

Fishing Net Recycling Business

Small discrete recycling system

REFINVERSE Group, Inc.

(Stock Code : 7375)



Sep. 21th, 2023

About the REFINVERSE Group

Creating various materials from waste
Next-generation materials manufacturer



“Waste to Wealth”

Company name: REFINVERSE Group, Inc.

President and CEO: Akira Ochi

Capital: 160 million yen (as of the end of June 2023)

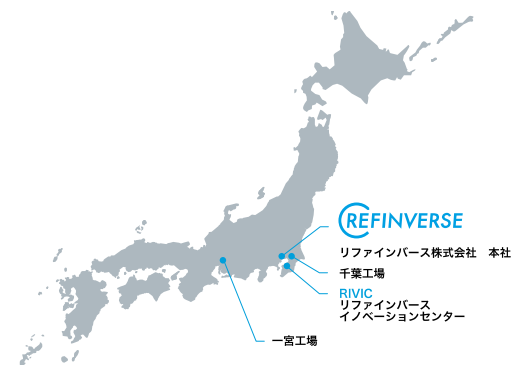
Established: July 2021 (founded 1983)

No. of employees: 220 (Group-wide)

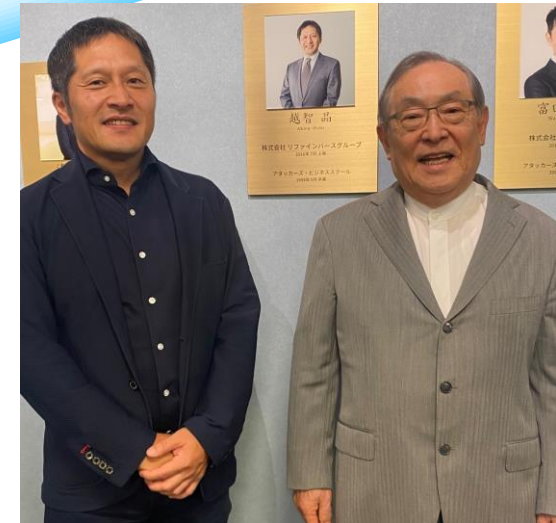
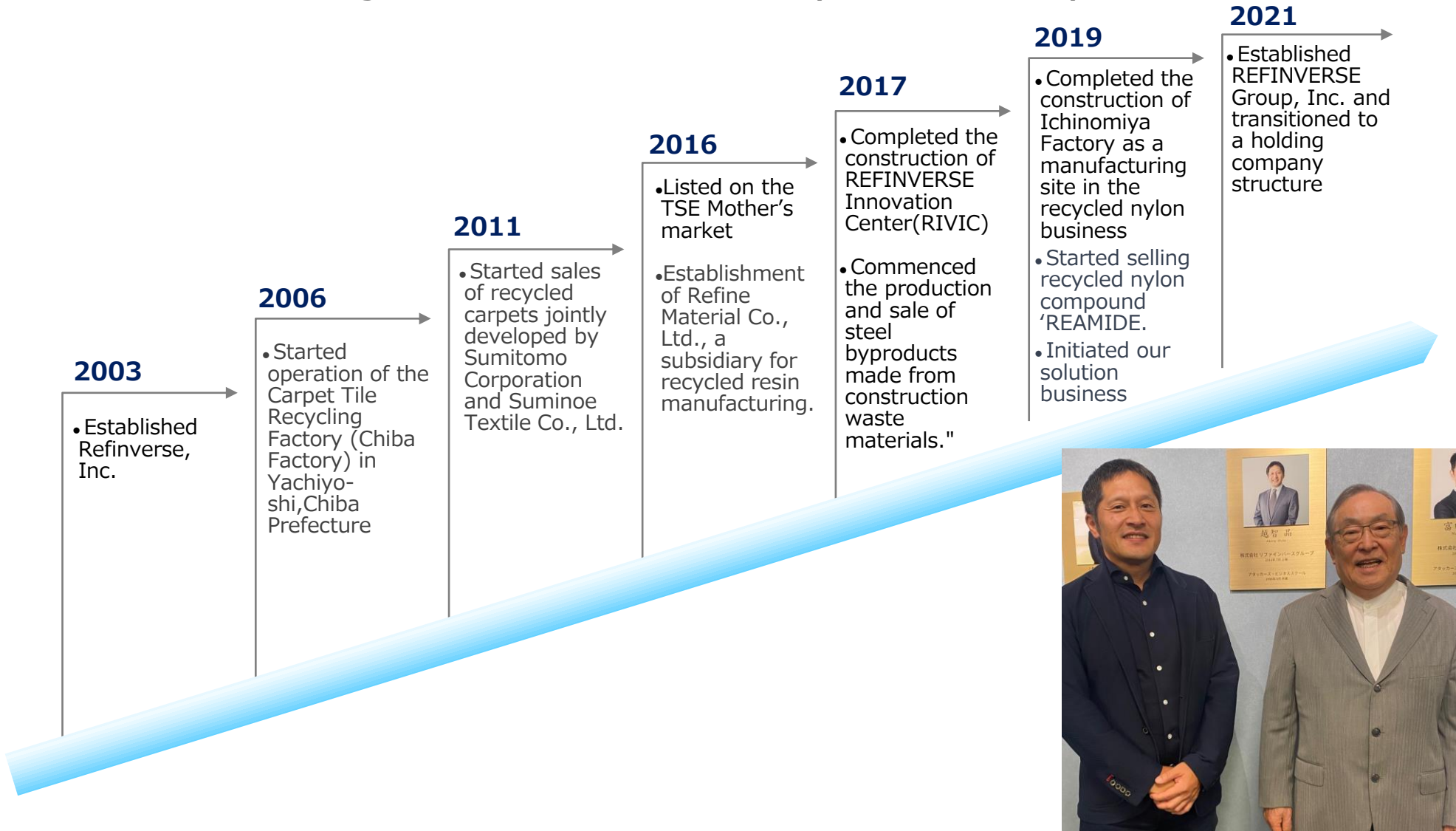
Group companies: Refinverse, Inc.
GMS, Inc.
CONNECTION, Inc.
REFINE MATERIAL, Inc.

