

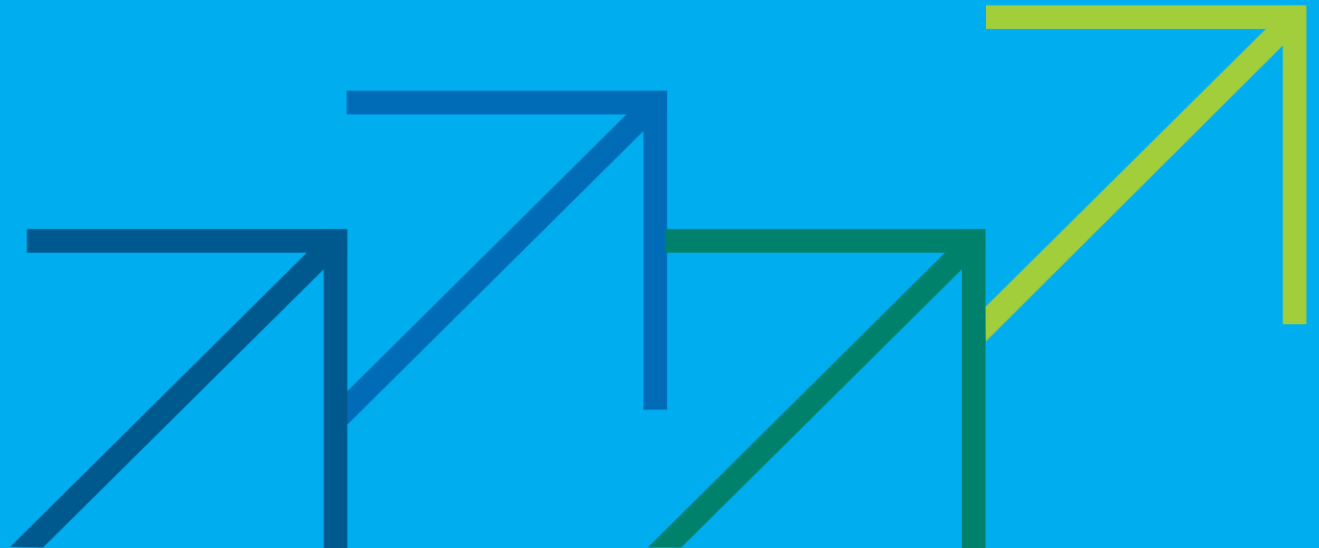


**KGID
2025**

**Green Growth:
The Path to
Sustainable Jobs**

K-Circular Economy: Turning Waste into Resources

Youngju Baek, Deputy general manager,
Korea Environment Corporation








Introduction of K-ECO (Korea Environment Corporation)

Implementing Korea's Circular Economy in Practice

Who We Are

The Korea Environment Corporation (K-ECO) is a government-affiliated public agency under the Ministry of Climate, Energy and Environment of the Republic of Korea.

Core Areas of Work:

	Waste & Resource Circulation	Operates EPR, national waste tracking (Allbaro), and disposal levy programs
	Climate Change & Air Quality	Supports for GHG reduction policy, operates national ambient air quality and smokestack monitoring system
	Environmental Infrastructure	Provides technical review for building and operating sewage treatment, and energy recovery facilities.
	Water & Soil	Prevents water pollution, operates National Water Quality Monitoring System and soil remediation
	Environmental Health & Global Cooperation	Leads digital monitoring and partners with the World Bank, UNEP, and ADB.



K-ECO bridges policy and implementation, turning Korea's circular economy strategy into measurable results.

