위대한 도민시대, 사람과 자연이 행복한 제주

# Green Management Strategies and Best Practices: Jeju Province Development Co. (JPDC)

September 20, 2023

제주특별자치도개발공사
Jeju Special Self-Governing Province Development Co.

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위대한 도민시대, 사람과 자연이 행복한 제주

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# General Information

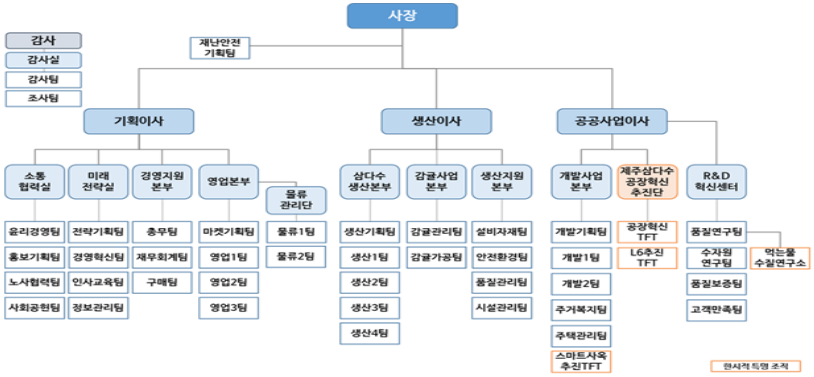
## Business Goal

JPDC runs a wide range of projects that are economical and beneficial to the public, improving Jeju residents' well-being and the quality of society

**Funds** Paid-in Capital KW 97.2 billion, Authorized Capital KW500 billion

**Employees** Total 1,041, Actual 942 ※ As of July 31, 2023

**Organization** Chairman, Audit General ,
3 directors, 3 offices,
6 departments, 1 center,
1 group, 40 teams



# 1 General _History

**March 1995**

Establishment of JPDC

**March 1998**

Launching of Jeju Samdasoo Mineral Water

**January 2001**

Kick of of Tangerine Manufacturing Facility

**April 2006**

Townhome Lease Project

**August 2018**

Completion of 1st unit of Happy Residence Maum-eon in Ara

**April 2019**

Launching of New L5 Production Line for Smart Factory

**February 2021**

Announcing Green Whole Process as part of Green management strategy, Launching of no label water bottles, Introducing ESG Management Policy

**October 2021**

Selected as Certified Drinking Water Quality Inspector

**December 2021**


Jaju Samdasoo Sales Reaches KW 300 billion

**May 2023**


Jeju Samdasoo Re:Born Receives World Star Packaging Award

# 2 Current Projects



## Drinking Water Project

Maximizing the added value of Jeju Samdasoo, natural mineral water, while preventing potential overuse of the regional mineral water resources

## Regional Development Project

Achieving the key objectives by meeting the needs of Jeju residents and enhancing he housing condition and residential environment

## Fostering Workforce Project

Workforce support for Jeju province while putting utmost efforts in solving issues related living places for young students from Jeju

## Tangerine Farm Project

Controlling tangerine supply to achieve price stabilization while contributing increasing the income of faming households


## Social Projects

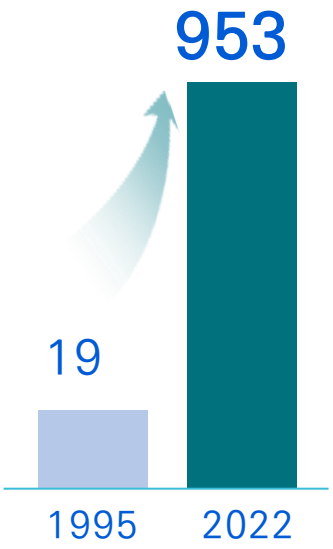
Using the 45.2% of net income to give back to the community and support the socially underprivileged and the households affected by natural disasters

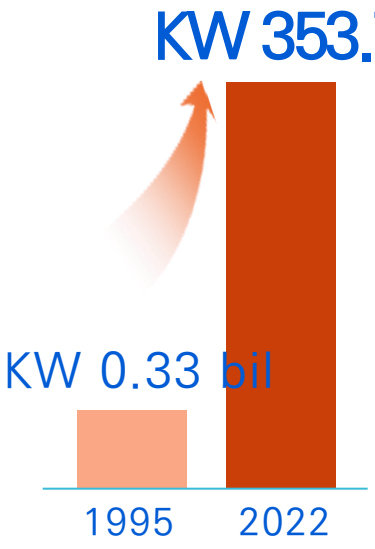
# 3 Business Performance

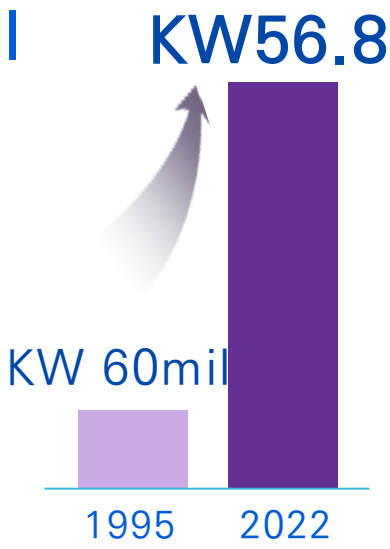
제주특별자치도개발공사
Jeju Special Self-Governing Province Development Co.

