

CITIZENS

AT THE CENTER

Seoul's Journey to Zero Waste



ZERO WASTE CITIES ASIA SERIES
Seoul, South Korea



'Waste, Animals and Poetry Project' called for plastic-free summer in Sangam-Dong, Seoul © KOREAN CULTURE AND INFORMATION SERVICE

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Seoul's Journey to Zero Waste

Two big challenges pushed Seoul, South Korea to take the issue of waste management seriously. It is densely populated, with over 10 million people generating 9,000 tons of municipal solid waste each day. As with any cities that experienced rapid urbanization, Seoul Metropolitan City has struggled with growing and almost uncontrollable waste problems. Limited land space also posed an additional challenge to the city, as landfill capacity is generally low, and siting of landfills often faces fierce objection from local residents. Therefore, waste reduction and waste diversion from landfills have been the key priorities for Seoul.

Thanks to progressive waste diversion policies, per capita municipal solid waste generation has been decreasing in Seoul for the last three decades. Korea's world-leading solid waste management legislation and initiatives include a volume-based waste disposal fees system, a deposit refund system, extended producer responsibility (EPR), and bans on problematic plastic items and packaging, which all significantly contributed to the waste reduction since the early 1990s.

CITIZENS SHAPING WASTE MANAGEMENT POLICY TOGETHER

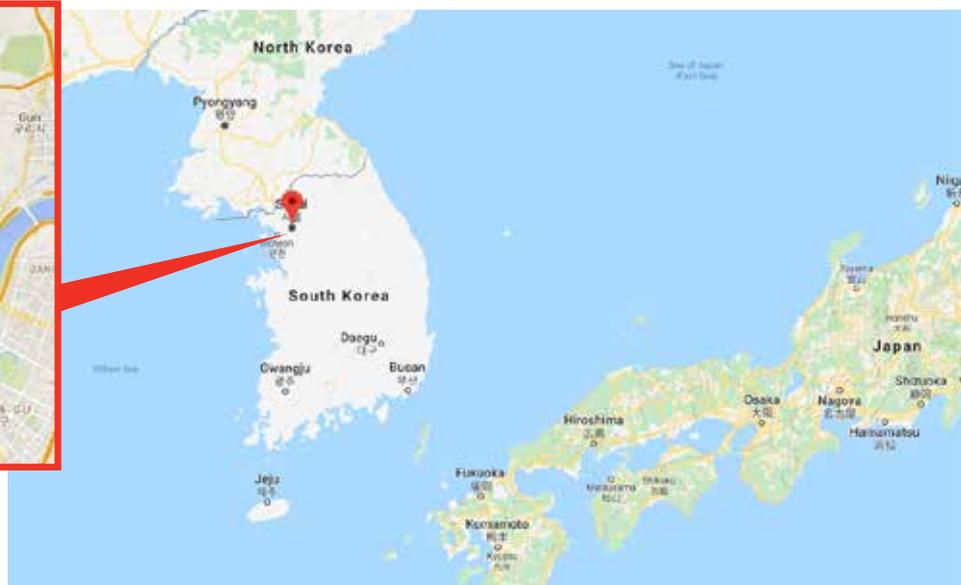
Given the limited land space, the overall interest and citizen participation in waste issues is high in Korea. The country's environmental policies regarding waste have been improving with vigorous voices and actions of environmental groups from early 1990s, the period in

which the government began to develop an overall framework of waste management.

Volume-rated Waste Disposal System

In 1995, the Korean Government implemented a 'volume-based waste disposal system,' under which residents are charged based on the amount of discharged waste, in order to reduce waste and promote recycling based on three principles of 'polluter pays', 'precautionary measures first', and 'resources recycling.'¹

Five kinds of waste bags are used in this system, which categorize waste into domestic waste, food waste, business waste, public purposes, and construction debris. Residents pay different fees for the bags depending on the size and the regions in which they reside, while enjoying a free service for collection of recyclables.



SEOUL

Population: 10,054,979 (Q1 2019)
 Land area: 605.21 km²
 Population Density: 16,095.86/km²
 Waste Generation: 0.88 kg/person
 Recycling rate: 60% (2016)

The law requires that residents properly sort out their waste and imposes fines of up to approximately \$1,000 for violations of the garbage disposal rules. Later in 2010, the government also allowed major grocery store chains to replace single-use grocery bags with multi-purpose plastic bags that can be used as litter bags in the area, in order to reduce the number of plastic bags discarded after grocery shopping.