Background of Korea's Circular Economy Introduction

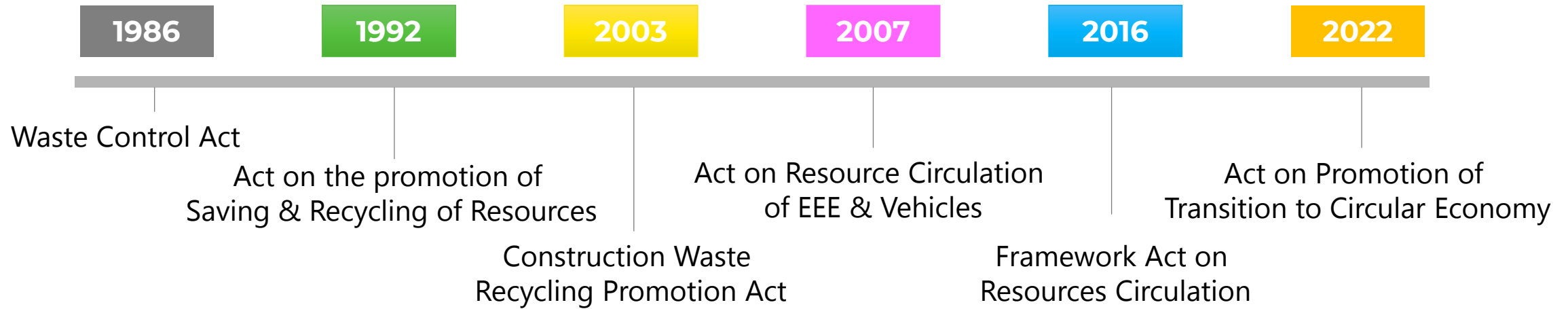
- **Rapid increase in waste generation** driven by economic growth, lifestyle changes
※ Total waste generation increased by 34.6% (146.6 → 197.4 million tons, '14–'21)
- **Waste Collection Crisis('18, '20)**
Suspension of municipal waste collection due to the sharp drop in waste paper and plastic price
- **Strengthened global environmental regulation**
'New Circular Economy Implementation Plan'(EU, '20.3)
Plastic tax, mandatory use of recycled raw materials(30% in '30) (EU)



Triggered policy reforms to strengthen recycling and circular economy systems

K-Circular Economy Implementation Plan ('21.11)

Evolution of the Legal framework



Policy Instruments Driving the Transition



Lifecycle-based Policy Integration for Circular Economy

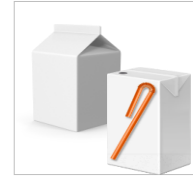
Production	1. Packaging Material & Structure Evaluation System 2. Waste Charge System
Distribution/ Consumption	3. Packaging Inspection System
Waste treatment	4. Extended Producer Responsibility System 5. Eco Assurance System for Electrical and Electronic Products and Vehicles 6. SRF Quality and Facility Inspection System 7. Waste Disposal Charge System
Monitoring	8. Waste Management System (Allbaro)

Packaging Material & Structure Evaluation System

Introduced in 2020

Overview

- A system requiring manufacturers and importers to **evaluate and label recyclability of packaging materials** to promote eco-design from the production stage.
- Applies to **packaging materials under the EPR system**



Paper packs



Glass bottles



Metal cans



Plastics

Evaluation Grades

Incentive / Penalty

- Best for recycling
Up to 50% refund of recycling contributions
- Good for recycling
- Fair for recycling
- Difficult to Recycle
10-20% surcharge applied



랩 : PVC
재활용 어려움

Packaging Improvement case



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Official Use Only

Waste Charge System

Introduced in 1992

Overview

- Charges imposed on manufacturers and importers of products, materials, and containers that are hard-to-recycle or contain hazardous substances
- Applies to **cigarette, gum, diapers, toxic containers, antifreeze, icepacks, plastic products** (excluding items covered by the EPR or Eco-Assurance system)

Financial Scale

💰 Annual charges: approx. KRW 200 billion

Use of Collected Charges

- Support for recycling and waste treatment projects
- Installation of recycling and waste treatment facilities
- R&D and technology development for resource circulation
- Financial assistance for local government recycling programs

Containers of Pesticides and Toxic Products(Unit)	A. Plastic Containers - 500ml or less - over 500ml	₩24.9 ₩30.7
	B. Glass Bottles - 500ml or less - over 500ml	₩56.2 ₩84.3
	C. Metal Cans - 500ml or less - over 500ml	(Toxic Waste) ₩53.9 ₩78.2
Antifreeze (ℓ)		₩189.8
Gum (Selling Price/Import Price)		1.8%
Disposable Diaper		₩5.5
Cigarette Pack (20 cigarettes)		₩24.4
Plastic Products (per kg of synthetic resin contained)	For general use	₩150
	For construction	₩75

Packaging Inspection System

Introduced in 1993

Overview

- A system that inspects **packaging materials and methods** (space ratio and number of layers) to encourage the use of recyclable packaging and reduce excessive or unnecessary packaging.

