
Effects and Drawbacks of Environmental Impact Assessment in Avoiding NIMBY

Dimin Zhu ^{1*}

¹ Hangzhou College of Commerce, Zhejiang Gongshang University, Zhejiang Province, CHINA

* Corresponding author: lenin1917@163.com

Abstract

With the development of urbanization, a number of public service facilities are needed to meet the demand of urban residents' livelihood. However, some of these facilities, such as kitchen waste treatment station and waste incineration power plant, can cause negative effects on the surrounding environment, and harm the health of the residents. Therefore, resistance and conflicts are generated during the establishment of these public facilities between the surrounding residents and local authorities. Based on several NIMBY cases (Xi'erqi kitchen waste treatment station, Taiyuan waste incineration power plant and the Keystone XL pipeline) this paper focus on the effects and relevant issues of environmental impact assessment (EIA) in avoiding "Not in my back yard" (NIMBY). Through analyzing the causes, process of environmental NIMBY conflicts and the measures taken by the local government, we found that EIA can promote the freedom of the project related information and public participation. By this way, local authority can safe guard the legal rights of citizens, maintain the justness and promote higher scientific level of planning during the construction of polluting NIMBY facilities. However, the EIA system in China is not yet mature, there still exist several issues in the practice: the low level of public participation, the low citizen confidence in government, the weak system and standards, and the technical imperfections. The drawbacks above that EIA can offer against NIMBY have attenuated greatly. In this paper, we put forward some suggestions to perfecting EIA system in avoiding NIMBY: increase government supervision over the work of information disclosure, improve the effectiveness of public participation, perfect the laws and institutions system, advance the research of the relevant technologies, and establish the demonstrating project.

Keywords: environmental impact assessment (EIA), NIMBY, kitchen waste, public participation, environmental law

Zhu D (2018) Effects and Drawbacks of Environmental Impact Assessment in Avoiding NIMBY. Ekoloji 27(106): 149-154.

INTRODUCTION

With the development of human urbanization and the continuous expansion of urban scale, urbanization is the inevitable trend of the development (Briggs 2006, Eckerd 2017, Sun et al. 2016). Urbanization is a significant sign for the human progress, and also is the inexorable trend for one country's economic society development (Eckerd 2017, Sun et al. 2016). Therefore, a great number of public service facilities are necessary to meet the needs of urban residents. However, some of these public service facilities can cause negative effects on the surrounding environment, and harm the health of the residents (Briggs 2006, Byung Moon and Chung Nam 2002, Eckerd 2017, Lee 2005). These characteristics lead to special demand to the disposal facility (Werner 1998). The different types of disposal facilities significantly affect the amount and the distribution pattern of the pollutants during waste disposal. For example, the biogas facility shows low disposal efficiency, and the environmental impact such

as acidification and photochemical pollution mainly happen in the application of fertilizer in the field (Schreurs 2000, Steel 2000, Tian and Chen 2015, Walker 2014, Wedeman 2016). Thus the biogas facility is more appropriate in rural area than in urban area. The landfilling mainly emits HCl, HF, and H₂S, which are distributed in a concentric ring pattern in near-surface air, and the pollutants affect the residents living closely to the landfilling. As to the landfilling, the impact area is mainly affected by the amount of pollutants not by the climate. Since these facilities can cause damage to the interests of nearby residents, resistance and conflicts are generated during the establishment of these public facilities between the surrounding residents and local authorities, even violence (Matthews 2001, Meyer et al. 2006, Moore 2012, Pitt 2012). As a consequence, some redundant construction programs have been suspended or canceled. "Not in my back yard" (NIMBY) is a product of conflicts of rapid urbanization and awakening public awareness of the rights between.

