

Measures to Achieve Plastic-free Household Waste

August 17, 2021



한국환경공단





Plastic from the bodies
of marine animals

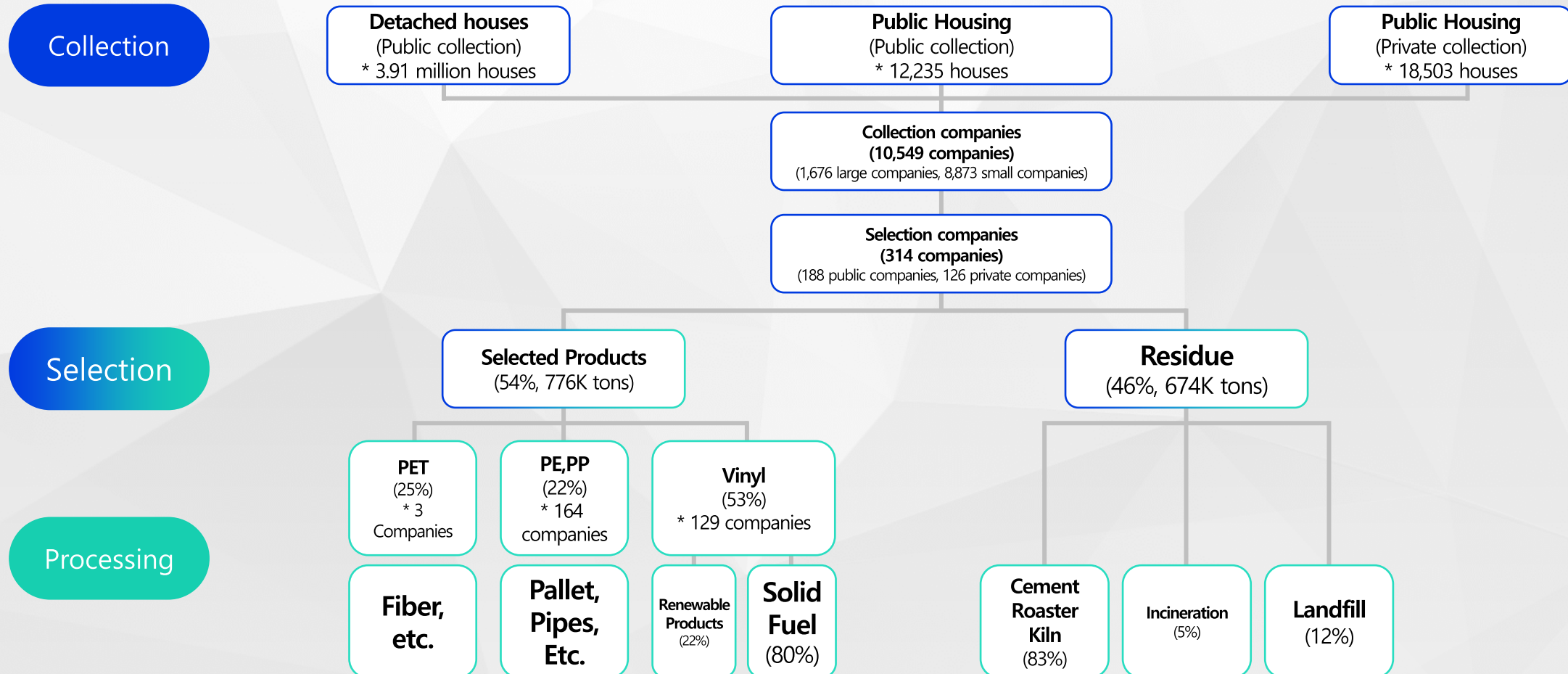


I . Policy Directions for Recycling Resources in Korea

I -1. Background

54% recycled from 1.45 million tons of separately discharged Household plastic waste

* 8.22 million tons of plastic waste(2018): Household waste of 3.23 million tons (1.78 million tons in general garbage bags, 1.45 million tons separated and discharged), industrial waste of 4.99 million tons



I -1. Background

Respond to increased amount of plastic use, need for mid-to-long term plastic-free measures

- Korea is one of the countries with the highest levels of plastic consumption

* Amount of plastic used (kg/year/person): **Belgium-170, Taiwan-141, Korea-132**

- Although the Comprehensive Recyclable Waste Plan (May 2018) was partially successful in reducing the amount of plastic waste, it started to increase again due to COVID-19

* (2019) Disposable cups at coffee shops 75% ↓, plastic bags at bakeries 84% ↓

(2020) Compared to the same period last year, parcel deliveries 19.5% ↑, food deliveries 75% ↑

