


# Environmental Management

## Basic approach

Since business activities are dependent on natural resources, tackling climate change and other environmental problems is an essential task for companies. The artience Group has recognized environmental conservation as an important issue from an early stage, and has been working to reduce its environmental impact by establishing its Basic Policy on Environment (revised in January 2024.) In the Group's environmental management system, our Basic Policy on Environment is regarded as our environmental policies under ISO 14001, and we will thoroughly inform all employees, set objectives and targets for each, and make efforts for their realization.

 The Basic Policy on Environment is posted on our website under Sustainability > Environment > Environmental Management.

## Promotion system

The President and Representative Director (Group CEO) is the chief executive officer of the sustainability promotion system and the chief executive officer for environmental management, including the Group's response to climate change. Environmental management is supervised by the Board of Directors through the President and Representative Director, and is promoted by the Chief Sustainability Officer (Chair of the Sustainability Committee) as the person in charge of practical matters.

The Sustainability Committee and its ESG Promotion Subcommittee formulate medium to long-term environmental plans and targets for the entire Group, check progress, carry out activities for each theme, and report to management at Sustainability Committee meetings and Sustainability Conference (group-wide meeting.)

In terms of daily activities toward achieving targets, the ESG Promotion Office of artience Co., Ltd. is a dedicated organization that supervises and manages activities for the entire Group, and works in cooperation with related departments to achieve the asv2050/2030 Sustainability Vision, looking ahead to 2050.

 [Page 8: Sustainability promotion system](#)

## Targets

### [Formulation of medium- to long-term targets looking ahead to 2050]

January 2022, We has also established the Sustainability Vision "asv2050/2030," with long-term practical targets for its sustainability activities. We have established this vision with a view to 2050, in order to respond to recent global trends regarding climate change, carbon neutrality and initiatives for the achievement of the SDGs, as well as the current social situation which requires that companies fulfill increasing demands for sustainability.

asv2050/2030 consists of asv2050, which indicates a direction to reach our ideal vision with 2050 as the target year, and asv2030, which sets various interim targets by backcasting toward 2030 as a milestone. The artience Group will strengthen its sustainability efforts, using the environmental targets in SIC-II and the asv2050/2030 medium- to long-term targets after that as guidance for sustainability activities. The Group aims to achieve carbon neutrality by 2050.

## Environmental Management

### ■ Sustainability Vision asv2050/2030

	asv2030	asv2050
1. Providing products and services that realize a sustainable society	<ul style="list-style-type: none"> <li>The percentage of sales from Sustainability-Enhancing Products will be 80%</li> <li>Increasing the number of products able to contribute to the reduction of CO<sub>2</sub> emissions throughout their lifecycle</li> </ul>	<ul style="list-style-type: none"> <li>Making all products Sustainability-Enhancing Products</li> <li>Helping customers achieve decarbonization</li> </ul>
2. Reducing the environmental impact of manufacturing	<ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions: 50,000 t in Japan (down 35% from the FY2020 level), 95,000 t (down 35% from the FY20230 BAU level)</li> <li>Amount of waste treated off-site (Japan): 6,450t (down 50% from the FY2020 level)</li> <li>Harmful chemical substance emissions (Japan): 91.9 t (down 30% from the FY2020 level)</li> </ul>	<ul style="list-style-type: none"> <li>Achieving net zero CO<sub>2</sub> emissions from production activities and minimizing their environmental impact</li> <li>Minimizing waste generation</li> <li>Realizing sustainable water use</li> </ul>
3. Building a foundation for trust	<ul style="list-style-type: none"> <li>Sourcing raw materials in ways that are friendly to the environment and good for society</li> <li>Respecting the diversity of employees and co-existing in harmony with the natural environment and local communities</li> <li>Continually restructuring our governance system</li> </ul>	<ul style="list-style-type: none"> <li>Continuing to reform and transform our supply chain, human resources, regional activities, and governance from the perspective of environmental and social contribution</li> </ul>

### ■ Environmental goals of artience2027 (new medium-term management plan; FY2024 – 2026)

	KPIs and targets
1. Providing products and services that realize a sustainable society	Promoting Sustainability-Enhancing Products
2. Reducing the environmental impact of manufacturing	<ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions: 59,500 t in Japan (down 23% from the FY2020 level), 104,000 t (down 29% from the FY20230 BAU level)</li> <li>Amount of waste treated off-site (Japan): 8,400 t (down 35% from the FY2020 level)</li> <li>Chemical substance emissions (Japan): 105.0 t (down 20% from the FY2020 level)</li> <li>Specific energy consumption (overseas, major production bases): 165.0 L/t (down 3% from the FY2020 level)</li> </ul>
3. Building a foundation for trust	Promotion of biodiversity: Conservation of forest and aquatic ecosystems through tree-planting, ecological surveys, strengthening of water management at production bases

### ■ Environmental goals of SIC-II (previous medium-term management plan; FY2021 – 2023)

	KPIs and targets
1. Reducing the environmental impact of manufacturing	<ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions (Japan): 67,500 t (down 12% from the FY2020 level)</li> <li>Amount of waste treated off-site (Japan): 10,500 t (down 19% from the FY2020 level)</li> <li>Chemical substance emissions (Japan): 118.2 t (down 10% from the FY2020 level)</li> <li>Specific energy consumption (overseas, major production bases): 165.0 L/t (down 3% from the FY2020 level)</li> </ul>
2. Providing products and services that realize a sustainable society	Increasing the sales ratio of environmentally friendly products: 70.0% (up 4.0 percentage points from the FY2020 level)
3. Promoting coexistence with nature and community	Promotion of biodiversity: Conservation of forest and aquatic ecosystems through tree-planting, ecological surveys, strengthening of water management at production bases

## Compliance with laws and regulations

No environmental accidents requiring an emergency response occurred in FY2023 at any business location of the artience Group in Japan or overseas. The Group received no administrative directives in Japan in connection with environmental laws and regulations. Outside Japan, we take appropriate response actions to redress deficiencies if we receive any instructions on them.

