

Decarbonisation Category

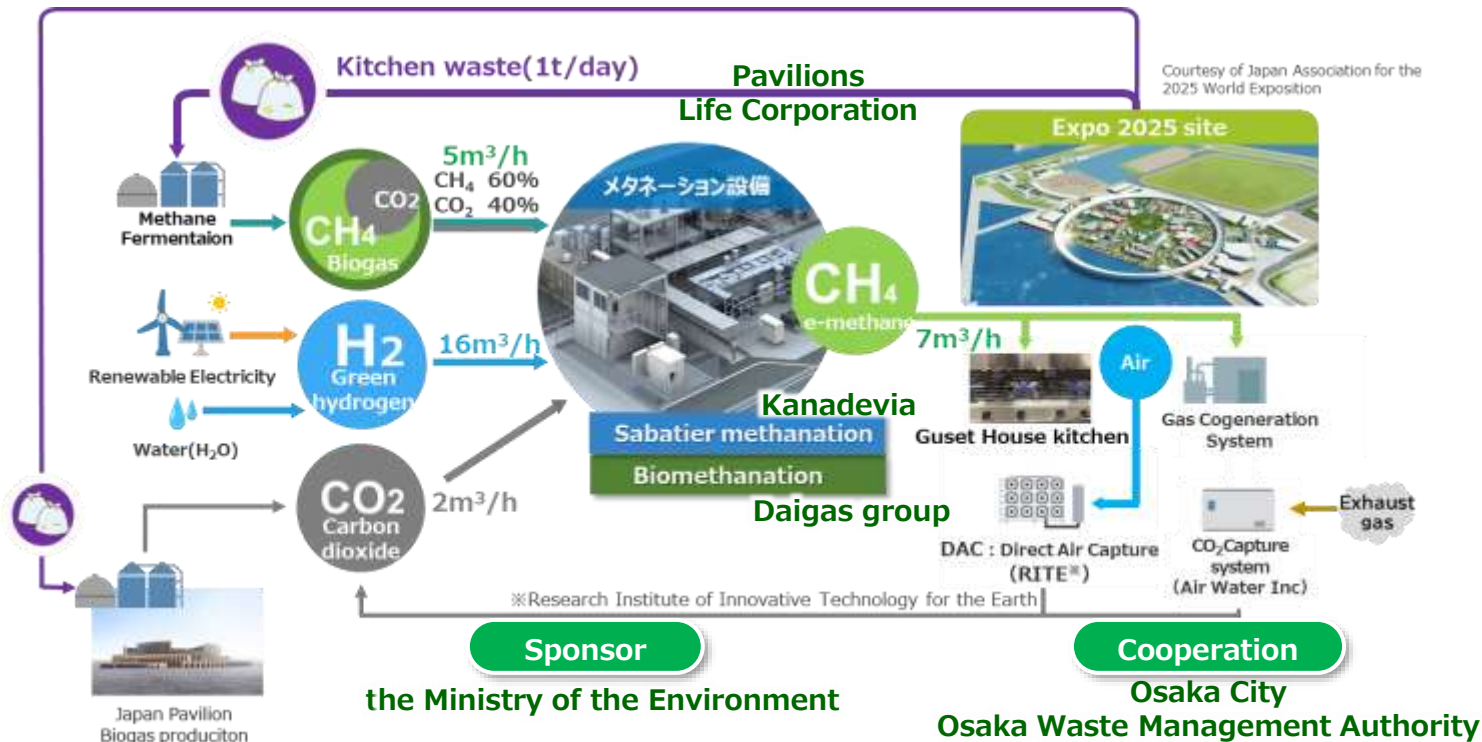
Osaka Gas Co., Ltd.

OSAKA GAS Methanation Demonstration Facility Bakeru LABO

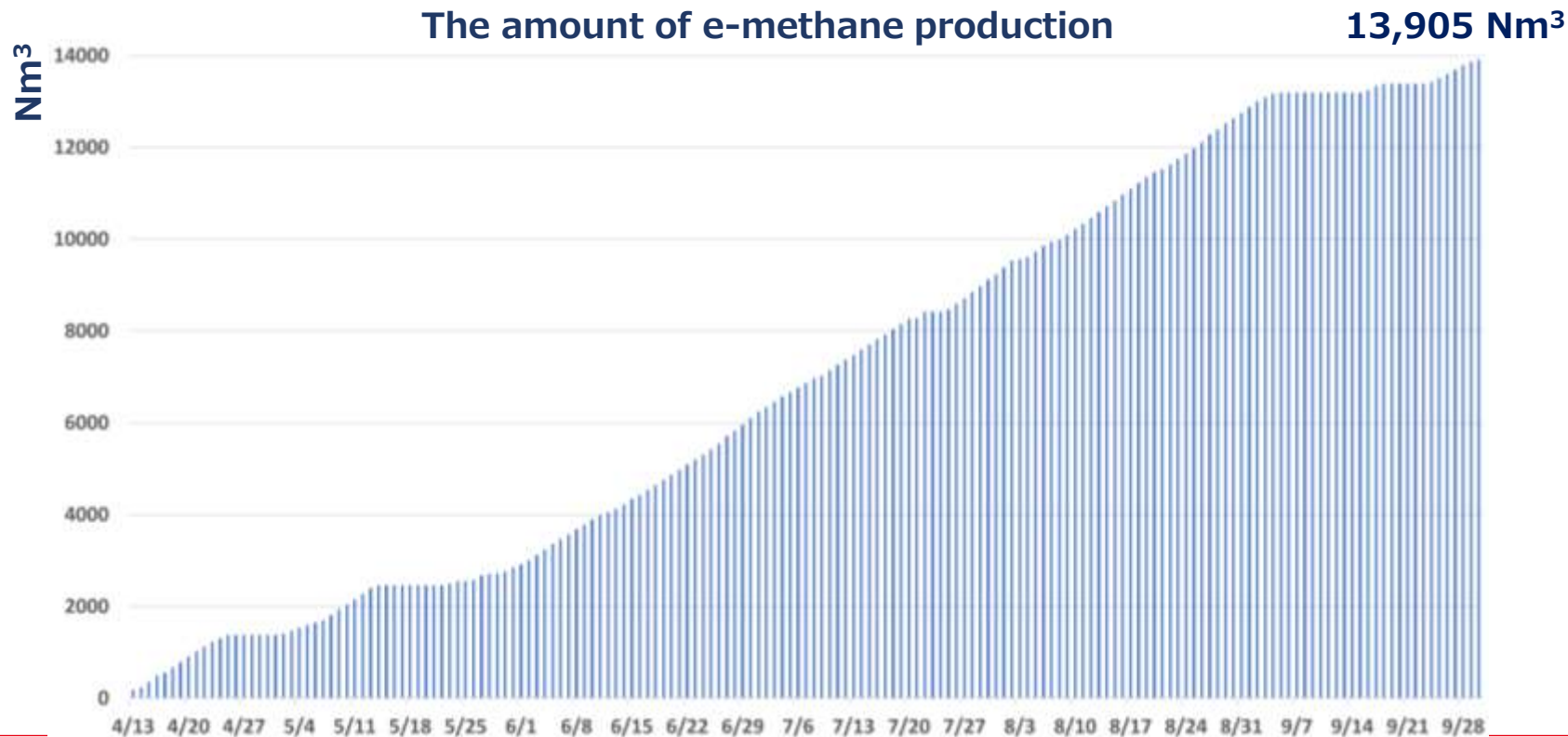


- Under the project commissioned by the Ministry of the Environment*, we are sponsoring the green Expo of Future Society showcase.
- The e-methane produced at the methanation demonstration facility “Bakeru LABO” is supplied to the Guest House and heat supply equipment, conducting “experiments for the future society.”

*1: Implemented under the Ministry of the Environment’s “Demonstration Project for a Low-Cost Hydrogen Supply Model Utilizing Existing Infrastructure”



- We collaborate many demonstrators in the venue to get CO₂.
- e-methane production as of end of Sep. is **13,905 Nm³**(reference: average amount of gas usage of 1 household is about 1 Nm³), and CO₂ reduction is about 15.1ton.



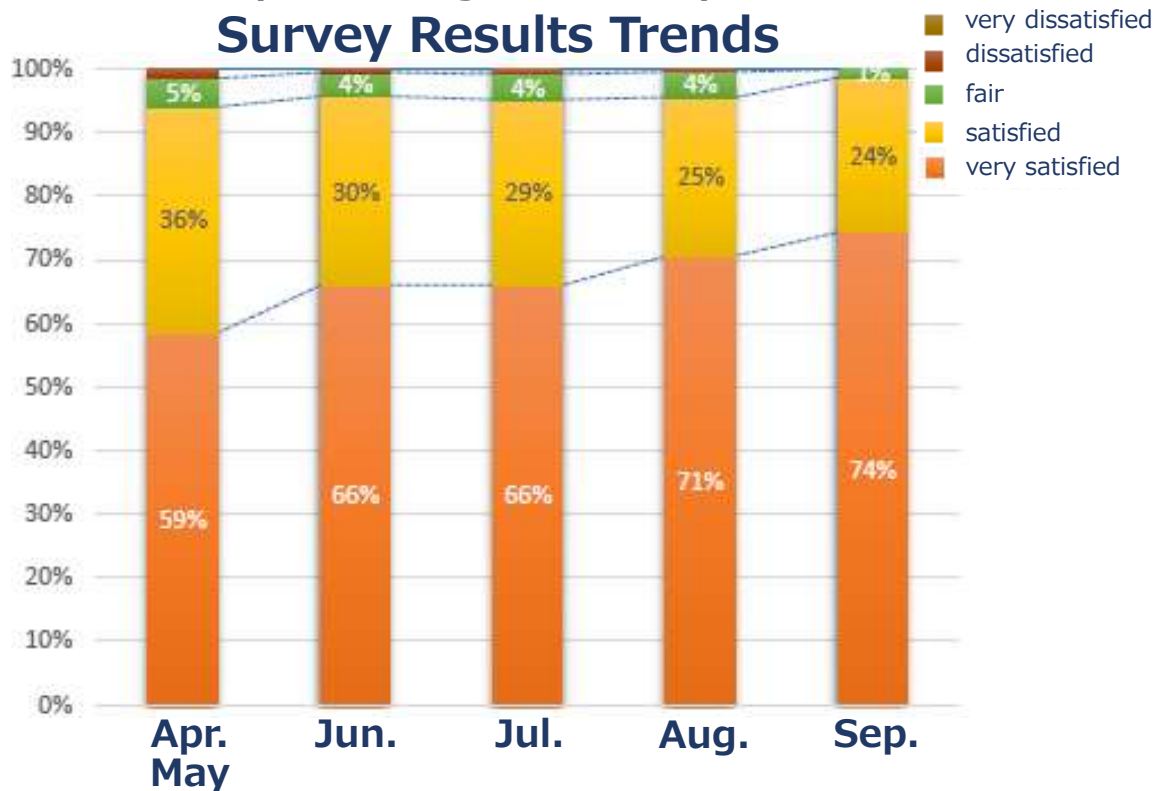
The stove in the kitchen of the Guest House(e-methane combustion)



- “Transform LABO” was named with the spirit of “Transform, city gas! Transform, future!”
- Over 95% of our customers responded “satisfied” in our surveys, and we plan to continue sharing our offerings with the world while implementing various improvements.



