

Guidelines for community-based MSW management planning in Beijing city china

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1. Introduction

Beijing, the capital city of China, is located in the northern part of the North China Plain. The population of the city was 19.61 million at the end of 2010(City of Beijing, 2010), including 12.57 million permanent residents and 7.04 million migrant population.

The waste-management system in the city, which consists of eight urban districts, is full of complexities. Over 90% of the waste is buried in landfills. There are 28 waste-management facilities located in the districts, including 17 landfills, 2 composting and 3 incinerators. All the waste generated in urban districts is disposed of by the facilities located in suburb districts. All of the 10 suburb districts have their own waste treatment facilities. Over the past three decades, MSW generation in Beijing City has increased tremendously from 1.04 million tons in 1978 to 4.134 million tons in 2006. It is forecast that the waste generation in the city in 2012 will reach 9.14 million tons (25 thousand tons/day) and in 2015 will reach 11.52 million tons (about 30 thousand tons/day). The facilities operate under overloaded conditions, with average overloading rate 30%. If these trends continue the amount of waste will surpass the capacity of transfer stations, treatment plants and final disposal sites. In addition the waste treatment structure is also unreasonable, over 90% of the waste go to landfill that not only waste of resource but also waste of land.

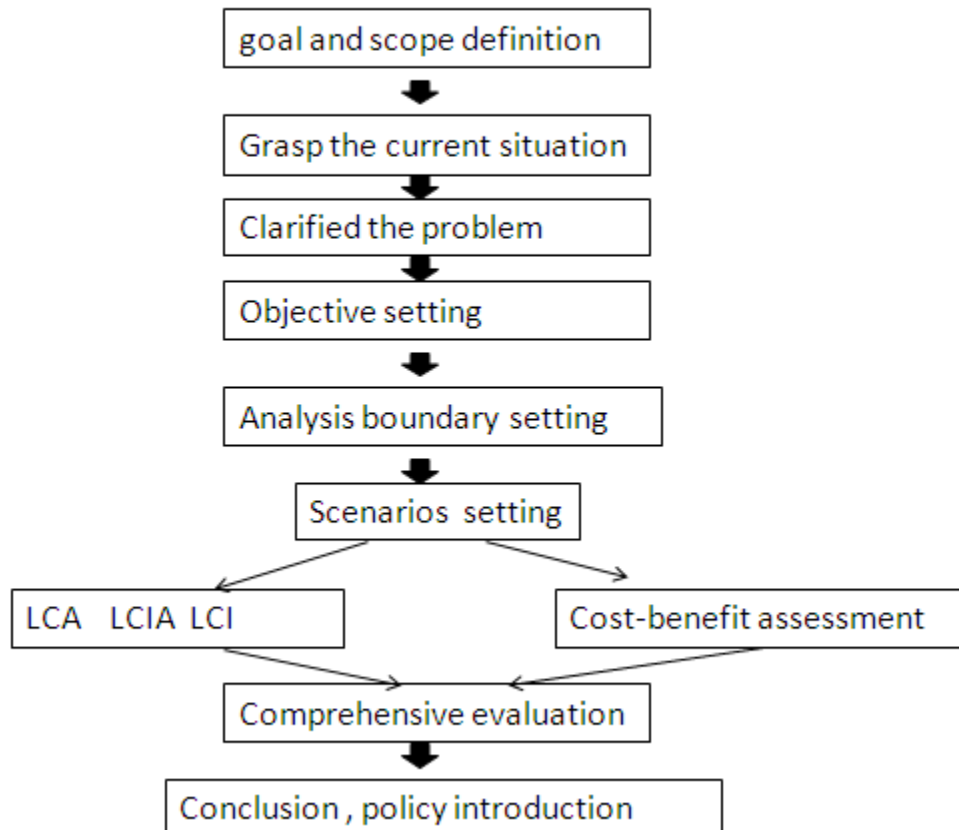
Since the Beijing Olympic, Beijing set a target to be a world, green city. However, low-carbon green waste management becomes indispensable requirement, to solve outstanding problems Beijing government published a future planning and principle for waste management, in that planning, reduction, recycling/reuse are be highlighted, 3 objectives are determined. 1. Increasing treatment capacity. 2. Adjusting treatment structure. 3. Promoting waste reduction.

In order to reach objectives, Composting fertility and incineration fertility will be improved and constructed. But due to environmental and health problems occurring in the vicinity of current waste treatment and final disposal plants, residents show strong rejection to the construction of such facilities, especially to incineration fertility. Solid waste management facilities represent long-term commitments of public resources that can dramatically alter the quality of life in a community. In order to address this urgent challenges this research proposes the introduction of an integral waste management system that includes not only technological and logistics aspects associated with waste collection, treatment and disposal but will also incorporate the local community and stakeholder participation, in the process of decision-making.

2. Methodology

Using integrated evaluation and assessment methodology including Life Cycle Assessment (LCA), Life Cycle Inventory (LCI), Life Cycle Impact Assessment (LCIA), Cost-benefit assessment, as well as social assessment tools

3. Research flow



3.1 Current situation/Gap

3.2 Government future plan study

1. Increasing treatment capacity: daily municipal solid waste treatment capacity. In 2012 will reach 17 thousand tons, almost realizing restaurant and kitchen waste separate collection and recycling treatment; daily municipal solid waste management capacity in 2015 will reach near 30 thousand tons, which meet the municipal solid waste management capacity in the city. Select the site in advance, perform the waste treatment facilities construction project and meet the sustainable development demands in the future.

2. *Adjusting treatment structure: actively carry on waste incineration, which is planned and constructed in accordance with the waste composition, generation quantity and facilities construction and planning. Waste incineration, biochemical treatment and landfill ratio in 2012 will be 2:3:5, which realizes zero landfill of crude waste in urban area; the ratio will be 4:3:3 in 2015, which meets the demand for categorized waste and realizes zero landfill of crude waste in the city.*

3. *Promoting waste reduction: establishing waste separate collection and transportation system associated with the household waste incineration and comprehensive treatment technology and control increasing of waste generation with economic, legal, administrative and technical means. Annual increasing rate of household waste generation will be reduced by 1% to 2% and reduced to 5% in 2015, and conformity rate of waste separate collection reaches about 50%; annual increasing rate of household waste generation will be 0, and conformity rate of waste separate collection reaches about 65%.*

3.3 Scenarios setting

Scenario 0: current system

Scenario a: incineration with recycle

Scenario a': incineration without recycle

Scenario b: incineration and composting with recycle

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4. Analysis

5. Social cost-benefit analysis

6. Introduction of MSW management policy

7. Future work

Date collection and calculations. Consider how to link local community and stakeholder participation into the MSW management system during the policy determination.

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