



Public acceptance of waste incineration power plants in China: Comparative case studies



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ARTICLE INFO

Article history:

Available online 22 January 2015

Keywords:

NIMBY

Public acceptance

China

Siting of waste facilities

Comparative case study

ABSTRACT

The exercise of siting environmentally stigmatized infrastructure projects, like waste incineration power plants, albeit socially desirable, is full of challenges partially due to local opposition. The strategies for enhancing public acceptance are therefore critical to building waste incineration projects. This study aims to investigate public attitudes towards waste incineration projects in China and to make recommendations for enhancing public acceptance. A comparative case study was undertaken where two waste incineration projects (i.e., one succeeded and one failed) were examined. Data were collected through questionnaire-survey, complemented by archive files and face-to-face interviews. The results show over 70% respondents, although support waste incinerators in general, hope that the project will not sit in the vicinity of their residential areas. A successful project siting strategy should take account of environmental, social and economic impacts systematically. To alleviate the environmental concern, it would be helpful to improve road conditions, adopt stringent standard of the odor emissions and monitor the power plant operation closely. The strategies used to cope with social aspect comprise effective communication between the government agency and the host community, active engagement of the public in decision-making and government's readiness for and flexibility in problem-solving. The results also indicate that a fair re-settlement plan and transparency in the implementation of the compensation plan are conducive to lessening the interest conflicts. This study contributes to the knowledge of waste incineration project management by identifying the critical strategies for managing siting problems of waste incinerators. Recommendations for increasing public acceptance are offered.

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Background

The exercise of siting environmentally stigmatized infrastructure projects (e.g., waste incinerators) in China, albeit socially desirable, is full of challenges partially due to local opposition. Although the host community has a positive attitude towards the projects, they may insist that the projects should not be in my backyard (NIMBY). Between 2008 and 2009 anti-incinerator campaigns occurred in over 30 cities in China (The Beijing News, 2010). A lack of effective steps to address local opposition is likely to cause project relocation, indefinite postponement and even cancellation (e.g., Lang & Xu, 2013; Li, Liu, & Li, 2012).

Provision of more waste incinerators however is an urgent agenda in China. Taking the municipal waste as an example, 352

million tons municipal solid waste was produced in 2010, with an annual increase rate at 8–10% (General Office of the State Council, 2012). It was estimated that cities and towns in China would dispose municipal waste 871,000 tons/day by the end of the 12th Five-Year Plan (2011–2015) with an increase of 580,000 tons/day compared to the 2010 level (General Office of the State Council, 2012). By the end of 2015, over 300 waste incinerators having a capacity of disposing 35% municipal waste will come into use (General Office of the State Council, 2012). This means nearly 200 waste incinerators will be built in the next 3 years as only 122 waste incinerators are in operation by May, 2012 (Wuhu Ecology Centre, 2013). Thus, to facilitate the provision of waste incinerators, identifying effective means to deal with NIMBY conflicts appears imperative. The objectives of this study are to investigate public attitudes towards waste incineration projects and to make recommendations for enhancing public acceptance in China.

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Literature review

NIMBY conflicts in siting waste facilities are not uncommon worldwide (e.g., Fredriksson, 2000; Magnani, 2012; Matejczyk, 2001; McCauley, 2009; Rootes, 2009; Rootes & Leonard, 2009; Shen & Yu, 1997). Dear (1992: 288) defined NIMBY as “the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighborhood”. Opponents’ concern of the environmentally stigmatized facilities includes health risks, decline in property values, community’s image and life quality because of noise, truck traffic and odor (Sandman, 1986). Bell, Gray, and Haggett (2005) indicated that while people offer environmental reasons to justify their opposition, their real concern might be personal. The basic assumptions of these concerns are that public are self-interest driven and rational and they would maximize their own interests regardless of the societal wellbeing. Following this assumption, Hong, Jung, Kim, Seo, and Koo (2012) suggested that fair compensation would be useful to lessen NIMBY syndrome.

However, researchers found that siting procedures based on monetary compensation are rarely successful (e.g., Frey, Oberholzer-Gee, & Eichenberger, 1996). This might suggest that the assumption of rationality might not be held true in reality. Frey et al. (1996) argued that it is possible that public may be in favor of hosting NIMBY facilities because of their altruistic feelings. When public spirit prevails, monetary compensation might not be the most suitable for increasing public’s acceptance as it might deprive their feeling of altruism.

