Resource Circulation with the Community, with Solutions for Reducing Plastic as the Answer

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Ⅰ. Backgrounds

□ The continuous increase in domestic plastic waste generation is causing social issues.

○ The increase in single-person households and changes in consumption patterns → Leading to more plastic waste, such as disposable containers and packaging materials

○ While the recycling rate of plastic waste is relatively high at 73% (Ministry of Environment, 2021), **a significant amount is still being incinerated or sent to landfills.**

□ **The implementation of the Act on Promotion of Transition to Circular Economy and Society (January 2024)** and the government's policy direction highlight **the growing importance of resource circulation** and the shift in public awareness.

○ (National Agenda) Achieving the circular economy through recycling

○ Focusing on ESG disclosure mandates by the Financial Services Commission (effective in 2026)

※ **ESG:** A term that combines **Environmental, Social, and Governance,** representing key components for achieving sustainability in corporate management

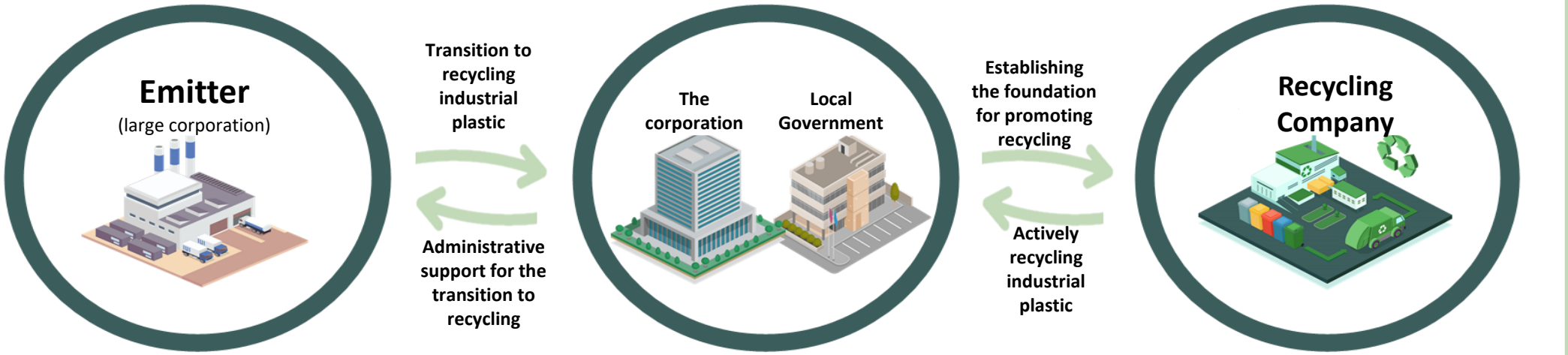
□ Tackling the plastic waste issue requires a collective effort from the public, businesses, and the government.

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Purpose

○ **Continuously promote and expand the transition to recycling industrial plastic waste that is incinerated or landfilled** within the region through public-private collaboration, thereby enhancing resource circulation and **contributing to the establishment of a circular economy**

Diagram of the Transition to Recycling for Achieving a Circular Economy



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Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Progress (SETP 1)

○ Established a database of companies with high waste output and recycling companies using public data

- Utilized the waste electronic information processing program (Allbaro System) to analyze data from 2,000 waste-generating companies
- Evaluated the recyclability of waste synthetic resins (mixed and composite) among 21 recycling companies

Held business consultations with waste-generating companies

Visited waste collection sites of the companies

Assessed waste characteristics

Pinpointed companies capable of recycling

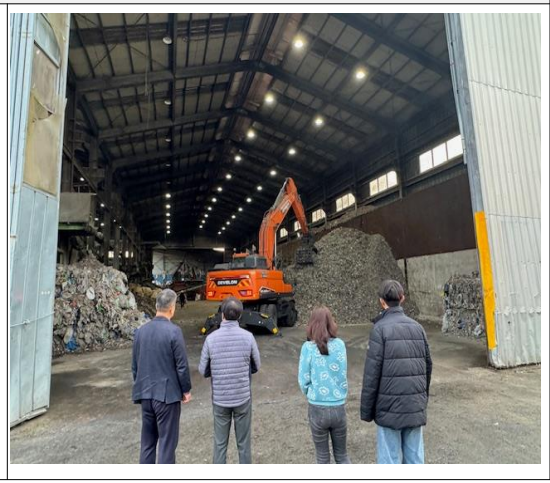
Identified 21 recycling companies

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Progress (SETP 2)

○ **Established infrastructure for on-site verification and pilot testing of industrial plastic recycling companies**

- **(Confirmed recyclability)** Visited 13 recycling companies to inspect the processing facilities and evaluate economic feasibility

Conducted on-site verification of recycling companies' processing facilities		Matched waste-generating companies with recycling companies	
			