▶ Waste plastic 14.6% ↑, waste vinyl 11% ↑

- Concerns about the outburst of the second plastic waste crisis due to poor profitability of the recycling industry, with issues such as a drop in oil prices

* Unit cost in selling renewable materials for plastic (won/kg) : January 2020-767 → October 2020-683(11% ↓)

- Need for plastic-free measures for 2050 Carbon Neutrality, as plastic is one of the key waste responsible for CO2 emissions

① Reduction in the amount of production and consumption of plastic

② More recycling of collected plastic

③ Transition to a plastic-free society in the long term

I -1. Background

Vision and Goals

Short-term

Connection to the Green New Deal, Reduce the amount of waste sources and increase recycling

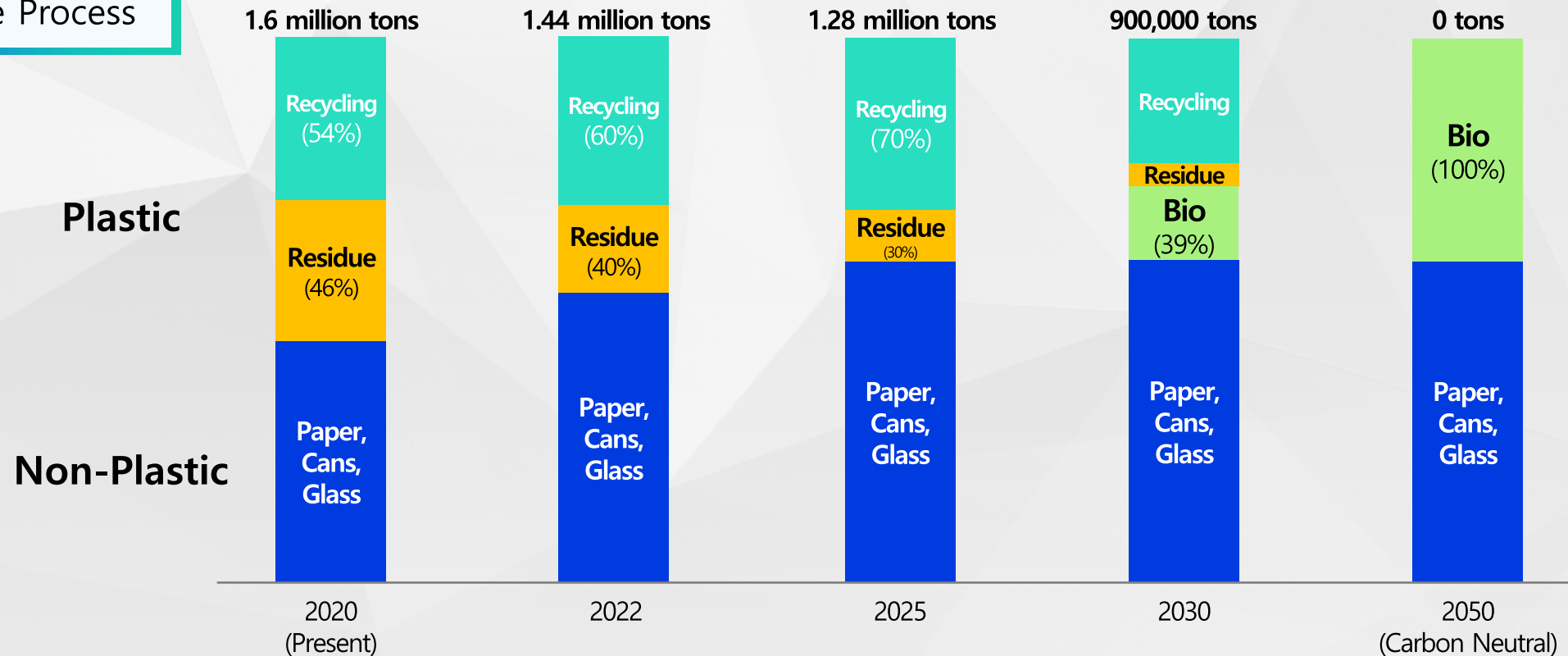
- * Decrease the amount of plastic waste by 20% compared to 2020 (2025)
- * Increase the rate of recycling from 54% to 70% (2025)

Long-term

Connection to Carbon neutrality, transition to a plastic-free society

- * Eliminate all petroleum plastic by 2050

Plastic-Free Process



Mid-to-Long-term Visions and Strategies for Waste

- **Maximize resource efficiency** to reduce the need for financial resources, and build a circular resource economy to fundamentally **reduce the amount of waste**
- Waste is converted to be **recycled** or **reused as energy**, and waste that cannot be recycled **must be processed in ways that are eco-friendly**

