

# **Eco-friendly pallet production and Utilization Using Marine Waste from Busan Port**

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# 1-1 | Background of Selection



ESG management and partnerships are now essential.

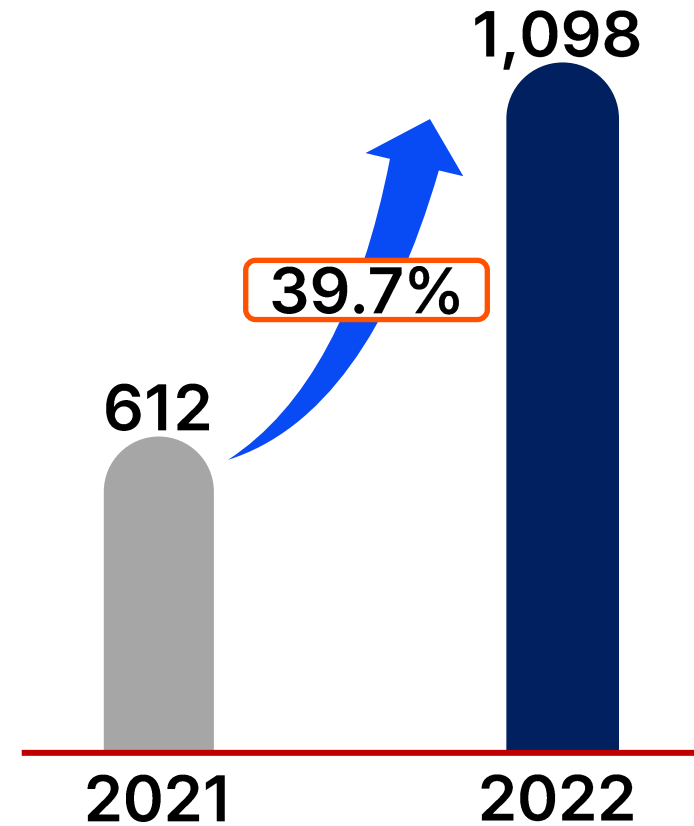


Korea's ESG finance surpassed 1,000 trillion by the end of 2022.



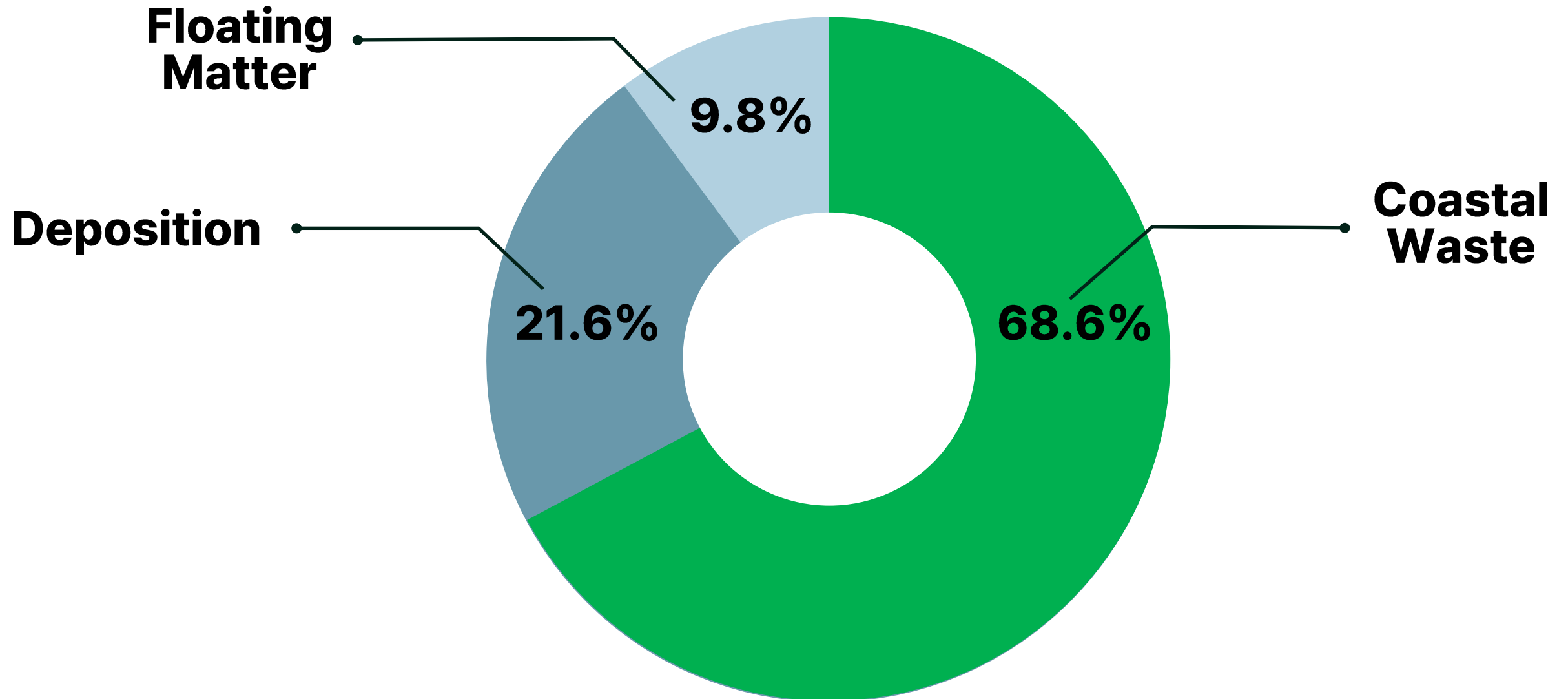
ESG initiatives enhance the reputation of large companies.