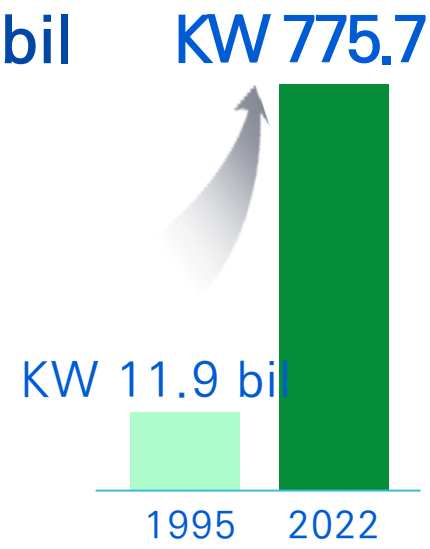
## Ceaseless Growth for 27 years since its establishment in 1995

**50 times growth in job creation, 1,072 times in revenue, 947 times in net profit**




Number of jobs created
**50 times**

Revenue
**1,072 times**

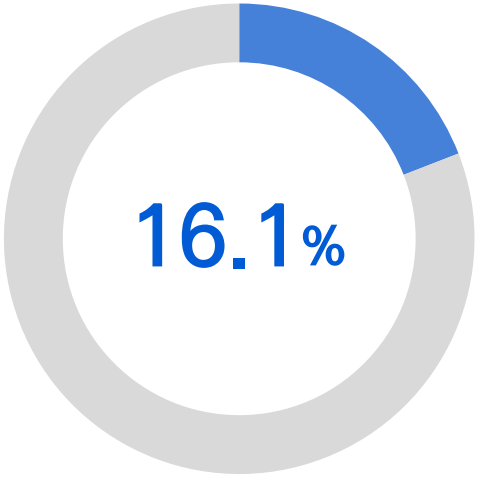
Net Profit
**947 times**

Assets
**65 times**

# Solid Business Management with ROS 16.1%, Debt Ratio30.8%

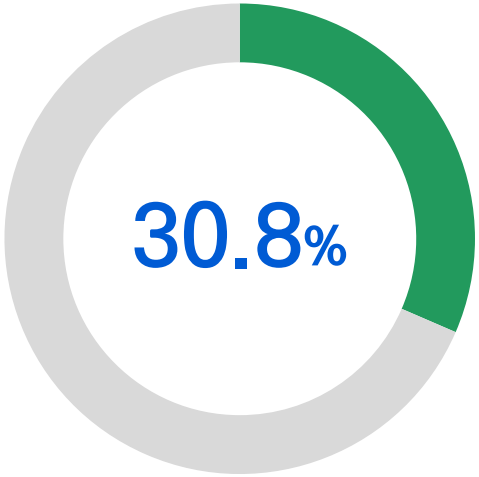
**Giving 45.1% of accumulative net profit back to the community, rising as a leading public company**