Fundamentally Reduce the Amount of Waste

- **Make reduction of resources and waste the top priority**

① **Production (Optimize flow of resources for each production process)**

- Reduce resource and energy loss, and reuse any byproducts within the workplace

② **Distribution (Significantly reduce disposable packaging materials)**

- Build a logistics system centered on multi-use packaging materials
- Business-to-Business (B2B), Business-to-Consumer (B2C)

③ **Consumption (Improve durability of the product)**

- Establish a hub for recycling in each area to minimize disposable waste

Encourage Waste to be Recycled as Value-Added Products

- **Allow waste to be a part of a circular economy**

① **Production (Products easier to recycle)**

- Improve resource recirculation, such as through making colorless PET bottles mandatory

② **Selection (Improve quality of recyclable materials)**

- Need to continuously improve standards for waste separation and recycling
- Differentiate support according to the quality of the products selected

③ **Recycling (Continuous recycling of materials)**

- Incorporate some of the waste in the production process by improving EPR
- Create a cluster where it is possible to conduct large-scale technological development and actual testing

Eco-friendly Processing of Waste

- **Process non-recyclable waste in an eco-friendly manner**

① **Landfill (Low-carbon landfill management)**

- Step-by-step transition from direct landfill prohibited waste to combustible waste
- Increase energy production by increasing the use and collection of methane gas

② **Incineration (Enhancing the energy production base)**

- Use in conjunction with the local heating and hydrogen production and use facilities
- Development of CO2 reduction facilities and technology that occur during incineration

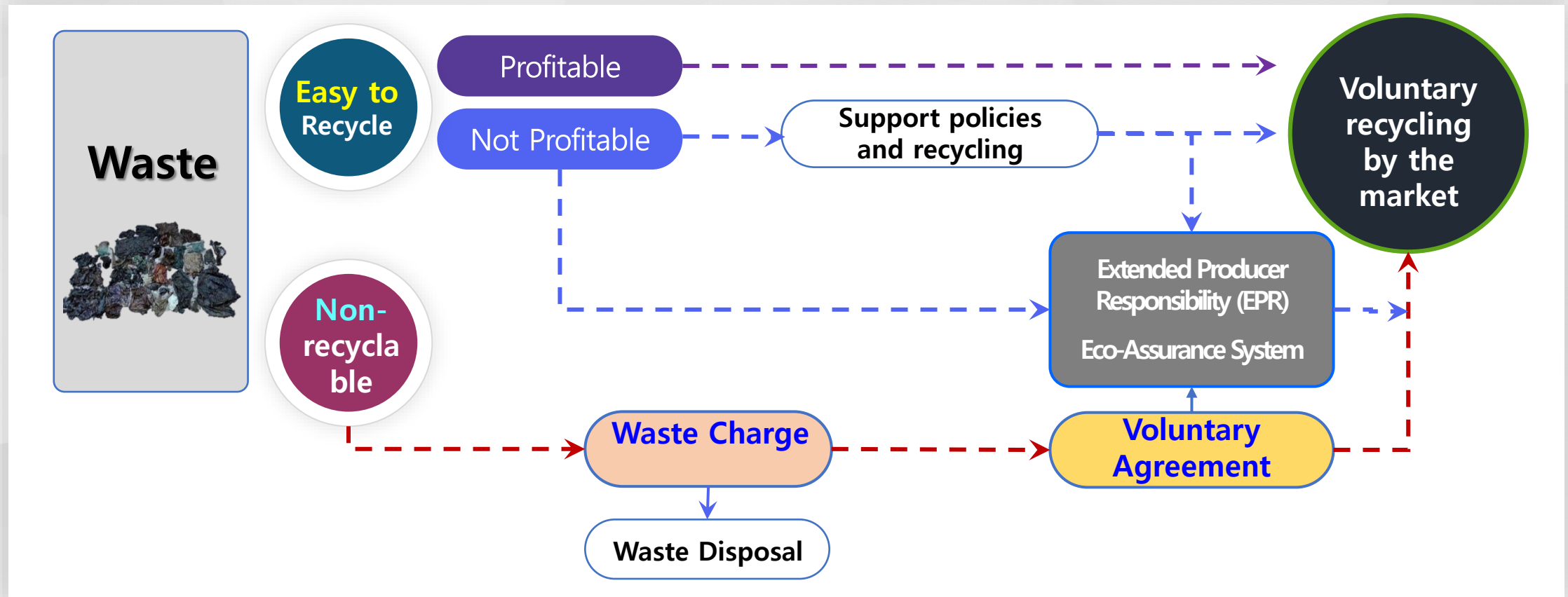
③ **Development (Development of bio plastic technology)**