Head Office: Yurakucho, Chiyoda-ku, Tokyo

Main Site: Chiba Factory: Yachiyo-shi, Chiba
REFINVERSE Innovation Center (RIVIC)
: Futtsu-shi, Chiba
Ichinomiya Factory: Ichinomiya-shi, Aichi



- Founded in 2003 as a manufacturer that utilizes waste materials to create new materials.
- Received seed funding from Ohmae Business Developments to start operations.



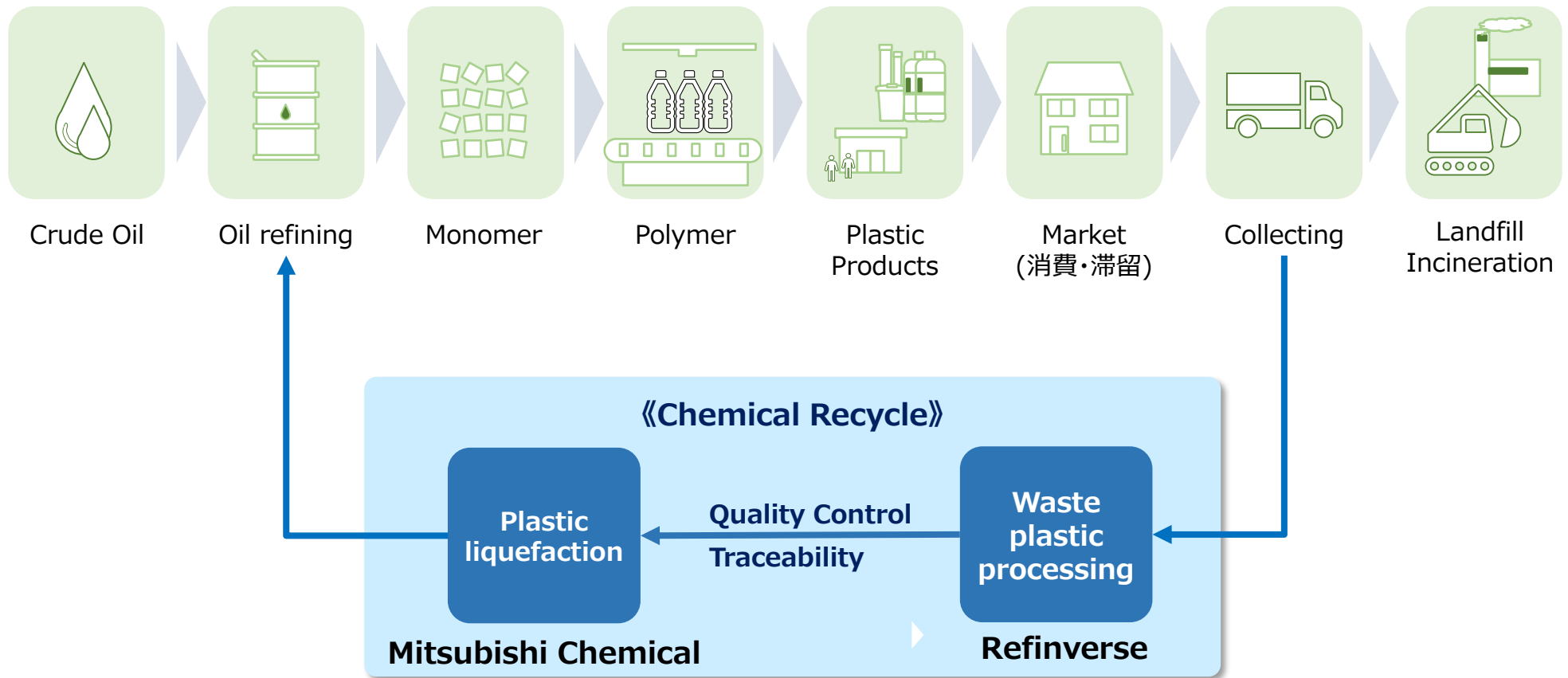
We utilize our proprietary technology to recycle previously unused waste materials, regenerating them into various materials. These materials find applications in a wide range of fields, including apparel, automotive components, and construction materials, serving as 'post-consumer recycled materials.'

