymmetry	89	176
		A lack of public participation	59	87
	Demonstration	Importance	The health effects of pollution	380
Land expropriation			215	476
Legitimacy		Science and fact	286	452
		Laws and mainstream value	289	374
		Public interest	107	264
Feasibility		Successful experiences	77	105
		Action toolkits	49	83
De-politicisation	De-politicisation	82	93	
Resolution	Suggestions for companies	Technology upgrades	14	33
		Information openness	35	61
		Standardised operations	41	72
	Suggestions for local governments	Siting with prudence	36	47
		Public participation	40	71
		Sorting and recycling	107	243
	Other suggestions	Economic compensation	10	14
		Cancelling subsidies	41	67