Research on Waste Incineration BOT Projects

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Abstract. With acceleration of urbanization, BOT project on waste incineration in China has been developing rapidly in recent years. Starting from present situation of waste disposal, and combining generating electricity through refuse incineration in a city, this paper analyzes content and characteristics of social risk assessment on waste incineration project and further draws the frame of social risk assessment on waste incineration BOT project. Accordingly, put forward risk response suggestions on generating electricity project through refuse incineration of urban solid waste.

Introduction

Background of social assessment research

With the urbanization level continuing to promote, social structure in China has changed a lot and there are many problems arising, such as polarization between the rich and the poor, urban unemployment, transfer of rural labor, floating population, value outlook change, etc. especially the growing seriousness of environmental pollution problem, as well as urban and rural areas besieged by waste need to be solved immediately. Since 2004, urban waste output in China has ranked 1st in the world. The growth rate of household refuse in many cities has been exceeding GDP growth rate. Meanwhile, refuse disposal is becoming an increasingly difficult problem. From the view of refuse disposal method, 70% municipal solid waste in China adopts the mode of landfill and waste landfill occupies a lot of land. At present, there are nearly 200 cities in our country has no suitable ground for waste landfill, which affects normal life of urban citizens. [1] This research advocates the use of waste incineration equipment and a power-generation mode fueled by waste incineration. At present, urban household refuse in Singapore has reached up to 100%, Japan has reached to 90%. There are about 35 countries and regions building and running household waste incineration power plant for waste burning. [2]

However, some issues restrict garbage incineration power generation BOT project in China such as technical sophistication of garbage incineration power generation, insufficient argument, incomplete special operating agreement, imperfection of BOT legislation, lack of consideration for social influence as well as lack of actual operating experience, etc. [3] The development concept is also changing, which transfers from single economic development to social development and then sustainable development. Consequently, the measuring index changes too. Accordingly, it comes up with new requirements to BOT project Assessment, that is, social assessment must be introduced in construction of garbage incineration power plant.
Social evaluation refers to a method and means to integrate social analysis and public participation into design and implement of development projects. The features of BOT waste incineration social risk Assessment as follows:

1. **Focusing on rural involuntary migrant**
   Urban household refuse adopt dispose method of burning, and its disposal sites (waste incineration power plant) are generally located in suburb areas or nearby rural area to avoid collected and scattered stack of garbage in the same place to cause harmful effect to neighboring citizens and their health in physiology and psychology. So it is necessary to collect land owned by rural economy collective organization and to demolish rural houses.

2. **Identification of downside risk of project**
   Waste incineration, which attracts high social attention and gains wide influence surface, is closely related to welfare of local public people. In city system, every city-dweller will produce refuse and they all wish this garbage can be disposed timely, effectively and harmlessly. Urban population featuring high cultural quality, high environmental awareness, and relatively strong health consciousness and they are good at maintaining and striving for their rights and interests by utilization of all kinds of approaches such as legal means, system and media.

3. **Assessment of government public functions**
   Social assessment should focus on system, rule and behavior; analyze system, rule and behavior that related to projects, including social organizational forms, social relations of different populations and the influence that may exerted by rules and behaviors of these institutions on project objectives. Through analysis of social risk assessment, obstacles in institution mechanism that influence projects can be found and the impact that may play function in project design, implementation and operation management, set forth suggestions in terms of overcome these obstacles and establish new rules, systems and behaviors.

**Social Evaluation Mechanism**

1. **Development and implement of relocation for settles program**
   The waste incineration project generally involves the confiscation of collectively-owned lands in the villages. The program development should be based on the social risk analysis and social economic investigation which includes index in kind investigation and the social economic situation investigation on those involuntary relocated families. Based on a comprehensive and careful investigation, organize the stakeholders to participate in the negotiation activities about the relocation compensation policy and program. The program made should confirm to the related laws and policies of state-level local government, and simultaneously should avoid or minimize the reduced quantity of confiscation of lands, houses and the relocated families. If the relocated household is involuntary, the minimum goals should be restoring the production level and living standard before relocation, and benefit from the program retested extend.

2. **Formulation of social management program**
   The social management program includes program of interest strengthening, program of retarding the negative impacts, program of stakeholders’ attendance. By the means of formulating a social management program, put forward the concrete measures and program on avoiding and easing the social risks. We should adopt active, encouraging and reinforced measures to prompt the program’s positive effects, expand and develop the continuous impact of the positive effects as much as
possible. Reduce the negative effects as few as possible through optimizing the program. Make a appropriate arrangement in terms of policy, institution, fund and personnel to reduce and ease the negative influences and control the social risks. The stakeholders should know exactly the relationships of different stakeholders and focus on the major stakeholders and the social factors which affect the major stakeholders, and propose the appropriate form and methods on participating in the planning, design, implement, monitoring and evaluation of the program.

3. Adopting multiple methods

The social risk evaluation will adopt method of social investigations first which is divided into direct investigation method and indirect investigation method. The direct investigation methods include interviewing the related experts (such as environmental experts, designers) and the affected groups, convening a symposium and investigating and understanding the local social information.

Table 1 Logical frame matrix

<table>
<thead>
<tr>
<th>Level</th>
<th>Objective indicators</th>
<th>Validation indicators</th>
<th>Validation method</th>
<th>External factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targets/Impact</td>
<td>Target indicator</td>
<td>Monitoring</td>
<td>The main factors for target realization</td>
<td></td>
</tr>
<tr>
<td>Goals/ Roles</td>
<td>Goal indicator</td>
<td>Monitoring</td>
<td>The main factors for goal realization</td>
<td></td>
</tr>
<tr>
<td>Yield/Results</td>
<td>Quantitative indicator of yield</td>
<td>Monitoring</td>
<td>The main factors for yield realization</td>
<td></td>
</tr>
<tr>
<td>Input/Measure</td>
<td>Quantitative indicator of input</td>
<td>Monitoring</td>
<td>The main factors for input implementation</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

Owing to the particularity of BOT project of waste incineration, its social evaluation is very significant. With acceleration of urbanization in our country, the planning in some cities lags which leading to the fact that some planned project sites are surrounded by the rapidly expanding cities quickly and are strongly opposed and boycotted by those surrounding residents or even cause social risk. Therefore, the social evaluation on this type of project should first concern whether the project construction is in line with planning, whether the environmental laws and regulations and relative standard are strictly enforced, whether project information and process of planning decision making are open and transparent, whether the communication and negotiation of the government with local residents are enough, whether the affected groups can equally participate in the decision making and monitoring of project. At present, the extensively adopted hearing system and soliciting public opinions during city development planning system has started to reflect the thought of city construction respecting public opinions and public decision making. Only focusing on the public participation and establishing democratic and scientific decision-making platform and monitoring mechanism can we avoid or retard the potential social risk existing during the project construction and operation. The social evaluation should also focus on whether the price adjustment caused by project construction takes full account of the group’s willingness-to-pay and ability to pay, whether there are corresponding supporting measures reducing their economic pressures in order to prevent their actual benefits from damaging. The environment negative external effect of waste incineration project is relatively obvious, objectively. It is required that the enterprises should have basic sense of social responsibility. As far as the large aspects concerned, sense of social responsibility of
enterprises shows that the enterprises can regard social services and environmental protection as primary responsibility consistently during operation, not go for profit only, and be able to properly hand the relationships of enterprise profitability, environmental protection and benefit of the masses in order to strive for harmonious development of enterprise and society.

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References