Survey Results Trends



Decarbonisation Category

Kinden Corporation

◆ Thoughts of the Expo Association

Theme: Designing a Future Society Where Life Shines

Concept: Experimental Field for Future Society

Needs: In addition to policies on energy and heat supply,
we want to make energy-saving measures on the demand (load) side
more effective.

◆ Thoughts of Kinden

By introducing "AI-powered Energy Management Service (EMS-AI)", we will respond to the needs of the Expo Association.

⇒ Aim to reduce energy consumption by 20% in the air conditioning equipment of pavilions and venue facilities.

Kinden Corporation is a Bronze Partner of the Osaka-Kansai Expo Future Society Showcase "Green Expo".



OSAKA, KANSAI, JAPAN
EXPO2025

Kinden

BRONZE PARTNER

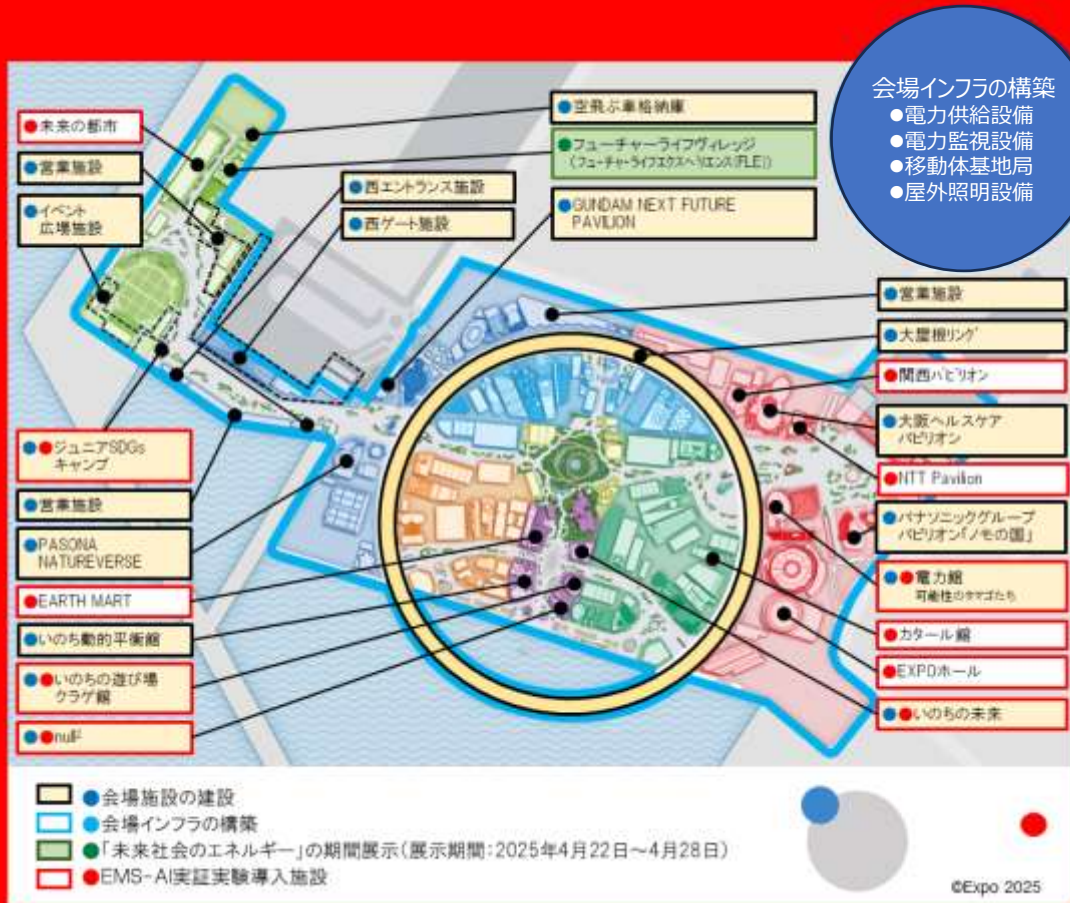
◆ Initiatives Implemented at the Expo Venue (Application for Sustainability Award)

【Demonstration Experiment 1: Implementation of EMS-AI Platform】

- EMS-AI optimizes the operation of air conditioning equipment in pavilions and facilities to achieve energy savings.
- Predictive methods using reservation information obtained from ICT-PF and new control methods were tested, utilizing the Expo venue as a "laboratory for future society".

【Demonstration Experiment 2: Development and Verification of Comfort Evaluation Value "EE-Kimochi"】

- Developed the comfort evaluation value "EE-Kimochi" by quantifying spatial comfort using temperature and humidity data, visitor status (sensations and emotions) obtained through AI analysis of images and audio captured by cameras and microphones, as well as SNS information.
- Achieved both comfort and energy savings by controlling air conditioning based on the "EE-Kimochi".
- Visualized the distribution of "EE-Kimochi" and verified potential applications for alleviating congestion at the venue.



Venue Infrastructure/Facility Construction

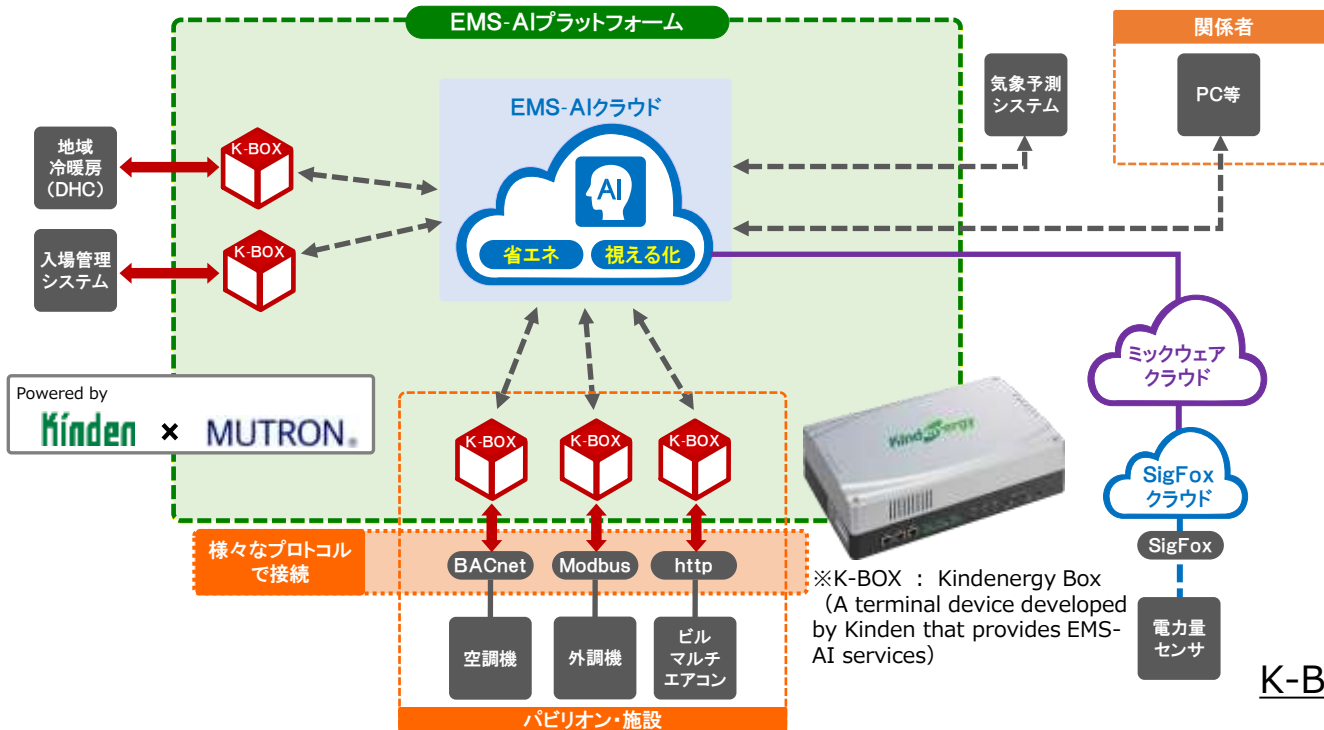
- Power supply and monitoring equipment
- Mobile base station
- Outdoor lighting equipment
- Pavilion/facility electrical, air conditioning, and interior equipment

"EMS-AI" introduced in 11 facilities in Japan and abroad

- Future City
- Junior SDGs Camp
- EARTH MART (Kundo Koyama)
- Future of Life (Hiroshi Ishiguro)
- Jellyfish Pavilion (Sachiko Nakajima)
- Null2 (Yoichi Ochiai)
- Kansai Pavilion
- NTT Pavilion
- Electric Power Pavilion - Eggs of Possibility
- EXPO Hall
- Qatar Pavilion

◆ Implementation of EMS-AI Platform

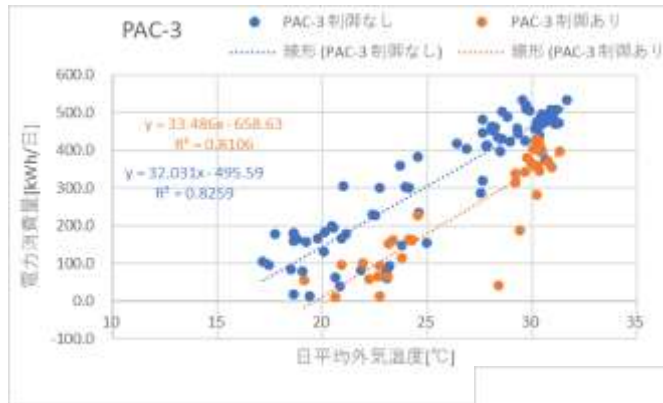
- EMS-AI is a total management service for energy saving, energy storage, and energy creation.
- Energy-saving operation of air conditioning equipment in pavilions and facilities, and visualization of energy usage status.



K-BOX and control panel installed in the pavilion

◆ Visualization of Energy Usage and Reduction Effects

- **Operation data visualization screens for air conditioning equipment** have been shared with Expo Association stakeholders and pavilion operators, **contributing to the promotion of energy-saving operations.**
- Analysis of air conditioning operation data shows that **energy-saving effects are confirmed by comparing power consumption** with and without control.



A 33% reduction in power consumption was confirmed at a certain facility during a specific period (provisional data; further analysis will be conducted).

