The Republic of Korea's submission on the sixth global dialogue under the Sharm el-Sheikh mitigation ambition and implementation work programme

August 2025

The Republic of Korea hereby provides its views on opportunities, best practices, actionable solutions, challenges and barriers relevant to the topic of the sixth global dialogue under the Sharm el-Sheikh mitigation ambition: **Enabling mitigation solutions in the waste sector, including through circular economy approaches**.

Addressing waste sector emissions is critical for achieving global mitigation targets, given their substantial contribution through methane and carbon dioxide. Circular economy approaches offer scalable solutions that cut these emissions at source, while also aligning with sustainable consumption and production patterns. Sharing examples of waste management and circular economy practices through active international cooperation, as well as implementing country-specific solutions at national, regional and global levels, will help us to achieve the collective goals of the Paris Agreement.

The Republic of Korea is fully committed to contributing to the sixth global dialogue to promote the successful implementation of the Sharm el-Sheikh mitigation ambition and implementation work programme. The Republic of Korea shares its views on the thematic areas for each area of discussion are suggested as follows:

Area of discussion 1: Best practices and solutions to address challenges and barriers to mitigation action in the waste sector, including through circular economy approaches.

Thematic area 1: Sustainable production and consumption

The fundamental principle of a circular economy approach is sustainable production and consumption of materials and products. From a production perspective, there are many cases where products cannot be recycled and are discarded (an inefficient use of resources) due to their heterogeneity and complexity (specifically in disassembly of products). It is therefore critical to consider reuse, and recycling from the design and production of materials and products, with a view to improving resource efficiency. The key solutions in the consumption and distribution phase are to reduce the absolute amount of waste generated, and to extend the product durability through reuse, .

Subtopics to be discussed and possibly reflected in the guiding questions: Opportunities, best practices, actionable solutions, challenges, and barriers involved in (1) circular design and production of materials and products, and (2) sustainable consumption through waste reduction and reuse.

Case studies: The Republic of Korea has gained extensive experience from its long-standing waste management policies.

Sustainable design and production

- ✓ In particular, we have established a solid foundation for improving circularity by designing products to be more sustainable through eco-design. Successful policies include the Product Circularity Assessment and the Packaging Material Recyclability Grade Assessment.
- ✓ Since 2018, the Republic of Korea has been systematically evaluating the circularity of products, including PET bottles, through its **Product Circularity Assessment** system, which examines factors such as materials, manufacturing methods, and carbon emissions. Based on the results, there follows a series of recommendations to the manufacturers on how to address the challenges of enhancing circularity. The Ministry of Environment has engaged in continuous dialogue with industry stakeholders, including major PET bottle manufacturers, to improve circularity by transitioning from colored to clear PET bottles, through voluntary agreements with industry. Consequently, the share of colored PET plastic water and beverage bottles has fallen from 30% in 2016 to 0% in 2024. This has improved the quality and efficiency of recycling, facilitating the production of high-quality regenerated raw materials (pellets) from collected plastic waste.
- ✓ In 2019, the **Recyclability Grade Assessment** system was introduced and legislated for packaging materials, assigning four grades (excellent, good, average, and difficult) based on detailed criteria for the materials and structures of each type of packaging. In addition, the Republic of Korea utilized these grades for adopting a modulated fee approach for the Extended Producer Responsibility (EPR) scheme, thereby encouraging a shift towards materials and structures with higher recyclability. This has generated positive outcomes by awareness among producers and consumers. Furthermore, it stands as an exemplary case of the integration of incentives within the EPR system to enhance circularity during the product design stage. This underscores the prominence that the Ellen MacArthur Foundation, GACERE, and plastic industry experts accord the packaging recyclability grading system.
- ✓ Commencing in September this year, a revision of the extant the **Act on the Promotion of Saving and Recycling of Resources** is planned to mandate the use of recycled plastic materials with a view to reducing plastic waste. This will serve as a policy basis for **the increased use of recycled materials, with a target of 30% by 2030**. It is estimated that this will result in 10 producers sourcing approximately 20,000 tons of recycled materials per year.

Sustainable consumption

- ✓ The Republic of Korea is implementing a range of policies and measures to foster sustainable consumption. Representative waste reduction policies include **restrictions on the use of disposable items**, such as cups and plastic bags, as well as a **volume-based waste fee (VBWF)** system and, for food waste, a **radio frequency identification (RFID)** system. The use of plastic bags has been prohibited in large supermarkets and convenience stores since 2019, and the use of plastic umbrellas and plastic cheering items (e.g. cheering sticks) has been banned in large stores and sports facilities since 2023.
- ✓ Policies such as the **container deposit system** and **reusable returnable boxes** are being implemented to extend product lifespan. The container deposit system is a policy instrument that reflects the deposit in the purchase price and imposes a resource recycling deposit on producers in the form of a handling fee to promote recovery and recycling. The policy was initiated in 1985, and as of 2023, the overall recovery rate has reached 97.1%, contributing to the acceleration of the circular economy.