A joint evaluation group of the government and environmental groups worked together to shape the world's very first nationwide volume-based waste fee system. Environmental groups intervened with the rule-making process through this channel, putting a strong emphasis on the importance of waste reduction at the source and sharing suggestions from the perspective of local waste management systems. Local governments, along with environmental groups, played an important role in successfully implementing the volume-based waste fee system across the nation, by conducting feasibility studies and coordinating public hearings.

The impact of the volume-based waste fee system was immediately visible. Compared to 1994, Seoul's recycling rate increased from 21% to 29% in 1995, resulting in less reliance on landfills or incinerators. The policy directly incentivized citizens to take better care

of household waste generation for source separation and affected the way products are designed and packaged as the public increasingly preferred less wasteful options. The implementation of the volume-rated disposal system also contributed to job creation and technological improvement in the recycling sector, which led to remarkable growth of the industry from 1995 through 2005.

Seoul also introduced a similar policy for food waste in 2013.² The regulation on food waste began to surface in 1998, when environmental groups and residents living near landfills urged for a ban on disposal of food waste in landfills, raising concerns on health impacts of emissions, odors, and heavy garbage truck traffic. This prompted the government to introduce a policy on food waste composting as well as a law prohibiting food waste from direct landfilling starting from 2005. Currently in Seoul, all food waste

disposal is charged based on the volume or weight, depending on the method each municipality chooses among 1) charging per standard food waste disposal bag, 2) selling stickers permitting food waste disposal, and 3) using radio-frequency identification (RFID) to track the weight of the food waste.

In other provinces, municipalities collect food waste either free of charge or using a quantity-based system in its discretion. After introducing this disposal rate system in 2013, which is also aligned with Seoul's highly digitalized waste information databases, the city achieved a 20% reduction in food waste. From 2013 to 2017, local groups including Korea Zero Waste Movement Network, held expert forums on the volume-based food disposal system to check the progress and inform local governments of solutions for challenges in the implementation of the system.



RFID-based Pay-As-You-Throw Food Waste Collection system in Seodaemun-gu, Seoul © THE FINANCIAL NEWS

Making Seoul Plastic-Free

As plastic pollution emerges as a global issue with such devastating environmental health impacts, Seoul has developed a comprehensive plan for plastic waste reduction in 2018, working closely with civil society groups. 'Citizen Committee for Green Seoul,' the city's eco-governance platform for environmental policymaking, has been facilitating the coordination among multi-stake holders, engaging with more than 100 environmental groups.

Building on the central government's goal to halve plastic waste generation by 2030, which is supported by sub-goals of reducing waste by 20% at the manufacturing phase, gradually banning single-use cups and straws, and achieving zero landfilling of domestic waste, Seoul announced its own set of goals for plastic reduction by 2022.

As part of Seoul's plastic-free policy initiatives, local environmental groups are leading several campaigns to phase out plastic products, including plastic cups and straws, plastic bags, food delivery containers, and plastic laundry covers. The groups organize online and offline campaigns, and encourage business participation through concluding a voluntary agreement, reaching out to various entities such as coffee shops, restaurants, wholesale businesses, traditional markets, hotels, and movie theaters.

Local campaigns for single-use plastic reduction have long been sprouting systemic and cultural shifts from the late 1990s. Environmental groups proposed banning single-use cups, plates, chopsticks, toothpicks, plastic table covers in restaurants, disposable amenities in hotels, disposable seats in sport venues, and free distribution of take-out cups in cafes and fast food chains. Instead of providing disposable items free of charge, a deposit scheme was applied, which requires a monetary deposit on beverage containers.

The nation's first disposable-cups-free fast food restaurant opened in Seoul in 2001, following a voluntary agreement between the franchise company ('Lotteria'), the Ministry of Environment



through KZWMN's coordination. By 2002, more than 400 major coffee shops and fast-food chains concluded a voluntary agreement with the Ministry of Environment to reduce disposable products. These efforts contributed to the amendment of the Act on the Promotion of Saving and Recycling of Resources in 2003 which prohibited free distribution of plastic and the use of disposable cups in stores larger than 150 sqm, and required mandatory collection and recycling.