Example of Energy-Saving Effect

(Orange "With Control" shows lower power consumption than blue "Without Control")



Example of Visualization Screen

電力館 保守	電力館 保守	電力館 保守	電力館 保守	電力館 保守	電力館 保守
PAC-3-1 還気温度	PAC-3-1 還気湿度	PAC-3-1 還気CO2濃度	PAC-3-2 還気温度	PAC-3-2 還気湿度	PAC-3-2 還気CO2濃度
28.6 °C	44 %RH	480 PPM	28.5 °C	43 %RH	596 PPM
電力館 保守	電力館 保守	電力館 保守	電力館 保守	電力館 保守	電力館 保守
PAC-4-1 還気温度	PAC-4-1 還気湿度	PAC-4-1 還気CO2濃度	PAC-4-2 還気温度	PAC-4-2 還気湿度	PAC-4-2 還気CO2濃度
28.5 °C	46 %RH	544 PPM	27.9 °C	46 %RH	639 PPM

◆ Comfort Evaluation Value "EE-Kimochi"

- EE-Kimochi" is calculated based on temperature/humidity data, visitor behavior and gestures, and surrounding sounds.



【 Utilization of "EE-Kimochi" 】

- Displayed on the venue map via a dedicated app for visualization
- Used for EMS-AI air conditioning control (target temperature setting)

Powered by

Kinden

×

micware



PR panel displayed at Junior SDGs Camp



Initiatives to build momentum at the exhibition
in January 2025

Kinden Corporation will utilize the experience and knowledge gained from initiatives at the Osaka-Kansai Expo to leave a legacy and **contribute to the realization of a decarbonized society.**

Decarbonisation Category

**SEKISUI CHEMICAL
CO., LTD.**

Initiative Overview

Installation of **film-type perovskite solar cells** at the West Gate bus shelter



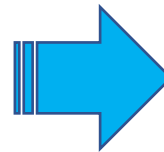
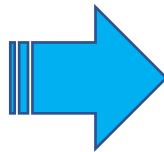
◆Features

- Installed film-type perovskite solar cells on the **250m (world's largest scale)** eaves of the bus shelter
- Conventional silicon solar cells (approx. 20kg/panel) are difficult to install, but these cells are **lightweight** at **approx. 2kg/panel**, making installation possible
- Utilizing their **flexibility**, they were installed along the **unique shape** (curve) of the bus shelter eaves

◆Specifics of initiative

- Generated electricity is stored in 16 storage batteries and used to power lighting at night for the entire bus stop (282 LED lights)
- Even when generation is impossible due to inclement weather, electricity can be supplied from the storage batteries for 17 days

◆ Maintaining design aesthetics while contributing to comfort and safety



- Provides shade to protect visitors from intense sunlight and rain while generating electricity
- Generates electricity without compromising design aesthetics through its gentle curved shape

- Electricity is stored in 16 storage batteries
- Can supply electricity for 17 days even during prolonged inclement weather

- Lights up footpaths for visitors at night

◆Initiative to raise awareness

- Humorous explanatory boards were installed to raise awareness of perovskite solar cells (English versions also available)



Japanese

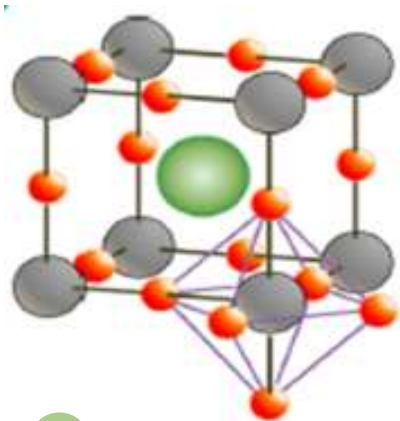


English

◆What are film-type perovskite solar cells?

- Solar cells utilizing a perovskite crystal structure as the generation layer

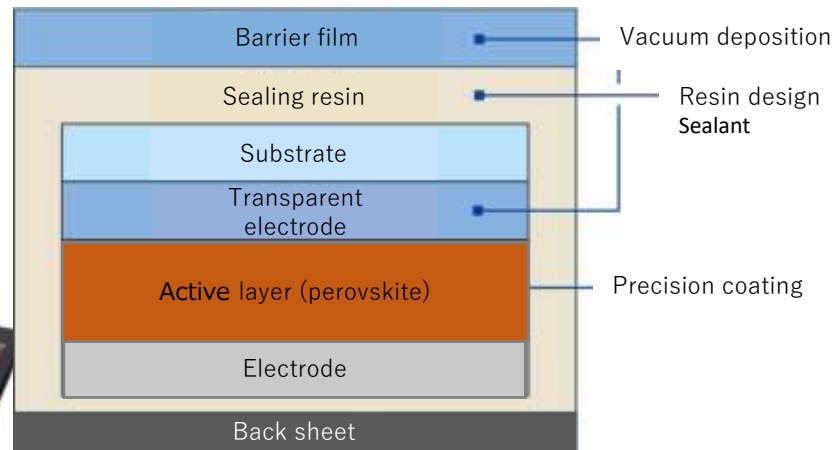
Perovskite crystal structure (general formula: ABX_3)



● A=Methylamine ($CH_3NH_3^+$), etc.

● B=Lead (Pb^{2+}), etc.

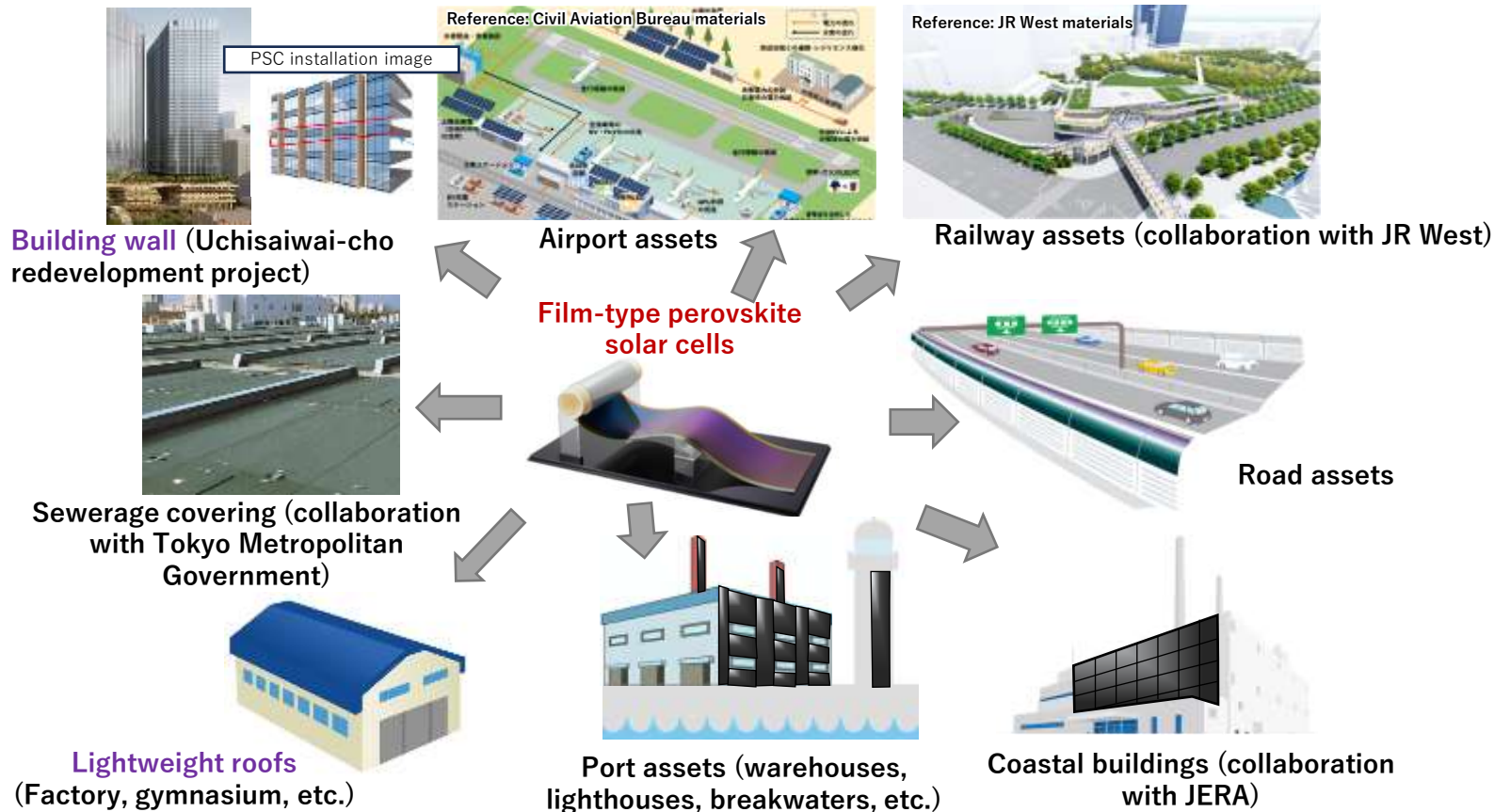
● X=Iodine (I^-), etc.



<Cross section image of perovskite solar cell>

- ✓ The main raw material, iodine, can be sourced in Japan
- ✓ Thinner, lighter, and more bendable than conventional solar cells
- ☆ **Just 1mm thick**
- ✓ Aiming for further improvements in conversion efficiency and durability

◆ Installation examples of film-type perovskite solar cells



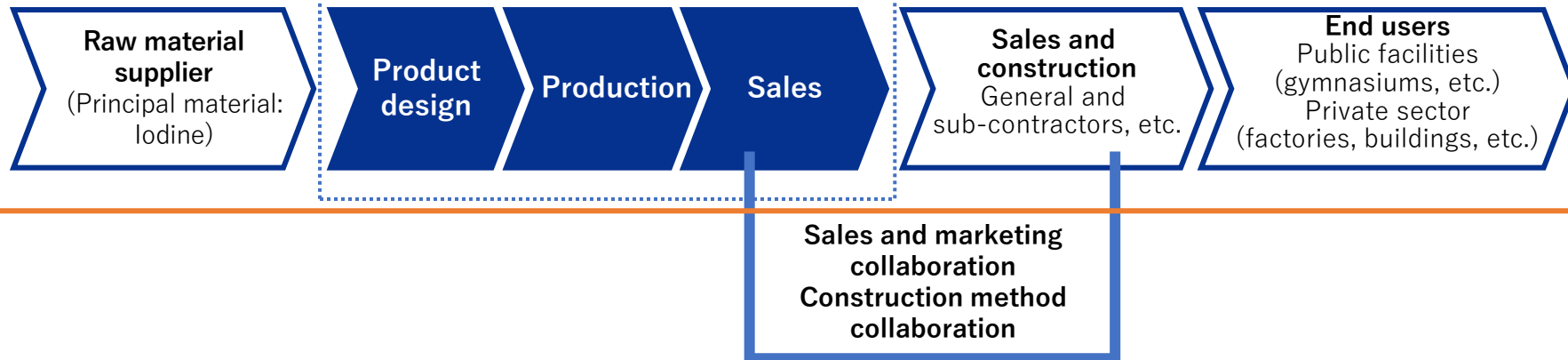
Future Outlook

Building a robust supply chain through the All-Japan Initiative

Public and private sector council for expanding the introduction of next-generation solar cells and strengthening industrial competitiveness