Thematic area 2: Waste management and recycling

Recycling is integral to the functioning of a circular economy approach. Therefore, it is necessary to establish a system for the disposal, collection, sorting and treatment of waste that is purpose-oriented. In other words, in order to enhance the quality of recycled and recovered waste, waste resources, and regenerated materials, it is essential to develop an efficient discharge, collection, and sorting system. Furthermore, accelerating the transition from the linear economic model to the circular economic model is contingent upon the maximization of closed-loop recycling.

Subtopics to be discussed and possibly reflected in the guiding questions: Opportunities, best practices, actionable solutions, challenges, and barriers involved in (1) waste disposal, collection, sorting and treatment, (2) recycling of waste resources, and (3) energy recovery (waste-to-energy).

Case studies: The Republic of Korea has established a sophisticated recycling system and implemented effective recycling policies.

Waste management and recycling

- ✓ The Republic of Korea is **modernizing public sorting facilities by installing state-of-the-art technology to expand recycling**. It has set a target of increasing the modernization rate of public sorting facilities from 10% in 2021 to 63% in 2026, and is managing its progress systematically.
- ✓ Since 2003, Korea has operated the **Extended Producer Responsibility (EPR)** system, which imposes recycling obligations on manufacturers of specific products

and levies recycling fees on non-compliant manufacturers. This system builds upon the pre-existing deposit system, which has been in operation since 1992. Korea has gained extensive expertise through its long-term experience of the systems.

- ✓ Meanwhile, we have established a range of **quantitative indicators to track the implementation of greenhouse gas reduction measures** in the waste sector. The indicators used to measure progress in recycling include recycling rates by waste type (e.g. household, industrial, designated, construction, organic) and by EPR-covered packaging materials (e.g. paper, glass, metal, plastic). We conduct an annual review of the implementation indicators, with particular attention given to the recycling rate for packaging materials subject to the EPR scheme, which consistently exceeds 80%.

Battery Recycling

- ✓ In the face of the major energy transition, notably electrification of the transportation sector and expansion of renewable energy, it is expected that large quantities of waste batteries will be generated. In response to this situation, the Republic of Korea announced the "**Battery Circularity Promotion Plan for the Industrialization of Battery Circularity**" in May this year. The plan outlines detailed measures centered on four key challenges for global battery recycling: market creation; stabilization of the supply of recyclable resources; technological innovation and competitiveness enhancement; and establishment of a lifecycle management foundation.

Waste-to-energy

- ✓ The Republic of Korea is undertaking various efforts related to energy recovery, or **waste-to-energy (WtE)**. Waste that is difficult to recycle due to contamination and other issues is incinerated and then used as an energy source. In particular, municipal waste incineration facilities in large cities generate electricity using waste heat, sell steam to local factories, or supply it to neighboring residents through district heating companies. Other examples of ongoing waste-to-energy measures include **landfill methane gas recovery** and the **expansion of organic waste biogasification facilities**.

Area of discussion 2: Approaches to enable means of implementation for actions and solutions in the waste sector, including through circular economy approaches.

Thematic area 1: National institutional arrangements and international cooperation

To enable mitigation solutions in the waste sector, which affects all sectors of the economy, it is necessary to establish national legal and institutional frameworks and governance systems to effectively implement policies. It is also crucial to address any existing gaps and promote mutual growth through active international cooperation. Furthermore, it is essential to encourage participation and raise awareness among consumers, who can be more

challenging to manage than the public and corporate entities, by offering information-sharing platforms and incentives.

Subtopics to be discussed and possibly reflected in the guiding questions: Enabling conditions for a circular economy approach at a political level through expanding participation of both private and public stakeholders, such as (1) institutional arrangements, including legal aspects; (2) international cooperations, including financial support, capacity building and enhancing public awareness; and (3) other cross-cutting solutions.

Case studies: The Republic of Korea is fully aware of the close relationship between waste management and climate change, as well as the need to transition to a circular economy to fulfil the Paris Agreement.