[link](#) Page 80–83: ESG Data Collection > Environmental Management

# Environmentally Friendly Products / Utilization of Life Cycle Assessment

## Basic approach

Based on the idea that reducing the environmental impact from products is important to environmental conservation, we formulated a Basic Environmental Policy (revised in January 2024.) We have long been striving to offer environmentally friendly products and services. To drive initiatives such as environmental conservation and sustainable procurement of raw materials, we utilize life cycle assessment (LCA) in manufacturing with a view to reducing our environmental impact throughout the product life cycle, including raw material procurement, production, use, disposal, and recycling of products.

We formulated the asv2050/2030 Sustainability Vision in January 2022. Under asv2050/2030, in addition to redefining conventional environmentally friendly products as environmental value (products) for creating a society in harmony with the environment and lifestyle value (products) for a comfortable, healthy, and safe society, we also define sustainability-enhancing products. We aim to solve various social and environmental problems through the promotion of sustainability-enhancing products as a goal and KPI for the new medium-term management plan.

[link](#) Page 6: Sustainability Vision asv2050/2030

## Targets and achievements

### Environmental goals of SIC-II (FY2021 - 2023)

The percentage of sales ratio of environmentally friendly products will be 70%

### Environmental goals of artience2027 (FY2024 - 2026)

Promoting Sustainability-Enhancing Products

### asv2050/2030

#### Providing products and services that realize a sustainable society Targets for 2030

The percentage of sales from Sustainability-Enhancing Products will be 80%

Increasing the number of products able to contribute to the reduction of CO<sub>2</sub> emissions throughout their lifecycle

#### Targets for 2050

Making all products Sustainability-Enhancing Products  
Helping customers achieve decarbonization

### [Achievements in 2023]

For FY2023, sales of environmentally friendly products reached 97.5 billion JPY, down 7.1% year on year. The percentage of sales from environmentally friendly products was 60.2%, down 2.2 percentage points year on year. The ratio of sales of environmentally friendly products dropped slightly following an increase in sales of all products. The percentage of sales from laminating adhesives and UV curable inks increased.

### Changes in sales of environmentally friendly products and in environmentally friendly products' share of total product sales

	FY2019	FY2020	FY2021	FY2022	FY2023
Sales of environmentally friendly products (billion JPY)	95.1	94.9	97.0	105.0	97.5
Environmentally friendly products' share of total product sales (%)	62.6	66.0	64.4	62.4	60.2
Sales of Sustainability-Enhancing Products (billion JPY)	—	—	—	—	124.8
Sustainability-Enhancing Products' share of total product sales (%)	—	—	—	—	53.6

Scope of calculation:

① For environmentally friendly products, from FY2021 to FY2023, five companies in Japan, including core operating companies Toyocolor Co., Ltd., Toyochem Co., Ltd. and Toyo Ink Co., Ltd.) and affiliated companies (Toyo Visual Solutions Co., Ltd. and Toyo-Morton, Ltd.)

\* For FY2018 to FY2020, six companies including Toyo ADL Corp. were in the scope of calculation. In FY2021, business merger took place to integrate Toyo ADL Corp. into Toyochem Co., Ltd.

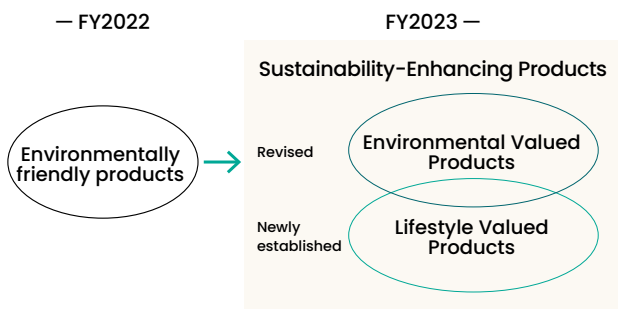
② For Sustainability-Enhancing Products, seven companies in Japan, including core operating companies (Toyocolor Co., Ltd., Toyochem Co., Ltd. and Toyo Ink Co., Ltd.) and affiliated companies (Toyo Visual Solutions Co., Ltd., Toyo-Morton, Ltd. and Matsui Chemical Co., Ltd.), and overseas affiliated companies (excluding some bases.)

In formulating asv2050/2030, in addition to environmental value, in FY2023 the artience Group added standards for lifestyle value to its existing definition for environmentally friendly products, and redefined them as sustainability-enhancing products.

In the past, environmental standards (such as not using hazardous chemical substances) were the main focus of environmentally friendly products. In the case of "environmental value," we have changed the standards and direction (decarbonization, resource recycling, and coexistence with nature) to be conscious of providing value to the entire supply chain, in order to contribute to the sustainability of the entire supply chain.

In terms of "lifestyle value," we have set standards and a direction that will enable us to contribute to society and make proposals by further enhancing fields such as digital-related materials for IoT and high-speed communications and sensor materials (safety in autonomous driving and comfort in living environments.)

### Redefining environmentally friendly products to Sustainability-Enhancing Products



## Environmentally Friendly Products / Utilization of Life Cycle Assessment

### Utilization of Life Cycle Assessment

The Group is working to visualize environmental impact using Life Cycle Assessment (LCA), which is a method for quantitatively assessing the environmental impact of a product's life cycle, including raw material procurement, production, use, disposal, and recycling.

