Study on the Classified Recycling and Resource Utilization of Waste in Urumqi

Xiaoyu Li[1, a], Dongyao Yang[2, b]

[1]School of Economics, Shanxi University of Finance and Economics, Taiyuan 030006, China

[2]School of Accounting, Shanxi University of Finance and Economics, Taiyuan 030006, China

[a]1458779899@qq.com, [b]yangdongyao96@163.com

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Abstract: In recent years, Shanghai, Beijing, Guangdong and other places have been identified as pilot cities for waste classification and collection. Urumqi is the leader of waste classification work in five northwest provinces. In 2013, it launched the pilot project of domestic waste classification and treatment. In the past few years, although the concept of waste classification has been improved, the implementation results are not optimistic. Therefore, I take a community in Tianshan District and Shuimogou District of Urumqi and environmental protection and Urban Construction Department of Urumqi as the investigation site to carry out the investigation, and analyze the results of the investigation, combined with the collected data, put forward suggestions and Countermeasures for the classification and recycling of waste in Urumqi.

1. Introduction

With the rapid development of tourism in Xinjiang in recent years, Urumqi, as the capital of Xinjiang, with the acceleration of urbanization, the rapid development of economy and the sharp increase of tourism population and floating population, the amount of urban garbage is also increasing. These wastes not only occupy a large amount of land and affect the appearance of the city, but also pollute the air, water and soil environment related to the residents' lives, which puts pressure on the environment and threatens the health of Urumqi residents. Improper disposal of domestic waste will not only cause social hazards and environmental pollution. Land resources are occupied by a large amount, which also produces a huge waste of resources. Therefore, how to deal with the urban garbage correctly, how to make use of the renewable components in the garbage and how to find the best disposal plan of the domestic garbage are the key to the civilization construction of Urumqi at present, so it is necessary to study the classified recycling of the garbage in Urumqi.

2. Current situation of domestic waste in Urumqi

Urumqi covers an area of 14216.3 square kilometers, governs 7 districts and 1 county, with a total regional GDP of 309.977 billion yuan. At the end of 2018, there were 3.55 million permanent residents, an increase of 46000 over last year. The daily output of domestic waste in Urumqi is more than 3000 tons. The methods of disposal of domestic waste in Urumqi include landfill, incineration and composting. It is understood that since Urumqi started the pilot work of domestic waste classification, 52.31 million yuan has been invested, with 34 communities in Tianshan District, Saybagh District and other districts as the pilot. There are 48 intelligent garbage rooms, 48 monitoring systems, 27 battery cars and kitchen cars, and nearly 50000 garbage cans in these communities. Each community is equipped with a garbage sorter, garbage instructor and garbage supervisor to classify the garbage that the citizens do not have a clear idea. Classification in the community is only the source. Next, it is required to carry out classified collection, transportation and treatment by different vehicles. The dry waste is sent to the comprehensive solid waste treatment plant for landfill, and the wet waste is sent to the kitchen waste treatment plant for treatment. Through the publicity and guidance in recent years, the awareness rate of residents on garbage

classification has been improved, and the enthusiasm for participation has increased year by year.

According to statistics, from 1978 to 1982, Urumqi has built waste dumps in Dongshan, Xishan, donggebi and Liudaowan respectively, initially forming a facility system to absorb urban waste, which has achieved certain results in the collection, transportation and treatment of urban waste. In order to optimize the front-end collection and transportation and end-to-end disposal system of domestic waste and achieve the goal of "harmlessness, reduction and recycling", Urumqi will build four new large-scale waste transfer stations and a domestic waste incineration power plant in 2018. After the completion of the project, domestic waste will be transported to the large-scale waste transfer station for front-end collection and transportation. After preliminary harmlessness and compression treatment, it will be transported to The end of life garbage disposal system--the incineration power plant, solves the secondary pollution caused by the centralized treatment of life garbage, and the treatment method is more environmental friendly.