《Examples of Refinverse Recycling Projects》



We are implementing a capital and business partnership with Mitsubishi Chemical Group and preparing to create a business for the conversion of waste plastics into naphtha and plastics.

《Plastic Value Chain and Recycle》



fishing net recycling

40% of marine plastic debris consists of fishing net and ropes.

Utilizing these plastic debris as resources can contribute to addressing the marine plastic debris issue.

《Breakdown of marine debris (plastics only) by type》

Type	Weight%	Volume%
Fishing net, Rope	41.8%	26.2%
Buoy	10.7%	8.9%
Beverage bottle	7.3%	12.7%
Other plastic bottles	5.3%	6.5%
Styrofoam buoy	4.1%	14.9%
Other fishing gears	2.7%	2.6%
Containers (Seasoning container, trays, Cups, etc.)	0.5%	0.5%
Cutlery (Straw, Fork, Spoon, Knife, Muddler)	0.5%	0.5%
Plastic bag	0.4%	0.3%
Other plastics (Lighter, Injector, Styrofoam, etc.)	26.7%	26.9%



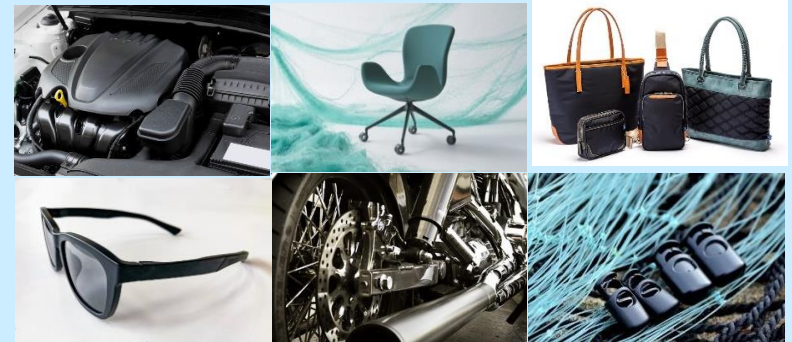
(Source) Prepared by us from "Recent trends in marine debris", Ministry of the Environment,

Used fishing nets often have various contaminants attached to them, making the technology for removing these contaminants crucial. Simplifying the process of removing contaminants can reduce environmental impact and costs, allowing us to offer products to the market at a price of virgin resin.