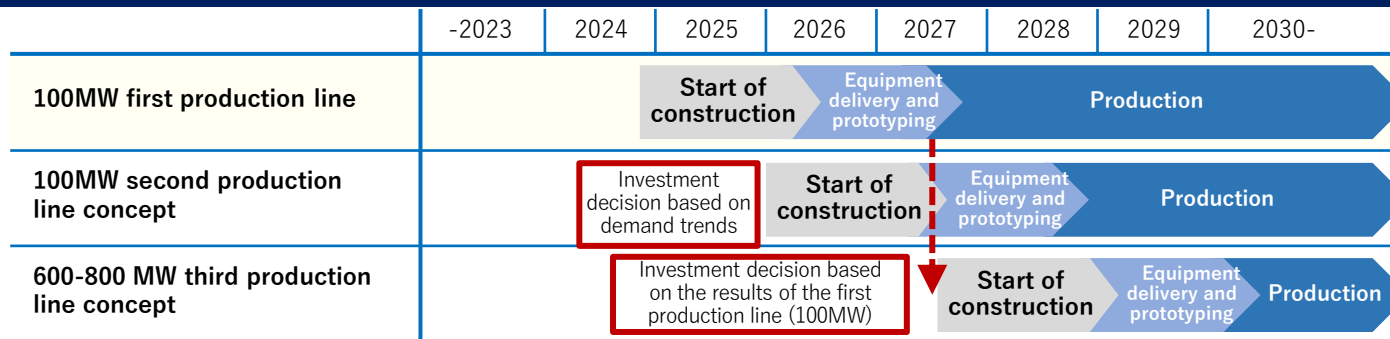
- Participants comprise approximately 250 organizations, including related agencies, local governments, and domestic manufacturers
- Formulates strategies to expand the introduction of next-generation solar cells

SEKISUI SOLAR FILM CO., LTD.



Newly establish a 100MW production line (annual electricity consumption of approximately 31,000 households);
scheduled to commence operations in FY2027

Also consider expansion with the addition of a second and third production line for a production capacity of at
least 1GW by FY2030



Panoramic view of Sakai Plant



Total floor space: 210,000 m²
(five-story)

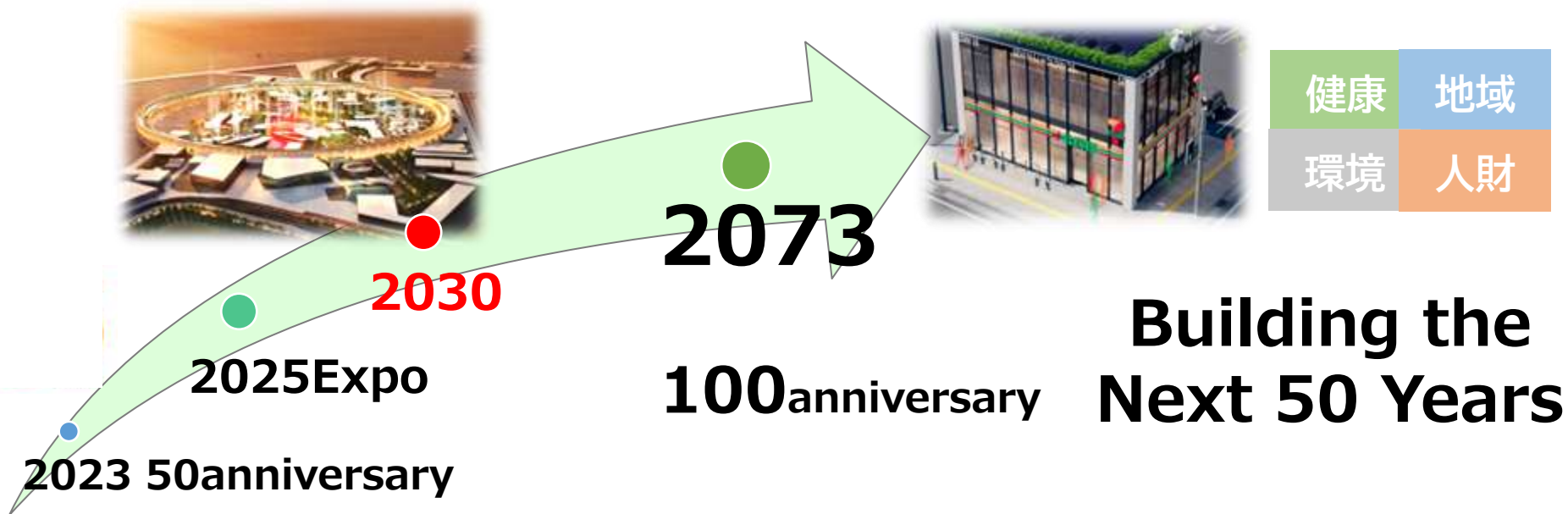
Decarbonisation Category

**SEVEN-ELEVEN JAPAN
CO., LTD.**

Next 50 years



Experience the Convenience Store of 2030 at the Expo



2030 objectives



いのち輝く未来社会のデザイン

Designing Future Society for Our Lives

×



GREEN
CHALLENGE
2050 私たちの挑戦で、
未来を変えよう。

2030

CO₂50%Off

CO₂
削減

プラ
対策

50%eco-friendly
plastic

FoodLos50%Off

食品
ロス

持続
可能性

50%Sustainable
Raw materials

4 Strategies

環境

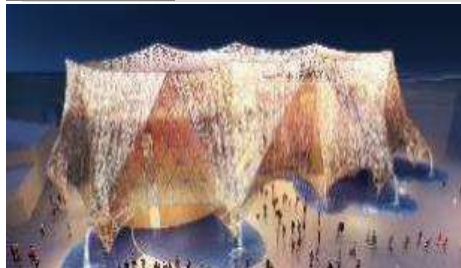
2 Stores



- Futuristic store
- DX

健康

Oosaka health care PV



- Oosaka Prefecture
- REBORN

人財

Virtual Expo



- Virtual world

地域

EARTH MART



- Lifestyle
- Food

2025.4.13

リサイクルにご協力をいただき
ありがとうございます

Generating

electricity
発電ガラス



A photograph showing a person's hands interacting with a control panel. The panel features a large, dark screen displaying a graphical interface, and a grid of numerous small, illuminated buttons or touchscreens below it. The person is wearing a dark jacket and is positioned in front of the panel, which appears to be part of a larger machine or vehicle.



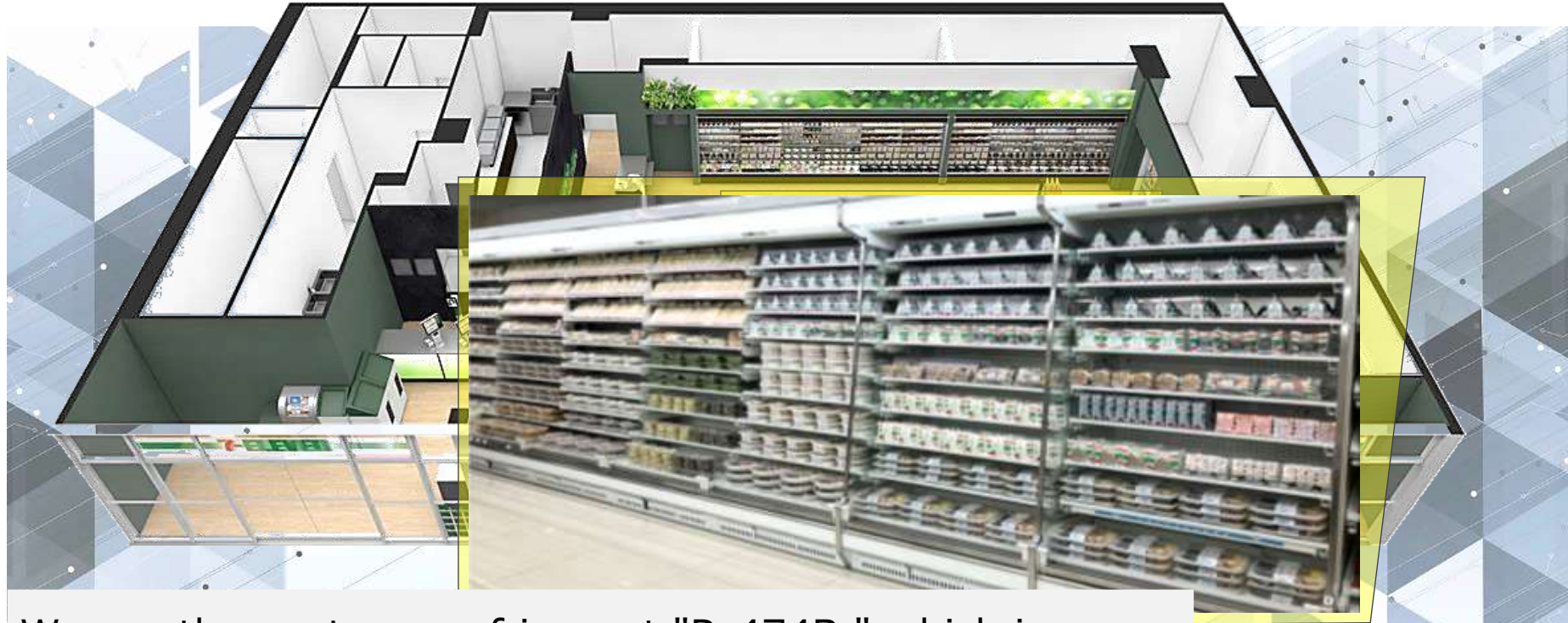
PETbottle recycling

Plastic recycling

hydrogen



Refrigeration Equipment



We use the next-gen refrigerant "R-474B," which is designed to be energy-efficient, and control the system in a smart way to cool things down without wasting energy.

Food loss

◎Policy at Expo

We try to avoid creating waste as much as possible.

Any waste that does come up, we recycle as much of it as we can.

We reuse everything in a full-cycle system, including recovering and using heat.



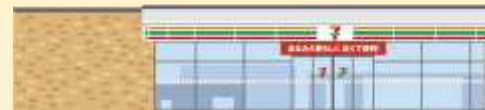
Biofuel

◎2030

Compared to 2013 (target: 50% of 161,000 tons), we've cut emissions by 80,500 tons. Compared to 2020, we've reduced emissions by 127,000 tons.