- Completely replace oil-based plastic with bio plastic



II. Plastic Recycling Policies in Korea

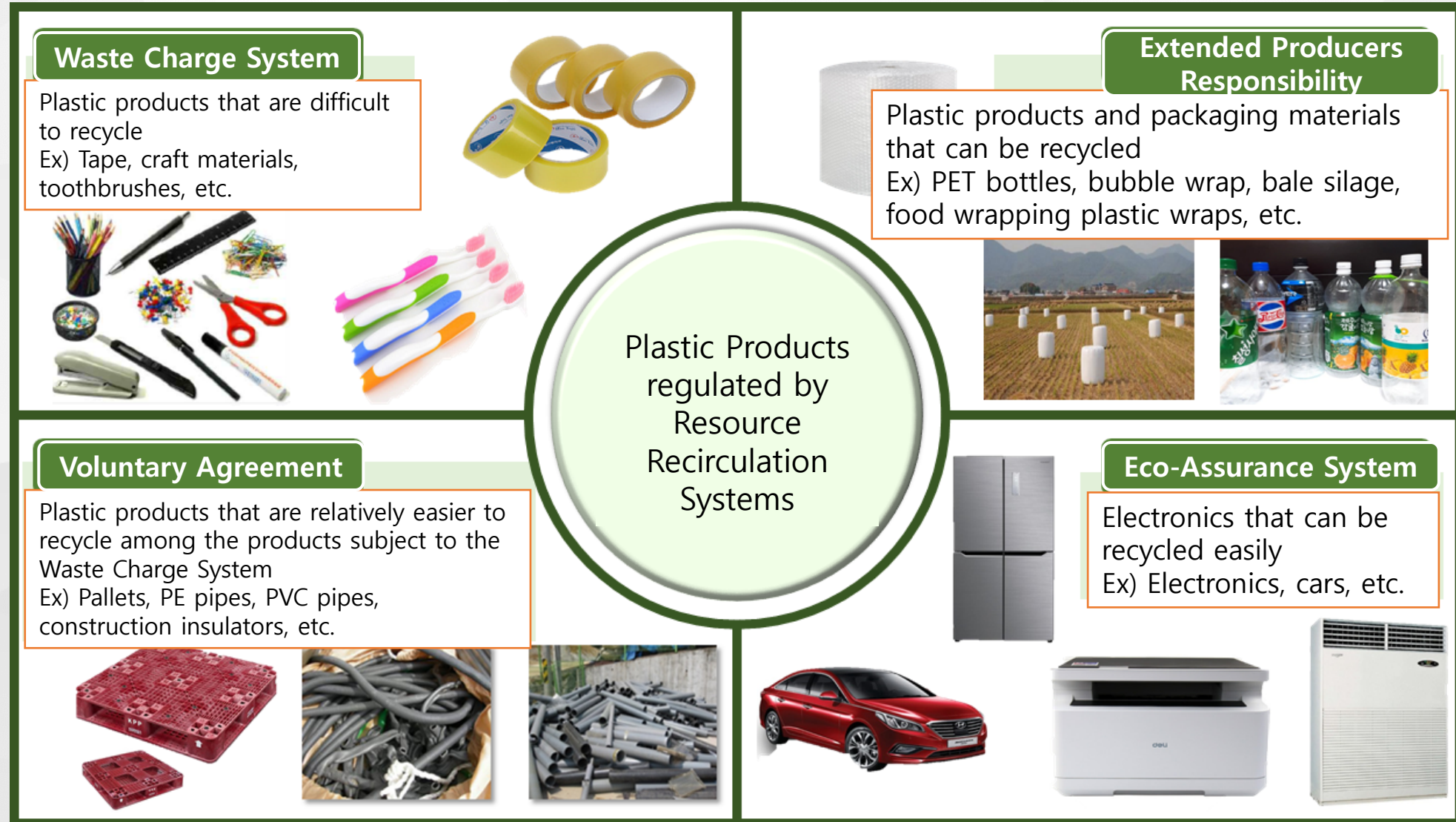
II-1. Flow Chart of Waste Recycling System



*Market-oriented Regulations

These are regulations that encourage certain behavior by a company or an individual while allowing the regulated to choose their own economic burden. That is, the regulatory standards are set, but following the regulations is strictly based on the free will of the regulated. The regulated can either follow the regulations, or choose to receive economic penalties such as fines according to economic benefits and losses.

