

The Current Situation And Existing Problems Of Domestic Garbage Classification In Harbin

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Keywords: Waste Separation; Environmental Protection; Incentives

Abstract: Based on the current situation of urban waste disposal in Harbin, For example, at the stages of delivery, transfer and end-of-life treatment. this paper analyzes the key issues facing the current urban waste disposal in Harbin at four levels: the formation of the waste classification life cycle, the policy basis, the participation rate of residents, and the government's incentives. It was found that the full life-cycle mechanism for waste separation failed to form, laws and regulations were inadequate, enforcement activities lacked a basis, and residents' waste separation Low participation rates, poor awareness, insufficient government incentives, and low market motivation.

1. Introduction

The report of the Nineteenth National Congress of the Communist Party of China clearly states that it is necessary to unswervingly and continuously promote the construction of an ecological civilization, promote green development, promote the rational and recycling use of resources, strengthen the disposal of solid waste and garbage, and build an environmental governance system led by the Government with the joint participation of enterprises, social organizations and the public [1]. Harbin, as one of the 46 pilot key cities for garbage sorting work, actively implements garbage sorting and recycling policies, and has successively introduced local management measures for municipal garbage sorting, but many difficulties and problems have become increasingly prominent in the process of policy implementation.

2. Current status of waste segregation in Harbin

The urbanization level in Harbin increased from 47.6% in 2010 to 49.8% in 2018, and the total population of Harbin has increased from 1.4% in 2010 to 1.4% in 2018. In 2018, it was 9,952,000 people, and the number of urban people as a percentage of the total population was 48.9%. Urbanisation has accelerated and waste production has exploded, with the total amount of waste cleared in urban areas reaching 1.95 million tonnes in 2018(As shown in Table 1)

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year	Sanitation machines	Workload completed		Cleaning area	garbage container	refuse station
	Quantity (units)	Garbage removal (10,000 tons)	Removal of manure (10,000 tons)	10,000 square metres		
2012	2172	126	20	6689	34720	912
2013	2314	131	20	7125	35220	663
2014	3011	139	18	7945	32220	511
2015	3067	143	18	8255	34220	441
2016	3116	163	16	8980	36080	407

2017	3466	168	17	9410	36235	641
2018	3496	195	17	9650	36350	680

Source: Harbin Statistical Yearbook 2012-2018 Urban road sanitation and landscaping.

In Harbin City District, during the period 2012 - 2018, the government has been increasing the number of vehicles invested in sanitation machinery each year, reaching 3,496 sanitation vehicles by 2018. There is no significant increase in the number of garbage containers, and the number of refuse stations is even decreasing, showing that the level of infrastructure for waste disposal in Harbin has not progressed much.

2.1. Deployment stage

The garbage classification data released from the Heilongjiang Provincial Department of Ecology and Environment was collated and learned that more than 260,000 residents of the demonstration area in Harbin are currently involved in household garbage classification, including 233 neighborhoods in 136 street offices in Harbin's nine urban areas, accounting for 18 percent of the city's urban households. In accordance with the requirements for the separation of household waste, Harbin has put in place a total of 10,989 collection containers for the separation of recyclable waste, hazardous waste, food waste and other waste in 233 demonstration residential areas, 183 storage points for hazardous waste, 29 sorting rooms for recyclable waste, and 62 centralized promotional stations.

2.2. Transit stage

From the data released by the Harbin Urban Management Bureau, we learned that the design daily capacity of food waste in Harbin is 300 tons, and 3,875 food waste production units have been included in the centralized collection and transportation system. Enterprises free of charge to catering units equipped with more than 6,000 special collection containers, a total of more than 40 sets of special airtight delivery vehicles, using a combination of fixed locations, fixed time and touring mobile method for 24-hour garbage collection, the actual daily treatment of food waste 200 tons, accounting for 43% of the city's total output.