## Net Profit



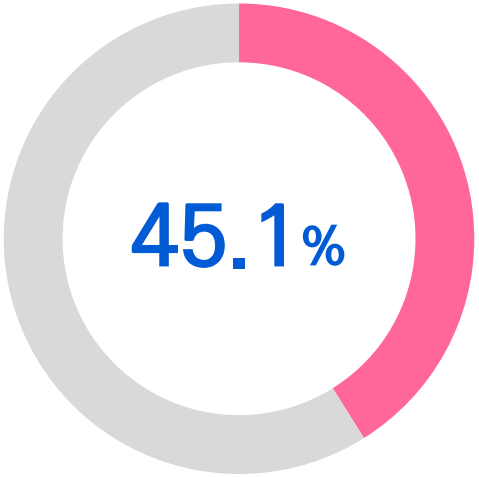

2022
Net Profit KW56.8 bil
Compared to
Sales KW353.7 bil

## Debt Ratio




2022
Debt KW182.7bil
Compared to
Equity KW593.0 bil

## Contributing to Society




Returned to the Society
KW 343.0 bil
Out of
Accumulative Net Income
KW 761.0 bil

# 3 Business Performance

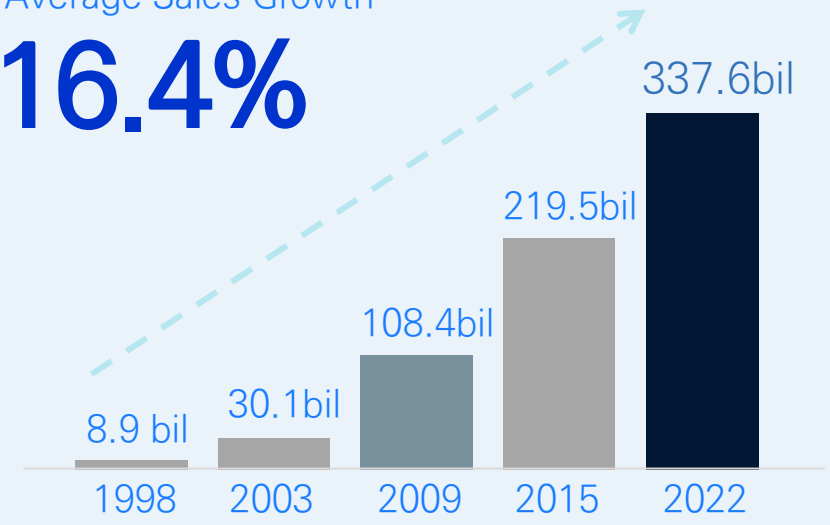


**Achieving annual sales growth 16.4% for 25 years since launching of Jeju Samdasoo Natural Mineral Water**

Average Annual Growth rate for 25 years

Average Sales Growth

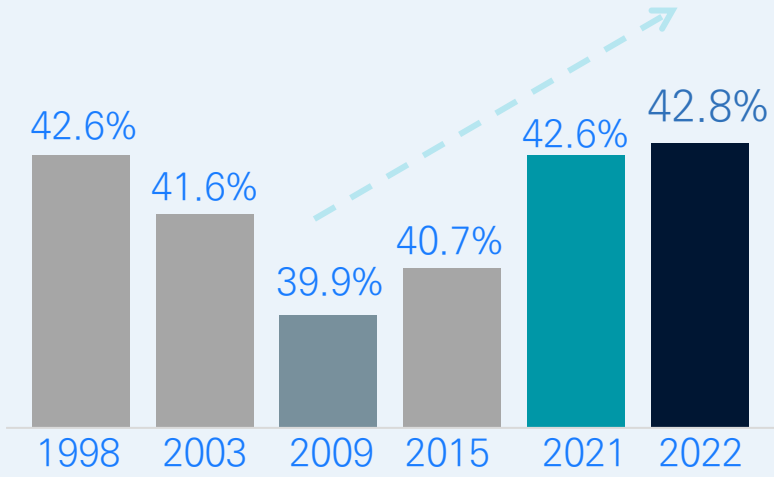
**16.4%**




Highest Market Share

**42.8%**

By Nielson report



# JPDC's Mission and Strategies In Green Management

# 1 South Korea's 「Post-Plastic Project」 run throughout the entire product cycle

## 20% reduction on plastic waste by 2050

**Mission** — Preparing for Post-Plastic Era that will rise after 2024

**Approach**

- **Overcoming COVID Era: focusing on improving packaging**
- **Set up Post-plastic platform:** Expanding alternative market and services, advancing recycling system structure

**Goal**

- **20% reduction on plastic waste by 2050** (compared to 2021)
  - *(Plastic waste volume) 4.92 mil ton in 2021 → 3.93 mil ton in 2025

| | 2020 | 2023 | 2025 |
|---|---|---|---|
| Using Recycled Raw Materials | 0.2% estimated | 3% | 10% |
| Material Recycling | 18% estimated | 20% | 25% |
| Incineration recycling | 69% | 65% | 55% |
| Bioplastic Technology Level (compared to US) | 85% | 87% | 90% |

### Action items

| | |
|---|---|
| 1.Reducing plastic items by utilizing alternative services | 1. Setting up a platform to create multi-usage items<br>2. Reducing plastic usage<br>3. Incentives and customer support<br>4. Cutting down on plastic packaging by resolving grey area of excessive packaging |
| 2. Whole Recycling | 1. Stable supply of waste resources used for recycling<br>2. Designing recycling-friendly product<br>3. Promoting mechanical and chemical recycling that would enhance added-value<br>4. Promoting usage of recycled products |
| 3. Developing Recycling Resources and alternative industry | 1. Promoting for Bio-mass/Recycled Material and support them to lead related markets<br>2. Promoting Biodegradable plastic<br>3. Promoting new tech and industry and making related regulations more flexible<br>4. Strengthening industrial capabilities |
| 4. Carrying out a duty as a member of a global community | 1. Proactively responding to global post-plastic conventions<br>2. Focus on improving weakness |