## The size of ESG finance in Korea

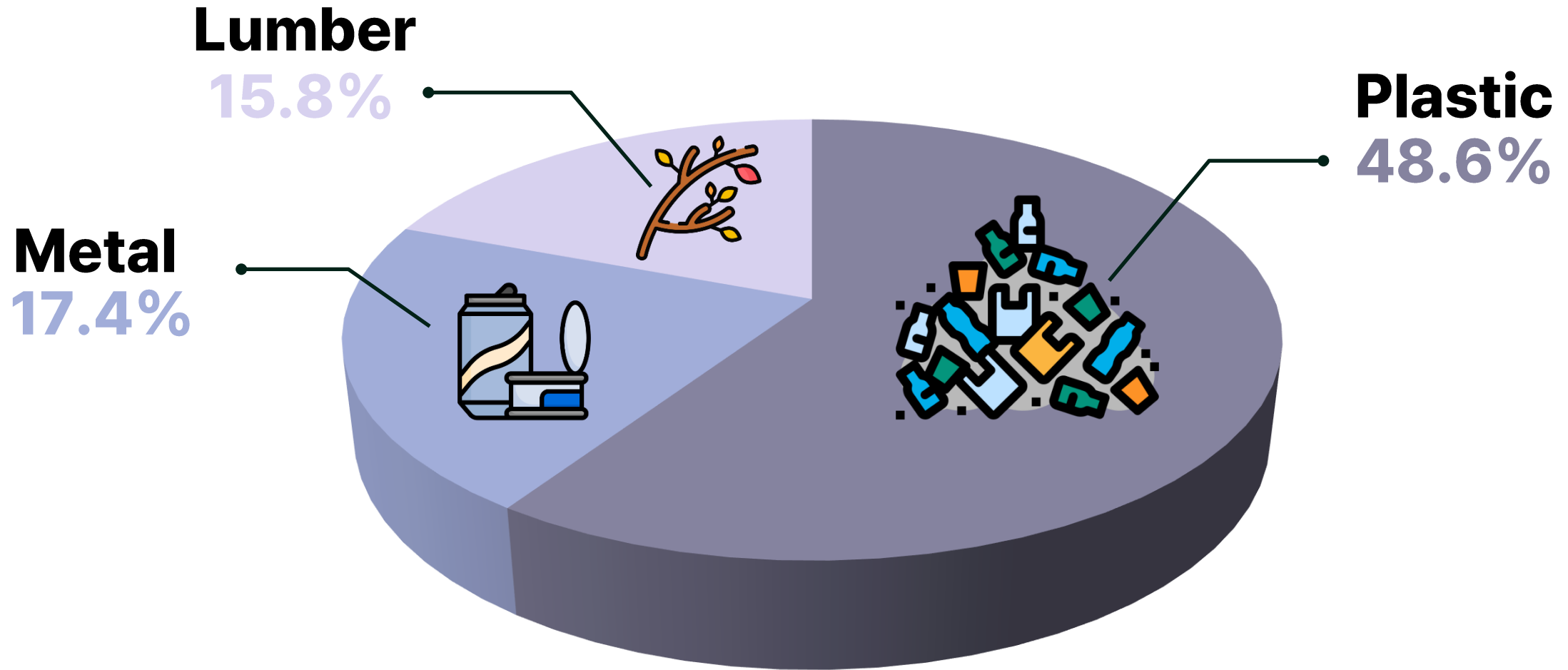


Unit : KRW trillion

## ▶ Percentage of waste from 2019 to 2022



## ➤ Coastal Trash Type



# 1-1 | Background of Selection

**Korea's shores have more plastic than most, much