In response to growing calls for disclosure of greenhouse gas (GHG) emissions from Europe and other industries in recent years, and to provide the value of low-carbon and decarbonized products to solve climate change issues, we are working to establish a framework that includes the formulation of calculation rules and the development of systems for greenhouse gas emissions (carbon footprint, CFP) for each product.

Currently, we use average GHG emission factors that are publicly available, but will advance cooperation and collaboration with members of the supply chain to use actual emission factors, which will lead to the design, development, and provision of products with consideration for low carbon footprint.

#### Example initiatives

- Development of human resources with SuMPO LCA Expert qualifications
- Establishment of a CFP initiative system for each Product
- Appealing to customers about low-carbon value in the product development phase and business exploration (e.g., de-inking)

### TOPICS

#### Driving further reduction of environmental impact by expanding the use of environmentally friendly pressure sensitive adhesives (hot-melt adhesives for roll labels)

Hot-melt adhesives for label rolls that are widely used for plastic bottled beverages ensure that the rolls can be easily removed and sorted because of the alkali release property of the adhesive in the state in which the label roll is on the plastic bottle. They help increase recycling efficiency. In addition, the thickness of label base material is reduced. And adhesives are partially applied for minimizing materials. These actions result in lower environment impacts (CO<sub>2</sub> emissions) than other label systems. With the aim of further expanding the use of roll labels, Toyochem Co., Ltd. is developing new products for hot beverage bottles in vending machines and proposing them for non-beverage containers such as daily necessities and seasonings. The company will continue to focus on initiatives aimed at contributing to a recycling-oriented society.

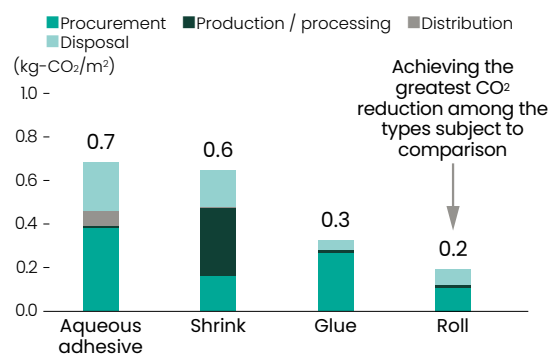


Mr. Miyazaki (left) and Mr. Suzuki (right) of Toyochem Co., Ltd.



Ms. Arai of Toyochem Co., Ltd.

#### CO<sub>2</sub> emissions per unit area by label type



\* The figures are calculated independently by Toyochem and not verified by any third party.

# Response to Climate Change

## Basic approach

Climate change attributable to global warming arising from a worldwide increase in greenhouse gas (GHG) emissions is one of the most serious issues facing the world today. The artience Group understands that responding to climate change is a material management issue with a huge impact on business activities. In November 2020, we expressed support for the Task Force on Climate-related Financial Disclosures (TCFD.) Currently, we conduct activities for addressing climate change such as reducing CO<sub>2</sub> emissions towards carbon neutrality in 2050 in accordance with our Sustainability Vision asv2050/2030, which is the axis of the Group's sustainability strategy. We also disclose information in accordance with the TCFD recommendations.

## Governance

The Sustainability Committee, which oversees the sustainability activities of the entire artience Group – including climate change – and promotes them across the organization, is supervised by the Board of Directors via the President and Representative Director. Important issues are discussed and resolved by the Group Management Committee, and then reported to the Board of Directors for approval.

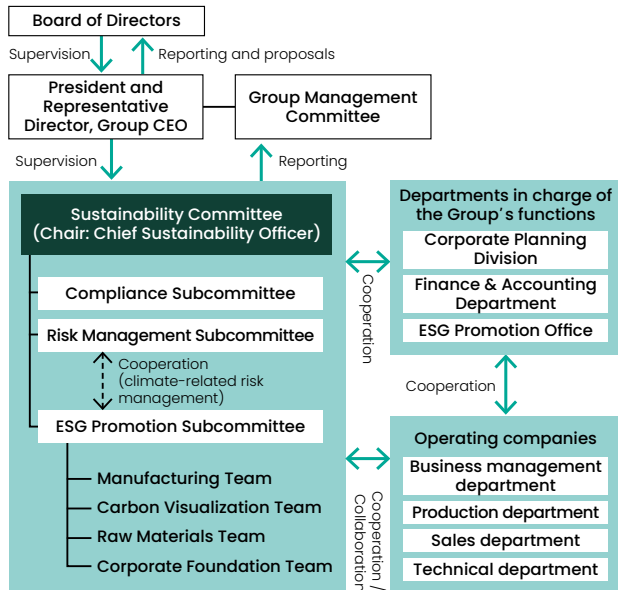
The President and Representative Director oversees the Sustainability Committee as the chief supervisor for the Group's response to climate change, taking ultimate responsibility for management decisions relating to the Group-wide sustainability activities, and appointing a Chief Sustainability Officer as the executive officer in charge of sustainability activities.

Subordinate to this committee, the ESG Promotion Subcommittee plans and implements specific activities relating to Group-wide sustainability, including the response to climate change. To increase the effectiveness of activities to address climate change, the ESG Promotion Office, established in July 2023, takes the initiative in practical processes such as information gathering on climate actions, identification, analysis and evaluation of risks and opportunities, the drafting of internal rules and information disclosure. It is stepping up systematic collaboration with the management team, the group function division, the corporate management divisions of operating companies and other stakeholders to incorporate these activities more deeply into management and business plans and to give shape and budgets to activities to meet climate-related goals.