《Waste fish net recycling process》

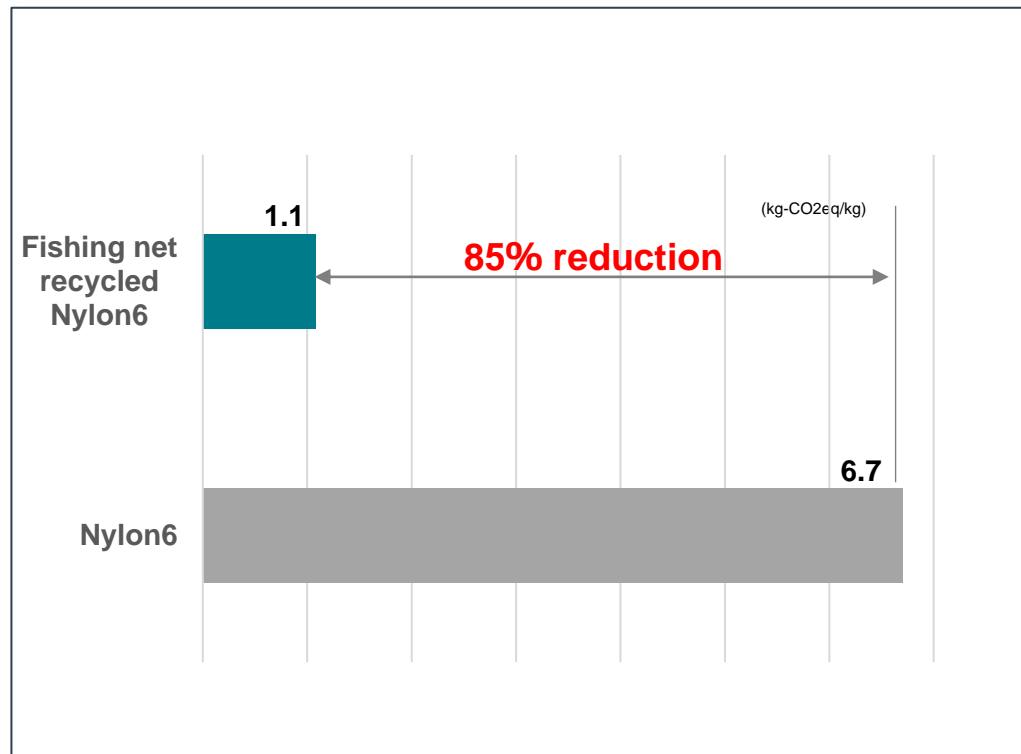


Usage examples



- Achieving Overwhelming CO2 reduction through efficient recycling processes
- The CO2 emissions are reduced by 85% when compared to virgin nylon resin.