goes to ocean**



**| Digitalization**



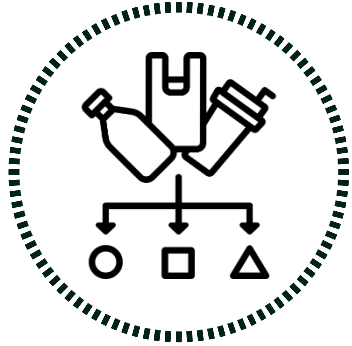
**| Decarbonization**

**| Diversification**

# 2-1 | Commercialization Process



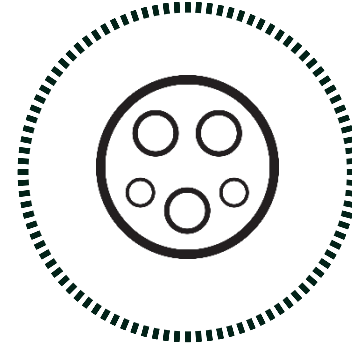
**Collection**



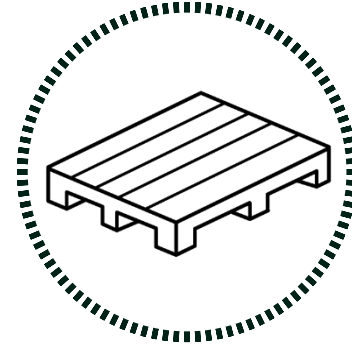