### Report on climate change to management (Board of Directors and Group Management Committee)

	Contents of report
June 2023	Report on the content of climate change information disclosures (second phase) based on the TCFD recommendations (published in Integrated Report 2023)
September 2023	Prepares decarbonization roadmaps at individual facilities and reports on progress of global CO <sub>2</sub> emissions (Sustainability Conference)
February 2024	Reports on activities in FY2023 and explanations on the activity policy for FY2024 at the Sustainability Committee meeting

### System for addressing climate change (FY2024)



Committees / organizations	Roles and activities in addressing climate change
Board of Directors	Approves and supervises all initiatives relating to climate change that have been resolved by the Group Management Committee.
Group Management Committee	Discusses and resolves important issues relating to addressing climate change and reports to the Board of Directors.
Sustainability Committee	Discusses specific policies, plans and measures to tackle climate change and reports them to the Board of Directors and to the Group Management Committee.
ESG Promotion Subcommittee	Drafts and formulates specific policies, plans and measures against climate change and carries out activities in collaboration with departments and subsidiaries. Holds regular monthly meetings. <b>Manufacturing Team:</b> Support for implementing measures to reduce GHG emissions at each production site, aggregation and sharing of information, cross-organizational planning. <b>Carbon Visualization Team:</b> Formulates rules, builds systems, and structures the organizational framework relating to visualization of CFP. <b>Raw Materials Team:</b> Works to build a sustainable supply chain and transition to low-carbon raw materials to reduce Scope 3 emissions. <b>Corporate Foundation Team:</b> Strategy development and disclosure practices for climate change information disclosure based on the TCFD recommendations.
Risk Management Subcommittee	Identifies, analyzes, and evaluates climate-related risks in the same way as other corporate risks, in cooperation with the ESG Promotion Subcommittee. Meetings are held twice a year.
Departments in charge of the Group's functions	Carries out practical work, such as the incorporation of climate actions into management plans, earmarking of budgets for them, legal actions, strengthening of human capital, and the distribution of information to insiders and outsiders.
ESG Promotion Office	Incorporates climate actions more intensively into management and business plans, develops specific activities for climate goals and appropriates budgets to these activities in collaboration with the management layer, the group function division and corporate management divisions of operating companies.
Operating companies	In collaboration with the ESG Promotion Subcommittee and the business divisions (corporate management, production, technical and sales) separately work to incorporate climate-related actions into business plans, carry out the actions, collaborate with raw material suppliers, change the production process, conduct marketing and sales promotion of low-carbon products and undertake research and development efforts for technologies aimed at decarbonization.

## Response to Climate Change

### Risk management

#### [Risk / opportunity management process]

The Group has established a group-wide risk management system centered on the Risk Management Subcommittee, which is a subordinate organization of the Sustainability Committee. We recognize that climate-related risks, like other corporate risks, are factors that affect the sustainable growth of a Group, and that taking appropriate strategic measures will lead not only to preventing the actualization of risks and the mitigation of their impact when they actualized, but also to opportunities such as increasing business earnings and improving the Group's reputation in the market. The ESG Promotion Subcommittee manages climate-related risks and opportunities in cooperation with the Risk Management Subcommittee, applying the same management process as for corporate risks in general.

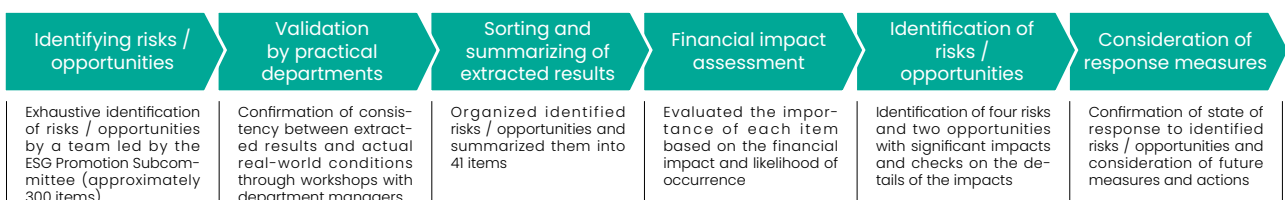
The ESG Promotion Subcommittee identifies and assesses climate-related risks and opportunities and reports them to the Group Management Committee and to the Board of Directors. It organizes a Sustainability Conference as a Group-wide meeting on an annual basis to provide not only the management layer and managers of divisions in group companies but also general employees with opportunities to hear discussions in a bid to share information and views in the Group. It also provides education and training related to climate change by means of e-learning and webinars to all employees to raise climate awareness,

to update them with the latest information and to develop their ability to perceive risks. Management layer and Group companies incorporate response measures and action plans based on these risks and opportunities into their management plans and business plans, and reflect them in specific measures.

#### [Process for identifying and assessing risks / opportunities (conducted from December 2021 to May 2022)]

Using a matrix of the categories of the risk and opportunity categories defined by the TCFD recommendations (Transition Risks: Policy and Legal, Technology, Markets, and Reputation; Physical Risks: Acute and Chronic; Opportunities: Resource Efficiency, Energy Sources, Products and Services, Markets, and Resilience) and the Group's value chain processes (procurement, production, logistics, sales, R&D, management, use, and disposal,) the ESG Promotion Subcommittee exhaustively extracted risks and opportunities associated with climate change. The validity of the extracted results (i.e. whether or not they are matched with the practical work and the on-the-spot situation) was confirmed through a workshop for department managers at each Group company (held in February 2022 with 34 participants.) The subcommittee then summarized the approximately 300 identified risks and opportunities into 41 items, and evaluated their impact on two axes: financial impact and likelihood of occurrence in accordance with two different climate change scenarios (1.5°C and 4°C.) In this way, we identified four key risks and two key opportunities that are considered especially important to the Group based on the evaluation results.

