

The Evolution of Domestic Waste Classification Policies and Their Outcome Analysis: The Case of Shanghai Municipality and Beijing Municipality

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Abstract: With the development of the times, the phenomenon of garbage surrounded by cities in China is becoming more and more serious, in 2016, China's Development and Reform Commission issued the "13th Five-Year Plan" for the construction of harmless treatment facilities for urban household garbage in China, China officially began to carry out garbage classification, Shanghai and Beijing as a pilot city in the practice of garbage classification policy is more representative and Shanghai and Beijing, as pilot cities, are more representative and typical in the practice of garbage classification policy. This paper adopts the method of content analysis to analyze the changes in the nature of China's domestic garbage classification policy and the results of Shanghai and Beijing. Suggestions are made to develop simple and easy-to-understand garbage classification standards, improve garbage classification facilities, increase publicity, develop online publicity channels, and reduce the operability of regulations.

1. Introduction

As China's economic strength continues to grow, bringing not only the improvement of the national happiness index of life, urbanization produces a large number of various kinds of living garbage caused by the phenomenon of garbage surrounded by the city, the water source and the land is polluted resulting in many residents body has a variety of health problems. Recycling is becoming ever more important as waste generation rates increase globally. Policy-makers must decide which recycling practices to implement from the host of options at their disposal to best divert waste from landfill [1]. The government is consulting on updated guidance on waste planning policy. In order to solve this problem, China's Development and Reform Commission (NDRC) released the "Thirteenth Five-Year Plan for the Construction of Harmless Treatment Facilities for Urban Living Waste" in December 2016, and China officially began to categorize garbage. In March 2017, the NDRC released the "Implementation Plan for the Living Waste Categorization System", which began the trial work of garbage categorization and selected 46 cities for the trial implementation of mandatory living waste. cities to implement mandatory classification of domestic garbage on a trial basis. In January 2018, the Ministry of Housing and Urban-Rural Development (MOHURD) issued the Notice on Accelerating the Work of Classification of Domestic Garbage in Some Key Cities, which explicitly required the 46 trial cities to plan specific work on garbage classification, and to delineate the objectives and specific

deadlines for the work. In June 2019, the MOHURD and other departments issued the Notice on Comprehensively Carrying out the Work of Classification of Domestic Garbage in Prefectural-level and Above-level Cities in the Country. Notice on Comprehensively Carrying Out the Work of Classifying Domestic Waste in Cities at the Prefectural Level and Above Across the Country", requiring 46 pilot cities to formally implement the requirements for garbage classification. In July 2019 Shanghai formally implemented the "Shanghai Municipal Regulations on the Management of Domestic Waste". The "Decision on the Revision of the "Beijing Municipal Regulations on the Management of Domestic Waste", adopted by the Standing Committee of the Fifteenth People's Congress of the Beijing Municipal Government in the sixteenth meeting of Beijing Municipal Government in November 2019, was amended. Shanghai and Beijing officially started the transition from an advocacy-based waste classification policy to a mandatory waste classification policy. The new garbage classification policy has achieved very obvious results after its implementation. According to Xinhua News Agency's report on April 28, 2021, Beijing's average daily volume of 20,600 tons in the first four months of 2021 was 6.36% lower than the average daily volume of 2020, and more than 7,100 tons lower than the average daily volume of 27,700 tons in 2019, which is equivalent to the construction of two fewer 3,000-ton per day waste incineration plants. Shanghai City, the implementation of the "Shanghai Municipal Domestic Waste Management Regulations" for two years, the city's domestic waste volume "three increases

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and one reduction" of the effectiveness of the gradual stabilization of the first half of 2021 than before the implementation of the "Regulations" on July 1, 2019, the city's dry garbage control volume of 14,847 tons / day (28% year-on-year decline), the amount of wet garbage sorting 10,311 tons/day (an increase of about 89% compared to 2019), recyclables recovery volume of 7,104 tons/day (an increase of about 1.65 times compared to 2019), and hazardous waste classification volume of 2.02 tons/day (an increase of 14 times compared to 2019) (Source: Party Building Leads a New Fashion Garbage Classification Refueling - The Shanghai . Based on the above understanding, according to the existing literature and information summary and the need for optimization of garbage classification policy, the process of change in the nature of garbage classification policy is taken as the object of study to analyze the necessity of changing from the advocacy-type garbage classification policy to the mandatory garbage classification policy, so as to provide a basis for the subsequent development of garbage classification policy.