The daily production of hazardous waste in the city is about 4.6 tons, and 24 hazardous waste transport vehicles are collected by special vehicles and transported to professional enterprises. Harmless disposal. Collection and transport in areas where waste segregation has been carried out is basically met.

For recyclable waste, residents can order and communicate with each other offline, and recycling companies will come to their homes to collect the waste and pay the corresponding fees. Among them, the online mini-program called "I come to collect" has extended its coverage to 200 residential areas and 30 party and government offices in the city by the end of 2019; the number of small and large recycling carts has increased to 200 and 30 respectively.

2.3. End stage

According to statistics from the Department of Ecological Environment of Heilongjiang Province, Harbin's urban areas produce about 4800 tons of garbage daily, of which about 35% is incinerated, about 4% is treated in kitchen waste treatment plants, and the rest is disposed of by landfill. The section text must be set to 12-point, justified and line space single. Recyclable waste is dismantled in six sorting centers covering an area of 100,000 square meters, with the recyclable part recycled and the remaining non-recyclable part entering the end-of-life waste disposal facilities for harmless treatment. In terms of end-of-life treatment, Harbin has completed the "Harbin Solid Waste Disposal Special Plan" and launched a series of large-scale waste treatment projects, such as the new construction of the Yuquan Waste Incineration Plant and the expansion of the Songbei Hulan Waste Incineration Plant.

Harbin's waste disposal methods have improved significantly, but compared to China's first-tier cities, such as Beijing, Shanghai and Guangzhou, the harmless treatment rate in these cities has reached 100%, and the harmless treatment rate of Harbin waste has yet to be improved. The specific data are shown in Figure 1.

For Harbin, finding a solution to the garbage siege at its source must be done through waste separation, which is a comprehensive, systematic and long-lasting battle involving all parties involved.

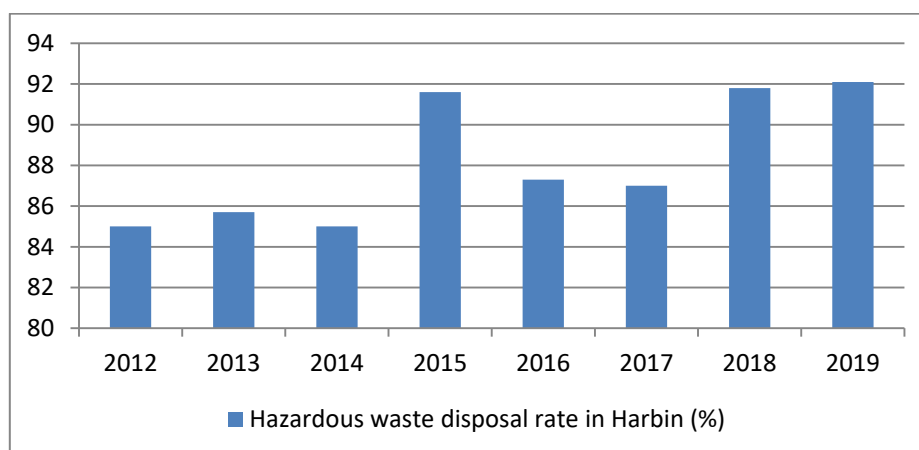


Figure 1.Waste disposal in Harbin

Source: Compiled from 2012-2019 Harbin Statistical Yearbook.

3. Problems in the promotion of waste separation in Harbin

Today, Harbin has been carrying out garbage sorting for nearly three years, but still has not made any breakthrough progress. Harbin city related promotion work is still limited to expanding publicity, pilot, centralized implementation of garbage sorting, follow-up garbage disposal or mostly mixed transport, resulting in residents doing the classification have become "useless". All in all, there are still some gaps between Harbin's waste classification and that of Shanghai, Xiamen and other cities, and there is an urgent need to find the crux of the problem, overcome the difficulties and catch up.