#### ■ Process for identifying and assessing climate-related risks / opportunities



#### ■ Risks / opportunities organized and summarized in the process of identifying risks / opportunities (partial list)

Transition risks	Policy and legal	<ul style="list-style-type: none"> <li>Cost increases due to introduction of carbon taxes and soaring emissions trading prices</li> <li>Toughening and/or changing of environmental regulations on GHG emissions, etc., and their impact on production facilities</li> </ul>
	Technology	<ul style="list-style-type: none"> <li>Decline in the value of existing technologies accompanying the transition to a decarbonized society</li> <li>Increasing costs of investment in equipment, human resources development and R&amp;D accompanying the transition to low-emission products</li> </ul>
	Market	<ul style="list-style-type: none"> <li>Decline in demand for packaging- and printing-related items, etc., accompanying the transition to a circular economy and decarbonization</li> <li>Rise in raw material and energy prices due to the use of non-fossil and recycled raw materials and compliance with regulations</li> </ul>
	Reputation	<ul style="list-style-type: none"> <li>Declining preference due to inability to demands from customer for reducing GHG emissions</li> </ul>
Physical risks	Acute	<ul style="list-style-type: none"> <li>Failure to fulfill supply responsibilities or loss of business opportunities due to supply chain disruptions as a result of climate-related disasters</li> <li>Damage to equipment and facilities caused by climate-related disasters, increased recovery costs and loss of business opportunities due to infrastructure stoppages</li> </ul>
	Chronic	<ul style="list-style-type: none"> <li>Increase in measures and relocation costs for bases located in flood and drought risk areas</li> </ul>
Opportunities		<ul style="list-style-type: none"> <li>Increase in sales due to growing customer demand for products that lead to energy conservation, reduction of GHG emissions and recycling of resources</li> <li>Capture of business opportunities due to market creation and growth for new climate-related businesses (carbon-neutral materials and products for combating infectious diseases)</li> </ul>

# Response to Climate Change

## Strategy

### [Basic policies and strategies]

The artience Group recognizes that the policies and measures taken by national and local governments in response to global climate change have a significant impact on market conditions, the procurement of raw materials and consumer preferences and may have a strong impact on business continuity and business performance in the future. We have set out the "Policy on Climate Change" (established in April 2022, revised in January 2024,) analyze these risks and opportunities, reflect them in our management plans and business plans, and engage in appropriate activities to address climate change.

**WEB** For the Policy on Climate Change, visit our website and click on [Sustainability > Environment > Response to Climate Change > Climate change information disclosure based on TCFD recommendations.]

### [Scenario analysis]

The purpose of scenario-based analysis is to grasp and understand risks and opportunities that will arise from anticipated climate change and what kind of impact they will have on the Group, confirm the resilience of the Group's sustainable growth strategy in the expected future, and consider the need for further measures.

The Group carried out the scenario analysis on the four risks and the two opportunities it identified by referring two climate change scenarios. One is a 1.5°C scenario, which envisages a world in which various measures are taken to limit the average temperature rise to 1.5°C in comparison with pre-industrial levels. The other is a 4°C scenario, which envisages a world in which the impact of physical risks due to climate change increases with the existing policies and systems remaining in operation as they are.

Categories	Risks / opportunities	Financial impact / Expressivity		Periods of increased impact
		1.5° C scenario	4° C scenario	
Transition risks: Policy and legal, Market	Rising raw material and energy prices	Impact 3 / Expressivity 3	Impact 2 / Expressivity 3	Medium
Transition risks: Technology, Market, Reputation	Decline in demand for packaging- and printing-related items	Impact 3 / Expressivity 3	Impact 2 / Expressivity 2	Short
Transition risks: Policy and legal	Increased impact of carbon prices on costs	Impact 3 / Expressivity 3	Impact 2 / Expressivity 3	Short
Physical risks: Acute	Loss of business opportunities due to the intensification of climate-related disasters	Impact 2 / Expressivity 2	Impact 3 / Expressivity 3	Long
Opportunities: Energy source, Products and services	Increased sales of low-emission products	Impact 3 / Expressivity 3	Impact 2 / Expressivity 3	Short
Opportunities: Products and services, Market	Acquisition of business opportunities such as materials for combating extreme heat and infectious diseases	Impact 2 / Expressivity 3	Impact 3 / Expressivity 3	Long

Financial impact: 3=impact of several billion JPY or higher; 2=impact of around one billion JPY; 1=impact of less than one billion JPY  
 Likelihood of occurrence: 3=already occurring at the present time, or almost certain to occur in the future; 2=relatively high likelihood of occurrence; 1=low likelihood of occurrence  
 Period of increase in impact: Short-term = around 1 year (period of annual plan,) Medium-term = around 3 years (period of medium-term management plan,) Long-term = around 10 years (interim target year of asv2050/2030 = period up to FY2030)  
 For our 1.5° C scenario, we refer to the IEA World Energy Outlook: Net Zero Emission by 2050 Scenario and IPCC: SSP1-1.9 scenario.  
 For our 4° C scenario, we refer to IEA World Energy Outlook: Stated Policy Scenario and IPCC: SSP5-8.5 scenario.  
 Scope of analysis: Existing businesses of the entire Group and new businesses anticipated at this time

## Response to Climate Change

### Metrics and targets

Since launching the "CO<sub>2</sub> Reduction Project" in FY2010, the artience Group has been striving to reduce CO<sub>2</sub> emissions from its production bases in Japan and overseas.