Detailed Inspection Categories



Packaging Material Inspection

- Inspection on the use of PVC (Use of PVC-laminated, shrink-wrapped, or coated packing is prohibited)
- Target products: eggs, fried foods, gimbap, hamburgers, sandwiches



Packaging Space Ratio and Number of Layers

- Inspection on the unused space inside product packaging and number of packaging layers
- Target products: 32 items in 8 product categories, including food, beverage and cosmetics



Material Test for Separate Disposal Labeling

- Test for packaging made of synthetic resin to verify suitability for the separate disposal mark

Extended Producer Responsibility System

Overview

Introduced in 2003

- EPR system mandates producers and importers of products and packaging materials to recycle a certain percentage of wastes from products or packaging materials.
- A recycling fee is imposed on those who fail to fulfill this obligation.

- **4 types of packaging materials** (paper packs, glass bottles, metal cans, synthetic resin)
- **24 types of products** (lubricants, tires, fluorescent lights, batteries, 5 types of film products, 15 types of plastic products)

Roles of Stakeholders

- **Ministry of Climate, Energy and Environment:** announces annual recycling rate
- **Korea Environment Corporation:** verifies recycling performance and administers fee collection
- **Producers/Importers:** fulfill recycling obligations or pay recycling fees
- **PRO(Producer Responsibility Organization):** implement recycling on behalf of producers/importers
- **Consumers:** separate waste for recycling

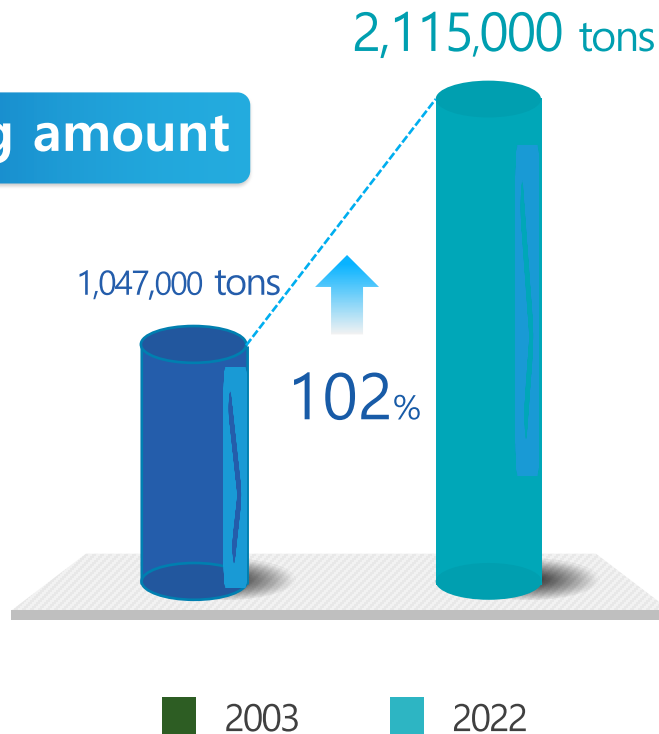
Extended Producer Responsibility System

Achievements

Introduced in 2003

Total Economic Value(9,244,769,000USD)= Landfill Replacing Cost + Economic Value of recycled products

Recycling amount



A total of recycling
for 20years
31,323,000 tons

Reduction of
greenhouse gas
10,658,000 CO₂ ↓
(in case of treating waste
without recycling,
10,658,000 CO₂ emission)

Greenhouse gas Reduction

■ Recycling amount

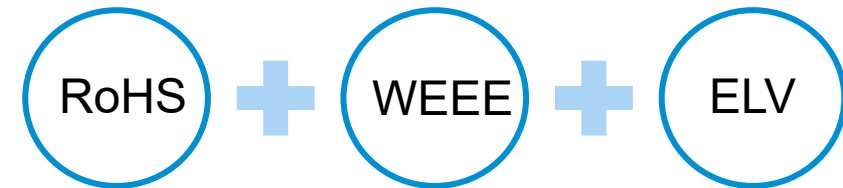
■ Greenhouse gas
emission amount
in case of treating waste

Eco Assurance System(EcoAS)

Introduced in 2008

Overview

- It aims to promote the recycling of **electrical and electronic equipment and vehicles** by restricting the use of hazardous substances, designing products for easy disassembly and recycling, and ensuring proper recycling of end-of-life products.
- Currently applies to **50 product categories of EEE**, (to be **expanded to all categories**) and vehicles.