Expo-exclusive uniform

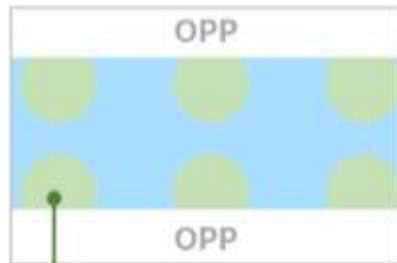


Efforts toward product and packaging

Approach to innovative materials



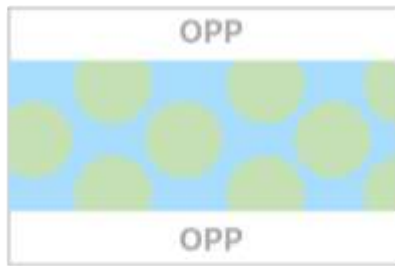
Currently using
25% bio-based materials



バイオPP



At Expo 50%



■ Using product



Onigiri



Sushi



Bread



Sweets



Bread

Used in the products listed above

Impact of the new packaging

Packaging usage overview

Composition ratio of eco-conscious materials

◎ Expo store ◎ National average



36.1%



11.2%

Impact of nationwide expansion



We've reduced our annual use of petrochemical plastics from 5,501 tons to 4,387 tons — a significant cut

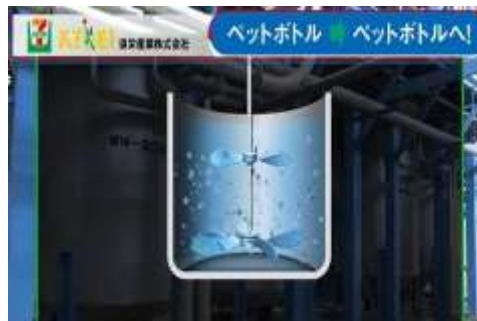


This reduction is equivalent to cutting 1,114 tons of CO₂ emissions per year.

Effect visualization via signage



Broadcast content



- ① PET Bottle Collection
- ② Hydrogen Cartridge
- ③ Green Refrigerant R-474B
- ④ Chemical Recycling of Waste Plastics
- ⑤ Uniform-to-Uniform Recycling
- ⑥ Material Recycling of Waste Plastics
- ⑦ "B100" Fuel from Used Cooking Oil

Decarbonisation Category

The Japan Gas Association

The Pavilion Shapeshifts in Appearance

- The building has been designed in a distinct triangular shape that allows for efficient release of internal heat to the outside, soaring to a maximum height of around 18 meters. The building uses a radiative cooling material called “SPACECOOL” on the exterior membrane.
- The exterior membrane reflects the surrounding scenery, which changes in appearance depending on the weather, time of day, and viewing angle. The building is lit up at night to create the effect of a “carbon-neutral flame”.



Daytime view



Night view

Radiative cooling material 「SPACECOOL」

- By suppressing heat absorption from sunlight and the atmosphere and using the principles of radiative cooling technology to release heat into space, the internal temperature can be kept below the outside temperature using zero energy.

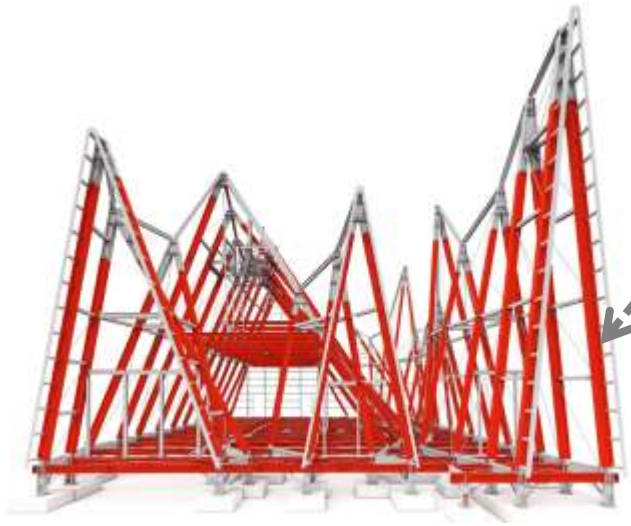


“Shapeshifting Pavilion” through the 3Rs

- Scrap material from “SPACECOOL” on the exterior membrane of the building will be repurposed as sunshades for visitors
- The pavilion’s key structural components are constructed using leased materials.
- Using a membrane structure on the exterior walls reduces the amount of construction materials required.



Sunshade built using scrap material from “SPACECOOL”



Pillar and beam materials
(earth-retaining leased materials)



Single pipe leased materials

Others

- It's been an extremely hot summer this year. We operated our pavilion by making our visitors' and staff's safety our top priority.
- We increased our motivation by displaying the compliments and positive feedback we received from our visitors.

(Measures against the extreme heat)



Mist spray & parasols



Oasis staff



Spot cooler

(Boosting our motivation)



Compliments from our visitors

(Health management by providing water to staff working outdoors)

Circular Economy Category

URBAN RESEARCH

Co., Ltd.

“A Sustainable, Future-Oriented Store Sharing ‘SUGOI’ Experiences That Connect to the Future”

URBAN RESEARCH Co., Ltd. is an apparel company based in Osaka. With the corporate philosophy of “Sharing the Amazing,” we offer products and services that enrich lifestyles, centered around fashion. What URBAN RESEARCH considers “amazing” can also be described as “inspiring.” The excitement that fashion brings serves as a driving energy for us. By sharing this powerful energy, we can even change the world. We believe in the potential that fashion holds.

Through the Osaka Expo, we aim to share the current “amazing” experiences with the many people we engage with, and to bring the “amazing” of the future into the present. With this vision, we operate as “a sustainable, future-oriented store sharing ‘amazing’ experiences that connect to the future,” offering visitors a place to experience this philosophy firsthand.

Inside the store, we primarily sell products that contribute to environmental consideration and the realization of a sustainable society. These include “THE GOODLAND MARKET,” a brand focused on sustainability; “commpost,” which aims to contribute to the circular economy; and “JAPAN MADE PROJECT,” which promotes the charm of Japan’s regions. In addition, we offer apparel and lifestyle goods from various URBAN RESEARCH labels.





The fixtures used in the interior were designed with reuse in mind. Considering transportation, we incorporated a design that allows for assembly and disassembly, and approximately 70% of the fixtures will be reused after the Expo at URBAN RESEARCH's THE GOODLAND MARKET Horie store.



To reduce production waste, some fixtures were created using 3D printing technology. Items that are not intended for use can be crushed and reused as raw material for 3D printing.



water*net



Aiming to contribute to reducing overall waste at the venue, we collaborated with companies that provide water coolers and installed a water dispenser in the store. To make it convenient, we also sold bottle holders, reusable cups, and bottles. During the Expo, this setup provided the equivalent of 14,000 500ml PET bottles of water, helping to reduce waste.



In collaboration with UCC Ueshima Coffee Co., Ltd., we also offered products aimed at contributing to resource circulation, such as items dyed using spent coffee grounds.



“Sharing the ‘SUGOI’ That Connects to the Future”

Circular Economy Category

G-Place Corporation

Resource Circulation Department Food Waste Reduction Web Service "Expo Tablesuke"

「Expo Tablesuke」 is a web service that reduces food waste within the Expo site. The sellers can reduce food waste and the visitors can purchase food at a discount.



【Sellers】 Upload information about food that is likely to go to waste onto Tablesuke to sell it at a discount.

【Visitors】 After reserving food for purchase, they visit the store at the reserved time to pick it up and pay.

【Administrator】 Can obtain data detailing who purchased what, at which store, and when.

Period	Subscribers (people)	Items Listed (pieces)	Deals Closed (pieces)	Match Rate (%)
4/13~4/30	7,564	334	192	57
5/1~5/31	2,818	875	704	80
6/1~6/30	2,332	952	801	84
7/1~7/31	3,068	1,345	1103	82
8/1~8/31	3,394	1,217	1147	94
total	19,176	4,723	3,947	83

■ Future outlook

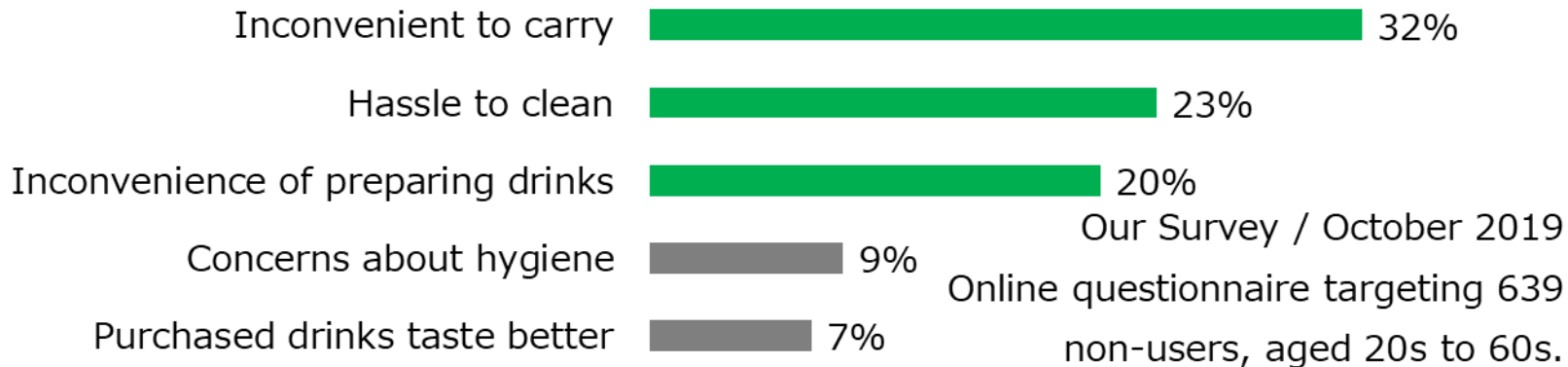
The aim is to develop this as a food sharing service that can be easily used in limited spaces, such as event venues and public facilities, across the country. Following Expo 2025, the hope is to lead to its adoption at the Osaka IR.

Circular Economy Category

Zojirushi Corporation
Nakano Manufacturing
Co., Ltd.
STUFF.Co.,Ltd.

Toward a Future Where My Bottles are the Norm

【Reasons for Not Using Reusable Bottles】



At the expo where heatstroke prevention is essential, encouraging visitors to bring their reusable bottles that can "carry coldness" is a major solution. However, the challenge lies in the fact that many people find reusable bottles "too much hassle" and therefore don't use them.

Toward a Future Where My Bottles are the Norm

Inconvenience of
preparing drinks



Through our sponsorship of the public-private partnership, "Osaka My Bottle Partners," we are installing one water refill station.(In addition, OSG Corporation and WATER STAND will install several dozen refill stations at the venue.)

Toward a Future Where My Bottles are the Norm

Hassle to clean



Through the Operating Participation Special Program "Co-Design Challenge," we will install 10 reusable bottle washing machines across the entire venue.

Toward a Future Where My Bottles are the Norm



ZOJIRUSHI Corporation
Planning, Design, and Overall
Supervision



NAKANO Manufacturing
Piping design, Assembly,
Installation, and Testing



STUFF Co., Ltd.
Overall design, Development,
and Manufacturing

This washing machine was co-developed through a partnership between three companies: ZOJIRUSHI, NAKANO, and STUFF.

Toward a Future Where My Bottles are the Norm



By enabling visitors to "easily wash" their bottles, we promote the repeated use of reusable bottles within the venue. ⇒ This contributes to the reduction of single-use plastics (with a cumulative usage of 150,000 times as of October 1).

