



South Korea's Volume-based Waste Fee system: Challenges and Solutions

LƯƠNG HỒNG HẠNH

Institute for Northeast Asian Studies

1. INTRODUCTION

In the 1970s - 1980s, in South Korea, due to rapid economic growth, industrialization, and urbanization, the amount of waste continuously increased and became a major social challenge. In 1987, the South Korean Government proposed a plan to build garbage incineration plants, sanitary landfills and intermediate treatment plants across the country. However, this plan has encountered many difficulties due to lack of investment capital, increased land prices, and civil complaints of residents because of problems related to the living environment where waste treatment areas located nearby. In that context, in 1995, the Volume-based Waste Fee System (VBWF) was implemented, contributing to solve the challenges. Accordingly, households and small-scale commercial establishments are required to buy specified bags for trash disposal, meaning that the more you throw, the more you pay; only recyclables are collected for free. This system aims to: (1) Reduce waste at source; (2) Form the behavior of collecting garbage and recyclable materials before throwing them away; (3) Reduce dependence on waste treatment facilities such as incinerators and landfills. During the implementation process of the VBWF system, the South Korea encountered many difficulties, however, they were able to come up with appropriate solutions and became a typical example of applying environmental policy based on market. For the time when we have conducted our paper, this system has set an example of a success by making landmark changes in waste generation models, public awareness, and behavior of consumers as well as manufacturers.

2. WASTE CLASSIFICATION ACCORDING TO THE VBWF SYSTEM IN SOUTH KOREA

Wastes in South Korea can be categorized by the following basic types:

For recyclable waste: In principle, recyclable waste is marked as 4-5 types, including: paper/newspaper, metal cans, glass bottles, plastic, other metals and those are collected free of charge. However, recyclable waste can also be divided into 2 - 3 types, if local authorities have difficulty with equipment and human resources. Recyclables are collected from households using collection bins, or at designated areas on a certain day.

For food waste: Food waste contains high levels of organic matter and nutrients, so one of the best solutions is recycling (composting) to gain value from this organic resource. In South Korea, currently, food waste is thrown away in collection bins, or specified

bags just for food waste. This garbage is collected daily, or every two day, depending on the capacity of local authorities.

For large-sized waste (bulky waste): This type of waste can be weighed and identified separately such as household appliances, electronics, furniture... For bulky waste that can be recycled, people just need to notify the recycling center run by the local government and this trash will be collected for free. Other types of bulky waste need to be properly labeled before being disposed of. This label (sticker) can be purchased from the local administrative agencies, or the garbage collectors. Each city/locality will have its own regulations on the price of stickers, depending on the type and size of waste.

3. DIFFICULTIES AND CHALLENGES WHEN APPLYING THE VBWF SYSTEM IN SOUTH KOREA

Public negative sentiment

This system did not receive public support, as it was quite inconvenient for people. Therefore, when participating in discussion during the introduction of the system, civil groups did not react very positively for the idea, due to concerns about illegal dumping as well as assumption that people will have to bear the full cost of waste treatment and recycle.

Handling recyclable waste

After collection, recyclable has become a burden for the South Korean Government. The most difficult problem is how to take advantage of non-PET plastic containers (PE, PP, PS or PVC). Although these types of plastic containers were designated as recyclable waste, but at that time, South Korea did not yet have the infrastructure to recycle this type of plastic. Furthermore, manufacturers are not responsible for recycling of this type of plastic waste because waste disposal costs are already applied to most plastic containers.

Food waste disposal

The amount of food waste generated in South Korea is huge, not only due to the increase in consumer demand, but



also due to the South Korean's traditional cuisine and characteristics of food. Koreans believe that entertaining guests with a hearty meal is a sign of hospitality, and kimchi - Korea's most popular side dish - creates a numerous food waste when prepared. In addition, during the first years of implementing the VBWF system, authorities received many complaints about unpleasant odors in landfills and during waste transportation to treatment facilities. This nauseating smell is caused by food waste, and this problem has become even more serious since the VBWF system was put into operation. The reason is that the paper used to wrap food has been classified as recyclable waste and is no longer disposed of according to regulations for wrapping paper.

Implementation on a nationwide scale

The legal basis for the VBWF system is the "Waste Management Act", which includes penalty provisions for those who dispose of waste illegally. However, in reality, it is not simple to apply this act because each locality has different natural and social conditions, as well as average income per capita, characteristics of production and consumption...

Illegal dumping

One of the most concerning side effects of the VBWF system is illegal dumping to avoid paying fees. In fact, some people threw household waste or business waste into public trash bins on the street, dumped trash in remote/abandoned areas, or into regular bags, not a VBWF bag.

4. SOUTH KOREA'S SOLUTIONS

Raise people's awareness about the VBWF system

To change habits, as well as raise people's awareness about the VBWF system, the Korean Government has made efforts to introduce *policy and mechanisms* to eliminate institutional *barriers*; identify the benefits, evaluate the impact of the system, as well as the problems



▲ Wastes in South Korea can be categorized

of the VBWF system through pilot projects, and convincing people therefore.