2. Literature review

In the recent discussion on waste separation, a controversial issue is whether it is more effective for the government to implement mandatory waste separation or for social organizations to guide waste separation[2]. On the one hand, some people point out that a mandatory waste separation policy is more effective than an advocacy policy. From this point of view, the government should not overdo the policy by advocating people to separate waste in order to make it work well[3]. However, on the other hand, others argue that waste separation itself is a complex human behavior, and that the policy can only be well implemented if people are subjectively willing to separate their waste. In the words of Chen Lu, the main proponent of this view, "the public should take the main responsibility and obligation of waste separation[4]. All in all, the question is whether the government should enforce the policy of garbage separation or let the public fully understand the significance of garbage separation and then make them take the initiative to separate garbage.

3. History of the development of waste separation policy tools

3.1. 1992-2010: publicizing and educating, encouraging categorization and piloting in selected cities

China's garbage classification policy can be traced back to the "Regulations on the Management of Urban Amenities and Environmental Sanitation" in 1992, but at that time, it only put forward the concept of urban garbage classification and advocated the classification of urban garbage, but there were no specific measures, no clear classification standards and no responsible

departments. 2000's "Notice on the Announcement of Pilot Cities for Separate Collection of Domestic Garbage" classified eight cities, including Beijing, as pilot cities for the classification of domestic garbage. In 2000, the "Notice on the Announcement of Pilot Cities for Separate Collection of Domestic Waste" classified eight cities, including Beijing, as pilot cities for the classification of domestic waste, but the effect of the policy was not satisfactory because there were no clear classification standards and the time set aside for the formulation of the policy and implementation of the policy was too short. Therefore, although publicity and education were carried out at that stage, because the government only played the role of advocating and did not actually promote, so few cities responded and few residents volunteered, and the garbage classification policy did not play a real role in that period.

3.2. 2010-2017 Formalization of pilot projects and development of incentive-based policies for domestic waste segregation

As the phenomenon of garbage encircling the city worsened, the State put forward the "Technical Guidelines for Domestic Waste Disposal" in 2010, which delineated in detail the categories of domestic waste and put forward specific procedures and requirements for the collection, transportation, treatment and disposal of domestic waste, and continued to promote and advocate the publicity of garbage classification, plan the responsibilities of the government, and formulate the policy objectives in the subsequent policies. For the previous phase of the waste classification policy, the second phase of the waste classification policy is significantly more detailed. In terms of pilot cities the Notice of the Ministry of Housing and Urban-Rural Development and Other Departments on Carrying Out the Work of Model Cities (Districts) for Classifying Domestic Waste, issued in 2014, clearly indicates that a pilot city can only be declared after it is in a position to formulate the relevant local laws and regulations. To a certain extent, this policy has strengthened the enthusiasm of cities to implement waste classification policies, making it possible to implement waste classification policies in some cities, but because the policies formulated by cities are still mainly incentives, they have achieved some results but have not yet met the objectives of the policy.

3.3. 2017-present domestic waste classification policy tends to improve, from advocacy policy to mandatory policy and nationwide large-scale promotion

In March 2017 the state issued the "implementation plan for the domestic garbage classification system", selected 46 cities as key cities to try out the garbage classification policy, and in January 2018 issued the "notice on accelerating the work of domestic garbage classification in some key cities", which explicitly requires 46 pilot cities to plan the specific work of garbage classification,

and to divide the work objectives and specific deadlines. After the introduction of mandatory living garbage classification policy, the key cities have corresponding national requirements, developed a series of living garbage classification policy, Shanghai and Beijing have achieved remarkable results, Beijing is for the garbage classification policy introduced relevant laws, which shows that the mandatory type of garbage classification policy is more powerful, the implementation of the effect is better, the simple advocacy type of policy can not achieve the policy objectives, mandatory living The mandatory waste separation policy is more effective in restraining the residents' behavior of waste separation.