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Progress (SETP 2)

○ **Matched companies that generate waste for incineration with recycling companies**

- Transitioned to recycling by **identifying** and attracting **companies capable of material recycling** for waste paper sacks (mixed materials)

Raw Materials(waste paper sack)	**Recycling Process**	**Products** (Paper, Plastic)	**Creating Consumer Products**
			
A waste paper sack used for packaging chemical products **is made of composite materials.** (outer layer: paper, inner layer: plastic)	**Separated waste paper sacks by heat and pressure** to recycle materials by their material type	**Sorted papers** and **plastics** from the separated waste paper sacks **by material type**	**Reborn** as **everyday items** ※ plastic → hangers, etc. ※ paper → shopping bags, etc.

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Progress (SETP 3)

○ Signed a MOU with relevant organizations to establish a system for the transition to recycling industrial plastic waste

- (2023) Participating Organizations : Yeosu City, Lotte Chemical Advanced Materials, LG Chem, Namhae Chemical
- (2024) Participating Organizations : Yeongsan River Basin Environmental Office, Gwangju City, Kia, Kumho Tire, OB Beer, Sebang Battery

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Roles of Each Organization

○ **Korean Environment Corporation**

- **Assess** the characteristics and **recyclability** of plastic waste from **waste-generating companies**
- **Identify 13 recycling companies** capable of handling waste synthetic resins **and connect them with 7 waste-generating companies**
- **Provide environmental and technical support for pilot testing** of waste suitable for the transition of recycling

○ **Environmental Agencies and Local Governments**

- Provide **information on waste treatment companies under each jurisdiction** and offer **consulting** for proper waste management
- **Promote proactive administration approaches such as expedited processing of permits** for a smooth transition to recycling

○ **Companies (e.g., 7 companies including Kia)**

- **Actively implement the transition to recycling industrial plastic waste generated by industrial activities**
- Make efforts to practice resource circulation in other environmental areas

Ⅱ. Case 1 (Public-Private) Transition to Recycling Discarded Industrial Plastic Waste

□ Project Benefits

○ **(Waste-generating companies) Practiced ESG management including carbon neutrality by recycling 580 tons** of plastic waste (**in 2023)**

- **Reduced carbon emissions by 1,969 tons** by recycling waste synthetic resins

- **Saved 20 million KRW in processing costs** compared to incineration (13% reduction)

- **Reduced incineration and landfill tax** (waste disposal fee) **by 7 million KRW**

- **Enhanced the recycling rate at business sites** through waste resource circulation of waste (including circular economy performance management, etc.)

○ **(Recycling Industry) Fostered the recycling industry and boosted the circular economy** through a smooth supply of raw materials

- **Increased sales for** the local **recycling industry by 140 million KRW**

Ⅱ. Case 2 (Public-Private) Production of Plastic Bags Made from 100% Recycled Raw Materials

□ Purpose

○ Revitalize the recycling market and reduce the use of virgin plastic raw materials

○ Create continuous demand for recycled raw materials through institutionalization (certification)

□ Progress (SETP 1) Raw material selection

○ Selected the optimal raw materials for production of plastic bags made from 100% recycled raw materials

- Selected local recycling companies to revitalize the local circular economy
- Selected film-type recycled raw materials (industrial PE film) to maintain the quality of the bags

Ⅱ. Case 2 (Public-Private) Production of Plastic Bags Made from 100% Recycled Raw Materials

□ Progress (SETP 2) Pilot Production

○ **Manufacturing company** : Selected from local film product manufacturers proactively using recycled raw materials

○ **Bag specifications**

- Raw material usage : 5 tons of recycled industrial film raw materials
- Size and quantity : 800×1200×0.05mm (width × length × thickness), 50,000 units (100L)
- Production unit cost : 217 KRW per unit (previously 278 KRW)

○ **Distribution** : Jeollanam-do (26,000 units), Gwangju City (5,000 units), 4 collection companies for apartment complexes (19,000 units)

Recycled raw materials

Bag extrusion・molding

Bag production

Ⅱ. Case 2 (Public-Private) Production of Plastic Bags Made from 100% Recycled Raw Materials

□ Progress (SETP 3) Customized Production

○ **Purpose** : Expand the distribution of plastic bags made from 100% recycled raw materials through customized production based on size and specific uses

○ **Supply** : Distribute customized bags according to usage needs

Recycling clean house in Yeosu City (Supply quantity: 30,000 units)

Beaches on Jeju Island (5 locations) (Supply quantity: 20,000 units)

Resource circulation complex Center in Haenam-gun (Supply quantity: 20,000 units)

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Ⅱ. Case 2 (Public-Private) Production of Plastic Bags Made from 100% Recycled Raw Materials