Preventive policy

- Restrict the use of toxic materials
- Annual designated recyclability target at the design and production stage
- Material & structure improvement
- Provision of recycling information



Recycling policy

- Achieve the recycling target
- Compliance with recycling methods and standards
- Retailer take-back obligation
- Submission of management documents



Eco Assurance System(EcoAS)

Achievements

Introduced in 2008

Performance of Per Capita Recycling Targets

(kg/person)

	2019	2020	2021	2022	2023	2024
National Target	6.52	7.04	7.56	8.08	8.17	8.38
Performance	6.84	7.67	8.24	8.36	8.97	9.55
Rate	105%	108%	109%	103%	109%	113%

Expansion of Collection Boxes for EEE

20,000
units by the
end of this year



Performance of Recycling Amount

(ton)

	2019	2020	2021	2022	2023	2024
Amount	342,141	368,765	399,021	424,922	417,196	432,268
Performance	339,948	397,901	429,653	414,878	451,523	491,224
Rate	99%	108%	108%	98%	108%	114%

Performance of take-back Amount

(ton)

	2019	2020	2021	2022	2023	2024
Amount	66,844	71,277	100,676	106,550	124,878	128,361
Performance	109,410	165,805	186,988	190,447	218,269	218,875
Rate	164%	233%	186%	179%	175%	171%

SRF Quality and Facility Inspection System

Introduced in 2003

Overview

- **Solid refuse fuel(SRF)** is a recycled product manufactured from combustible waste in compliance with quality standards prescribed by law.
- K-eco has operated **the Waste-to-Energy Center** since 2015, which conducts inspections of SRF products and facilities to ensure the safe production and use of SRF.



Quality Inspection

- Shape and size
- Caloric value
- Moisture content
- Metal content
- Ash, chlorine and sulfur content

Inspection of Noise and Oder

SRF

- Municipal solid waste
- Waste synthetic resin
- Waste rubber, used tires



BIO-SRF

- Waste paper
- Agricultural residues
- Waste wood



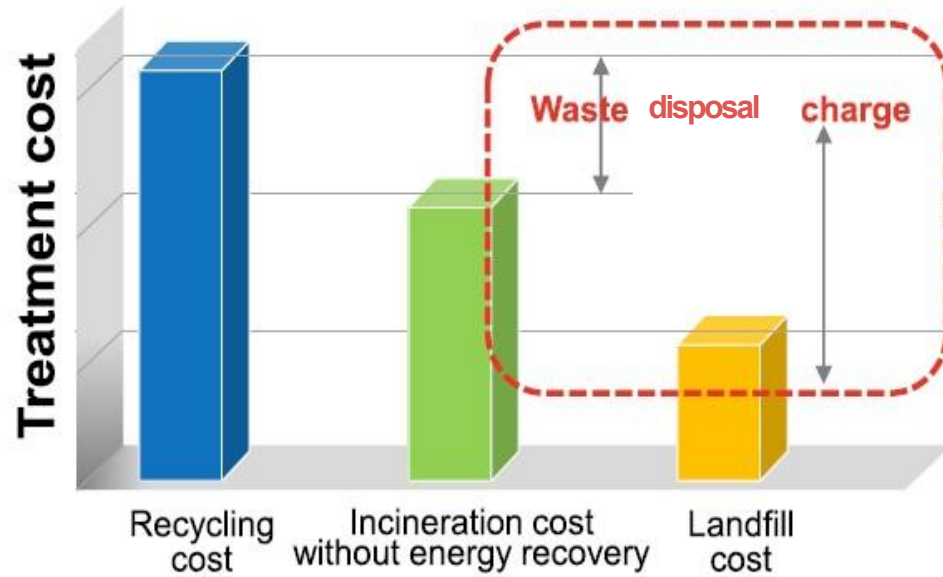
- Cement Kilns
- Industrial boilers
- Power Plants, Steel mills

Waste Disposal Charge System

Overview

Introduced in 2018

- Waste disposal charge is imposed to fill the gap among treatment methods
- Economic inducements are introduced in order to reduce incineration & landfill and promote recycling