4. Problems in the implementation of the policy on the categorization and treatment of urban domestic waste in China

According to a questionnaire survey jointly conducted by the Office of the Shanghai Municipal Commission for the Construction of Spiritual Civilization, the Shanghai Volunteer Association, and a group from the Institute of Sociology of the Shanghai Academy of Social Sciences for the city's registered volunteers and citizens at the end of 2019 released by the Surge News, 50.7% of the 1,477-point questionnaire believed that the standard of garbage classification was too complicated, 50.5% believed that the garbage classification facilities were not perfect enough. In the questionnaire, 48.5% thought that the residents' awareness of garbage classification was weak, 46.9% thought that the subsequent disposal of classified garbage was difficult, 46.2% thought that the residents lacked the relevant knowledge, 35.6% thought that the relevant regulations were not operable, 12.4% thought that the government did not publicize the issue enough, and 1.2% thought that there were also other difficulties. According to the Beijing Municipal Bureau of Statistics issued by the urban and rural residents of Beijing garbage classification awareness and the status of the survey report, only 16.5% of the people chose to have the installation of intelligent information technology means to assist in the classification of the put, for the publicity means of the policy is mostly barrel station duty guidance, hanging banners or posters, household publicity and guidance, the main body of the organization of the publicity and activities, points rewards, gift redemption, and so on. According to the questionnaire can be seen in the two cities although the implementation of mandatory waste classification policy but there are still the following problems.

4.1. Waste classification standards are too complicated

Shanghai's garbage classification standard is divided into dry garbage, wet garbage, hazardous garbage and recyclables. Dry garbage and wet garbage but from the literal understanding of the more difficult, and dry and wet garbage in the variety and complexity, although

there is a proverb explaining that wet garbage is the pig can eat the garbage, dry garbage is the pig can not eat the garbage, but some residents may have a cognitive problem with the classification, can not be very well remembered all the categories of garbage, resulting in every time before the classification of the type of garbage before inquiring about the type of things for the classification of the residents to bring the inconvenience. Beijing's waste classification standards for recyclable waste, food waste, hazardous waste and other waste, these names are easier to understand, but also more convenient for residents to classify, and will not cause residents to throw garbage every time before they have to go online to find the specific classification and other trouble.

4.2. Inadequate waste separation facilities

During the first few months of the implementation of the garbage classification policy in Shanghai, there were problems such as insufficient funds and poor procurement processes, which resulted in the failure of materials and supplies to be delivered in many areas, and residents were unable to start classifying garbage immediately. Subsequently, there is also because of the wind and sun caused by the original garbage cans above the classification of words blurred, so that the public is difficult to really fulfill the responsibility of garbage classification. Some areas of Shanghai also exist in the residents of the mixed throw, the community specifically set up staff to follow up on the problem of garbage classification, not only is a waste of manpower, but also did not develop the habit of residents to carry out garbage classification.

4.3. Residents do not have enough knowledge related to garbage classification and publicity efforts are insufficient

Residents only know that they should separate their garbage, but they are not clear about how to do so and the need to separate their garbage. Policy implementation had no effect on the reported influences of social and moral norms on the intention to separate household waste[5]. Because residents do not have the habit of separating garbage, although incentives have always existed in the past, there is no mandatory means to really separate garbage. The sudden implementation of a mandatory waste separation policy will cause residents' incomprehension and rebelliousness. However, because the government's publicity measures are mostly offline or use incentives such as giving gifts and accumulating points, the effect is not obvious to young people or residents who need to work. Moreover, the content of offline campaigns is too boring, which not only fails to reflect the necessity of waste separation, but also fails to attract the attention of the target group. The government used more interesting and attractive ways to attract the attention of the residents during the implementation of the New Crown Seal City policy, which is also a

mandatory policy, so that the residents understand and agree with the implementation of the policy.