# 2 Jeju's pursuit for '2040 plastic zero-sum'

**50% decrease on plastic waste within the region, achieving 100% recycling ratio**

**Mission**

2040 Plastic Zero-Sum by Jeju

Society transitioning into post-plastic

Increased Recycling

Reducing Sources for Plastic Materials

## Approach

By pursing carbon neutral, reduced sources for plastic waste and increased recycling

Strengthening regulation framework to move away from plastic and implementing resource recycling policy

Creating overall environment where recycling is encouraged through province-level campaign organizations

## Goal

**People** — Living a healthy life with less exposure to plastics

**Nature** — Reducing the biodiversity risks caused by plastic and maintaining the resilience of ecosystem

**Recycled economy** — Laying out a foundation where plastic waste becomes reusable resources

## Expected Outcome

| | 2020 | 2030 | 2040 |
|---|---|---|---|
| Lower emissions | 66,171 Ton/year | 46,320 Ton/year | 33,086 Ton/year (50% reduced) |
| Increased recycling | 49.2% | 70% | 100% |
| Less wastes to burn or bury | 50.8% | 30% | Zero |

**3** Ministry of Food and Drug Safety · Ministry of Environment encourage the usage of reusable plastic containers for food

# Regulation for Recycling Clear Plastic Bottles

**[Up to 30% of all products must use recycled material by 2030]**

Ministry of Environment finalizes and announces the regulation on 'recycled material for food container as of Feb 2022

| Recycling Process | Collecting and sorting | Interim-Materializing (Flakes) | Final-Materializing (Chips) | Finished Recycled Products |
|---|---|---|---|---|
| |  |  |  |  POST-CONSUMER RECYCLED PLASTIC (RPET) |
| **Process Details** | (Ministry of Environment) Certifies facilities, monitors material quality<br>① Sorting out clear plastic bottles, facility setup approval<br>② Verifies items that need to be additionally separated while checking on flake transmittance | | (Ministry of Food and Drug Safety) Handles Safety Regulation, while evaluating and approving on the safety<br>(Ministry of Environment) supports quality monitoring | (Ministry of Food and Drug Safety) Manages the recycled products |
| **New Standard** | (Ministry of Environment) Facility management and material quality standard set up | | (Ministry of Food and Drug Safety) Handles final qualification approvals that recognize the material as safe products | |

| Category | Previous Regulation | Updated Regulation |
|---|---|---|
| Mechanical recycling | No | Yes |
| Chemical recycling | Yes | Yes |
| New Byproduct | Yes | Yes |

# 4 JPDC ESG Principle

"JPDC continues to serve as a corporate that sets out key standards of every aspect in management"


Sets a Green Standard

Green Whole Process


Make a better society by getting rid of grey area

Social Impact


Leading company that is always open

Always Open

# 4 JPDC ESG Management_ Strategies • Action Items

**Building a consensus on developing green Jeju with Jeju citizens**

**ESG at the heart of business management in all aspects to leap forward to become a leading ESG corporation**

| | |
|---|---|
| Protecting Water Sources | **R&D on preserving • managing water sources by Samdasoo**, to build the highest water quality system |
| Developing Green Products | Increasing sales of no label products and enforcing **green packaging R&D** |
| Environment CSR | Collecting plastic bottles through private-government cooperation to **enforce recycling eco-system and green CSR projects** |
| Renewable Energy | Participating RE100 (20% by 2020) and gradually introducing solar energy |
| Ethics Management | Spreading lifestyle with integrity and mutual respect |
| Labor-Management Cooperation | Setting up Labor-Management system that is open and transparent |

# 5 JPDC Green Management_ Mission•Strategies

## JPDC's 2030 Green Management mission and strategies

**Mission** | JPDC's pursuit to maximize the value of the environment and people

**Motto** | Samdasoo Mineral Water sets out standards in green management

**2030 goal**

Reducing Plastics by 50%

Converting to Renewable Energy by 50%

Recycling Tangerine byproducts 100%

Setting up Upcycling System

Recycling / Upcycling

**Action Item**

Launching green no-label products
No-label products will be supplied starting 2021.