Waste Type	Landfill	Incineration
MSW	15 won/kg	10 won/kg
Industrial waste (combustible)	25 won/kg	10 won/kg
Industrial waste (incombustible)	10 won/kg	-
Construction waste	30 won/kg	10 won/kg

Achievements

Waste landfill rates(2017 → 2023)

- Domestic waste: 13.5% → 10.7% ,
- Industrial waste: 13.4% → 6.5%,
- Construction waste: 1.5% → 0.1%

Waste Management System(Allbaro)

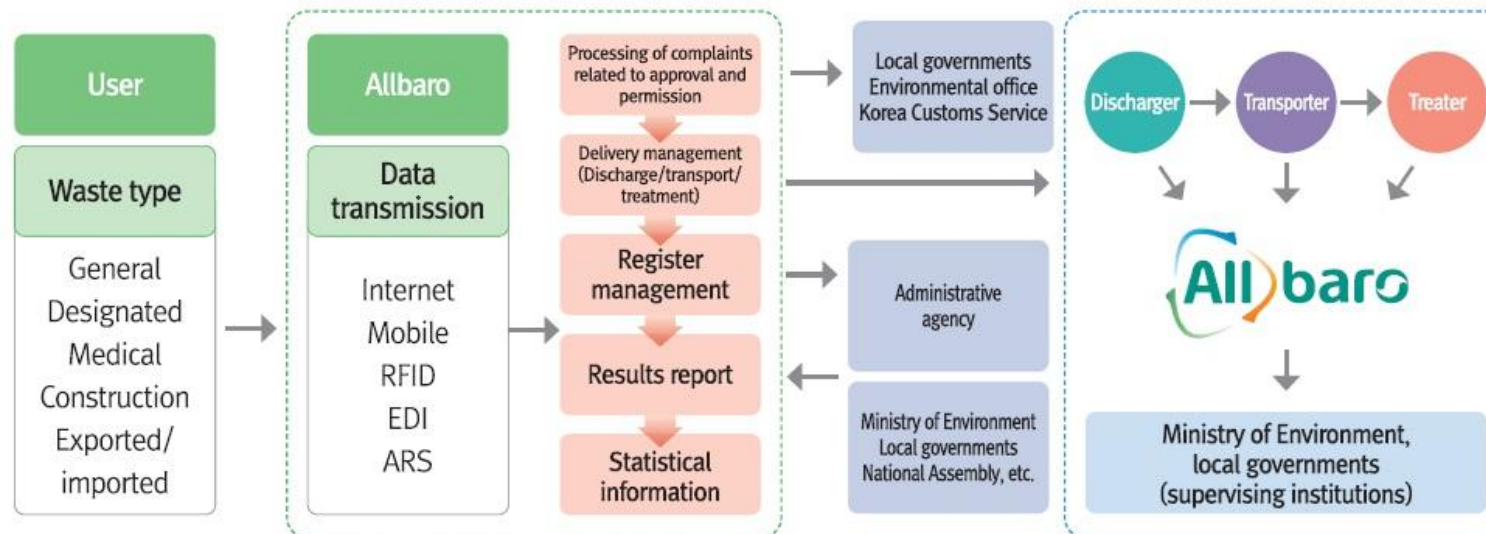
Introduced in 2003

Overview

- The web-based waste management system that manages **the entire process of industrial waste** from generation through transportation to final disposal.
- **An electronic waste delivery note** is completed during waste generation, collection, transport and treatment, ensuring mutual confirmation among all parties for proper waste management.

414,828 registered users (as of 2024)

Key functions



- Approval and permission for waste treatment
- Management of Waste electronic delivery note (**14million notes** in 2024)
- Annual report submission

Future Directions for a Circular Economy



Promote the Use of Recycled Materials

Encourage manufacturers to increase recycled content and expand the recycled material labeling system to enhance market demand for recycled resources.



Establish Eco-design Standards

Develop design criteria by product category to improve recyclability, resource efficiency, and environmental performance across the entire lifecycle.



Enhance Product Repairability and Durability

Promote repair-friendly design and extended product lifespan through technical guidelines and policy incentives to reduce waste generation.



Strengthen Global Cooperation and Knowledge Sharing

Share Korea's experiences and best practices to support other countries in accelerating their circular economy transition.