Toward a Future Where My Bottles are the Norm



The main structural body is made of recyclable stainless steel.
The side panels were co-developed with "Yoshino to Kurasu Kai" in Yoshino County, Nara Prefecture, and use Yoshino cedar.

Toward a Future Where My Bottles are the Norm



We plan to expand the "My Bottle Station," centered on the washing machine, for office environments in the future. This will also address the challenge of "inconvenient reusable bottle usage" at places like cafés and hotels.

Procurement Category

**Joint Venture of OBAYASHI,
DAITETSU, and TSUCHIYA**

Introduction of Initiatives: Example 1

[Environment] Utilization of 100% Biofuels to **contribute to a decarbonized society**

■ We collected waste cooking oil from our company cafeterias at the Osaka Main Office and the Western Japan Robotics Center as well as from private households, refined it into B100, 100% biodiesel fuel, and utilized it as fuel for construction machinery operating during the construction of the Expo 2025 Osaka, Kansai, Japan (Osaka-Kansai Expo).

Collect used cooking oil

Produce B100

Supply and Use for
Construction Machinery



Construction machinery using the B100 fuel for the venue preparation work of the Osaka-Kansai Expo

Introduction of Initiatives: Example 2

[Human Rights] Consideration for Foreign Workers to **enhance industry sustainability**

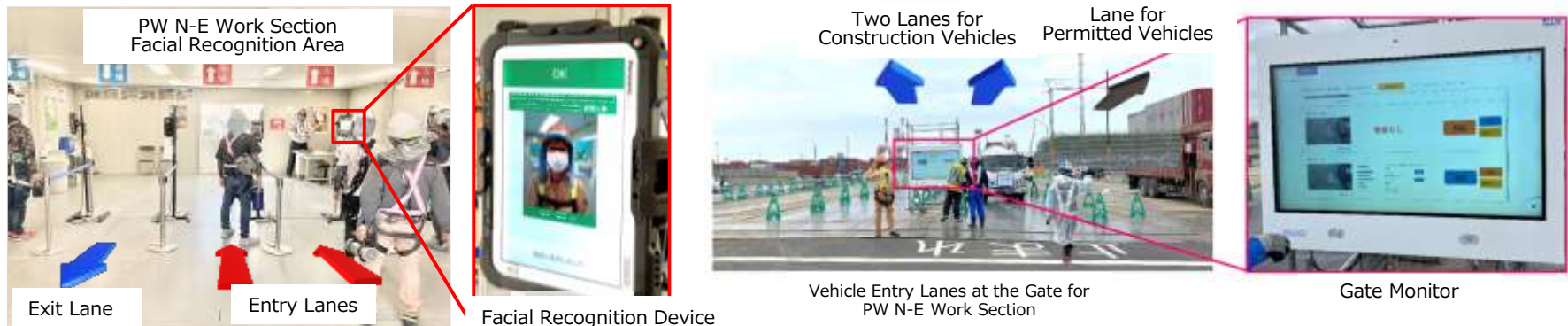
- In the context of a worsening labor shortage in the construction industry, increase in foreign workers is inevitable. If we do not create an environment that allows them to work comfortably, sustainability of the industry will be compromised.
- By having signage displayed in workers' native language at hazardous locations on the construction site, unsafe behaviors can be prevented.



Introduction of Initiatives: Example 3

[Labor] Utilizing DX, digital transformation, technologies to **reduce labor hours**.

- The number of workers engaged in the construction related to the Expo reached up to 5,000 per day, and a considerable number of construction-related vehicles entered and exited the Expo construction site.
- In order to streamline the management, we established a system to control entry and exit using facial recognition cameras and vehicle number recognition cameras.
- Additionally, we utilized drones that could fly autonomously to check construction progress without relying on manual labor.



Introduction of Initiatives: Example 4

[Material Procurement] Grand Ring as a symbol of recovery from the Great East Japan Earthquake

- We adopted laminated timber produced in Fukushima Prefecture for the Grand Ring, the symbol of the Osaka-Kansai Expo venue. The production of laminated wood is a key industry in Fukushima, aiming for recovery from the Great East Japan Earthquake.
- The laminated timber is made of cedar sourced from Fukushima Prefecture, and its production was handled by a sawmill in Namie Town, which suffered extensive damage from the tsunami during the earthquake.
- The sawmill, built as part of the reconstruction project, operated at a full capacity to produce laminated timber for Grand Ring, creating local jobs.



Types of Wood Used for the Columns of Grand Ring

All columns are made of
European red pine.

Takenaka JV

West Work Section

Obayashi JV

Japanese cypress and
European red pine are used.

Northeast Work Section

Two-tiered Roof

Legend

Range of Wood Types Used (Usage ratio)	Japanese cypress (50.2%)	
	European red pine (49.8%)	
Erection direction		

- Most of the columns are made of imported European red pine.
- In part of PW Northeast work section, domestic Japanese cypress is used.
→ Increased domestic timber usage
- *All timber have been confirmed to be certified.

All columns are made of
European red pine.

Shimizu JV

Southeast Work Section

Timber Used for Grand Ring within the Obayashi's Work Section and its Production Areas

Flooring: CLT (from Shikoku island)

Column: Japanese cypress (from Shikoku)
European red pine (from Europe)

Beam: Japanese cedar
(from Fukushima Pref.)

Japanese cypress timber was transported from Shikoku island to the Tohoku region for processing.



■ By adopting CLT, cross laminated timber, for the flooring through a design modification, the proportion of domestic timber used in the entire Grand Ring has reached approx. 70%.

■ We hope that Grand Ring attracts attention from around the world, leading to the widespread use of laminated timber produced in Japan.

株式会社 サイブレス・スナダヤ
Cypress Sunadaya Co., Ltd.

Location: Saijo City, Ehime Pref.

- Supplied laminas of Japanese cypress for the columns to Toju Corporation.
- Supplied CLT to 3 construction areas (Obayashi JV, Takenaka JV, and Shimizu JV), accounting for 85% of the entire ring.

-A group company of Obayashi Corporation



TOJU 藤寿産業株式会社
Toju Corporation

Location: Namie Town, Fukushima Pref. (FLAM Sawmill)

*Also in Koriyama, Fukushima Pref.

- Manufacturer/Processor of laminated timber for columns and beams

- Beam: Japanese cedar from Fukushima Pref.

- Column: Japanese cypress from Shikoku
→ Supplied by Cypress Sunadaya
Red pine from Finland



After processing, the timber was shipped by sea from the Tohoku region and temporarily stored in Wakayama Prefecture before transported to Yumeshima by land.

Procurement Category

**Konoike Construction
Co., Ltd.**

Environmental Construction Initiatives in the EXPO National Day Hall Project



Introduction

There was no infrastructure on Yumeshima.

Power supply → **Generator**

Communication lines → **LTE (4G)**

Water and sewer utilities → **N/A**

Introduction

The EXPO 2025 site ...

“People's Living Lab”

We implemented the initiatives to reduce environmental impact caused by construction work!

Adoption of Biodiesel

For generators at our construction site ...

We adopted **biodiesel (B100 fuel)**

Adoption of Biodiesel

What is Biodiesel?

Diesel fuel produced from waste vegetable oils

※Classified as B5, B30, B100 based on blending ratios with conventional diesel

About B100 Fuel ?

100% biodiesel blend

Based on carbon neutral principles, CO₂ emissions can be counted as zero

Adoption of Biodiesel



Operating construction generators with biodiesel (B100)

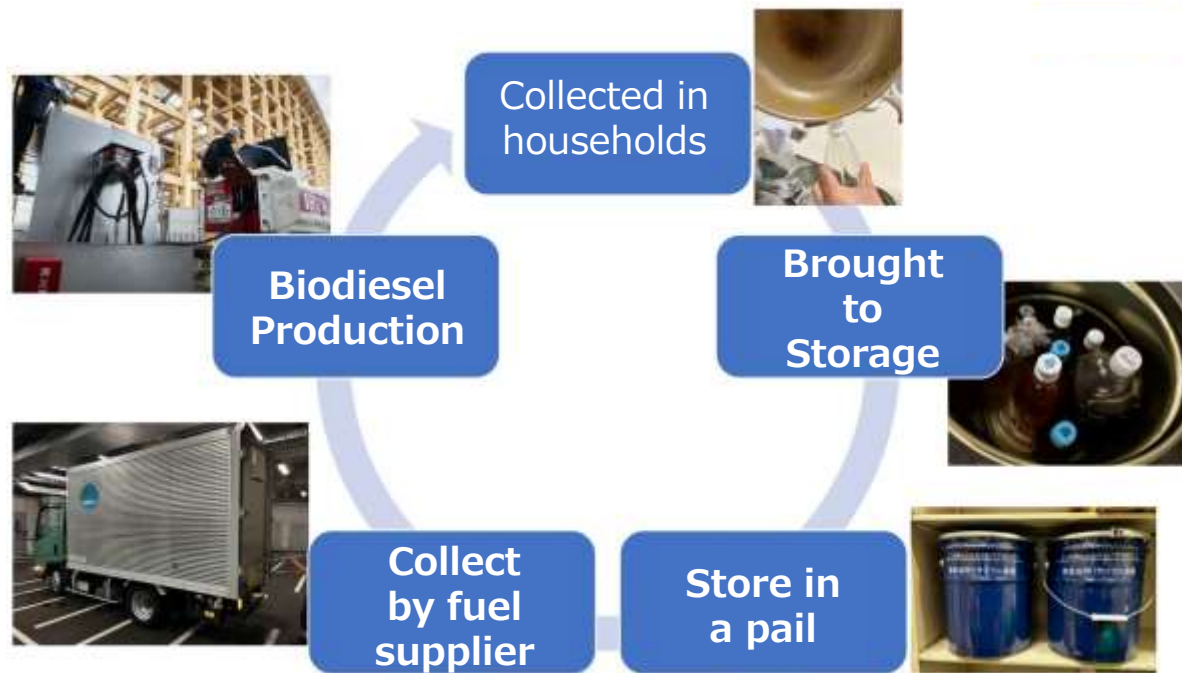
Adoption of Biodiesel



Running construction cranes by biodiesel (B100) fuel

※Japan's first B100 operation (pilot program launched March 2023)

Adoption of Biodiesel



Waste Cooking Oil Collection Process

Adoption of Biodiesel

Total B100 usage in construction work

43.13kL

CO₂ emissions reduced

113t-CO₂

Plastic waste circular economy

Waste plastic **recycling rate is approximately 50%**

Analysis of waste plastic breakdown at construction sites shows that ...

PP bands are extensively used for material packaging

Taking on the challenge of **material recycle using PP bands to improve the recycling rate of waste plastics**

Plastic waste circular economy

We used waste plastics from the project as
raw materials...

Manufacture with 3D printer...