**Sorting**



**Pre-processing**

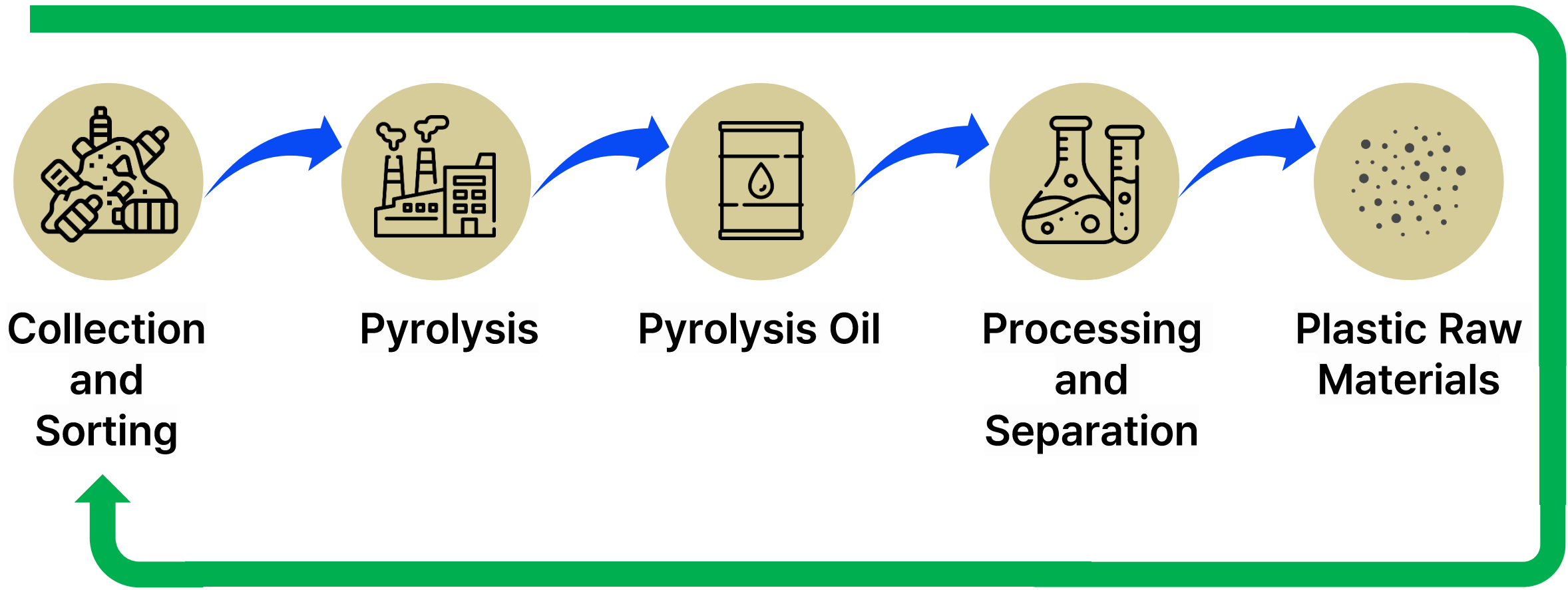


**Raw  
Materialization**



**Commercialization**

# 2-2 | Chemical Recycling

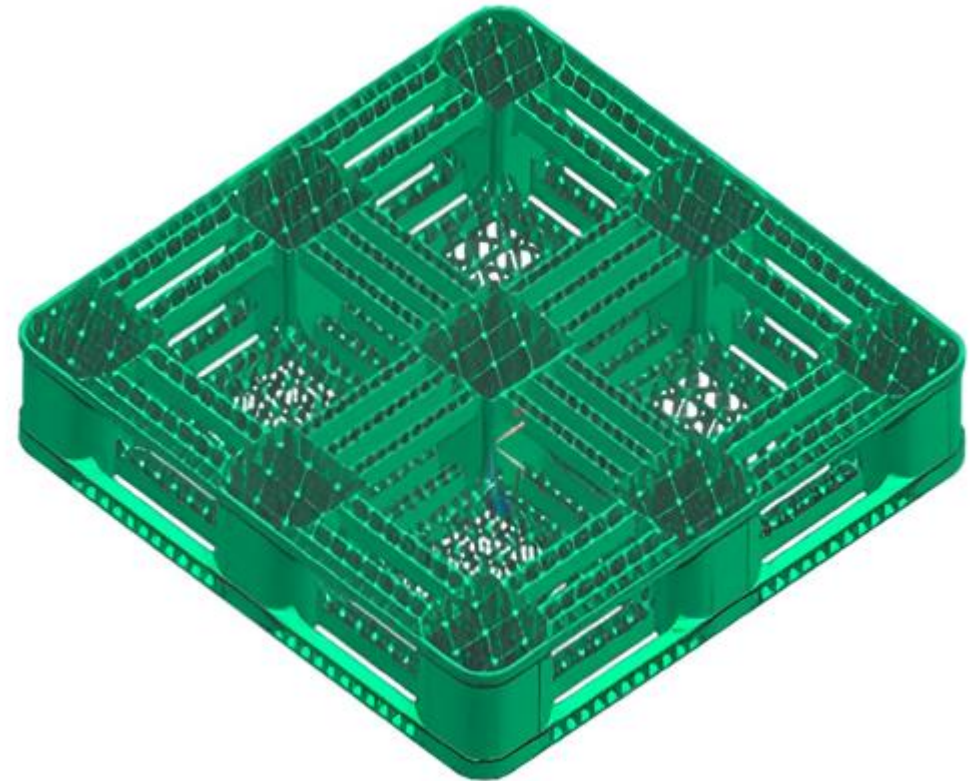
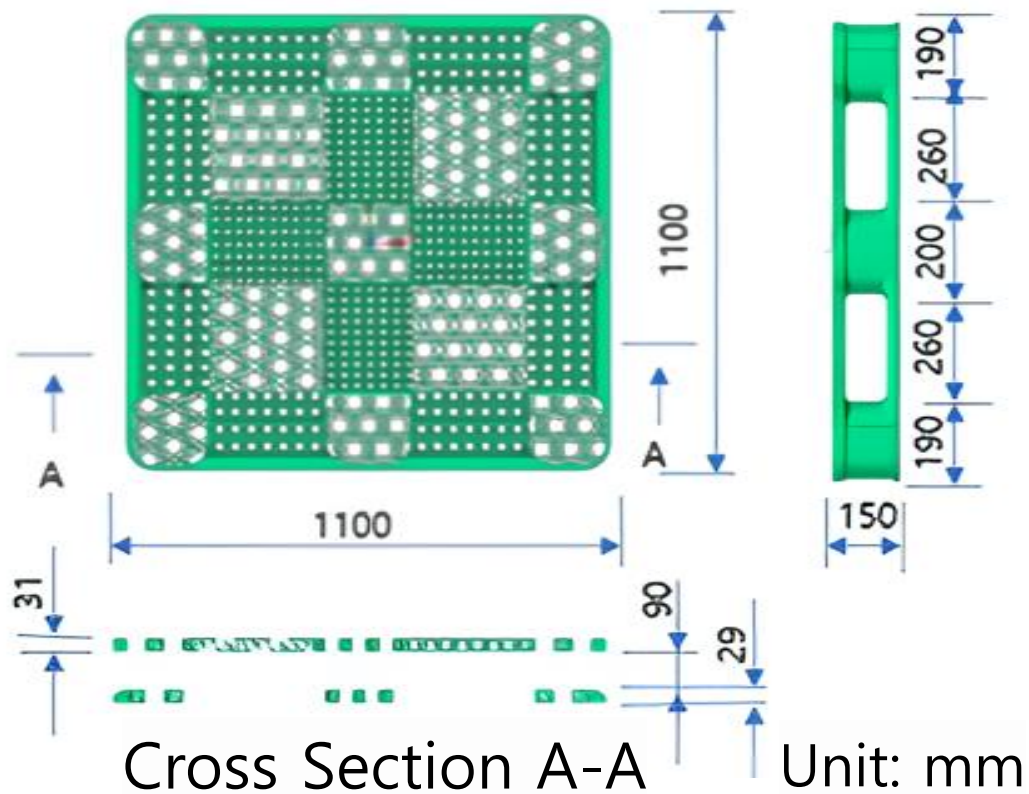