Transparency in decision-making, trustworthiness of the government, public’s environmental attitudes, procedural justice and place attachments would influence host community’s attitude towards facility siting (e.g., Jenkins-Smith, Silva, Nowlin, & deLozier, 2011). Reams and Templet (1996), for example, found that public’s tolerance for environmental pollutions in general is declining. It is probably because the environmental damages are largely irreversible. Besides, Devine-Wright (2011; 2013) added that the disruption of pre-existing emotional bonds and threats to place-related identities may be a reason for opposition. Procedure justice should also be taken into account because if public participation is left out of the project at the initial stage, public confidence in government’s ability may decline (Kikuchi & Gerardo, 2009). For instance, the case study carried out by Liu and Yau (2014) in Hong Kong revealed that institutional inadequacies in the siting process and distrust in the government indeed contribute to opposition.

Alleviating the non-monetary concern is also critical to increasing public acceptance of waste incinerator. Jenkins-Smith et al. (2011) noted that familiarizing with the people and technology involved in the facility construction can reduce perceived risks and then increase public acceptance. However, this method seems

controversial as Wright (1993) found that the more people know, in terms of non-technical information, the more likely they exhibit NIMBY attitudes. Teo and Loosemore (2014) suggested that consulting with the host communities need to target opinion leaders as these core members play a critical role in the protest. Instead of addressing the monetary and non-monetary concern separately, Kikuchi and Gerardo (2009) suggested that waste management should be examined in a systematic manner through three aspects. These are: 1) technical efficiency in terms of environmental protection; 2) economic efficiency in terms of cost feasibility; and 3) social acceptability.

In China, green protests are on the rise (e.g., Gilbert, 2012). Empirical studies found that there exists a lack of public participation in the environmental decision-making despite the endorsement of public participation; two most popular methods, i.e., public meetings and questionnaire surveys, are criticized as insufficient (Li, Liu, et al., 2012). Li, Ng, & Skitmore, 2012 commented that the current level of participation in public infrastructure and construction projects is quite limited in environmental impact assessment, especially in the early stages. They attributed this problem to: 1) uneven progress in the adoption of participatory mechanisms; 2) risk of not meeting targets; and 3) lack of confidence in public competence. Tang, Tang, and Lo (2005) added another reason of a lack of transparency. Li, Liu, et al. (2012) found that a lack of institutional commitment to engaging the public in the environmental issues also leads to conflicts. Besides environment impact assessment, Tang, Wong, and Liu (2008) argued that there is a poor prospect of social impact assessment and collaborative planning in China because of the weak framework of environmental legislations. The Chinese government mainly passively responds to public demands on an ad hoc basis without a set of well-established rules (Li, Liu, et al., 2012). He, Lu, Mol, and Beckers (2012) criticized that besides poor environmental policy implementation mechanism and inadequate penalties autonomy of local governments causes failure in the implementation in China.

Learning from developed countries might be a possible means to reconcile the local conflicts. However, it should be cautious that “simply replicating the Western participatory mode would not work in Chinese practice due to its unique social, political, cultural and environmental background” (Li, Liu, et al., 2012:55). Nevertheless, along with the increased public environmental awareness, increased private concern over health and property, and more political space for public participation, it seems imperative to find effective mitigations to address conflicts in the environmental issues (Johnson, 2010; Li, Liu, et al., 2012). Hitherto, the research on strategies for increasing the public’s acceptance of waste incinerators in China remains piecemeal. This study aims to bridge this knowledge gap.

Table 1
Characteristics of two waste incineration projects.

Characteristic	Project A	Project B
Location	Jiangsu province, China	Jiangsu province, China
Project parameters	The design capacity was 600 ton/day. The overall budget was around RMB 270.50 million. Project construction started in May, 2008, with a construction-duration of 14 months.	The overall budget was about RMB 500 million. The first phase construction started in Oct, 2004, and came into operation in July, 2006. The second phase started operation in Sep, 2009.
Public attitude	Thousands of local residents occupied the plant when the factory prepared to commission the incinerator. The protest caused serious congestion on the 328-national Road.	Minor oppositions occurred in the late stage of construction, which were yet successfully settled.
Status/outcomes	The project was suspended.	The operation of the first phase project started in June, 2006, with a capacity of 1050 tons/day. The second phase has a capacity of 1 million tons/year.

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