Our Sustainability Vision asv2050/2030 declares that the artience Group will reduce CO<sub>2</sub> emissions from its production activities and achieve carbon neutrality by 2050. In addition, it sets specific interim targets of reducing CO<sub>2</sub> emissions in Japan by 35% (50,000 t) from the FY2020 level and overseas by 35% (95,000 t) from the FY2030 BAU (business-as-usual) level until 2030.

Our measures to achieve these targets can be classified into three aspects: reducing energy consumption, shifting to low-carbon energy, and shifting to low-carbon power. In Japan, co-generation systems are in operation at many production bases. Our efforts will center on shifting to low-carbon energy, such as changing fuels for system into lower-carbon fuels and electrification of production facilities. Overseas, the electrification of production facilities is more advanced. There, we will focus on shifting to low-carbon energy, such as electric power generated from renewable energy.

#### Environmental goals of SIC-II (FY2021 - 2023)

CO<sub>2</sub> emissions (Japan): 67,500 t (down 12% from the FY2020 level)  
 Specific energy consumption (overseas, major production bases): 165.0 L/t (down 3% from the FY2020 level)

#### Environmental goals of artience2027 (FY2024 - 2026)

CO<sub>2</sub> emissions: 59,500 t in Japan (down 23% from the FY2020 level),  
 104,000 t (down 29% from the FY20230 BAU level)  
 Specific energy consumption (overseas, major production bases): 165.0 L/t (down 3% from the FY2020 level)

#### asv2050/2030

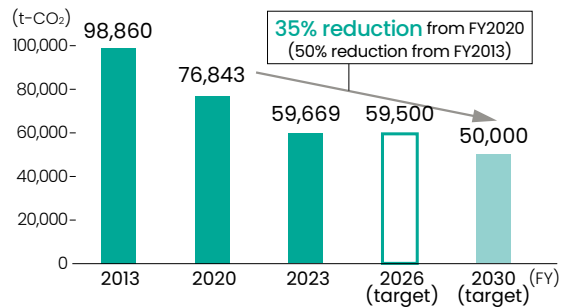
##### Reducing the environmental impact of manufacturing

**Targets for 2030** CO<sub>2</sub> emissions: 50,000 t in Japan (down 35% from the FY2020 level),  
 95,000 t (down 35% from the FY20230 BAU level)

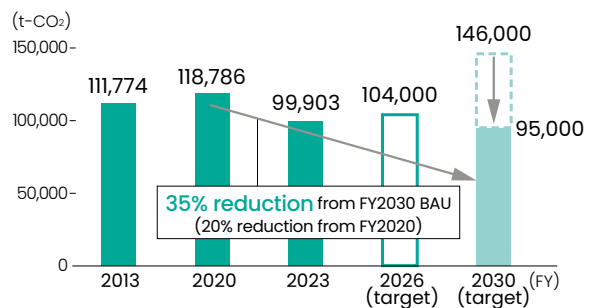
**Targets for 2050** Achieving net zero CO<sub>2</sub> emissions from production activities and minimizing their environmental impact

##### Carbon neutrality in 2050

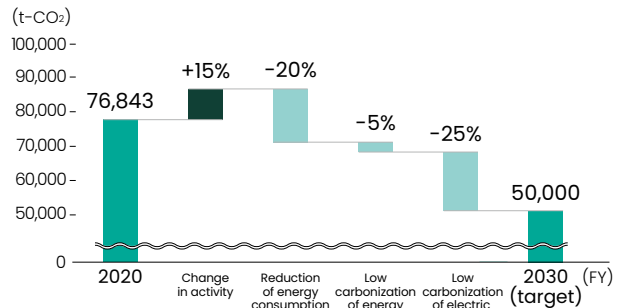
#### Changes in CO<sub>2</sub> emissions and targets (Japan)



#### Changes in CO<sub>2</sub> emissions and targets (overseas)



#### Major reduction measures and assumed reduction amount (Japan)



#### Direction and major measures towards reducing CO<sub>2</sub> emissions

Direction of measures	Major reduction measures
Reduction of energy consumption	<ul style="list-style-type: none"> <li>Energy conservation (eliminating energy loss in processes)</li> <li>Production process reform from an energy-saving perspective</li> </ul>
Low carbonization of energy	<ul style="list-style-type: none"> <li>Electrification of production equipment (reducing direct emissions)</li> <li>Preparation and research for the use of LNG alternative fuels</li> </ul>
Low carbonization of electric power	<ul style="list-style-type: none"> <li>Introducing low-carbon power (reducing indirect emissions)</li> <li>Introducing renewable energy equipment</li> </ul>



# Response to Climate Change

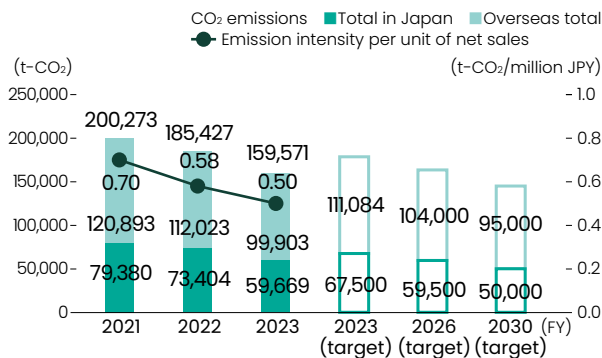
## Achievements

### [Achievements in FY2023]

#### CO<sub>2</sub> emissions

For FY2023, the whole of the artience Group emitted 159,571 t, down 13.9% year on year. The emissions were down year on year in Japan and overseas. That resulted from a decrease in production volume, change in items produced and efforts to cut CO<sub>2</sub> emissions.