In addition, authorities have also cooperated closely with civil groups. After participating in monitoring pilot projects of the VBWF system, civil groups began to change their attitudes. They have regularly participated in evaluating pilot projects and evaluating the effectiveness of implementing the system after the first, second and tenth years. This has contributed to changing the media attitude and public perception of the VBWF system.

Managing recyclable waste

The problem of recyclable waste was resolved in 2003 when the South Korean Government introduced policies to support plastic recycling companies (e.g., providing financial support to install and operate recycling facilities, or requiring the public sector to procure recycled plastic products rather than new plastic products). At the same time, Korea also introduced regulations that manufacturers must be responsible for collecting and processing recyclable waste, this regulation is called the Extended Producer Responsibility (EPR) program. Manufacturers must take responsibility for handling costs at the final stage of the product life cycle, thanks to that, the supply and demand problem of recyclable waste has been significantly improved.

Food waste disposal

However, at first, applying EPR to food waste encountered many difficulties, so since 2013, the Seoul Metropolitan Government has applied the VBWF system in food waste treatment. For types of food waste that are heavier than regular waste, the Government has proposed that authorities apply a Weight-Based Waste Fee System (WBF) instead of based on volume (volume-based), thanks to which, food waste has been reduced by 10 to 30%. Under the WBF system, the weight of food waste generated by each resident/household is recorded and costs are calculated monthly based on the corresponding weight tracking records. However, this system did not apply to all households, but only to some apartment complexes, because installing



and operating weight measuring devices is quite expensive and requires enough space for equipment installation. For households and restaurants, people often use standard bags specifically for food, or standard trash cans with chips attached.

The problem of unpleasant odors from food waste is also solved by regulating separate collection of food waste, and the Korean Government has implemented large-scale reform of the food waste treatment system. Accordingly, since 1998, the Government has begun building food waste treatment facilities. Seoul city alone has put into operation five public food waste treatment facilities and authorized additional private facilities to manage food waste. In particular (2005), the Korean Government issued regulations banning the direct burial of food wastes.

Apply the VBWF system on a national scale

To strengthen waste management, the Korean Government has decided to empower each locality, meaning that based on the “Waste Management Act”, each local government will issue specific, detailing regulations in separate ordinances to implement the VBWF system, including regulations on types of waste under the VBWF system; treatment methods; types/colors/materials of standard garbage bags (VBWF bags); supervision of production and management of standard garbage bags; designation and guidance for buying bags and conditions for canceling contracts with bag sellers (dimensions, materials, durability and type of bags are determined according to standards of the Korea Federation of Plastic Industry Cooperatives (KFPIC), all of these specifications must be followed, if not, the bag will not pass inspection).

Illegal dumping

To prevent indiscriminate waste disposal, some local authorities in South Korea have installed reflectors and surveillance cameras in vulnerable places; planted flowers; moved public trash bins in the city center. At the same time, the local government also required garbage collection facilities not to collect trash bags of the wrong type. After a while, the area will be polluted due to long-term storage of garbage, making people living in that area responsible for monitoring waste discharge to prevent illegal dumping. As a result, violations of regulations have been significantly reduced, thereby contributing to minimizing environmental pollution. In addition, the Korean Government also prescribed fines for violations.

5. CONCLUSION

In reality, although implementing the VBWF system is not easy, the South Korean Government has been determined and tried to achieve effectiveness in applying this system. Currently, Vietnam is in a comparable situation as South Korea of about 30 years ago, when the waste landfill rate was up to 96%, so we can refer to experience from South Korea.

However, some issues need to be considered:

- To create uniformity in management, it is necessary to unify a single national management and create a legal basis for the system with a single law. In addition, to adopt with the actual situation, the government should give responsibility, self-determination to local authorities and provide a roadmap to increase the price of VBWF bags in stages to keep up with market changes.

- The Government should research carefully to produce options and plans suitable for each locality, each period and prepare for the sudden increase in waste right before implementing the VBWF system. In addition, management agencies should put in motion pilot projects to observe the impact of this system before starting a large-scale application.

- The VBWF system will fail if it does not contribute to increase the recycling rate, because people then waste their time sorting waste without bringing out practical results. Therefore, the Government should provide support for recycling companies, and also need to require manufacturers to be responsible for recycling.

- This system is based on the support and people's self-awareness, so the management agency should implement appropriate instructions and communication so that people can properly perceive the problem and make innovation of habits and culture of consumption. In addition, the Government also should build a transparent VBWF system to create conditions for people/civil organizations to participate in by comments and supervision throughout the entire process starting from preparing to applying and then improving the system ■

REFERENCES

1. Husan Haydarov (2013), *Overcoming wastemanagement inefficiencies: A comparative case study between Seoul metropolitan city, Korea with Tashkent, Uzbekistan*, KDI School of Public Policy and Management.
2. Ki-Yeong Yu (2017), *Volume-based waste fee: System for municipal solid waste*, Seoul Institute.
3. Kwang-yim Kim (2003), *Volume-Based Waste Fee System*, Korea Environment Institute.
4. Kwang-yim Kim, Yoon Jung Kim (2012), *Volume-based Waste Fee System in Korea*, Korea Environment Institute (KEI).
5. Shin Lee, Yoo Gyeong Hur (2015), *Volume-based waste fee: System for municipal solid waste*, Seoul Metropolitan Government.