Institutional arrangements

- ✓ Recognizing the need for effective waste management and the promotion of the circular economy approach, the Republic of Korea has developed and implemented comprehensive plans and strategies for the circular economy, carbon neutrality, and the transition to a plastic-free society across the entire life cycle, underpinned by robust legal frameworks. The significance of the circular economy is emphasized in our circular economy law, the **Act on Promotion of Transition to Circular Economy and Society**, as well as our climate neutrality law, the **Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis**.
- ✓ We have also set **annual waste sector greenhouse gas emissions reduction targets** through 2030 and for 2050 domestically. One of the implementation indicators, the **resource recycling rate**, has been exceeded in the last two years (91.8/90.5% in 2021, and 92.7/91.0% in 2022).
- ✓ In response to the growing focus on plastic management, the Republic of Korea will announce the **De-plastic Roadmap for Circular Economy** by the end of this year.

Public awareness, participation and access to information

- ✓ The **Resource Recycling Action Platform** plays a crucial role in strengthening public awareness and participation domestically. The platform shares detailed information on recycling methods, best practices, policies and measures with all stakeholders, including the government, local authorities, businesses, individuals and non-governmental organizations. It also encourages public participation across all sectors by offering incentives such as competitions.

International cooperation

- ✓ From an international cooperation perspective, the Republic of Korea is engaged in activities such as **green ODA** to promote efficient waste management and the circular economy, as well as supporting the development of waste management master plans.

- ✓ On 5 June this year, to mark World Environment Day 2025, the Republic of Korea proposed the **ACE (Action for Circular Economy) Initiative** to promote global cooperation towards a circular economy and end plastic pollution. The initiative seeks to transition from a traditional, support-focused model of cooperation to a collaborative framework that tackles real-world problems. By collaborating with international organizations and multilateral development banks, the initiative will contribute to the global transition to a circular economy.

Thematic area 2: R&D, technology, statistical systems and others

In implementing waste sector mitigation solutions, it is key to recognize and address the technical challenges involved. The technological infrastructure for recycling and energy recovery must be established to realize a circular economy. This necessitates the involvement of experts, so education and training support centered on universities and research institutions is essential, as are various R&D projects for the deployment and commercialization of technologies. Furthermore, it is required to develop a statistical system for the management and tracking of waste. Such system facilitates straightforward waste tracking and provides quantitative progress tracking of relevant policies and measures. It is vital that the necessary statistics are systematically prepared in advance to monitor progress in reducing greenhouse gases.

Subtopics to be discussed and possibly reflected in the guiding questions: Enabling conditions for a circular economy at a technical level. This includes: (1) R&D and commercialization of new technologies; (2) statistical systems for tracking waste status and accounting for greenhouse gas emissions; and (3) other cross-cutting solutions.

Case studies: The Republic of Korea has successfully established a robust technical foundation for waste management, underpinned by a systematic approach that has been implemented over an extended period.

Technology deployment and commercialization

- ✓ The Republic of Korea actively supports research and development activities related to the deployment and commercialization of technologies necessary for effective waste management. A latest example is the **Specialized Graduate Program in Green Convergence Technology** (funding of 1.4 billion won over five years), which covers areas of battery recycling and artificial intelligence (AI) circular economy.

Statistical system

- ✓ It is also notable that the Republic of Korea has a highly advanced statistical system in place for the monitoring of waste flow, as well as air pollutants and greenhouse gas emissions. The **Allbaro System**, initiated in 2002, is a comprehensive waste

management system developed domestically. It facilitates real-time oversight of the entire process, from the discharge of industrial waste to its transportation and final disposal. The system employs a combination of the Internet and radio frequency identification technology (RFID) to ensure the efficient and accurate management of waste. Following the transition from manual-based operations to an electronic system, Korea is well-positioned to share insights on its experience with statistical systems. Furthermore, we are currently preparing to establish the **Simplified Allbaro System** that can be utilized in countries with limited IT infrastructure.

Key Expectations

The Republic of Korea views that the sixth global dialogue and investment-focused events, held in conjunction with the 2025 African Climate Week in the upcoming September, will allow sufficient time for the annual report to be published well in advance of the seventh Conference of the Parties serving as the meeting of the Parties to the Paris Agreement, as referred to in paragraph 12 of decision 2/CMA.6.

The annual report shall consider the summary reports of the fifth and sixth global dialogues, incorporating their concrete outcomes, which include summaries, key findings, opportunities and barriers for each topic. The annual report will then be made as an input for consideration of progress in implementing the work programme in a manner that ensures the aim and principle of the work programme as referred to in paragraphs 1 and 2 of decision 4/CMA.4, respectively.