According to the research of Vittes (Abramovay 2007), NIMBY, which is based on environmentalism, is a confrontational stance towards building NIMBY facilities. Vittes thought that it was the value of the environment that NIMBY took as the main criteria to determine whether the facilities should be build, rather than the knowledge of technology or economy and so on. So the public can be subjective or irrational in NIMBY cases. NIMBY has distinct characteristics of the times. NIMBY has already appeared in several Cities, such as Beijing, Shanghai, Xianmen and Hangzhou, during the plan or construction of polluted facilities, and most of the facilities were suspended or canceled (Li and Liu 2014, Lim 2008, Lin et al. 2014, Liu et al. 2017, Liu and Liu 2014). Although NIMBY can reflect the progress of society in many ways, but its destructive force of urban construction and development of normal is obvious, can impact on the social stability and economic development of China seriously (He et al. 2017, Hirsh and Sovacool 2013, Hubbard 2006, Junseopshim 2008).

From the non, many scholars in China start to research the causes of NIMBY from different angles, such as economic, political, social ethics and the perspective of administrative law. Many researchers thought that the low level of public participation, the low citizen confidence in government, the weak system and standards, and the technical imperfections should be responsible for the low effects of EIA in avoiding NIMBY (Carter-Boone 2000, Chen et al. 2016, Chokshi 2012, DeVerteuil 2013, Devine-Wright 2013, Dlouhy 2015, Do-Hee 2005).

Based on the causes of NIMBY from different angles, this paper aims at expliciting the role of the environmental impact assessment (EIA) and its drawbacks in avoiding NIMBY. We would like to offer new perspectives to the local authority and make some suggestions so that EIA can be more effective in avoiding NIMBY.

CASES ANALYSIS

Case One

The Beijing government plan to build a kitchen waste treatment station named Xi'erqiat the junction of the northeast of Haidian district and Changping district in Beijing. The project was planned to locate in the residential area. There were more than 100,000 citizens living in the surrounding. The scale of the treatment station was planned to be 200 t/d, and cover 19947.2 m² areas. The project aimed at dealing with kitchen waste, reducing secondary pollution of the kitchen

waste, and processing the used cooking oil. As planned, the treatment station would adopt the thermophilic aerobic fermentation to degrade the kitchen Waste. To achieve the waste reduction and the waste resource utilization, the treatment station was necessary for Haidian district in Beijing. At the same time, the treatment station was the powerful guarantee to the restaurants safety and the harmless of the rubbish. However, the treatment station was so close to the residential areas, that many citizens resist this project. Therefore, because of concerns about the pollution impact on the environment caused by the project, the damaging to people's health, the decline of the real estate values, the citizens push together to organize themselves in the protest and boycott for 9 months. Until the authorities changed the decisions, and relocated the kitchen waste treatment station in other place.

Case Two

Taiyuan city, the provincial capital of Shanxi in China, is the political, economic and cultural centre of the whole province, and is a city of more than 4 million people. In order to release the pressure of the treatment of the growing household waste, the government of the Taiyuan city plan to build a waste incineration power plant in the city industrial park. Although the waste incineration power plant was planned to locate far away from the densely populated areas, there were several towns and villages, 5 km from the waste incineration power plant, and there even has some primary schools nearby. The waste incineration power plant would adopt the mechanical reciprocating grate incinerator to treat the waste. The scale of the waste incineration power plant was planned to be 1800 t/d, and expected power generating capacity was 1.8 billion kw/h per year. According to the EIA, the project would influence the surrounding environment, damage people's health, decline the real estate values, during the construction and operation of the waste incineration power plant. At the time of its construction, the dust would be the main pollutants to the surrounding areas. Whereas at the time of its operation, the wastewater, exhaust, and the solid waste from the waste incineration power plant would be related to the environmental damage. Especially, impact of polychlorinated dibenzo p-dioxins and dibenzofurans (PCDD/Fs) emissions from the waste incineration power plant on surrounding environment and health risk has been a topic of wide concern. However, unlike Case One, after the proper communicate and treatment, the waste incineration power plant finally set up.