《LCA virgin Nylon6 V.S. fishing net recycled Nylon6》

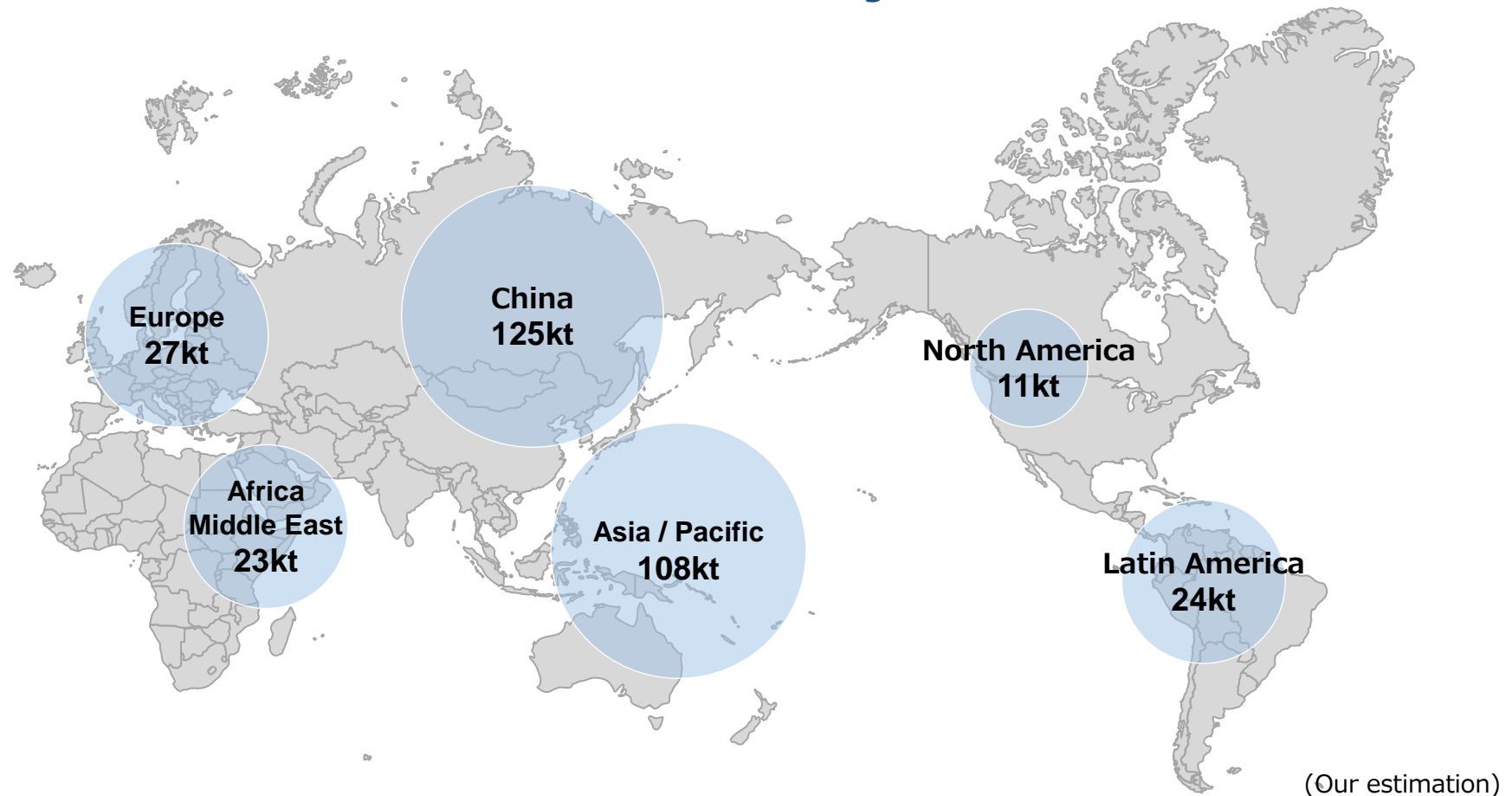


- The rules for calculation and declaration, as well as the system boundaries, are referenced from the Product Category Rules (PCR) provided by the Japan Sustainable Business Promotion Organization (Certified PCR Number: PA-165000-BA-02), applicable to the product category: Recycled Plastic Raw Materials (Intermediate Goods).
- The CO2 emissions at each stage of the process are calculated by our company, with reference to IDEAv2.3.
- The CO2 emissions for virgin nylon are calculated by our company based on research results.

The business strategy of our fishing net recycling

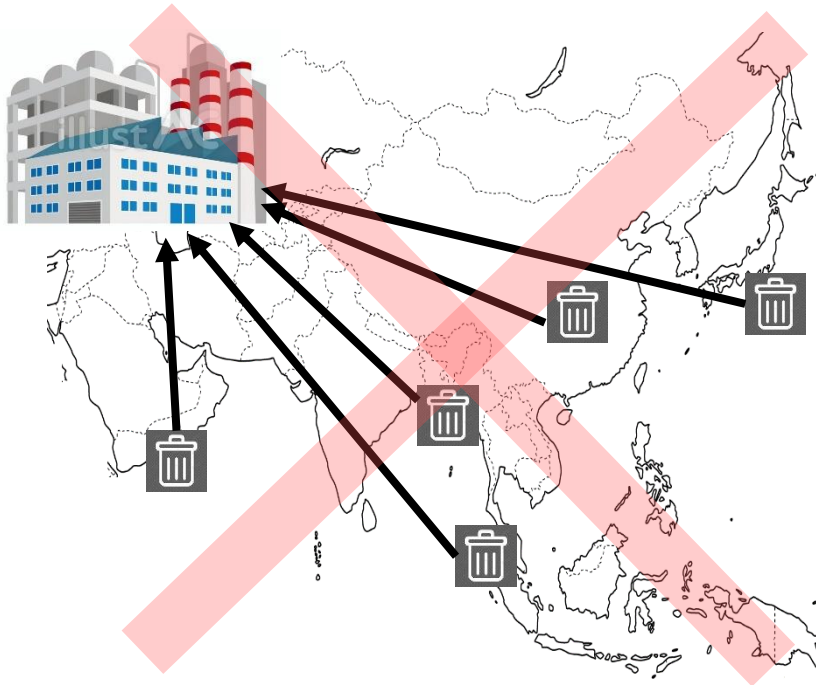
Fishing nets are used and discarded worldwide, and if utilized them as post-consumer recycled materials, they can become highly valuable raw materials.