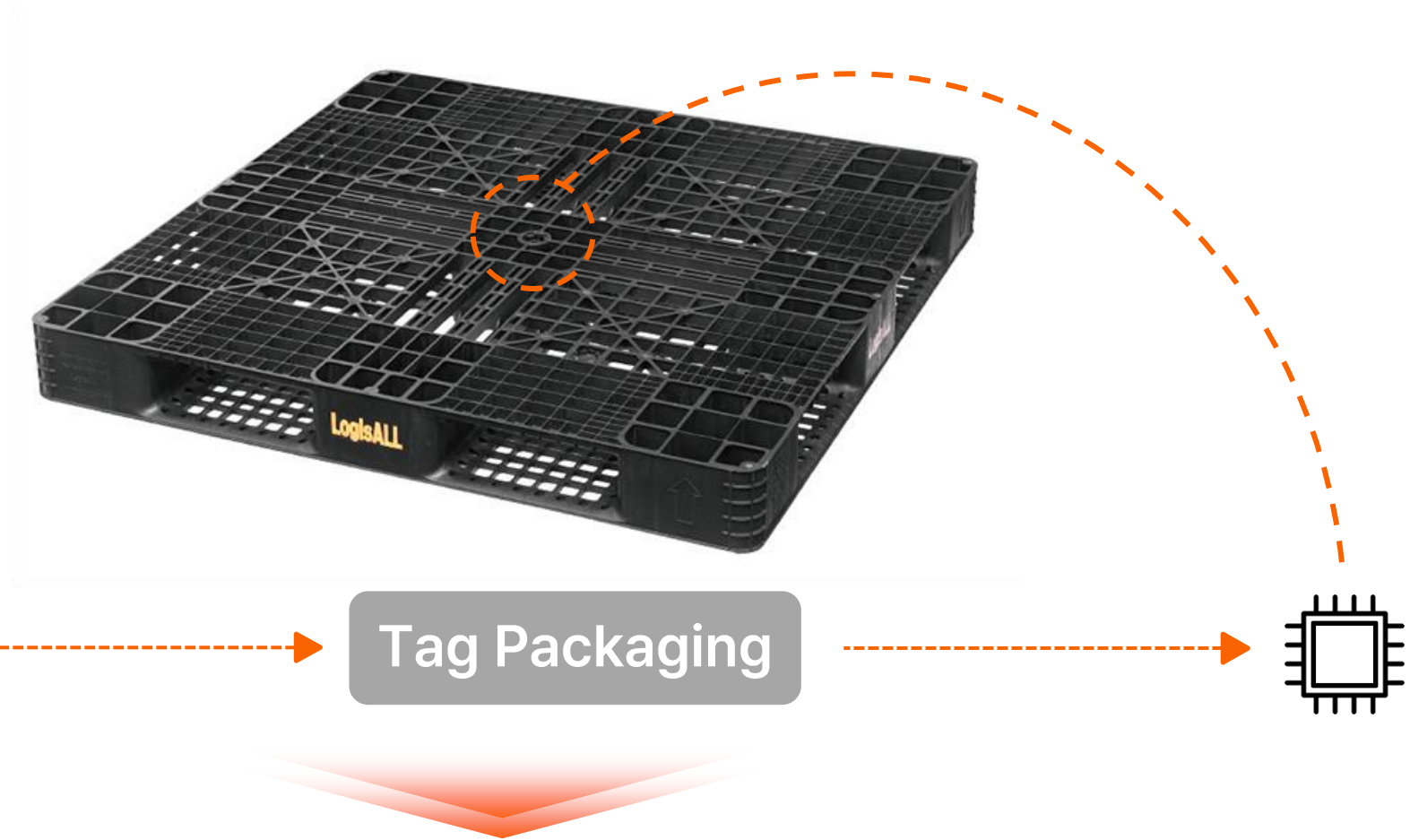
# 2-3 | Pallet Structure Improvement

## ➤ Truss Structure

As a result of the bending test, Forklift test, compression test, and airbag test, we believe that Truss Structure can produce pallets that are lighter and stronger.