□ Roles of Each Organization

○ **The corporation**

- **First produce and supply plastic bags made from 100% recycled raw materials** through continuous efforts at recycling sites
- **Secure continuous demand for recycled raw materials** through usage proposals (public sector) and production proposals (private sector)

○ **Local governments (public sector)**

- **Secure continuous demand for recycled raw materials** by revising regulations **(expanding the use of recycled materials in waste bags)**
- **Improve waste collection and sorting systems** to ensure the quality of recycled raw materials **(expanding collection of high-quality recyclable materials)**

○ **Businesses (private sector)**

- **Recycling companies : Improve processes and develop technology to produce high-quality recycled raw materials**
- **Manufacturers: Develop products that meet the characteristics of recycled raw materials and the requirements of consumers**

Ⅱ. Case 2 (Public-Private) Production of Plastic Bags Made from 100% Recycled Raw Materials

□ Project Benefits

○ **(Revitalized the recycling industry) Established a local circular economy system** between recycling companies and product manufacturers

- **Generated an additional economic revenue of 15 million KRW** for the manufacturer of plastic bags made from 100% recycled raw materials **(in 2023)**

○ **(Reduced carbon emissions) Achieved a carbon reduction of 19,140 tons through the production and distribution of 120,000 units** of plastic bags made from 100% recycled raw materials

○ **(Developed recycling technology) Laid the groundwork for expanding business scope** through the development of recycling technologies **in existing business sectors**

Ⅱ. Case 3 (Public-Private-Civic) Promotion of Resource Circulation Projects with Benefit Redistribution

□ Purpose

○ Create an environment where the public can recognize the importance of resource circulation through hands-on experiences

○ Provide support to revitalize village economies in Jeju Island, which are facing economic difficulties due to the sharp decline in tourism

□ Progress

○ **Conducted a project to distribute 850 upcycled parasols made from plastic waste free of charge** (funded by donations from private companies)

village project supplies	**until now**	**this year**
parasols	direct purchase (approx. 100 million KRW/year)	**free support (approx. 83 million KRW)**
material of supplies	virgin plastic	**upcycling waste PET bottles**

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Ⅱ. Case 3 (Public-Private-Civic) Promotion of Resource Circulation Projects with Benefit Redistribution

○ **Proactive administration through the hiring and management of personnel as part of the plastic waste collection and compensation project**

- Encouraged local residents' participation through village operation committee meetings

Collected 6 tons of waste transparent PET bottles through voluntary participation of village residents

- Signed an MOU with 5 organizations to create jobs for the elderly

Created 20 jobs for the elderly **(budget: 110 million KRW)**

Ⅱ. Case 3 (Public-Private-Civic) Promotion of Resource Circulation Projects with Benefit Redistribution

□ Roles of Each Organization

○ **The corporation**

- Discover and oversee new resource circulation projects
- Establish support plans for managing carbon neutrality points and coordinating with relevant organizations

○ **Local governments**

- **Provide budget support, including** personnel **operating costs**, for smooth project operation
- Provide administrative support to promote resource circulation projects

○ **Relevant organizations (Korea Labor Force Development Institute for the aged, etc.)**

- Provide budget donations and promotional support for project implementation
- Hire and manage elderly workers from vulnerable groups and carry out resource circulation campaigns

Ⅱ. Case 3 (Public-Private-Civic) Promotion of Resource Circulation Projects with Benefit Redistribution

□ Project Achievements

○ **(Economic impact)** Supported **the creation of 600 million KRW in revenue by revitalizing village economies** through the use of upcycled parasols

○ **(Carbon reduction) Achieved a carbon reduction of 30 tons** by recycling plastic waste

○ **(Elderly employment) Created 20 direct jobs for elderly villagers,** supporting vulnerable groups

○ **(Social responsibility**) As a public agency, recognized businesses and citizens as part of the social community and proactively promoted initiatives

- **Public satisfaction with resource circulation activities and upcycled products was high.**

- **The role of the corporation was highly regarded** for discovering and proactively pursuing projects.

Ⅲ. Future Plans

□ (Nationwide Expansion) Disseminate best practices including a review of the potential for nationwide expansion while building a collaborative network

○ In 2024, promote pilot expansion in Busan City and Ulsan City to improve operational efficiency and spread the initiative across the corporation

※ Completed first-round discussions on sharing operational know-how (Sept. 3)

□ (Monitoring) Conduct monitoring including regular performance analysis by project (annually in the second half of the year)

○ Track recycling transition volumes, production and distribution of recycled raw material bags, and discover collaborative resource circulation projects, etc.

□ (Project Discovery) Continuously identify projects related to carbon neutrality and plastic reduction in connection with the corporation's activities

○ Develop various plastic products, produce waste bags made from 100% recycled raw materials, and obtain eco-label certifications, etc.

sample of the waste bag

We will take the lead in implementing policies to achieve a sustainable resource-circulating society.