Case Three

The Keystone XL pipeline, which was invested by the Trans Canada Corp, is a hot issue in the circle of the environmental pollutions in recent years in North America. The Trans Canada Corp hoped to begin the Keystone XL pipeline program as early as 2008, and the program was rejected by the Obama administration. The Keystone XL pipeline was planned to stretch across the porous frontier from Canada to America, and by this way, the Trans Canada Corp could transport the oil sand from the Alberta Province in Canada to the petroleum refining plant located in the US Gulf Coast. Once the infrastructure for the project was set up completely, the delivery of the petroleum crude from Canada to the USA could be effective scheme to realize. At the meantime, the Keystone XL pipeline was planned to solve the employment problem of 9000 people for the USA government, and could send the USA crude prices lower through imported less crude from the Middle East. Although the Trans Canada Corp insisted that this program was in favour of the economic development of the two countries, it could pose potential harm to the environment. Thousands of people push together to organize themselves in the protest and boycott the Keystone XL pipeline program in front of the White House. The opponents of the program questioned the program, especially from an environmental point of view. They thought the program would consume the bulk of the energy and water during the production process of the oil sand. Many experts argued that this program would be far more polluting and emit more greenhouse gases than the conventional oil production. Meanwhile, the pipeline of the program in the plan would pass through the nature reserves and the drinking water sources, there would be severely ecosystem pollution damages once the oil in the transferring pipeline leaked. The leakage of the oil pipeline can cause heavy metals (such as Pb, Cu, Zn and so on) and organic pollutions. Therefore the Obama administration rejected the pipeline program for the reason that it would ill accords with the interests of the USA. However, the Trump administration launched the project in 2017 in order to solve the employment problem for the government and promote the economic prosperity of the USA.

THE EFFECTS AND DRAWBACKS OF EIA IN AVOIDING NIMBY

Environmental pollution is increasingly serious nowadays, the world is paying more and more attention to environmental problems. Thus, how to effectively avoid the adverse effects of human activities on the

environment has become a key problem to be solved. Therefore, the EIA system appears. The legal environmental impact assessment system can minimize the negative impact of the law on the environment. The environmental impact assessment systems started relatively late in China, when compared to some developed countries, and there is some were missing in the theory and practice operation. There are several problems existing in China's environmental impact assessment of the legal system. The legal system of China is not perfect and the legal responsibility. Actually appear the main cause of the above phenomenon is that: i) the lack of legislation and legislative experience level; ii) the relative low the legal consciousness of citizens; iii) expansion interests of the local departments; iv) the low supervision of the government impact assessment system. The judicial review can guarantee the law of the EIA (Walker 2014, Tian and Chen 2015, Steel 2000). As we all know, the United States is a country attached great importance to judicial review, and its environmental impact assessment can be successful mostly thanks to its complete system of judicial review, and caused a huge influence in the world, Germany, South Korea has developed environmental impact assessment are justice review mechanism, Chinese Hong Kong and Chinese Taiwan also take advantage of the environmental impact assessment to makes provision for judicial review, and has achieved significant results (Lee et al. 2008, He et al. 2017, Li and Liu 2014). In China in this field is still blank, the judiciary failed to play any role in the environmental impact assessment work, it is important drawbacks of the system design, it is also therefore leads to environmental impact assessment approval is entirely internal oversight under, arbitrary exercise of the administrative power, so that the advantages of environmental impact assessment system cannot effectively play, which led to investigate the environmental impact assessment study paper on the subject of judicial review system.

Public participation is an important part of the EIA work, the project side, a two-way exchange of EIA units and departments in charge of environmental protection among the masses. It is a two-way communication of the construction unit -- environmental impact assessment units and environmental protection departments among the masses. However, the development of public participation in environmental impact assessment is limited to small range of stage. Many people do not want to participate in the initiative and enthusiasm is not high. The environmental

protection awareness of the public needs to be improved: as the environmental values are not mature enough, the awareness of the environmental problem is not so high and the will of the masses to take environmental protection measures is not strong. Besides, most of the project information open late and not fully (lack of comprehensive and representative), and the number of the public participation is insufficient. The way of the public participation is too singleness: the questionnaire contents of the public participation is flawed; statistical analysis of the results of the survey methods are too simple, which need to be improved; related departments did not attach enough importance to the results of the survey, and the response to public opinion is over indifference.