## 2-4 | RFID Technology Combination



RFID Tag

Tag Packaging

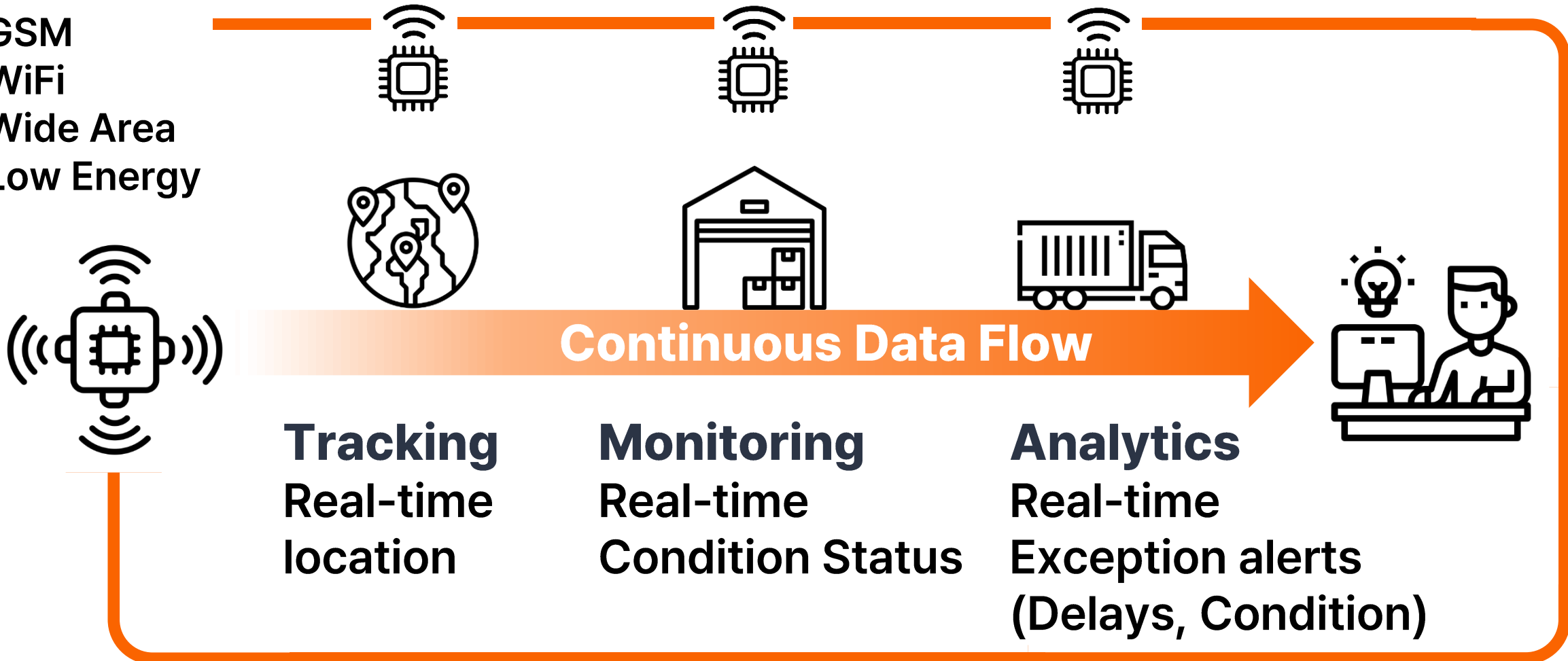
**Insert a specially designed RFID tag with enhanced recognition and durability in the center of the pallet.**