Less Plastic Usage
- Down by 25% by 2025
- Lower by half by 2030
- Apply R-PET, Bio PET
- Post plastic packaging by 2030

Adopting Renewable Energy
Gradually adopting RE100 and solar energy system by 2050

Reduced CO2 Emissions
-50% down by 2030
-100% down by 2050

Recycling Tangerine byproducts
-increasing supply of raw materials feedstuff
-developing new product focused on practicality

Expanding Bioenergy Usage
-establishing source technology and system

Setting up an operating body that manages plastic reduction
-Operating public-private collaboration council for the region

Material Circulation Project
-Sorting and upcycling ocean Waste
- Increasing number of PET collector vending machines
- Clear PET Sorting Campaign
- Home visit service to collect empty bottles

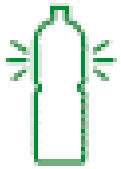
# 5 JPDC Green Management_ green whole process

Eco-management that covers the entire process of
'Production-Distribution-Collection-Recycling'

**Jeju Samdasoo Mineral Water**

## 그린홀 프로세스
## Green Whole Process

▪ 'Green-Whole-Process' pursues the green process that covers the entire cycle of '**Production-Distribution-Collection-Recycling.**'



### No-Labeling system

Saving 64 tons of plastic material per year

### Plastic Free Project

Cutting down on plastic usage by half by 2030

Utilizing recycled material for mineral water bottles

### Transition to Renewable Energy

Expanding renewable energy usage by 50% by 2050


# JPDC's Green Packaging, R&D Strategies and Best Practices

# 1 JPDC Green Packaging R&D

## Innovative green R&D to achieve sustainable green management

## Resource recycling + CO2 Reduction + Plastic Zero

**Mission**

Innovative green R&D to realize sustainable green management
(Resource recycling + CO2 Reduction + Plastic Zero)

**Motto**

Jeju Samdasoo R&D Innovation in an effort to save our planet

**Goal**

Reducing plastic usage by 25% by 2025 and 50% by 2030, while increasing green packaging material 25% by 2025 and 50% by 2030

**Strategies and action items**

| Reduction in Plastic Usage | Replacing/Redesigning to Green Material | Strengthening foundation for environmental research activities |
|---|---|---|
| Proactive in developing containers using lighter materials<br>Applying R-PET to reduce plastics<br>Research on how to decrease the usage of plastic films used for packaging | Proactive in developing containers using lighter materials<br>Applying R-PET to reduce plastics<br>Research on how to decrease the usage of plastic films used for packaging | Strengthening tech cooperation with research organizations from home and aboard<br>Improving green packaging R&D capabilities<br>Establishing foundation for eco-product designing and analysis |
| Less plastic usage by moving on to resource recycling system | Improving social and environmental value | Becoming a leader in green packaging R&D |

# 1 JPDC Green Packaging R&D

제주특별자치도개발공사
Jeju Special Self-Governing Province Development Co.

## 5R Strategy

## 'Reduce, Replace, Recycle, Redesign, Renovation'

**Developing light-weight container**
Minimize plastic usage
- Proactively developing light-weight products
- Developing eco-friendly container
- Developing products requiring less film packaging

**Developing recyclable plastic products**
Proactively adopting usage of Recyclable resource materials
- Developing R-PET container using recyclable resource materials
- Reinforcing resource recycling system


**Green Technology Innovation**
Product value creation by applying green technology that will lead our future
- Developing and supporting eco packaging technology
- Leading the future of drinking water by Adding eco-friendly services to the products

**Applying Eco-friendly material**
Replacing materials with eco-friendly materials that minimize impact on earth
- Developing Bio-PET container materials to reduce CO2 emissions
- Applying biodegradable materials to film production to reduce CO2 emissions
- Developing plastic zero containers

**Developing re-designed products**
Applying eco-friendly design
- Developing and launching no-label Samdasoo products
- Hosting green business idea competitions

# 2 JPDC Eco-Packaging R&D and Product Planning

**Innovative and differentiated products and services designed to help improve the environment and society, with a goal of reduce plastic usage by 50% by 2030**


| No label | Lighter containers | r-PET development | Tethered caps for green packaging | Bulk subscription services for alternative materials |
|---|---|---|---|---|

## Short-term Goal

| | | |
|---|---|---|
| 1 | Launching Samdasoo Green Edition (June, 2021) | Completed |
| 2 | Launching promotional version of Low CO2 Bio-PET (Sept, 2021) | Completed |
| 3 | Launching test products of mechanical and chemical r-PET (Oct, 2021) | Completed |
| 4 | Developing light-weight containers for lower plastic usage (2022) | Completed |
| 5 | Developing packaging using recycled materials (2022) | Completed |
| 6 | Developing glass containers using post-plastic materials (2022) | Under review |

## Mid-and long-term Goal

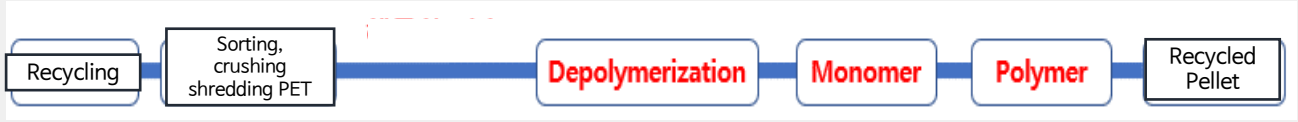
1. R&D for ultimate containers that are eco-friendly and light-weight (by 2030)
2. Launching Recyded r-PET in the market (by 2025)
3. Light-weight container packaging and R&D on tethered cap (by 2030)
4. Developing containers that are bio and light weight materials (by 2030)
5. R&D on large volume subscription services for alternative materials (by 2030)
6. R&D on drinking water containers for the future (by 2030)