II-2. Major Plastic Products



II-3. Plastic Recycling Policies in Korea

	Waste Disposal Charge System	Voluntary Agreement System	EPR	Eco-Assurance System
Purpose	Levies the charges needed for handling wastes on the producers and importers of the goods, materials or containers which are difficult to recycle and are susceptible to harmful substances and issues in the process of waste management	Businesses that are subject to the Waste Disposal Charge System enter into an agreement with the Minister of Environment to exempt waste charge when collecting and reusing plastic waste, to reduce the burden on the businesses and encourage recycling	Producers and importers of products with packaging materials (packaging materials include vendors of products that use packaging materials) are mandated to recycle waste from products and packaging materials, and those who fail to do so are subject to recycling charges	Minimize environmental loads through systematic management of entire life cycle of electrical products, electronic devices and vehicles, from design and production to disposal, in order to reduce wastes and promote recycling activities
Legal Basis	Article 12 of the Act on the Promotion of Saving and Recycling of Resources	Article 12 of the Act on the Promotion of Saving and Recycling of Resources	Article 16 of the Act on the Promotion of Saving and Recycling of Resources	Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles
Standards for Choosing Products	<ul style="list-style-type: none"> Products harmful to the environment, difficult to recycle, and hard to process Products not worth recycling in terms of technology and economics 	<ul style="list-style-type: none"> Although the products are not worth recycling in terms of technology and economics, they may be subject to development of new recycling technology and recovery of economic aspects in a short time 	<ul style="list-style-type: none"> Products that are easy to collect and recycle and are worth recycling in terms of technology and economics 	
Products	<ul style="list-style-type: none"> Pesticides and Toxic Products (plastic, glass bottles, metal cans) Gum Antifreeze Disposable diapers Cigarettes, plastic products 	① Sash / ② Flooring material / ③ PE pipe / ④ Pallet / ⑤ Container ⑥ Electricity-communication wire / ⑦ PVC pipe / ⑧ Filters ⑨ Artificial turf / ⑩ Car bumpers and moldings for repair / ⑪ Industrial PE film / ⑫ Expanded polystyrene for construction / ⑬ Household items ⑭ Ropes / ⑮ Safety nets and nets (fishing nets, etc.), toys	<ul style="list-style-type: none"> 4 types of packaging materials: Paper packaging, glass bottles, metal cans, synthetic resin packaging materials 8 types of products: Lubricants, tires, fluorescent lamps, batteries, buoys for farming marine products, sheet film for baled silage, racks of synthetic resin mats, 5 types of films 	<ul style="list-style-type: none"> Temperature changing equipment Refrigerators, electric water purifiers, etc. Display equipment Television, etc. Communication and office equipment Copying machine, fax, etc. Other general electronics Washing machines, electric ovens, etc.



III. The Role of K-eco for a Plastic-Free Society (Major Programs)

Ⅲ. The Role of K-eco for a Plastic-Free Society

Vision To achieve a plastic-free society

Goals Recycle 100% of plastic waste by 2050

Management of the Entire Life Cycle of Plastics

Production

- ① **Waste Charge System** - Fundamentally prevents plastic waste from being generated
- ② **Packaging Material and Structure Evaluation** - System that considers recycling from the production stage
- ③ **EPR** – Stronger responsibility imposed on producers to encourage recycling

Consumption

- ④ **Packaging Material and Method Inspection** – Reduce waste by improving the packaging methods
- ⑤ **Separate Discharge Indication System** – Improve the separation indicators to fit the current levels of recycling
- ⑥ **PET Bottle Discharge** – Separation according to the properties of the waste to improve the quality of recycled products

Recycling

- ⑦ **PET Bottle Grade System**- Provide incentives to encourage high-quality recycling
- ⑧ **Increase the Demand for Recycled products**- Increase the need for recycling and implement the systematic use of renewable materials to stabilize the recycling industry
- ⑨ **Recycling Market Monitoring** – Market monitoring to stabilize the recycling market

III-1.(Production) Waste Charge System

- ✓ Fundamentally prevent plastic waste from generation

Problem

Increase in
the amount
of plastic
due to
COVID-19



Need for
reduction of
plastic
products
at source



Solution

Acceptable levels of charge

Fundamentally prevent plastic products from being produced by encouraging the transition to bioplastic through a gradual increase of the waste charge (AKA Plastic Fee) rates to match global levels

- * **Currently: Waste Charge 75 – 150 won/kg / EU Plastic Tax rates (€0.8/kg=approx. 1,000 won) to be implemented in 2021**
- * **Consigned research on “Review of the Appropriateness of the Waste Disposal Charge Rates” (2021)**

III-2.(Production) Packaging Material and Structure Evaluation

System that considers recycling from the production stage

 Evaluates the materials, structure, and recyclability of packaging materials so that **producers will consider recyclability from the design and production stages**

[Related Evidence: the Act on the Promotion of Saving and Recycling of Resources, proclaimed on December 24, 2018, came into effect on December 25, 2019]



01

Production and distribution of packaging materials that are difficult to recycle leads to the processes of waste collection, separation, and recycling