IMPLICATIONS AND RECOMMENDATIONS EIA IN AVOIDING NIMBY

In order to improve the environmental impact assessment system in China, the author thinks the followings are needed. First, further improve the legal system. Not only from the concept of strict attention to the protection of the environment, but also with the relevant laws and regulations and suggestions for perfecting the legal system of environmental impact assessment on second. And enlarge the application object and scope, especially the expansion of the scope of strategic EIA. Third, enrich and improve the public participation mechanism. The mechanism into the whole process of environmental impact assessment, in order to make the EIA can play the greatest function. Fourth, put the EIA agencies neutral position in the market. When there is interests conflict between the economy, and the environment, the EIA system must ensure its stability. Fifth, improve the relevant legal liability and remedial measures. China should also establish as soon as possible the environmental impact assessment system of judicial review on the agenda, pay attention to the role of the judiciary, the executive authority of the judicial power for effective supervision, will combine justice and law enforcement, security impaired rights of public participation in the environmental impact assessment to ensure that the environmental impact assessment of the legality of the decision of administrative examination and approval, science. Protection of the environment from destruction. In order to improve the law of the environmental impact assessment system, the following four principles are needed. The first one is the principle of exhaustion of remedies. The interested party must exhaust remedies before the court are quest for a judicial review of the Environmental Impact Assessment. The

second is the principle of balance of interests, the interests of the judiciary in the review and the socio-economic benefits of ecological civilization should be a balanced measure. Third, a comprehensive review of the principles. Simple entity review still cannot guarantee that no abuse of administrative power, substantive examination and review procedures combine to effectively prevent the executive discretion unlimited expansion. Fourth, the authorities must prohibit the abuse of rights. It requires not only the rights of interested parties caution litigation, to avoid abuse, but also requires the judiciary to the rights of caution, to avoid excessive interference by the executive.

Effective public participation can protect the public interest from damage and improve the scientific and rationality of decision-making in the process of planning and construction of polluting NIMBY facilities. Therefore, it is very important to scientifically and accurately measure the effectiveness of public participation in the planning and construction of polluting NIMBY facilities and how to design public participation mechanism and improve the effectiveness of public participation. The author thinks that the measures and methods to improve the effectiveness of public participation are as follows: i) improve the relevant laws and regulations of public participation, and strengthen its legal status; ii) encourage early and full participation of the public participation; iii) improve the environmental information disclosure system of the construction project; iv) improve the form and content of the public participation; vi) improve the method of statistical analysis of the Public opinion; improve the transparency of public survey results and the relevant departments should pay more attention to public opinion.

As a cross-science, EIA is very complex both in its coverage and on research techniques. The coverage of EIA is related to all research fields and subjects. Including qualitative and quantitative analysis, the research methods of EIA varied greatly. To treat with different requirements of a project, an EIA system must employ various professionals. Even so, it can't satisfy some special requirements of a special project. So, it is necessary to develop an EIA expert system that acquires all knowledge including EIA procedure, methods, environmental standards, general knowledge of environment protect and special knowledge for different fields. With such EIA expert system, we can quickly and more accurately assess the environment impacts of a project.

CONCLUSION

The author hopes this paper can help the environmental protection department to perfect the system of the environmental impact assessment of China and improve the quality and effectiveness of public participation. We expect the government pay more attention to public participation in environmental impact assessment work, and improve the public's environmental awareness, let more people to participate in the work of environmental protection: strengthen environmental protection publicity and the Environmental knowledge popularization efforts; accelerate the construction of environmental legal system, increase the intensity of public participation; promote the development of social and environmental

groups, encouraging the participation of the whole society to the environmental protection work; Strengthening environmental education and change the traditional way of environmental education to make the environmental education is more interesting and more convenient. Only we develop the economy in environmental protection protection and realize the sustainable development tactic, can we gain the harmonious development among economy, environment and society.