Unfortunately, the bans on free distribution of disposable products faced a major setback in 2008, as the resistance of food distribution industry and the manufacturers of disposable cups grew. Abolition of the deposit system resulted in an increase in illegal dumping and overflowing of public garbage bins, which also caused financial loss to local governments. Despite severe opposition from the industry and challenging political environment, the groups continued



Citizens are staging a rally against disposable plastic products and excessive plastic packaging as part of 'Plastic Attack' campaign on Plastic Bag Free Day in front of Seoul Station, on July 3, 2018 © KOREA ZERO WASTE MOVEMENT NETWORK

to raise awareness and monitor business practices.

In 2011, Starbucks Korea responded to such effort by committing to banning disposable cups in 50 stores and gradually expanded the policy to all stores. Other coffee shop chains joined the movement later that year, replacing single-use cups with reusable mugs. The campaigns often fizzled out, however, as all initiatives were relying on voluntary agreements in the

absence of a mandatory regulation. To one's surprise, China's ban on waste importation which came into effect in 2018 turned out to be a blessing in disguise. The government rushed to devise policy measures to calm the disruption caused by lack of markets for low-grade plastic scrap and announced the above-mentioned set of goals and action plans to tackle the plastic waste. Even though Korea witnessed ups and downs with its approach to plastic pollution, voices

of local campaigns have persistently guided and formed policy shifts and solutions that are centered around the urgency of reducing waste generation from the beginning.

Fostering Zero Waste Communities in Seoul

Not only raising voices to urge for policy improvement required for Zero Waste, civil society organizations

03 Promoting Plastic Free Seoul

서울특별시

- **Goal** Reduce use of plastics by 50% and recycles by 70% until 2022



Goals and Strategies of 'Plastic Free Seoul' announced in November, 2018. © SEOUL METROPOLITAN CITY GOVERNMENT

have also been striving to build Zero Waste communities in Seoul, being an active change maker for better resource recovery practices. Groups have been closely monitoring local recycling systems, especially in public buildings, schools and residential recycling stations in Seoul, to survey the level of user satisfaction and identify remaining challenges. KZWMN concluded an MOU with several districts in Seoul to build a Zero Waste (single-use-free) community by evaluating the existing infrastructure and organizing multi-stakeholder meetings among government officials, residents, small business owners, and NGOs.

Connecting Citizens for Resource Sharing

In 2017, Seoul Government opened Seoul Upcycling Plaza³, an upcycling center that aims to raise awareness on environmental, social, and economic advantages of upcycling. All citizens, as well as upcycling educators and business leaders are invited to organize workshops, lectures,

exhibitions, sales and other events to share their knowledge and experiences in advancing upcycling of resources. The center is an excellent space for education on resource recovery, as one can casually visit the museum of upcycled products and art pieces made of discarded materials, shop at a reuse store, take part in weekend flea markets, or enjoy food or beverage at a cafe. Another example of promoting circulation of resources among community members is Seoul's Green Marketplace project.⁴ The city established a system to support citizen-led flea markets throughout the city, all year around, in 2010, in order to encourage resource reuse and sharing. In close partnership with Korea's biggest non-profit used goods store chain 'Beautiful Store,' Seoul Government supervises flea markets taking place in various scales and personalities, providing a space to buy and sell used goods, regional specialty products and handcrafts, and enjoy traditional food and diverse cultural performances. In these

1990

Recycling bins distributed to apartments

1995

Volume-based waste disposal system launched

2003

Extended producer responsibility system introduced

Bans on free distribution of disposable products introduced

2005

Direct landfilling prohibited for food waste

markets, naturally, use of any single-use items such as plastic bags and cups is prohibited.

THE WAY FORWARD

Seoul City has been making a leap forward to become the forefront of Zero Waste, with its commitment to sending zero municipal solid waste to landfills and achieving a recycling rate greater than 66% by 2030. On plastic pollution, the city plans to halve the amount of disposable plastic items used by 2022, while increasing the recycling rate to 70%. Progressive policy initiatives have been jointly developed by environmental groups and local residents, through transparent decision-making channels.

Many environmental groups call for more holistic and ambitious approach,

however, as Seoul is among the top 10 cities⁵ that generate most waste in the world, and Korea is the third biggest country when it comes to per capita plastic consumption.⁶ But what is especially concerning is the city's push for waste incineration in the name of 'waste-to-energy' or 'energy recovery from waste.' Currently, there are four MSW incinerators operating in Seoul, which burn nearly 3,000 tons of waste each day. Processing waste in an incinerator, even in the technologically advanced facilities, results in toxic emissions and by-products such as wastewater and ash, posing significant environmental harm to the community. Far from ideal for a highly dense city like Seoul, it has long been provoking controversy in many communities and facing firm opposition from residents living near the facilities.