02

Low recycling rates
Higher recycling costs
Low quality of recycled products
Other issues including the release of harmful substances



03

Producers obliged to recycle are given evaluations on the materials and structure of packaging materials and obligations to announce the results to encourage the improvement of materials and structure

III-2.(Production) Packaging Material and Structure Evaluation

System that considers recycling from the production stage

Mandatory Subjects for Evaluation

Subjects	Producers obligated to recycle according to Article 16 (1) of the Act on the Promotion of Saving and Recycling of Resources *Producer obligated to recycle may be exempt from the recycling obligation according to Article 16 (1)
Evaluated Items	Paper packaging, glass bottles, metal cans, and packaging material made from synthetic resin (Packaging materials produced by the producers obligated to recycle according to Article 16 (1-3) of the Act on the Promotion of Saving and Recycling of Resources)
Evaluation Standards	Types of materials of body/labels/stoppers and others, color, separation from the body, etc.
Evaluation Results	4 Levels "Excellent"(PET Bottles, PSP only), "Good", "Satisfactory", "Poor"

Results: "Good" 44% "Poor" 41% (As of May 20, 2021)

Classification	Total	Excellent	Good	Satisfactory	Poor
Number of Evaluations	50,097	371	21,839	7,499	20,388
Conducted	100%	1%	43%	15%	41%

* Grace period for the evaluations: In consideration of the companies subject to the evaluation (8,715 companies) and the number of packaging materials (approximately 50,000), there was a grace period of nine months after the Act came into effect (Dec. 25, 2019 – Sept. 24, 2020)

III-2.(Production) Packaging Material and Structure Evaluation

✓ System that considers recycling from the production stage

📄 Major Examples of Improvement

- (Color) Colored → Colorless
- (Materials) Composites → Single Material, PVC → Other Synthetic Resin, PET-G → PET
- (Label) Added cutoff lines, use of thermo-alkaline adhesives, changes in the structure of labels (No label, eco-label, etc.), changes in the materials of labels, labels easier to take off

(Color) Color → Colorless		(Materials) PVC→PET		(Label) Cutoff Lines		(Label) Label-free	
							

III-3.(Production) Extended Producer Responsibility

- ✓ Stronger responsibility for producers to encourage recycling

Problem

The amount of recycled waste has doubled since the start of the EPR system in 2003



As for household waste

- Unstable market
- Poor quality recycling

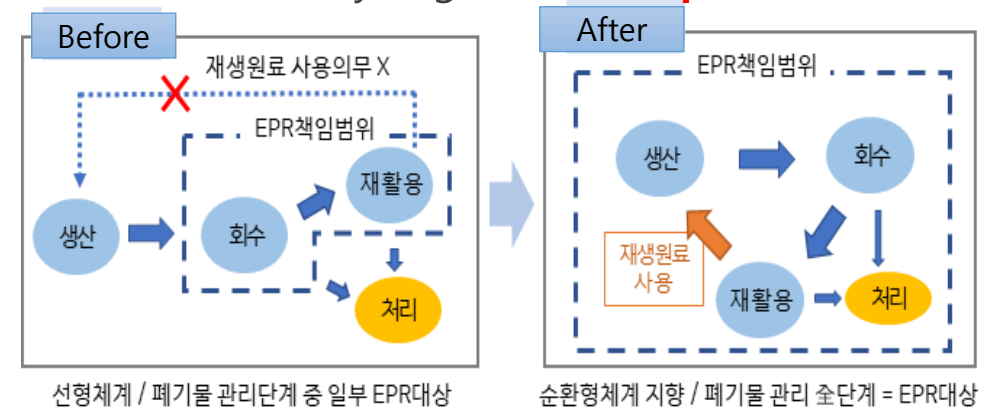
* Recycling of packaging materials: 580,000 tons in 2002 → 1.29 million tons in 2018 (2.2-fold increase)

Solutions

Gradual expansion of EPR (-2025)

Collection/Recycling →

Collection/Recycling/**Process/Reproduction etc.**



선형체계 / 폐기물 관리단계 중 일부 EPR대상

순환형체계 지향 / 폐기물 관리 쉼단계 = EPR대상

III-3.(Production) Extended Producer Responsibility

- ✓ Stronger responsibility imposed on producers to encourage recycling

Solutions

○ Gradual expansion of EPR (-2025)

- Set a mandatory proportion for the use of recyclable materials (-2030)

* EU has made it mandatory to use at least 30% renewable materials in plastic containers

Solutions

○ Revision of the Recycling of Resources Act (-2021)

- Stronger management of those who are exempt from EPR
- Charges and support according to the market conditions
 - (Levels of Charges): Increase and decrease according to the conditions of the recycling market, and change according to evaluation results of packaging materials and use of recyclable materials, etc.