4.4. Low operationalization of relevant provisions

Shanghai garbage classification not only has requirements for classification, but also for putting, for example: waste paper needs to be laid flat, there must not be anything inside the bag, and three-dimensional packages should be flattened after cleaning before putting and so on. There are also garbage needs to be placed at regular intervals and other requirements. These requirements are somewhat stringent and have had an impact on the lives of Shanghai residents. Beijing's garbage classification policy is more lenient than Shanghai's, and is easier to implement. Not only is there no requirement to put garbage out at regular intervals, but it is also stated that if the public is unable to accurately distinguish between food waste and recyclables, they can place them in the other garbage.

5. Policy recommendations on waste classification

5.1. Develop simple and easy-to-understand standards for waste separation

Simplify the criteria for garbage classification, and set up a category that is tolerant of errors, such as other garbage in Beijing, so that if residents are unable to recognize the category of certain garbage, they can put it in other garbage. This method is not only easy for residents to understand, but also convenient for residents to classify and put into the garbage, greatly reducing the difficulty of residents' garbage classification, and avoiding the phenomenon of residents putting garbage into the garbage casually because they can't distinguish the type of garbage.

5.2. Improvement of waste separation facilities

In the implementation of the process of waste classification should be well prepared materials and materials, in the official implementation of the policy before the placement of equipment, in the implementation of the policy in the early stage of the completion of the placement of equipment for the residents to prepare for waste classification. Avoid residents want to respond to the policy but found that there is no trash can be classified downstairs dumpster. Do a good job of follow-up maintenance of garbage bins, to avoid the emergence of garbage bins above the specific categories of words blurred, residents do not know where to put garbage things. Also do a good job of monitoring the residents of garbage classification, rather than part of the community to complete the garbage classification for them. This is not only not conducive to the subsequent implementation of garbage classification, but also a waste of human and material

resources. Residents should develop the habit of sorting their own garbage, so that they can continue to do so if they move away from the area. Garbage separation should be universal rather than regionalized.

5.3. Increase publicity and develop online publicity channels

Nowadays, the popularity of the Internet is extremely high, and most of the residents will learn about current affairs from the Internet, especially young people who will take the Internet as the best tool to learn about the world. The Government can make use of software with a high number of visitors to publicize the necessity of garbage classification, so as to make the residents understand that garbage classification is imperative, or it will lead to serious consequences. Some hotspots can be used to publicize the policy of waste separation, and some Internet celebrities can be used to popularize waste separation in an interesting way, so as to increase the residents' understanding of the standard of waste separation and increase the attractiveness of waste separation to the residents. Publicizing the waste separation policy online can increase residents' initiative in waste separation, so that they will participate in waste separation voluntarily and be willing to supervise people around them to participate in waste separation together.

5.4. Reduced operationalization of provisions

Although the current waste separation policy is a mandatory policy, it should also show its humane degree, and should be both rigid and soft, not a one-step tough at the beginning, which will reduce the acceptance of the residents. For example, the Shanghai Municipality requires waste paper to be kept flat and wet garbage to be drained before putting it out, which is troublesome to operate. In the implementation of mandatory policy in the early residents have a certain degree of incomprehension and rebelliousness, the operation of the increased difficulty will only make it more reluctant to carry out the classification of garbage, be mandatory implementation of waste classification policy is only a means of implementation of the policy, so that the residents take the initiative to voluntarily carry out the classification of garbage is the implementation of the policy objectives. It should be carried out in a gradual and orderly manner, so that the residents can voluntarily accept the waste classification before more requirements are made.

6. Conclusion

Adequate material preparation, simple classification standards, appropriate publicity policies and gradual policy implementation are all essential in promoting waste separation activities. The government should take the lead so that residents are willing to actively participate in waste separation, and it should also

provide simple and clear methods and perfect facilities to help residents adapt to waste separation.

References

1. Mueller W, Waste Management.**3**, 33(2013)
2. J. Li, C.Y. Li, Journal of Shanghai University (Social Science Edition). **38(05)**, 68(2021)
3. S. H. Guo, Y. Li, Research on Socialism with Chinese Characteristics. **1**, 60(2022)
4. J. H. Zhou, Y. Jiang, Industrial Engineering and Management. **1**, 20(2022)
5. Issock I B P,Roberts-Lombard M,Mpinganjira M, Social Marketin Quarterly, **26**, 99(2020)