#### Changes in CO<sub>2</sub> emissions and emission intensity per unit of net sales

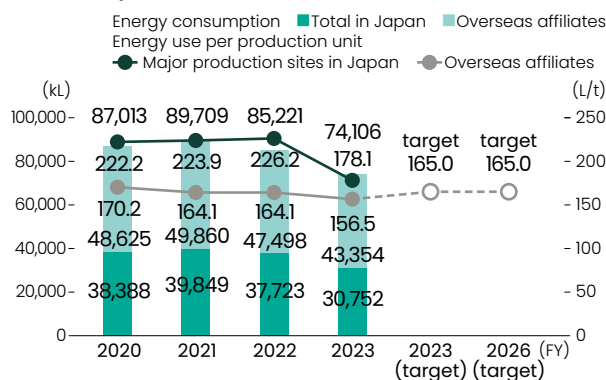


Scope of calculation: All bases in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.  
 \* For the electricity emission factor in Japan, we use the emission factor for each electric power company that is announced every year.  
 \* Overseas electricity emissions factors have been calculated using the emissions factors of individual countries from the Inventory Database for Environmental Analysis (IDEA).

#### Energy consumption

For FY2023, energy consumption in the whole artience Group reached 74,106 kL, down 13.0% year on year. The figures were lower both in Japan and overseas than in the previous fiscal year. This decrease in energy consumption reflects a fall in production volume. Meanwhile, energy use per production unit (energy consumed for producing one ton of product) was flat, due to a decline in operation rate.

#### Changes in energy consumption and specific energy consumption



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

[link](#) Page 83-85: ESG Data Collection > Response to Climate Change

## Initiatives

### [Introduction of cogeneration system]

In the artience Group, the Fuji Factory of Toyocolor Co., Ltd., the Kawagoe Factory of Toyocolor Co., Ltd., and the Moriyama Factory of Toyo Visual Solutions Co., Ltd. introduced cogeneration systems with electricity generation capacity of 5,750 kW, 5,700 kW, and 400 kW, respectively. These systems enabled the factories to achieve efficient use of electric power and heat.

### [Air leak reduction activities]

We are conducting air leak reduction activities to check whether air leaks are occurring in our production sites and factories using dedicated equipment to detect air leaks. By eliminating air leaks, it is possible to reduce wasted power generated by air compressors, etc., which leads to energy savings and reductions in CO<sub>2</sub> emissions.



An employee checking for air leaks

### [Renewable energy initiatives]

#### Installation of solar power generation systems (power selling and self-consumption)

A solar power generation system with a capacity of 425 kW was introduced at the Moriyama Factory in December 2014, a 1,358 kW system was introduced at the Okayama Factory in January 2015, and a 1,000 kW system was introduced at the Tsukuba area in April 2016 for the purposes of reducing CO<sub>2</sub> emissions, increasing the energy self-efficiency rate, reinforcing the infrastructure, and other purposes.

With these systems, we launched electric power selling business under the feed-in tariff (FIT). We also installed small, 50kW class power generation systems in four locations — Saitama Factory, Kawagoe Factory, Fuji Factory, and Kawaguchi Center — in January 2015. The power generated from these systems is used at each location, which reduces the amount of power purchased at each and lessens peak power consumption in summer. Matsui Chemical Co., Ltd. has also introduced solar power generation equipment, and uses it as its own source of electric power.

We have introduced solar power generation facilities to multiple overseas bases. In January 2021, Toyo Ink India Pvt. Ltd. introduced solar power generation facilities supplying around 20% of the power consumed at the Gujarat Plant in order to transform it into a green factory with lower CO<sub>2</sub> emissions.

During FY2022, solar power generation facilities were introduced to Sam Young Ink & Paint Mfg. Co., Ltd. in the Republic of Korea, to Zhuhai Toyocolor Co., Ltd. in China, and to the Delhi Plant of Toyo Ink India Pvt. Ltd. in India.

#### Status of introduction of renewable energy (FY2023)

	Japan	Overseas
Power selling	3,300 thousand kWh	—
	1,549 t-CO <sub>2</sub>	—
Self-consumption	461 thousand kWh	4,150 thousand kWh
	199 t-CO <sub>2</sub>	3,098 t-CO <sub>2</sub>

## Response to Climate Change

### Shift to renewable energy

The artience Group is changing the power used in areas used as offices and the power used at production bases to renewable energy. In December 2021, Toyo Ink Co., Ltd. changed the power used at its Kansai Branch Office (Daibiru Honkan Bldg.) to renewable energy. In April 2022, artience Co., Ltd. changed the power used at its head office (Kyobashi Edogrand Bldg.) to renewable energy.

Toyo Visual Solutions Co., Ltd.'s Moriyama Factory and Toyo-Morton, Ltd.'s Saitama Plant also switched to renewable energy in 2022.

### Reduction of CO<sub>2</sub> emissions through the purchase of certificates

Overseas, Toyo Printing Inks Inc. (Turkey) changed 50% of its power consumption in FY2021 to renewable energy. This change in power consumption can be converted into 32% of the CO<sub>2</sub> emissions of Toyo Printing Inks Inc. in FY2021.

Toyo Ink Brasil LTDA. has also reduced its CO<sub>2</sub> emissions (84.6 t) through the purchase of certificates.

### [Climate change initiatives]

#### Participation in the Japan Climate Initiative

In March 2023, the artience Group joined the Japan Climate Initiative (JCI) in support of its activities for alleviating climate change. The JCI is a network that was established for activating information delivery and exchanging opinions among companies, local governments, non-governmental organizations (NGOs) and other entities actively tackling climate change. It currently has around 780 corporates, local governments and other members in Japan.