Expected Effects

Increase profitability and competitiveness of the recycling industry with more EPR participants

Ⅲ-4.(Consumption) Packaging Material and Method Inspection

① Reduce waste by improving the packaging process

Problem

Increase in the amount of packaging materials in the distribution process due to repackaging

Increase of online shopping due to COVID-19, leading to an increase in the use of packaging materials

* Recycling of packaging materials: 580,000 tons in 2002 → 1.29 million tons in 2018 (increase by 2.2 times)

Solutions

① No repackaging

- Ban repackaging of already packaged products with film and sheets made from synthetic resin

* ① Limitations on additional packaging, ② No packaging for N+1 products and gifts, ③ Limit packaging of individual items to less than three per package

② Set new delivery standards

- Set limitations in packaging space and amount of packaging for parcel deliveries

* Delete exceptions for parcel delivery packaging materials, add new regulations for packaging space (50% or less) and number of packaging (only once)

III-5.(Consumption) Separate Discharge Indication System

- ✓ Improve the separation indicators to fit the current levels of recycling

Problem

Same discharge indication system for packaging materials that are difficult to recycle



Greater cost of differentiating recyclable products, Poorer quality of renewable materials
Need to be separately discharged from the discharge stage



Solution

"Application and Adhesion Indicator ()"

- New "Application and Adhesion" indicator for products and packaging materials that are difficult to recycle, in consideration of the current levels of recycling
→ Products with this mark must be thrown away in a standard garbage bag
- * [Guidelines on separate discharges \(Revised and to become in effect in January 2022\)](#)



Application and Adhesion Indicator

- Added when other types of materials are added to the PET bottles, synthetic containers and tray packaging materials, making them impossible to separate

III-5.(Consumption) Separate Discharge Indication System

✓ Improve the separation indicators to fit the current levels of recycling

☰ Examples of packaging materials subject to the Application and Adhesion indicator

PET Bottles + Inseparable metal spring pumps		Synthetic Resin + Calcium Carbonate/Biodegradable Resin/Minerals, etc.	Synthetic Resin + Inseparable metal objects	
				

Expected Effects

Improve quality of separated recyclable resources to increase profitability of the separation companies, and reduce the cost of processing residual items

※ Examples of Waste Separation Posters

환경부

재활용품 분리배출 안내

한국환경공단

반드시 분리하여 재활용품 수거함에 넣어주세요

페페트병(음료·생수)

내용물 비우기
라벨 제거하기
페트병뚜껑 & 뚜껑달기
투명하고 유색을 분리해 지정된 배출함에 넣기

골판지 박스

테이프 등 종이류와 다른 재질 제거
이물질이 혼합되지 않도록 접어서 배출

신문·책자류

스프링은 헤어사 따로 배출

종이팩

종이팩은 일반 종이류와 구분하여 종이팩 전용 수거함에 따로 배출해주세요 (수거함이 없는 경우 묶어 종이류로 배출)

플라스틱류

꼭 이물질·물기 제거 후 재활용품으로 배출

재질별로 분리하여 배출
음료용기 ▶ 은박지 제거
물티슈 ▶ 캡 분리

기타

부착물을 제거한 후 분리배출 (부착물 ▶ 종량제 봉투, 본체 ▶ 재활용품)

폐가전제품(대형/소형) 분리배출 방법(무상수거)

대상품목	대형	소형
	냉장고, 세탁기, 에어컨, TV, 자동판매기, 런닝머신, 복사기, 전기정수기, 공기청정기, 전자레인지, 식기세척기, 냉온정수기, 제습기 등	전기밥솥, 청소기, 가습기, 노트북, 헤어드라이기, 선풍기, 다리미, 녹음(녹화)기, 휴대폰(배터리 포함), 비데 등

배출방법

사전 예약방법 (배출자 개별신청)

1. 콜센터 전화 : 1599-0903 (평일 08:00~18:00) 2. 인터넷홈페이지 : www.15990903.or.kr

세트 품목 : PC세트(본체+모니터), 오디오세트 / 소형가전은 5개 이상이 되어야 수거신청 가능

대형 폐기물

전기장판 / 옥매트 / 조명기기 / 악기 / 전가안마의자 / 가구(장롱, 침대, 매트리스 등)
대형 폐기물로 지자체 개별별 신청(문의는 해당 구 군청 청소관련부서)
*별도 처리수수료 부담