With a strong political will, well-established infrastructure and institution, Seoul has great potential in achieving waste diversion from incinerators as well as landfills. Seoul Government must scale current resource circulation programs, expand resource recovery facilities, and replicate successful models in more towns in the city, ensuring open and active participation of non-governmental organizations.

NOTES

1. Volume Based Waste Fee (VBMF) System for Municipal Solid Waste <https://www.seoulsolution.kr/en/node/6326>
2. Minimizing Food Waste: Zero Food Waste, Seoul 2018 <https://www.seoulsolution.kr/en/node/3412>
3. <http://www.seoulup.or.kr/eng/index.do>
4. <https://www.seoulsolution.kr/en/node/3416>
5. <https://datacatalog.worldbank.org/dataset/what-waste-global-database>
6. <http://www.pagder.org/images/files/euromappreview.pdf>



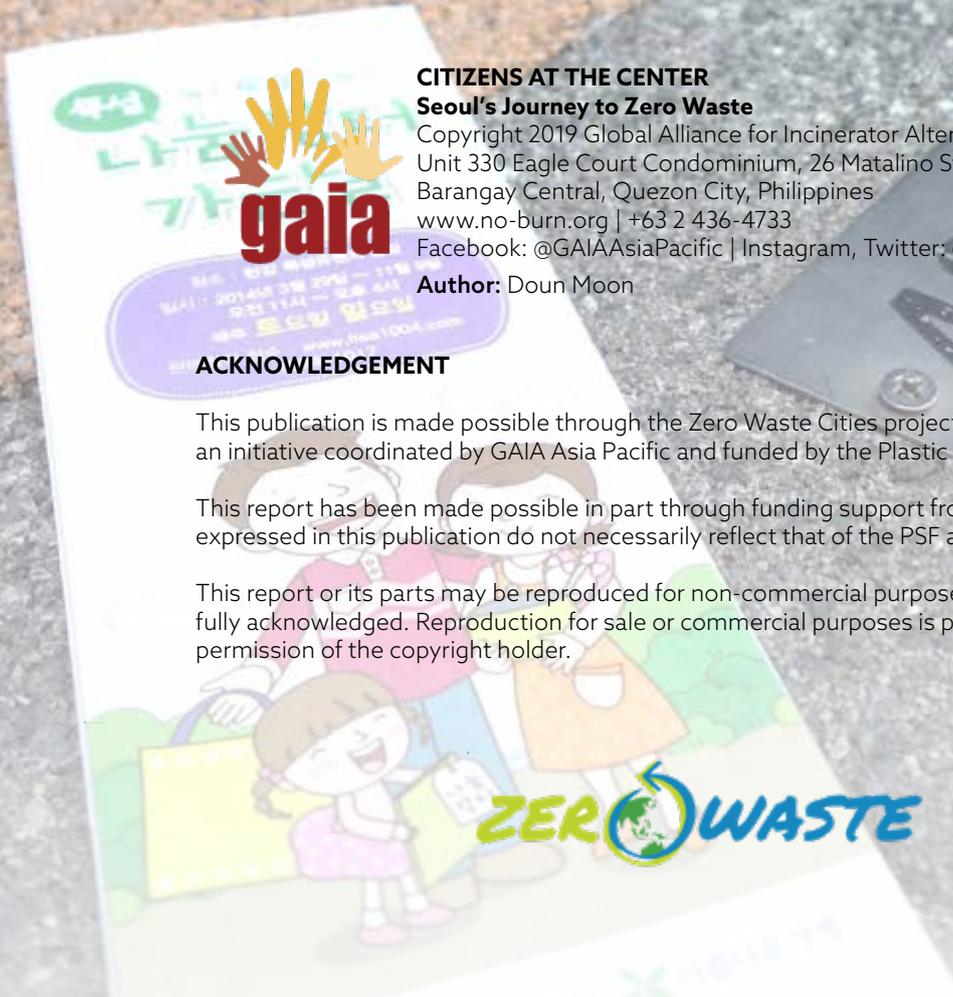
2010
Green Marketplace project launched

2013
Volume-based food waste disposal system launched in Seoul

2017
Seoul Upcycling Plaza opened

2018
Plastic-Free Seoul policy document developed

Comprehensive plastic waste management plan announced by the government



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