《Amount of waste fishing nets》



To utilize waste as a resource, conducting recycling processes at the site of wasting not only reduces environmental impact but also enhances economic viability. From the point of view of circular economy, the benefits of traditional large-scale, mass-production economies are diminishing, making it crucial to create "small discrete businesses model".

《Traditional mass-production model》



《Circular economy model》



We aim to expand our business by licensing our proprietary recycling process to various recycling ventures using our technology for each country/region both domestically and internationally. The waste amount in each area is limited, and the key success factor (KSF) is to be the first to undertake business in each area and create a "niche/monopoly" position.

《The status of licensing business》

Implementing

◆ Hokkaido

- ✓ Fishing net recycle
- ✓ Licensing to the local metal recycler

◆ Ibaraki

- ✓ Steelmaking by-products
- ✓ Licensing to the on-site operator

◆ Vietnam

- ✓ Air bag recycle
- ✓ Licensing to Toyota Tsusho Corporation

◆ South Korea

- ✓ Fishing net recycle
- ✓ Licensing to the start-up in South Korea



exploring

◆ Asia

- ✓ Air bag recycle

◆ Latin America

- ✓ Air bag recycle

◆ Middle East

- ✓ Air bag recycle
- ✓ Fishing net recycle

◆ North America

- ✓ Fishing net recycle

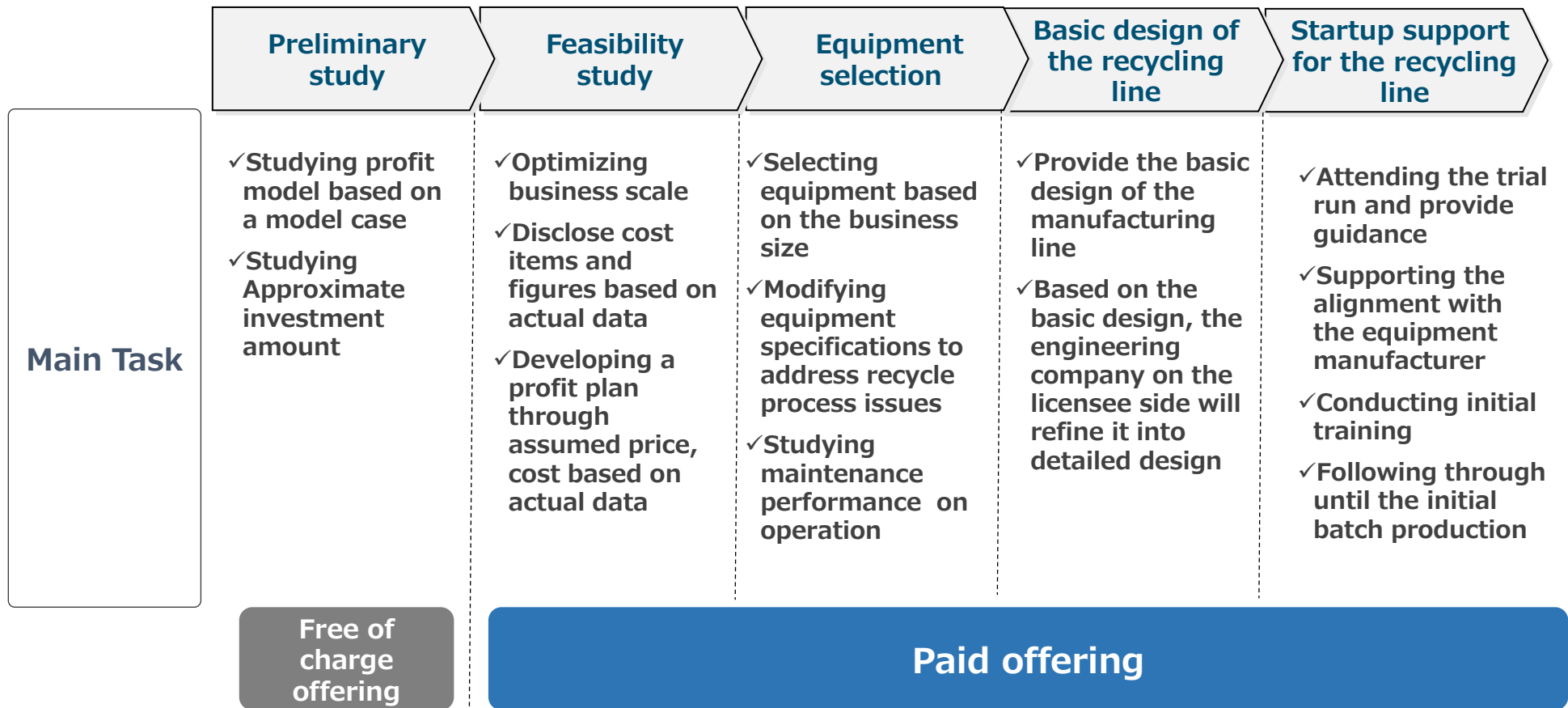
◆ Japan

- ✓ Carpet tile recycle

◆ Japan

- ✓ Steelmaking by-products

We offer a comprehensive license package, including the necessary support, to smoothly launch recycling businesses utilizing our technology. This package covers everything from providing performance data required for business feasibility assessments to assisting in selecting the optimal equipment based on the scale of the business and supporting the startup process.