환경부

재활용품인 척하는 쓰레기

한국환경공단

종량제 봉투에 버려주세요

1. 씻어도 이물질이 제거되지 않는 용기류

치킨상자 속 기름종이	미세적 접합, 컬러면 용기류 등	음식물이 제거되지 않은 마요네즈·케첩류·기름통
이물질이 많이 묻어있고, 다른 재질과 혼합되어 재활용이 어려움	다른 재질과 혼합되어 재활용이 어려움 미세적 접합 컬러면 용기는 음식물이 제거되지 않아 재활용이 어려움	음식물이 제거되지 않은 마요네즈·케첩류·기름통 제대로 씻고 말릴 경우 재활용 가능

2. 오해하기 쉬운 분리배출 대상이 아닌 품목

과일상, 과일포장재	깨진병, 판유리, 조영기구용 유리류	도자기류, 사기그릇
재활용이 어려움	깨진병, 판유리는 재활용이 어려움 ▶ 신문지에 싸서 버림	재활용이 어려움 ▶ 불연성쓰레기로 배출
아이스팩 고흡수성지 아이스팩은 재활용이 어려워 종량제 봉투로 배출 (전용수거함이 있는 경우 분리 배출)	보온보냉팩 재활용이 어려움	문구류(볼펜, 사프, 칫솔 등) 다른 재질과 혼합되어 재활용이 어려움
CD/DVD, 고무장갑, 슬리퍼 다른 재질과 혼합되어 재활용이 어려움	노끈 노끈마다 재질이 다양한 구분이 어려우므로 재활용이 어려움	기저귀, 화장지 재활용이 어려움

3. 폐비닐 내용물을 비우고 물로 행구는 등 이물질을 제거하고 분리배출 해주세요

음식물이 묻은 비닐	스티커 등이 붙은 비닐	재활용 불가품
행구지 못할 경우 종량제 봉투로 배출	이물질을 제거하지 못하는 경우 종량제 봉투로 배출	식탁보, 은박비닐, 이불커버 등은 종량제 봉투로 배출

자세한 내용은 [내소안의 분리배출앱](#) 을 참고해주세요

2020 자원순환 실천를 맺을 우리도 함께 합니다

지구를 위한 선택
사실은 우리를 위한 실천
www.recycling-info.or.kr/act4r

Ⅲ-6.(Consumption) PET Bottle Separate Discharge

- ✓ Separated according to the properties of the waste to improve the quality of recycled products

Problem

- Many alien substances
- Limitations in exports in waste plastic
- Increase in the global renewable material market

Need to improve high-quality renewable material industry in Korea



Solutions

Improve the Separation and Discharge System

- Individually separate and discharge high-quality recyclable items (ex. PET Bottles) to enhance quality
- Revise separation and discharge regulations, such as by designating days for discharge, banning compression vehicles, etc.
- Remove items that are difficult to recycle (ex. Food containers) from the discharge list to be thrown into the general garbage bag

* Trial for individual discharge of PET Bottles (2020, 6 cities) → All public housing in the country (Dec. 2020) → All detached houses in the country (2022)

Separate discharge (Designated days, no compression vehicles)



Separate location for compression



Expected Effects

Improve quality of discharged recyclable resources to enhance profitability of the sorting companies and reduce the burden of processing residual products

Ⅲ-7.(Recycling) PET Bottle Grade System

- ✓ Provide incentives to encourage high-quality recycling

Problem

No differentiation in PET bottle support

Need to improve quality of differentiation with a separate discharge system for transparent PET bottles

* Differentiated levels exist for support for composite films and single-material containers

Expected Effects

Production of high value-added recyclable products by securing high-quality recyclable materials

Solutions

○ Different levels of EPR support according to the quality levels of PET bottles

- (Before) 35.2 won/kg on average → (After) 10 won – 80 won/kg according to levels (4 levels of A, B, C, F, public and private)

Before		After		
35.2 won/kg	⇒	Level	Amount	Standards
		A	80 won/kg	High-quality compressed products selected with facilities only for transparent PET bottles
		B	35 won/kg	Compressed products with color
		C	20 won/kg	Products with color and with many alien or unnecessary substances
		F	10 won/kg	Products with a lot of alien or unnecessary substances

III-8.(Recycling) Increase the Demand for Recycled Products

- ✓ Increase the need for recycling and implement systematic use of renewable materials to stabilize the recycling industry



Expected Effects

Provide a safety net that will enable the industry to survive through external risks such as a drop in oil prices by securing a stable demand for recyclable and renewable materials within Korea

III-9.(Recycling) Recycling Market Monitoring

✓ Market monitoring to stabilize the recycling market



Expected Effects

- Minimize inconveniences for the public, such as by preventing the rejection of collection of waste with stronger public management of recyclable waste
- Provide appropriate political support to stabilize areas of Korea's recycling market* that may be at risk, as seen from recent examples of stronger regulations on importing and exporting foreign waste and reduced demand for recyclable products due to the spread of COVID-19



Thank you.



한국환경공단