ACKNOWLEDGEMENT

The project was supported by National Social Science Fund (NO. 15FFX018).

REFERENCES

- Abramovay R (2007) Do NIMBY ao NOPE. *Estudos Avançados*, 21(59): 380-382. <https://doi.org/10.1590/S0103-40142007000100031>
- Briggs CM (2006) Environmental risk and problems of EU administrative governance. ed. by X. N. Zhu, *Proceedings Of 2006 International Conference on Public Administration*: 639-646.
- Byung Moon J, Chung Nam J (2002) Resolving Nimby through citizen participation -Regarding the Construction of Life Waste Incinerators. *Journal of Local Government Studis*, 14(1).
- Carter-Boone LS (2000) Controlling technocracy: Citizen rationality and the Nimby syndrome. *Policy Studies Journal*, 28(2): 449-449.
- Chen L, Zhu L, Ke P (2016) The relationship between public trust in government and citizens' attitude towards NIMBY facilities. *International Journal of Psychology*, 51: 922-922.
- Chokshi AH (2012) Nuclear riddles: TINA and NIMBY. *Current Science*, 102(8): 1096-1098.
- DeVerteuil G (2013) Where has NIMBY gone in urban social geography? *Social & Cultural Geography*, 14(6): 599-603. <https://doi.org/10.1080/14649365.2013.800224>
- Devine-Wright P (2013) Understanding NIMBYism. *International Water Power and Dam Construction*, 65(5): 38-40.
- Dlouhy M (2015) Location of Unwanted Facilities in the City of Prague. ed. by L. Sedmihradská, *Proceedings Of the 20th International Conference on Theoretical And Practical Aspects Of Public Finance 2015*, pp. 39-44.
- Do-Hee K (2005) Policy Implication in Successful Siting of NIMBY Facilities Through Resident Jury System: A Corroborative Analysis on the Buk-gu's Siting Project for Food Waste Reutilization Facility. *The Korea Association for Policy Studies*, 14(3): 261-284.
- Eckerd A (2017) Citizen Language and Administrative Response: Participation in Environmental Impact Assessment. *Administration & Society*, 49(3): 348-373. <https://doi.org/10.1177/0095399714548272>
- He J, Zhang Q, Cai N (2017) The Study on NIMBY of Garbage Incineration under "Five Water Governance"-Based on Zhejiang Province. In *Proceedings Of the 2017 7th International Conference on Social Network, Communication And Education*, ed. by N. Xin, K. ElHami and Z. Kun, 2017), pp. 763-766.
- Hirsh RF, Sovacool BK (2013) Wind Turbines and Invisible Technology Unarticulated Reasons for Local Opposition to Wind Energy. *Technology and Culture*, 54(4): 705-734. <https://doi.org/10.1353/tech.2013.0131>
- Hubbard P (2006) NIMBY by another name? A reply to Wolsink. *Transactions of the Institute Of British Geographers*, 31(1): 92-94. <https://doi.org/10.1111/j.1475-5661.2006.00190.x>
- Junseopshim (2008) Understanding NIMBY Conflicts. *Korean Public Management Review*, 22(4): 73-97. <https://doi.org/10.24210/kapm.2008.22.4.004>
- Lee M-C (2005) An Institutional Analysis of Policy Conflict: Focusing on NIMBY cases. *The Korea Association for Policy Studies*, 14(1): 71-96.
- Lee M-H, Kwon H-I, Lee J-H, Lee M-R (2008) Causal Loop Diagramming and Stock-Flow Modeling of Location Conflict on NIMBY Facilities: Centered on Crematory Facilities. *Korea Planners Association*, 43(2): 207-224.