After the EXPO event closes, materials are
recycled back into 3D printing feedstock

**Enables waste plastic resource
circulation !**

Plastic waste circular economy



Manufacturing planters from waste PP bands

Plastic waste circular economy



Manufacturing “podiums”

Plastic waste circular economy



Featured in the opening ceremony

AQUAMAKE® Circular Economy Initiative

At the EXPO site, construction and infrastructure works were proceeding simultaneously

Other construction companies planned to install portable toilets on their sites

Even if buildings are completed, toilets won't work without finishing infrastructure work!

AQUAMAKE® Circular Economy Initiative

How much wastewater are we looking at?

apprix. 840m³

※two 25-meter Swimming Pools

How often will wastewater be pumped out?

Every day (2.5 m³/unit)

AQUAMAKE® Circular Economy Initiative



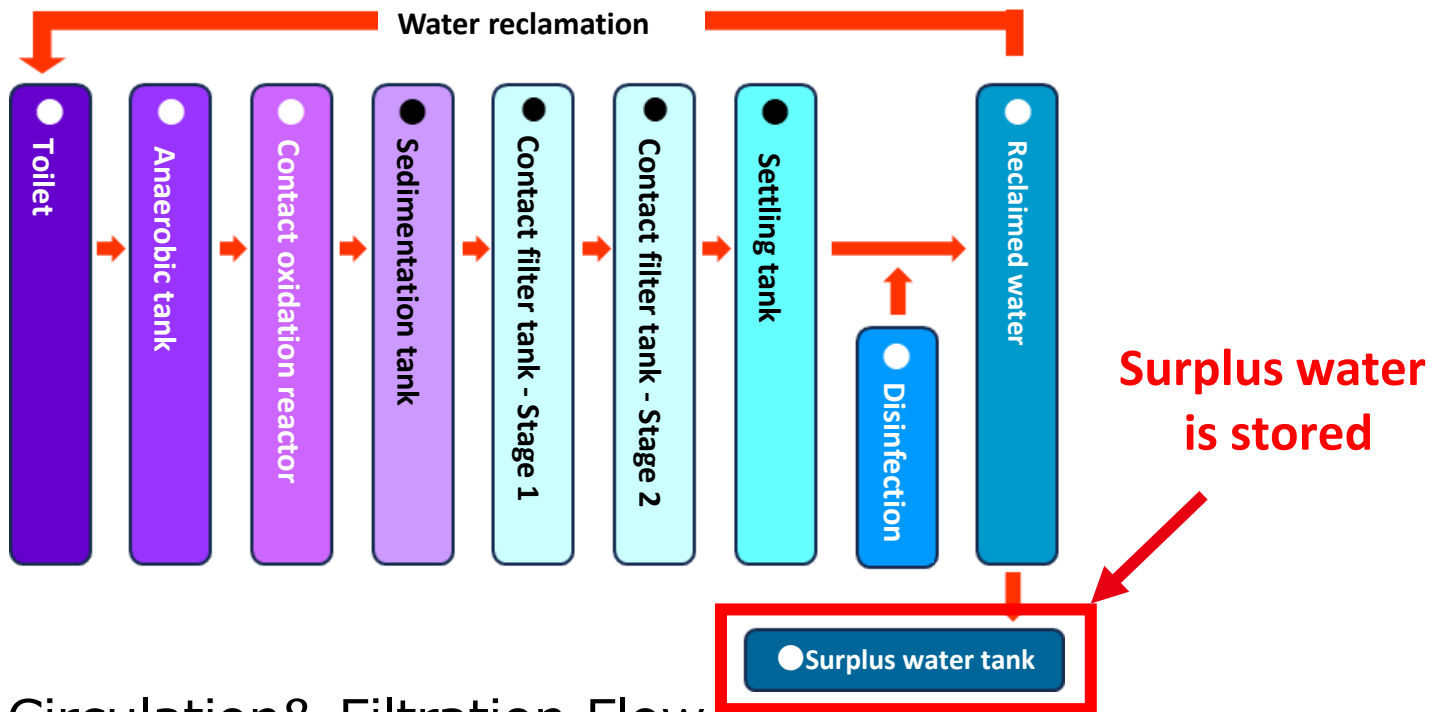
AQUAMAKE enables wastewater circulation and reuse

AQUAMAKE® Circular Economy Initiative



AQUAMAKE Installation Status

AQUAMAKE® Circular Economy Initiative



Wastewater Circulation& Filtration Flow

AQUAMAKE® Circular Economy Initiative

**wastewater
reclamation and reuse**

×

People's Living Lab

AQUAMAKE® Circular Economy Initiative

Water quality analysis of surplus water revealed...

High **Nitrogen** concentrations

※One of the **three major nutrients**

essential for plant growth

AQUAMAKE® Circular Economy Initiative



Growing and harvesting **vegetables**
in the site farm on site

AQUAMAKE® Circular Economy Initiative



Growing plants on-site for building **Landscape**

AQUAMAKE® Circular Economy Initiative



Selected group company's Factory as the utilization site for surplus water



Transporting surplus water from the site to the factory

AQUAMAKE® Circular Economy Initiative



Apply surplus water from EXPO 2025 construction as **"Liquid fertilizer"** to moss phlox at Group company's Factory

Summary

Konoike's implementations at the project

- Reduced CO₂ by 113 tons using B100
- Created a recyclable podiums from waste plastic through material recycling
- Demonstrated cross-industry circular economy with AQUAMAKE®

Future Outlook & Aspirations

Next challenge: Using B100 for demolition work !

We hope the podiums will be re-used
for the GREEN EXPO 2027, Yokohama, JAPAN !

We intend to apply AQUAMAKE® in highly water-stressed
areas !

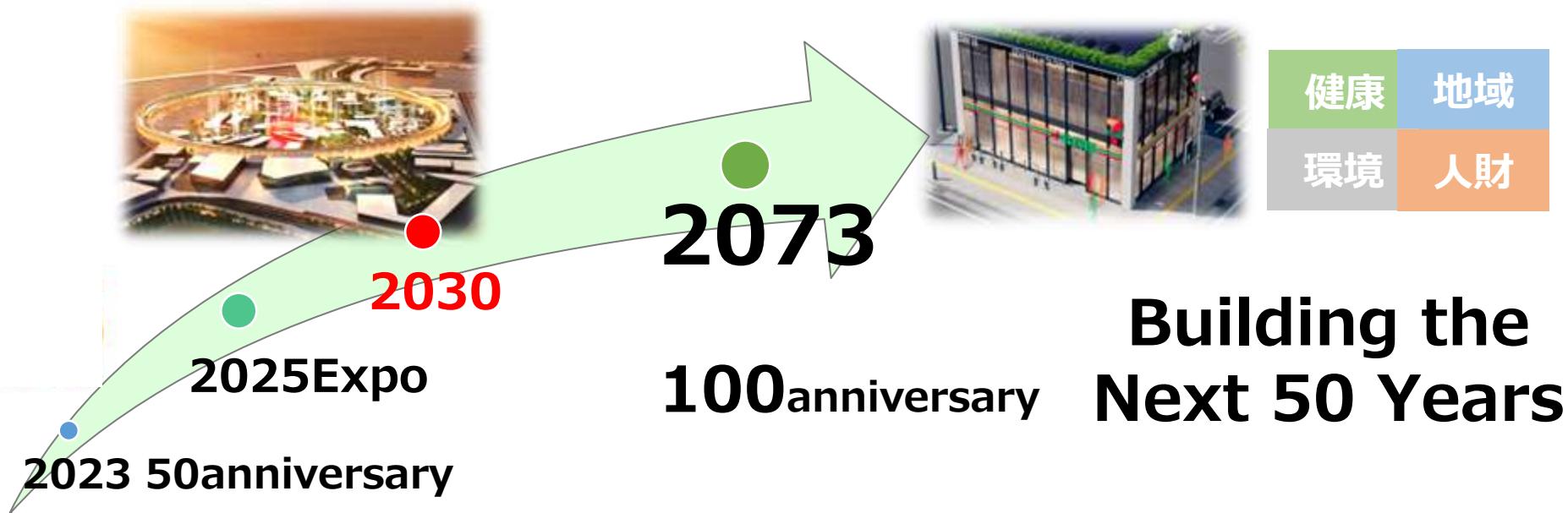
Procurement Category

**SEVEN-ELEVEN JAPAN
CO., LTD.**

Next 50 years



Experience the Convenience Store of 2030 at the Expo



2030 objectives



いのち輝く未来社会のデザイン

Designing Future Society for Our Lives



GREEN
CHALLENGE
2050 私たちの挑戦で、
未来を変えよう。

2030

CO₂50%Off

CO₂
削減

プラ
対策

50%eco-friendly
plastic

FoodLos50%Off

食品
ロス

持続
可能性

50%Sustainable
Raw materials

4 Strategies

環境

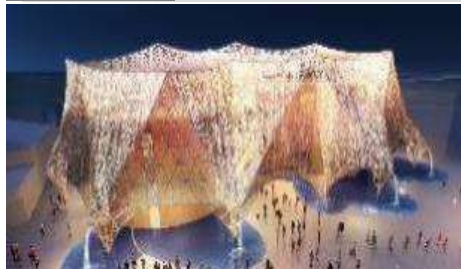
2 Stores



- Futuristic store
- DX

健康

Oosaka health care PV



- Oosaka Prefecture
- REBORN

人財

Virtual Expo



- Virtual world

地域

EARTH MART



- Lifestyle
- Food

Refrigeration Equipment



We use the next-gen refrigerant "R-474B," which is designed to be energy-efficient, and control the system in a smart way to cool things down without wasting energy.

Pursuing Sustainable Raw Material Sourcing



OSAKA, KANSAI, JAPAN
EXPO2025

工場野菜
(Factory Vegetables)

陸上養殖
(Land-Based Aquaculture)

プラントベースプロテイン
(Plant Based Protein)

Actively use

Aggressively pursue procurement

Pursuing innovation in sustainable and future-ready raw materials

◆ Onigiri①



Spicy Pollock Roe & Soy Pulp

¥213.84



- Pollock roe from Alaska seafood is used to make spicy cod roe (mentaiko).
- Contains approximately 20% "okara konjac" and is aged for 7 days.