License the fishing net recycling technology to local businesses in Hokkaido, produce recycled nylon from the waste fishing net. This can be achieved by building a production line based on the amount of waste fishing net, enabling business development with a small-scale investment.



《Outline of Fish net recycling factory》

Tomakomai ECO Factory

**Business operator: Suzuki Shoukai
(Scrap recycler in Hokkaido)**

Building area of a plant: 1,100m²

Established in 2022

Capacity: 2,000t/year

Investment: Under 5 million US\$

The demand for recycled plastics is expected to significantly increase in the future due to EU ELV regulations. To control the QCD of post-consumer plastics, the key factor will be the speed of securing high-quality waste plastics as a raw materials.

《EU ELV Directive》

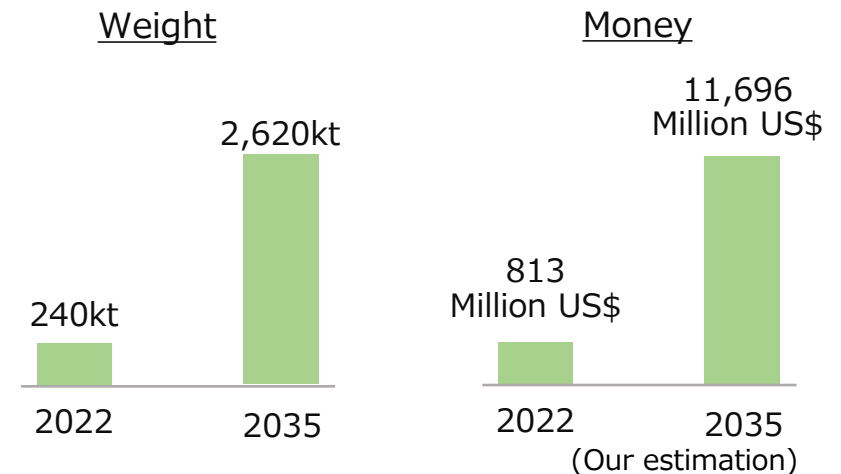
Background

- Oct., 2020 Publish a roadmap
- July, 2021 Start public consultation
- July 2023 Publish “Proposal for a Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles”

Direction of revision

- Promoting effective measures to facilitate high-quality recycling of used cars and the reuse of parts, as well as incorporating recycled materials into new car manufacturing.
- Currently, due to the lack of detailed information and specific figures, there are plans to engage in discussions regarding the addition of more detailed items and the introduction of specific numerical targets, such as setting the recycling material inclusion rate