3.1. Failure to develop a full life-cycle mechanism for waste separation

In fact, the separation of domestic waste is a systematic, comprehensive, with a full life cycle, including not only our daily access to the separation, recycling and disposal, but also processing, recycling, utilization and other aspects. However, the current situation is that the waste separation and recycling processes are separated, and waste separation is formalized [2]. From Harbin's practice, the most important aspect for the government is the construction and operation of the garbage collection facilities. The reality, however, is that investing in valuable upfront recycling equipment, but mixing different types of waste at later transfer, results in a futile effort. Due to the lack of a full life-cycle, systematic waste separation and recycling governance mechanism, despite the investment in appropriate hardware facilities, the actual operating results are greatly reduced and disproportionate to the investment [3].

3.2. Inadequate laws and regulations

Although the 2019 Harbin Municipal Domestic Waste Classification Work Plan (Trial) was issued, the provisions on waste classification are not perfect [4]. The lack of specific provisions, the lack of specific operation methods for separate collection, transportation and disposal, the lack of a legal basis for citizens to separate and recycle waste in practice, and the widespread phenomenon of mixed transportation. Furthermore, although the Harbin Municipal Household Garbage Sorting Work Plan (Trial) provides for the implementation of a responsible person system for household garbage sorting management, the division of responsibility is unclear, and the responsible person system is only an empty shell. If laws and regulations do not effectively ensure the full separation of household waste, the incentive for citizens to participate will be greatly reduced.

3.3. Low participation rate of residents in waste separation

Citizens' concept of environmental protection and knowledge of waste separation is the software condition for promoting waste separation [5]. If only a small percentage of people participate and most don't, you end up with a mix of garbage or mixed garbage. At present, the participation rate of residents in sorting is low, the accuracy rate is low, and many pilot communities are simply sorting garbage into categories, and a lot of subsequent sorting work still needs sanitation workers and cleaning to do. This situation has become a prominent problem limiting the effectiveness of garbage sorting implementation in Harbin. On the whole, the scope of Harbin's garbage sorting publicity and education is limited to pilot communities, public institutions, and some schools, with no promotion. There is still a long way to go before a good social climate and public opinion on waste separation is formed in the entire civil society.

3.4. Insufficient government incentives and low market motivation

The construction of the whole system of garbage classification must not only rely on government investment, and the full mobilization of the enthusiasm of market subjects is also the most important thing, to form a collaborative social force of garbage classification and management, in order to achieve the ideal goal [6]. At present, Harbin enterprises play a small role in the work of garbage sorting, and the related industrial chain has not yet been formed. First of all, the number of operating enterprises in the garbage sorting market that are involved in the collection, transportation and disposal of separated garbage is very small. Secondly, corporate technology research and development needs to be further explored, including the development and manufacturing of smart recycling bins, and the development and promotion of big data technology, waste incineration treatment technology, and harmless waste resourceization technology [7]. In addition, manufacturers are not yet aware of the importance and relevance of producing recycled products, and have neglected to print information on how to separate waste, such as classification labels, material composition, and waste disposal procedures. Due to the lack of government subsidies and incentives, it is difficult for companies to act, and their power to contribute to waste separation is necessarily limited.

Conclusion

The promotion of garbage sorting in Harbin has a long way to go. Garbage classification is an ambitious project that involves both the improvement of technical level and social moral level. The promotion of garbage classification in Harbin has its own law of development, it depends on the availability of the corresponding social conditions, which is bound to experience A long process. I hope Harbin government provides some concrete direction for decision making and resolves the garbage separation problem.

Acknowledgements

This paper is supported by Philosophy and Social Scientific Research Project Foundation of Heilongjiang Province (No.18YD402);In 2017 Heilongjiang Post-doctoral Researchers' Research Initiation and Subsidy Project; Harbin Commercial University School-level Scientific Research Project (No. 17XN076); Harbin Commercial University School-level Practical Teaching Reform and Research Project (No. SJXM2018B006); Key Research Topics on Economic and Social Development of Heilongjiang Province in 2019 (Foreign Language Subject WY2019039-B) belongs to scientific research results.

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