# 3 Developing Resource Recycling PET

## JPDC's action plans for plastic usage reduction

## Developing R-PET test products and researching on commercialization

### Chemically Recycled CR-PET




- This is a method of reducing plastic waste and turning them into recycled plastics that is now in commercialization state. The method needs to be upgraded to improve monomer yield and improve economic value of recycling
- As an alternative to overcoming the limitations of material recycling today, large size firms and research institutes from home and abroad need to focus on developing technologies, investing in facilities and making progress in R&D

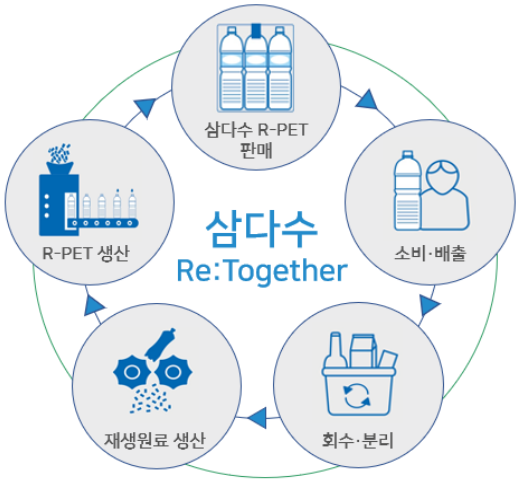
### Physically Recycled MR-PET


- Need high-efficiency separator/sorting technology that sorts a mixture of waste out into a single type of plastic
- Containing contaminants, it is difficult to reprocess material recycling, and they are recycled as a low-quality plastic product
- A variety of factors including table supply and demand, removal of foreign substances, selection of materials, and response to quality deterioration can cause deterioration of physical properties, making it critical to conduct advanced safety researches on quality downgrading

# 3 Developing Recycled PET Containers

To reduce plastic waste and accelerate the transition into the Post-Plastic era,
**advancing green recycling technology for plastic waste materials is crucial**

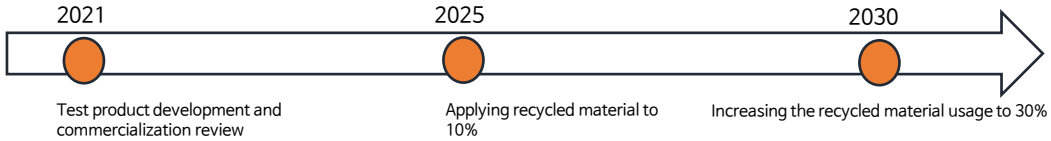
## Jeju Samdasoo Re:Together Project




## Developing Green R-PET container TWO TRACK Strategy

### Developing chemically recycled CR-PET to acquire a leading technology in the future

- Developing test products and conducting research on safety for Chemical CR-PET by 30% (2021)
- Launching promotional products for CR-PET by 30% (2022)
- Developing test products for chemical CR-PET 100% and research on safety (2022)
- Verifying domestic depolymerization technology for Samdasoo to CR-PET and developing test product (2023)




### Resource recirculation system to develop mechanically recycled MR-PET

- Developing test products for mechanical MR-PET 100% and researching on safety (2021)
- Researching on color/quality of colors of each level of mechanical MR-PET material contained (2022)
- KFDA's final approval on 20% MR-PET, producing test products at100% while researching on safety issues (by 2023)