2.1 Relationship between population and domestic waste.

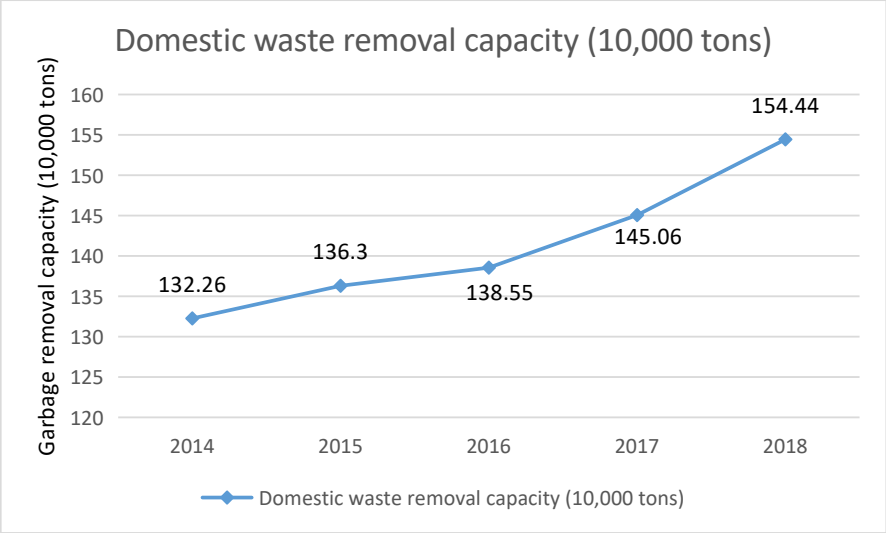

Figure. 1 2014-2018 Changes of Municipal Domestic Waste Clearance in Urumqi

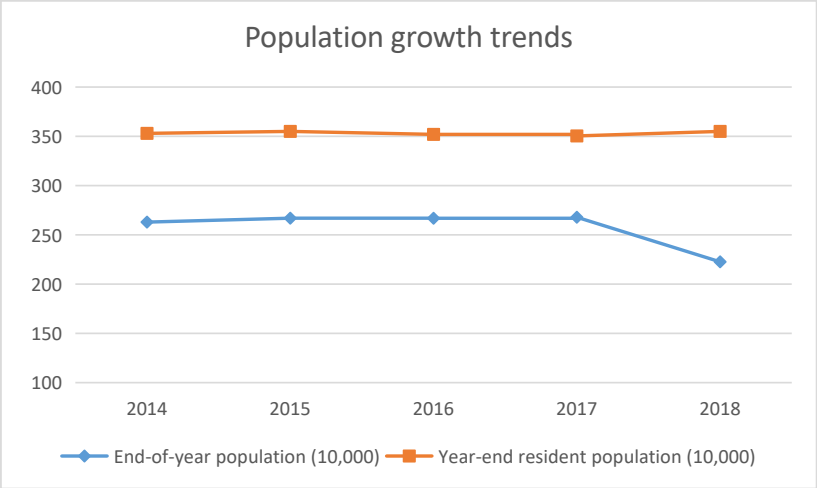

Figure. 2 2014-2018 Trends in population growth in Urumqi

From Figure 1 and Figure 2, we can see that the domestic garbage removal and transportation volume and the year-end resident population in Urumqi are increasing linearly year by year, mainly due to the increase of the year-end resident population in Urumqi.

2.2 Analysis of Domestic Waste Composition in Urumqi

From Table 1, we can see that Urumqi's domestic garbage has more inorganic matters and less

organic matters, which is a typical feature of domestic garbage in the northern cold area.

Table. 1 Composition of Domestic Waste in Urumqi

	content
kitchen waste	14.12%
paper products	7.20%
plastics	6.63%
textile	0.48%
bamboo	0.41%
peel	2.30%
metal	3.50%
glass	4.20%
slag stone	18.53%
else	42.63%

2.3 Estimated value of municipal solid waste in Urumqi

According to statistics, the annual output of waste plastics in Urumqi is 61000 tons, and one ton of waste plastics can produce 0.37-0.73 tons of oil; each ton of recycled beverage plastics can make 8000 yuan; for 72000 tons of waste paper, each ton of recycled waste paper can make 0.85 tons of paper, cut 17 trees less, save 3m3 of landfill space, save 300kg of alkali, and reduce 74% of the pollution compared with the equivalent production of good paper; for In 21000 tons of waste glass, it can save 10% - 30% of energy, reduce 20% of air pollution, reduce 80% of mining waste slag. After one ton of waste glass is recycled, it can produce 2000 flat glass or 500g bottles with a basketball court area. For 300 million waste batteries, it can recover precious heavy metals such as cadmium, nickel, manganese, zinc, etc., and reduce the environmental impact of heavy metals Pollution and harm to human health; for 7200 tons of waste metal, 0.9 tons of steel can be refined, 75% of air pollution, 97% of water pollution and solid waste can be reduced, 47% of smelting cost can be saved compared with ore steel-making; for 1.213 million tons of waste food, plants and trees, 0.6 tons of organic fertilizer can be produced, and waste fuel can be produced as power generation and heating Material Science.

Garbage is a kind of "inexhaustible, inexhaustible" renewable resources and a kind of "wealth placed in the wrong place". According to the experience of developed countries, garbage classification and collection is the most effective way to realize garbage recycling.

3. The necessity and significance of garbage sorting and recycling.

The problem of municipal solid waste pollution has an impact on every citizen's health. Garbage classification and collection is the premise and guarantee to realize the recycling and sustainable development of garbage. It is also an important way to turn waste into renewable resources and recycle.

Garbage sorting and recycling can reduce the workload of middle end garbage transportation and garbage disposal. After the recyclable materials in the garbage are used as resources, it not only reduces the volume and weight, but also reduces the workload of garbage filling and other processing work, avoids the pollution of the environment by harmful components in the domestic garbage, reduces the demand for natural resources, and avoids destroying the natural ecological balance.