- Li Z, Liu Z (2014) Studies on Reasons and Prevention Strategies for Conflicts Caused by “NIMBY”. ed. by X. Zhu and S. Zhao, Proceedings Of 2014 International Conference on Public Administration, pp. 899-903.
- Lim JH (2008) The Empirical Study of the NIMBY Facility-related Disputes and Its Characteristics. *The Journal of Political Science & Communication*, 11(1): 1-23.
- Lin L-K, Zhou Y-R, Lin J-W (2014) The Construction Protest Management Study With NIMBY Conflict. In *Applied Science and Precision Engineering Innovation, Pts 1 And 2*, ed. by C. H. Liu, 2014), pp. 1128.
- Liu F, Liu Z (2014) The Strategies for I Demand Expression Mechanism in NIMBY Conflict Management. ed. by X. Zhu and S. Zhao, Proceedings Of 2014 International Conference on Public Administration, pp. 1078-1083.
- Liu X, Yang F, Chen R (2017) Economic Losses Evaluation of Assets Caused by NIMBY Facilities: A Case Study of Nanjing. In *2017 5th International Conference on Physical Education and Society Management*, ed. by H. Zhang, 2017), pp. 350-355.
- Matthews SA (2001) Homelessness, AIDS and stigmatization: the NIMBY syndrome in the United States at the end of the twentieth century. *Progress in Human Geography*, 25(3): 513-514. <https://doi.org/10.1177/030913250102500330>
- Meyer E, Shaw S, Dweck J, Sparling S (2006) Criteria regs reduce NIMBY safety fears. *Oil & Gas Journal*, 104(34): 18.
- Moore S (2012) Renewable Energy and the Public: From NIMBY to Participation. *Review of Policy Research*, 29(3): 440-442. https://doi.org/10.1111/j.1541-1338.2012.00568_2.x
- Pitt D (2012) Renewable Energy and the Public: From NIMBY to Participation. *Journal of Planning Education And Research*, 32(2): 247-249. <https://doi.org/10.1177/0739456X11431873>
- Schreurs MA (2000) NIMBY politics in Japan: Energy siting and the management of environmental conflict. *Journal of Japanese Studies*, 26(1): 274-279. <https://doi.org/10.2307/133424>
- Steel BS (2000) Controlling technocracy: Citizen rationality and the NIMBY syndrome. *American Political Science Review*, 94(4): 952-952. <https://doi.org/10.2307/2586248>
- Sun L, Yung EHK, Chan EHW, Zhu D (2016) Issues of NIMBY conflict management from the perspective of stakeholders: A case study in Shanghai. *Habitat International*, 53: 133-141. <https://doi.org/10.1016/j.habitatint.2015.11.013>
- Tian P, Chen SJ (2015) Discussion on NIMBY Phenomena and Governance Strategies. In *Proceedings Of the 2015 International Conference on Social Science, Education Management And Sports Education*, ed. by L. Chen, 2015), pp. 954-956. <https://doi.org/10.2991/ssemse-15.2015.244>
- Vittes ME, Pollock III PH, Lilie SA (1993) Factors contributing to NIMBY attitudes. *Waste Management*, 13(2): 125-129. [https://doi.org/10.1016/0956-053X\(93\)90004-G](https://doi.org/10.1016/0956-053X(93)90004-G)
- Walker MJ (2014) Worth the Effort? NIMBY Public Comments Offer Little Value Added. *Public Administration Review*, 74(5): 629-629. <https://doi.org/10.1111/puar.12262>
- Wedeman A (2016) Not in My Backyard Middle Class Protests in Contemporary China. ed. by L. L. Marsh and H. Li. Vol. 78, *Middle Class In Emerging Societies: Consumers, Lifestyles And Markets*: 200-222.
- Werner JG (1998) NIMBY: Is there room in paradise for public housing? *Urban Lawyer*, 30(2): 477-490.