# 4 Green Packaging Best Practices ① Utilizing recyclable material and enhancing resource recirculation

## Enhancing recycling efficiency of plastic while enhancing natural resource recirculation capabilities

1998

**1.Cap**

Applying synthetic resin material containing amount less than level 1

1998

**2.Label**

Applying synthetic resin containing amount less than level 1

2017

**3.Empty Bottles**

Plastic made of one material

2018

**4.Label Glue**

Label glue made of thermal alkalinity materials

2018

**5.Lighter container**

Reducing container weight by1.5g

2019

**6.Removable label**

Label marked to indicate that it is removable

2018

**7.Plastic waste collector vending machines**


2019

**8.Environmental score certification system**


2020

**9.Rated as excellent level in recycling**

2021

**10. No-label system**

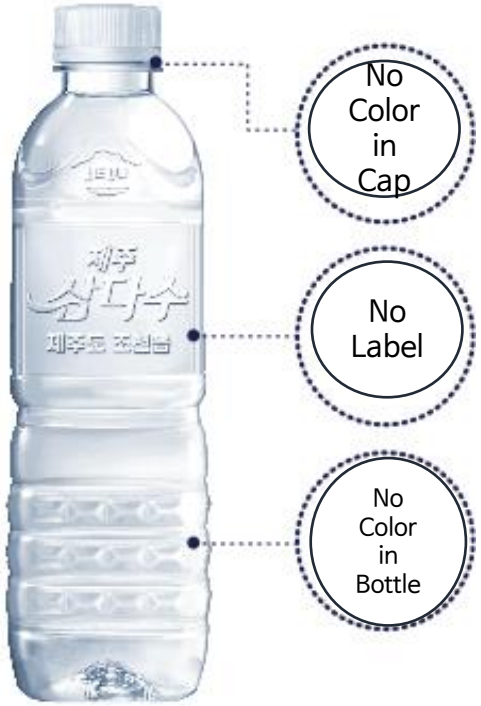
2022

**11. Launching R-PET**

# 4 Commercializing Best Practices ② Jeju Samdasoo Green

Bringing the life of natural mineral water into a green container,

**Jeju Daum, Samdasoo Daum ⇒ 3 No's**




ENVIRONMENTAL SOCIAL GOVERNANCE

E S G

53톤

Reduce Plastic Waste

Recirculate Natural Resources

점자표기

Enhanced Social Value

## 2023 iF Design Award Communication Award

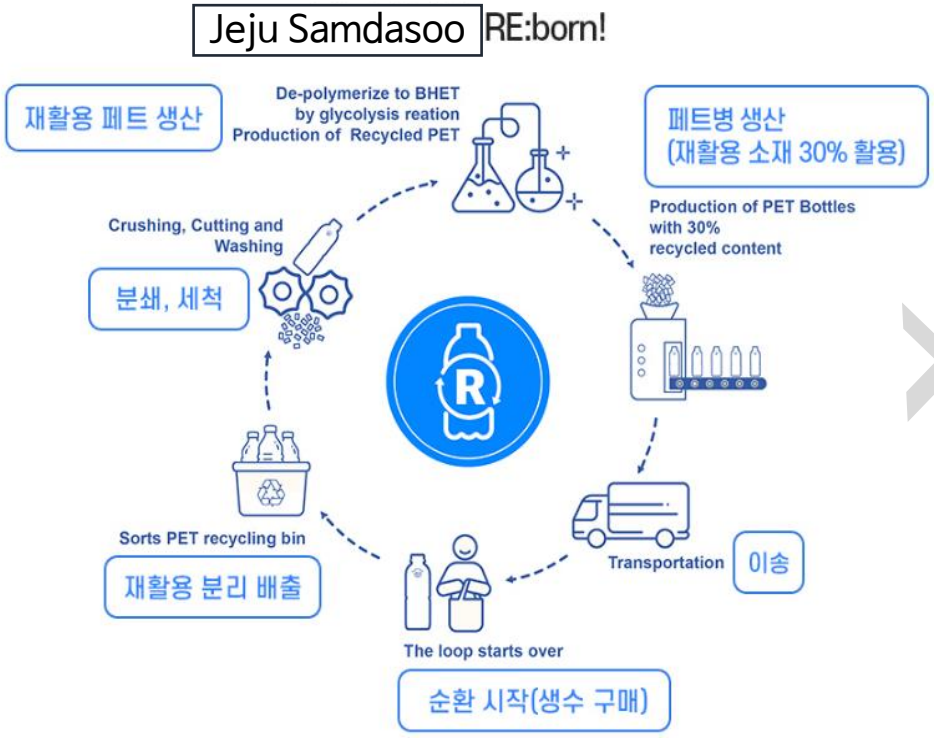
Bringing the life of Jeju's clean mineral resources **into a creatively designed bottle, Samdasoo's efforts on communicating with the society on environment has been highly recognized**

iF DESIGN AWARD 2023

# 4 Green Packaging Best Practices ③ Jeju Samdasoo RE:Born

Developing and commercializing high purity, chemically recycled CR-PET(Chemical Recycled PET) (Oct 2021. **first time in South Korea**)

Approved for water quality and specification inspection for final assessment run by certified organizations such as USFDA




2022 Korea Packaging Award (Prime Minister Award)
2023 World / Asia Packaging Award Winner

## Realizing 'Bottle to Bottle' cycle

PET bottles are used, recycled, and reborn as a new PET bottles

→ CR-PET can be recycled multiple times without undermining the product safety


↑ 제주삼다수 CR-PET 수축팩 포장


↑ 제주 삼다수CR-PET

# 5 Resource Recirculation Ecosystem ① Separate-Sort/Collect-Upcycle

## Creating plastic upcycling ecosystem with the support from citizens in Jeju and Korea

### Sorting

Working with Jeju citizens and tourists to sort plastic containers better

**Separate Sorting for Clear PET**

102 recycling help centers, with separate clear PET recycling bins

Sorting 450 tons of high quality and clear PETs

+

**Mission of hope, *2g Cap Sorting* campaign**

30 civil organizations including schools run *Samdasoo Cap Sorting Campaign*

Collecting 7.4 tons of watercaps and helping 30 people from underprivileged group