◆ Onigiri②



Salmon Pea Meat & salt

¥213.84



- Made with Alaska seafood's sockeye salmon
- Contains approximately 20% of a sustainable granular ingredient made from sprouted yellow peas

Made with Environmentally Friendly Raw Materials



Used as ingredients in sandwiches and sweets



•Developing plant-based foods from soybeans

◆SANAGARA Egg



- Controlling the molecular structure of sprouted soybeans
- Transforming their flavor to resemble various ingredients

◆Selling in Expo stores



Egg sandwich

¥248.40

10% substitution in egg salad using plant-based or sustainable components



Custard cream puff

¥162

Replaced about 20% of the egg usage with a sustainable substitute

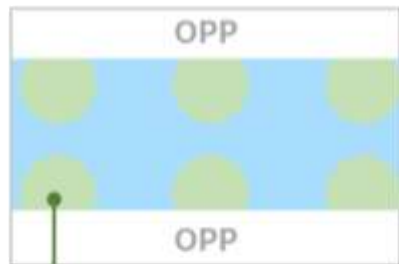


Efforts toward product and packaging

Approach to innovative materials



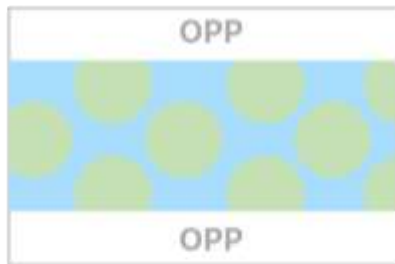
Currently using
25% bio-based materials



バイオPP



at Expo 50%



■ Using product



Onigiri



Sushi



Bread



Sweets



Bread

Used in the products listed above

Impact of the new packaging

Packaging usage overview

Composition ratio of eco-conscious materials

◎ Expo store ◎ National average



36.1%



11.2%

Impact of nationwide expansion



We've reduced our annual use of petrochemical plastics from 5,501 tons to 4,387 tons — a significant cut



This reduction is equivalent to cutting 1,114 tons of CO₂ emissions per year.

Aiming for zero plastic shopping bags

■ Paper shopping bag



(S)¥25

(L)¥35

Gc2050 Objective

Our goal is to eliminate the use of petroleum-derived plastic shopping bags and transition to eco-friendly materials such as paper and biomass-based plastics.

Other retailers in the industry are actively pursuing environmental initiatives as well



It's positive that companies are striving together to improve environmental practices

Procurement Category

Taisei Corporation

Procurement initiatives of thatched roof of Signature Pavilion EARTH MART



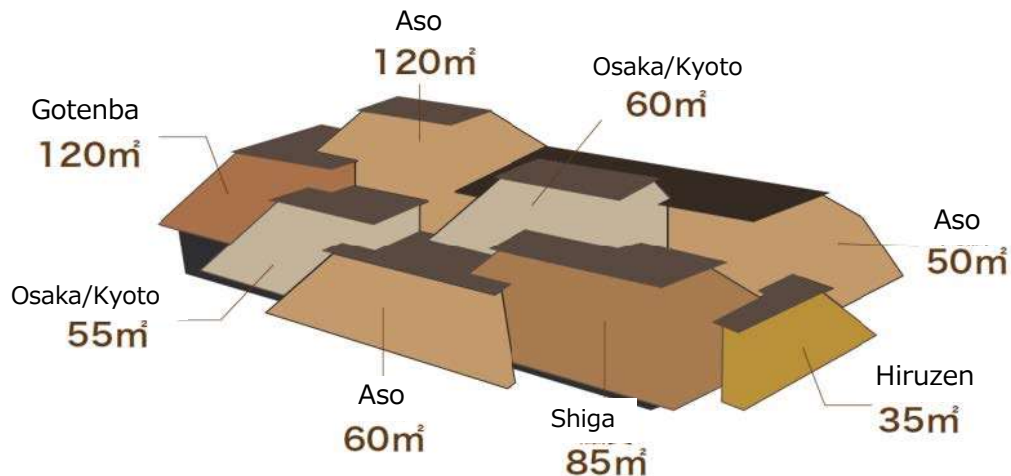
EARTH MART producer :
Kundou Koyama
(Broadcast writer)

Architectural Schematic
Designer :
Kengo Kuma(Architect)

Architectural Detailed Designer :
Kengo Kuma and associates,
Taisei Corporation JV

Contractor :
Taisei Corporation Kansai Branch

Composition of thatched roof using various production area of thatch



Four seasons of production area of thatch



Hiruzen (Silver grass) / June



Hiruzen (Silver grass) / January



Hiruzen / April - Open burning



Shiga (Reed) / August



Shiga (Reed) / January



Shiga / April - Open burning

Conservation of thatch and activity for maintaining the grassland



Taisei's action for conservation of thatch



Rare species
(Fusahige ruri kamikiri)



Rare plants
(Sakurasou・Kikyô)

Construction of thatched roof



Installing thatched roof to the Steel frame base



Wide space under the eaves
One of the advantage of Steel structure

On-site classes for environmental education



Student works using reed grass and 「Myaku-Myaku」



On-site classes and student works

Taisei Group Sustainable Procurement Guidelines

~Taisei Corporation's Procurement Code Initiative~



For more information, please visit our website

Communicate to all business partners, Request for Sustainability Activities

- Using the guidelines as a condition for quotation, and having the gist into the contract
- Conducting training and e-learning for business partners
- Utilizing the "Taisei Group Supply Chain Sustainability Handbook"

Every year, a self-assessment in the form of a questionnaire, and confirm the implementation status through on-site hearings, etc.

- In addition, individual surveys are conducted to respect the human rights of foreign technical intern trainees, and to promote appropriate timber procurement

Summary	FY2022	FY2023	FY2024
Questionnaire Eligible companies	3,006 companies	3,223 companies	3,201 companies
Responding companies	1,590 companies	1,756 companies	1,529 companies
Responding Rate	53%	54%	48%
Responding Rate (Based on contract amount)	79%	89%	73%
Number of Visits	20 companies	37 companies	43 companies

KPI: Supplier sustainability activity status confirmation rate FY2030 100% (Group)

Using a new system since FY2024

Procurement Category

**FOOD & LIFE COMPANIES
LTD.**



SUSHIRO To The Future : Expo Edition

Please note : This document has been translated into English using machine translation software.



FOOD & LIFE COMPANIES Procurement: Pursuing sustainable seafood and agricultural products throughout the supply chain



Our Materiality Issues in Procurement

- **"Implementing sustainable procurement through fair trade"**
- **"Reducing food loss and effectively utilizing marine resources"**

We also establish procurement and environmental policies, publish them on our website, and procure in accordance with them.





SUSHIRO's vision to the future of Sushi restaurant

Mission

Tasty Sushi for All.

Tasty Sushi for The Heart

1. For abundant marine resources that endure into the future



- Actively utilizing evolving **technological innovations**
- **Protecting marine diversity** as much as possible

2. For Enjoyable dining experiences that last into the future



- Enjoy **delicious** food while actively utilizing evolving **technological innovations** to **enhance entertainment value**

1. Abundant marine resources that endure into the future

First Challenge



The fish we use is
100% farmed.



- In light of the growing importance of marine resources that do not depend on wild fish, all of the fish served in the restaurant are farmed.
- In particular, we offer products using marine products cultivated using cutting-edge technology such as land-based aquaculture as part of their "Fish of Tomorrow" series.



1. Abundant marine resources that endure into the future



■ Land-based aquaculture using cutting-edge technology
Seafood that can adapt to changes in the marine environment

Land Farmed Sea Urchin in
Nori
¥550(TAX in)



Land Farmed Vinegared
¥390 (TAX in)



Land Farmed Shortfin Eel
¥390 (TAX in)



Land Farmed Kuruma Shrimp
¥330 (TAX in)



Land Farmed Filefish
Ponzu Gelee
¥390 (TAX in)



Salt Land
Farmed Malabar
Grouper
¥270
(TAX in)



Land Farmed
Sennan Conger
Eel
¥270
(TAX in)



1. Abundant marine resources that endure into the future

- Seafood species adaptable to rising ocean temperatures from global warming.

Pickled Cobia from Churaumi
¥330 (TAX in)



Red Emperor from Ainan
¥390 (TAX in)



1. Abundant marine resources that endure into the future

- Fully farmed seafood with a low impact on natural resources.



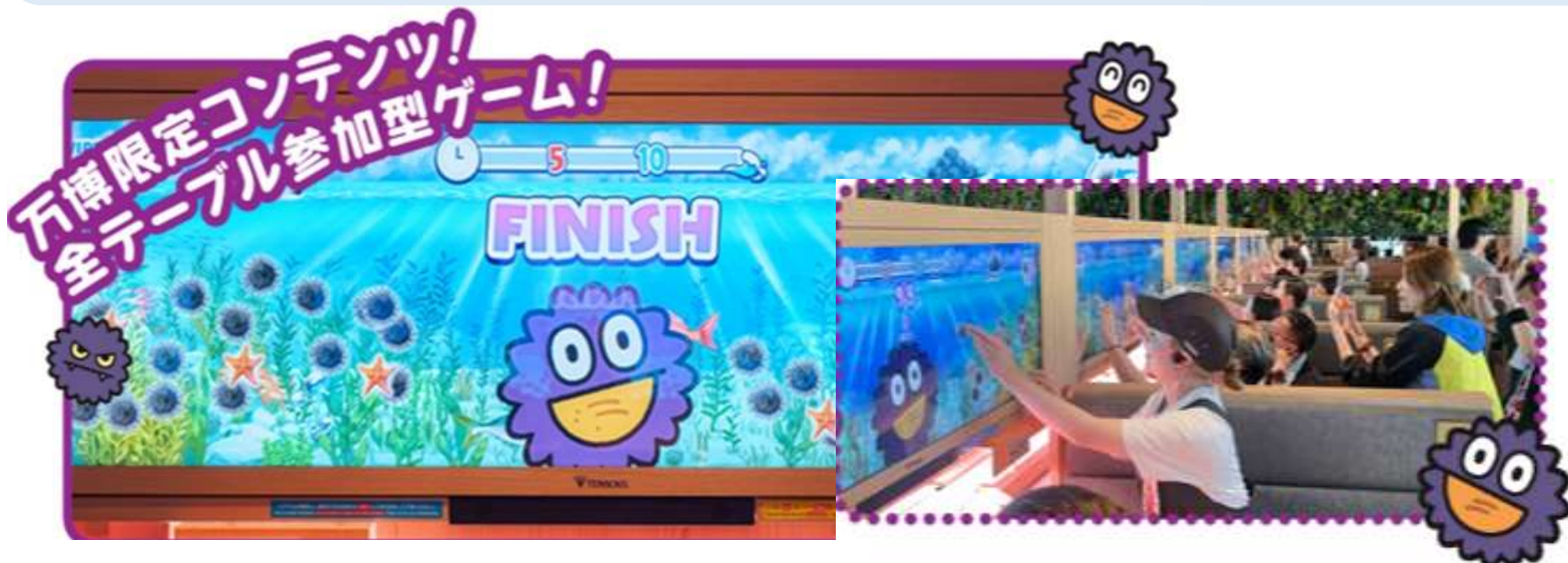
**Aquaculture Great
Amberjack**
¥330 (TAX in)



2. Enjoyable dining experiences that last into the future

■ In the "Uni Catch Game," where everyone captures sea urchins all at once, you can have fun while learning about the marine environment.

At 1st.



2. Enjoyable dining experiences that last into the future

■ SUSHI QUEST, A Fun and Educational Game for Learning About Aquatic Resource Challenges and Sustainable Fishing Technology

The 2nd.



This game offers a fun way to learn about the challenges facing aquatic resources and the solutions to help ensure diners can continue eating delicious sushi into the future.



FOOD & LIFE COMPANIES LTD.

Sushiro (F&LC) aims to achieve sustainable sourcing through the preservation of abundant marine resources for the future, and will continue to provide enjoyable dining experiences for generations to come.