# 2-4 | RFID Technology Combination

## ▶ The use of IoT in Supply chain management

### Networks

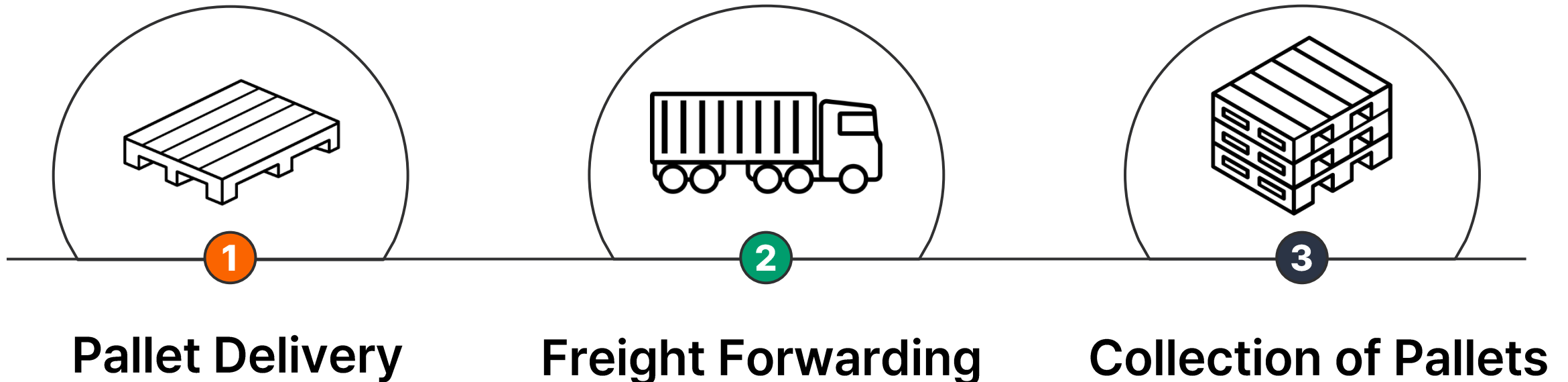
- GSM
- WiFi
- Wide Area
- Low Energy



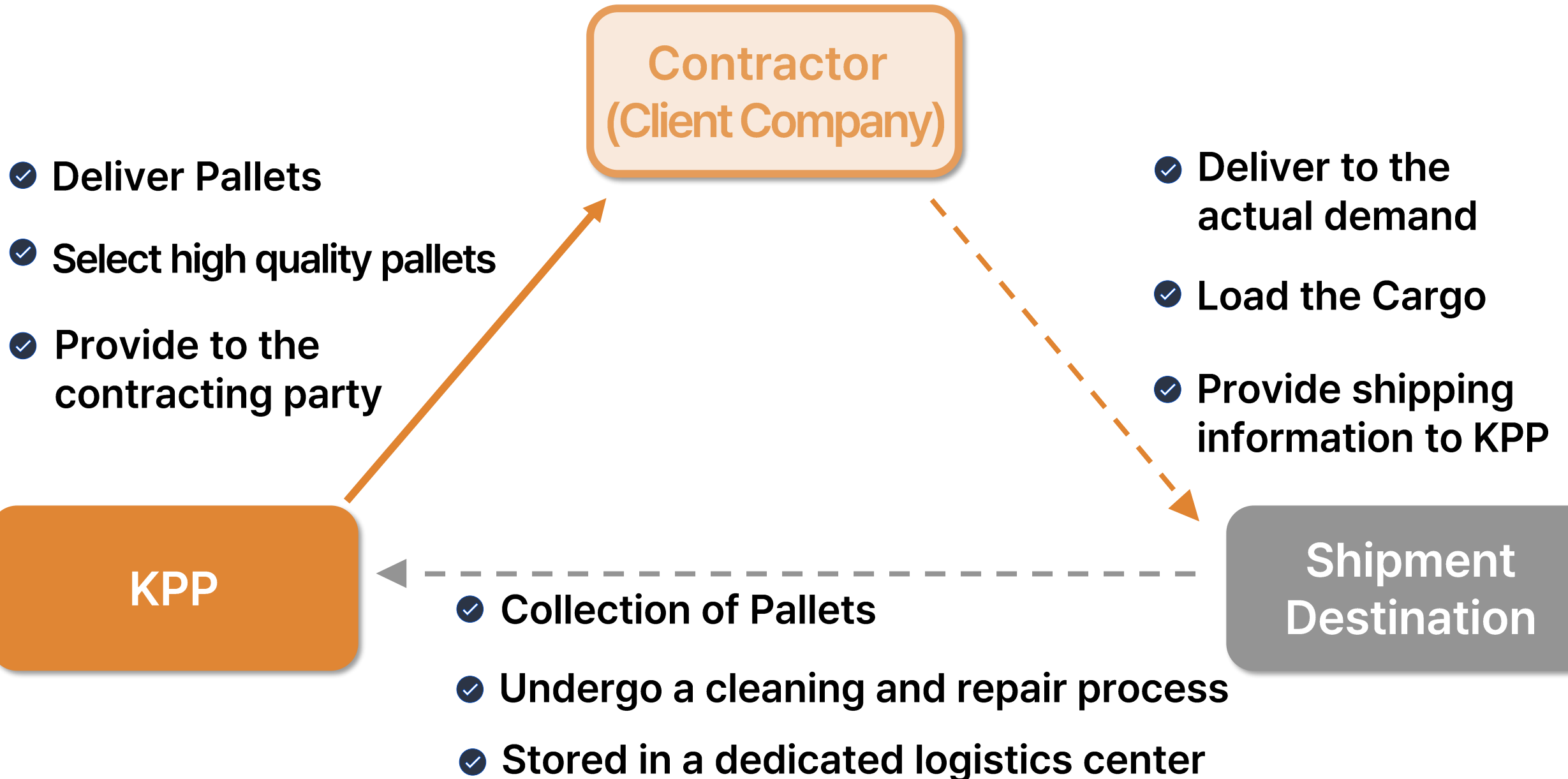
## 2-5 | Pallet Pool System

Standardized pallets with specific specifications and dimensions are loaned to various companies for joint use, providing overall management from on-site input to collection, volume control, and cleaning/repair.