+

**Let's Sort to Recycle Campaign**

*Label bin under '1 min* campaign throughout highway rest areas

### Collecting

Seamless sorting and collecting efforts to remove grey area draws various support from different groups

**7 Auto point generator vending machines to collect PET**

Auto collector in 16 hub spots in Jeju, 8 points per PET

51,000 participants, 4,800 tons reduction

+

**Ocean Waste Upcycling project**

4 fishery companies working with National Coast Guard

Fisheries PET collecting project

Collecting 8 tons of Waste PETs

+

**Expanding the campaigns to luxury hotels· tourist attractions**

Participated by 3 hotels in Jeju

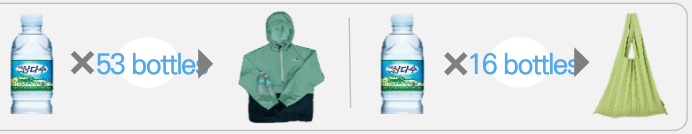
Including upcycling campaign in festivals held in tourist attractions

Collection Goal 70%

### Upcycling

PET waste is reborn as Eco-friendly products

"Samdasoo PET is reborn as a jacket and a purse"




# PET Upcycling and Commercialization of Recycled Material and Textile

Sorting Clear PET

Installing 18 sorting bins near national highways and recycling help centers

Sorting Clear PET

612 tons of clear PET collected and taken by recycling companies

Shredded By Recycling Companies

Cleaning and compressing turn them into flakes

Recycling chip production

Plastic waste is recycled into chips

Recycled raw resources

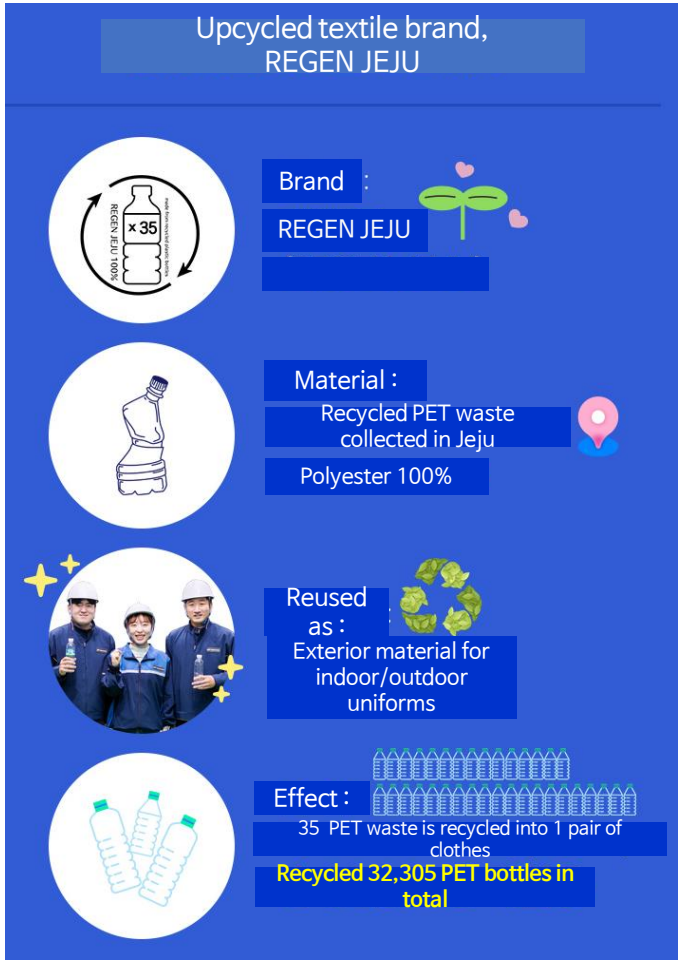

Hyosung TNC Raw Resources, regen ⓒ Jeju

Turning them into clothes and purses


Reborn as different products

# 5 자원순환 생태계 조성 ③ 실천 사례

## Recycled PET used as uniform material for Jeju Samdasoo Manufacturing Line Employees




**Jeju Samdasoo, a rising leader in upcycling, produces eco-friendly uniform using upcycled material**

Simply utilizing recycled waste resources to apply to JPDC's *Clear PET Recycling* project, the firm achieves its ultimate objectives set out since its establishment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제주 삼다수
감사합니다
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