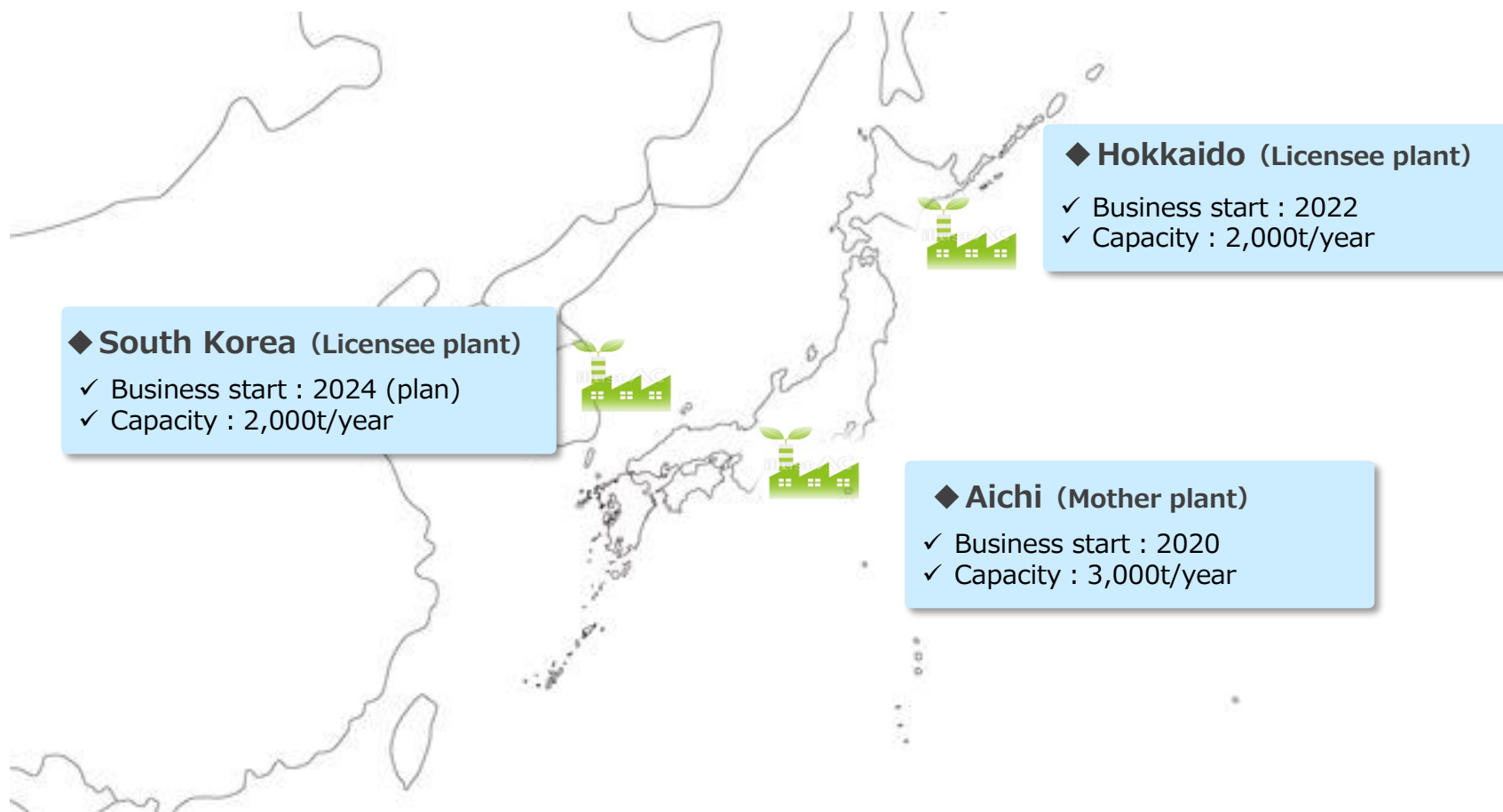
《Forecast for recycled plastics demand in the automotive sector》



- The adoption rate of recycled plastics currently stands at around 1%
- After 2027, the demand is expected to expand rapidly due to the impact of stricter regulations
- It is predicted that the adoption rate of recycled plastics in 2035 will be around 10%

In 2020, we established a mother plant in Aichi, Japan and initiated our fishing net recycling business. After that we formed partnerships with companies in the regions where waste fishing nets are generated and granted them fish net recycling licenses.

《Current status of fishing net recycle network》



Fishing nets are used worldwide, and we aim to expand our recycling network by collaborating with licensing partners in different countries and regions to recycle fishing nets.

《Future fishing net recycling network》



The materials and information provided in this presentation include forward-looking statements. These statements are based on assumptions involving current expectations, forecasts, and risks, and may entail uncertainties that could lead to results that differ substantially from these descriptions.

These risks and uncertainties include general domestic and international economic conditions such as industry and market conditions, interest rates, and currency exchange fluctuations.