Garbage classification has become a world trend. It is not only a common measure of developed countries, but also a concrete embodiment of civilized society. Garbage classification and recycling is an important step to realize the reduction, recycling and harmlessness of garbage, and it is the first condition for scientific treatment of urban domestic garbage. In the past, the mixed collection of garbage not only reduces the resource value of garbage, but also makes it difficult for the harmless treatment and resource utilization of garbage. Therefore, we should start from garbage classification

and recycling, to promote the use of garbage resources for the purpose of reducing the amount of garbage.

4. Suggestions and Countermeasures for Classification and Utilization of Waste.

4.1 Recommendations for Classification and Utilization of Waste

Classified collection, transportation and disposal of domestic garbage are the premise of garbage recycling. Based on the principle of "reduction, recycling and harmlessness", corresponding countermeasures are formulated to make garbage classification and recycling become a habit. From the ecological point of view, garbage is a kind of sustainable growth resources. With the development of classified recycling of urban garbage, a resource-based enterprise should be set up to treat the classified recycling garbage by a special resource recycling enterprise, so as to realize the recycling of garbage quickly and efficiently, reduce the pollution of domestic garbage on soil, water and gas, and protect the ecological environment.

Less plastic bags should be used in commodity packaging, and recyclable and recyclable materials should be used to package commodities. It can also formulate relevant garbage classification points reward and punishment system, classify them according to metal, paper, plastic, etc., exchange certain points according to the weight, and the points can be exchanged for shopping vouchers or articles. Through the similar reward system, the enthusiasm of citizens' participation is aroused. It not only saves the government's waste disposal expenses, but also saves the residents' waste disposal fees, and can enjoy shopping vouchers, and social environmental protection can also benefit.

4.2 Strategies for Classification and Utilization of Waste

1) Formulate relevant laws and regulations and give full play to the macro-control role of the government. The government should increase the investment in garbage sorting and recycling, set up special agencies to carry out this work, issue mandatory policies, increase fines, and introduce encouraging measures to reward the citizens who have done well; most of the provisions related to domestic garbage management lack the operability of garbage sorting and recycling, and the government should make clear plans and clear and accurate cuts Objective: to formulate and implement relevant policies and regulations, guide factories to use garbage as raw materials from the aspects of law, finance, finance and tax, and guide consumers to accept and be willing to buy goods made of recycled raw materials psychologically. By changing the relative price, we can change the consumer behavior and improve the environmental quality.

2) Further improve the garbage charging system. According to the principle of "polluter's burden". In some cities of China, the fixed garbage charging system, i.e. the monthly health fee or garbage disposal fee collected by households or population, plays an important role in promoting garbage collection. This kind of charging system supports waste management by increasing finance. It can use market mechanism to allocate management resources, but it cannot make waste reach the goal of reduction. In fact, there are many ways of garbage charging system, such as quota charging system, specific charging system and excessive charging system. Among them, the implementation of quota system is relatively easy, while the specific charging system and excessive charging system can promote garbage reduction and recycling, but the operation is difficult to implement. Volume based charging is an economic means to effectively promote classified collection and waste reduction.

3) Strengthen publicity and improve public environmental awareness. To promote and implement a new waste management system, the behavior and attitude of residents must be considered by decision makers. Do a good job in the classification and collection of domestic waste, and improve the public awareness of environment and participation. In the survey, it is found that residents have a high enthusiasm for the classification of domestic waste, but they have little knowledge about the relevant knowledge. On the one hand, we should increase the importance, necessity and feasibility of garbage classification. On the other hand, we should publicize the methods and relevant policies of garbage classification, improve the public's environmental awareness, and make garbage

classification gradually become a living mode of residents in the future.

4) Set up the person in charge of garbage management. Set up the person in charge of garbage classification management like "river head system" and "township head system". Take the community as the unit, and be responsible to people. Every day, they regularly conduct field surveys, field publicity and field guidance teaching. The results will be published in the public community of the community every day, or the platform official account will be set up. Every day, the residents who are eligible for garbage sorting and recovery will be commended, and the residents who refuse to classify and recover unqualified residents will be included in the blacklist.

5. Conclusion

At present, a large number of resources are wasted due to the mixed collection of domestic garbage. At the same time, a large number of hazardous substances are directly buried without classification, which causes harm to the soil and water environment, increases the difficulty of garbage resource and harmless treatment, and increases the burden of garbage treatment. Urumqi municipal government should implement the sustainable basic strategy into the development planning of all walks of life, gradually realize the comprehensive utilization of urban domestic waste and increase the treatment capacity, and try to reduce the amount of urban waste and improve the utilization rate of resources. Change the traditional way of life and production, establish a sound front-end, middle end, end of the classification of disposal system. Explore the new technology of resource recycling, so as to alleviate the environmental pressure and crisis caused by domestic waste to the city.

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