### ➤ Order of Operation



## 2-5 | Pallet Pool System



# 2-5 | Pallet Pool System

## ➤ Durability



### Service Life

12.5 years

### Single Rotation Period

90 days

### Annual Average Rotation

4.1 cycles

### Number of uses after product release

An average of 51 uses

### Co2 Reduction Effect

72.7%

# 2-5 | Pallet Pool System

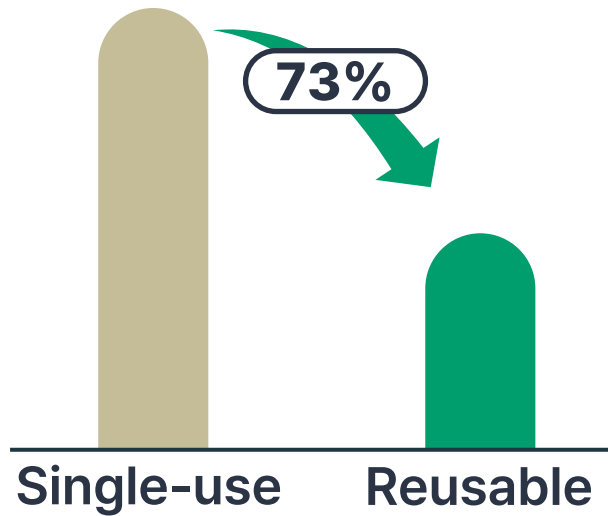
## ➤ Operational aspect

Category	Own Pallet	Standardized Pallet
Return of empty pallet	<ul style="list-style-type: none"><li>• Need to return to own shipping site</li><li>• High return costs / cumbersome return</li></ul>	<ul style="list-style-type: none"><li>• Return to the nearest KPP logistics center</li></ul>
Idle Pallet due to volume fluctuations	<ul style="list-style-type: none"><li>• Holding stock to match peak seasons results in low utilization during off-peak seasons and issues with storing idle pallets</li></ul>	<ul style="list-style-type: none"><li>• Use only the necessary amount according to volume fluctuations, resulting in no idle pallets for the client</li></ul>
Pallet quality management	<ul style="list-style-type: none"><li>• Maintaining the best quality requires unnecessary manpower and costs when operating own pallets</li></ul>	<ul style="list-style-type: none"><li>• Equipped with dedicated logistics centers for pallet storage</li><li>• Each returned pallet is inspected, always providing high-quality pallets</li></ul>

# 2-5 | Pallet Pool System

## ➤ Environmental aspect

### Repeated use of pallets



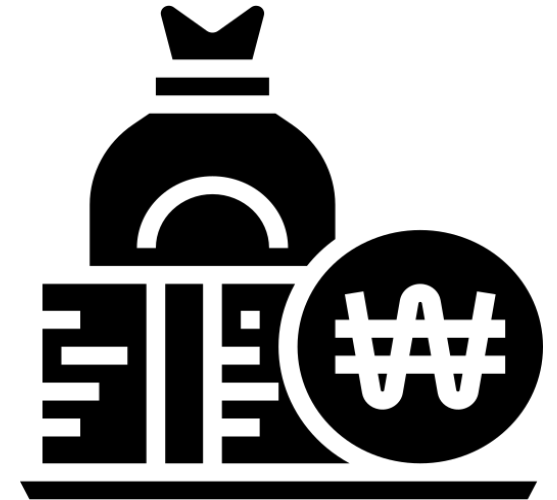
**73% Green gas reduction**

### Greenhouse Gas Absorption Effect of Trees



**74.5 million trees**

### Carbon-emission sales effect



**151.4 billion won**



# 2-5 | Pallet Pool System

## ▶ Platform Example

<input type="checkbox"/> Cardo registration		<input checked="" type="checkbox"/> <u>Cargo information</u>		<input type="checkbox"/> Client	<input type="checkbox"/> Deposit	<input type="checkbox"/> Calculate	<input type="checkbox"/> Setting
<b>A loading area</b>	Busan Metropolitan City		Sasang-gu, Gamjeon-dong				
<b>A unloading area</b>	Busan Metropolitan City		Dong-gu, Chorang-dong				
<b>Number of leases</b>	25 EA			<b>Cargo weight</b>	30		
<b>Payment method</b>	A certificate of acceptance			<b>Commission</b>			
<b>Total freight</b>							
<b>Loading date</b>	2024-08-24	9:00	<b>Unloading date</b>	2024-08-25	8:00		
<b>Cargo information</b>	Pallet						
					<input type="button" value="Initialization(F2)"/>	<input checked="" type="button" value="Registration(F3)"/>	
Shared freight information	<input checked="" type="button" value="Total"/>	<input type="button" value="Before the dispatch"/>	<input type="button" value="Failed to dispatch"/>	<input type="button" value="2024-08-24"/> - <input type="button" value="2024-08-24"/>		<input type="button" value="After the dispatch"/>	<input type="button" value="Cancelation of dispatch"/>

# 3-1 | Expectation Effectiveness



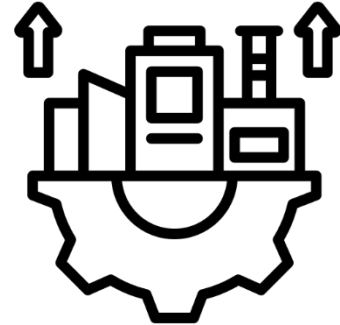
## ESG Management

- Forming a Positive Port Image
- Sustainable job creation



## Reducing the Amount of Waste

- Reduce waste by using recycled materials
- conserve of resources



## Busan's Economic Development

- Save money
- Contribute to Busan's Economic Development by Establishing a Pallet Pool System



## IoT Sensors

- Optimizing the path of pallet movement
- Increase transport efficiency and reduce costs



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**Thank you for listening**

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