#### Participated in the GX League

In April 2024, artience Co., Ltd. joined the GX League, which was established based on the GX League Basic Concept announced by the Ministry of Economy, Trade and Industry. GX League: an organization established as a forum for companies that aim to achieve sustainable growth in the present and future society to collaborate with companies, governments and academic organizations that are implementing similar initiatives taking on the challenge of GX with a view to becoming carbon neutral and enabling social change by 2050.

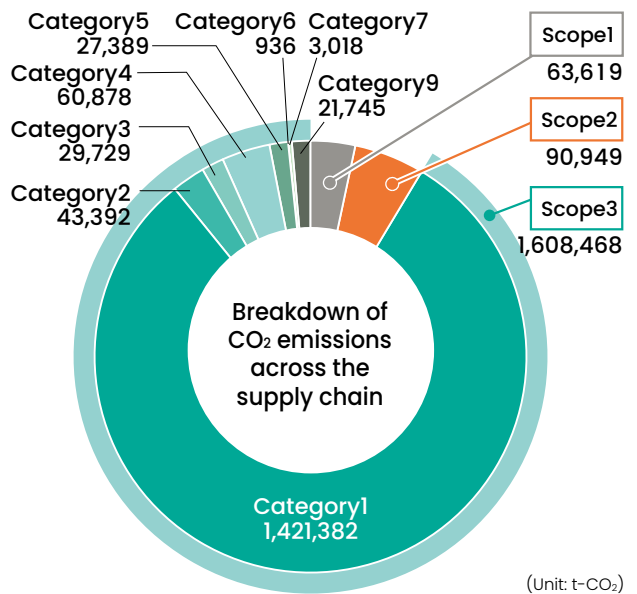


## CO<sub>2</sub> emissions across the supply chain

We calculated CO<sub>2</sub> emissions associated with our business activities from the upstream to the downstream of our supply chain, in accordance with the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain.

Regarding emissions in the upstream and downstream of our supply chain (Scope 3), 12 out of 15 categories shown in the Basic Guidelines were calculated. However, calculations of processing, use, and disposal of products sold (Categories 10, 11, and 12) were not made over the entire scope of calculations because the products are diverse and therefore it is difficult to identify the scenarios for such processing, use, and disposal of products sold. In FY2023, we enlarged the scope of calculation to include affiliates that used to be outside the scope. In the future, we will work to heighten the accuracy of calculation and seek collaboration with suppliers in CO<sub>2</sub> reduction, mainly through dialogues with them.

### Breakdown of CO<sub>2</sub> emissions across the supply chain (FY2023)



\* For details about the method and scope of calculation, see pages 84 to 85 in the ESG Data Collection.

## Third-party verification of CO<sub>2</sub> emissions data (Japan)

artience Co., Ltd. has undergone third-party verification of its Scope 1 and 2 greenhouse gas (CO<sub>2</sub>) emissions at all of its sites in Japan\*.

\* Details of target organizations are listed on page 84.

[link](#) Page 83-85: ESG Data Collection > Response to Climate Change

# Water Resource Management

## Basic approach

Based on our recognition that water resources constitute an important natural resource, we at the artience Group are striving to reduce water consumption and the amount of wastewater, alleviate the impact of wastewater on the environment and living organisms, and identify and reduce water-related risks that will affect our business continuity.

We formulated Sustainability Vision asv2050/2030 in January 2022 and set a long-term environmental target related to water use. To achieve the target, we will reduce water consumption by fully leveraging circulation cooling, reusing and recycling used water, and developing production processes that do not require water.

## Targets and achievements

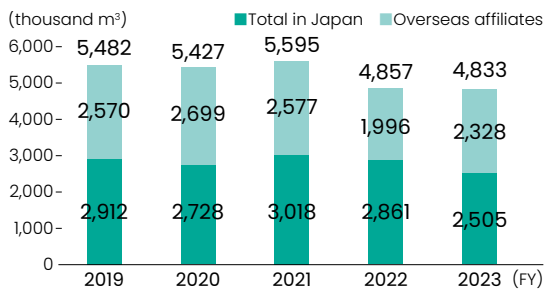
### asv2050/2030

**Reducing the environmental impact of manufacturing**  
**Target for 2050** Realizing sustainable water use

### [Achievements in FY2023]

At the artience Group, we have been striving to reduce water consumption through measures such as circulation cooling and reusing groundwater as process water (for reaction and washing) after using it as cooling water. In FY2023, total water consumption at the artience Group's production sites in Japan was 2,505 thousand m<sup>3</sup> (decreased by 12.4% year on year) and 92.9% of the water was groundwater. Water consumption of our overseas affiliates was 2,328 thousand m<sup>3</sup>, an increase from the previous fiscal year.

### Changes in water consumption



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

[link](#) Page 86: ESG Data Collection > Water Resources Management

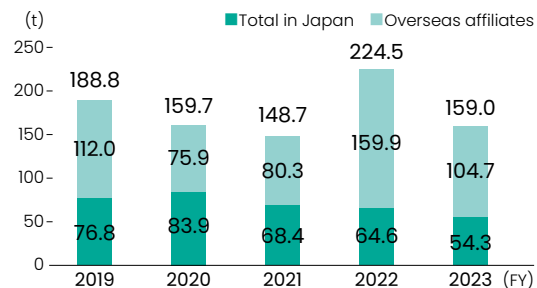
## Initiatives

### [Prevention of water pollution]

To measure indicators in wastewater that cause water pollution, TOC meters, COD meters, turbidity meters, and pH meters are placed appropriately in the wastewater paths of factories, and monitored remotely. For factories with a large COD burden, we have established voluntary standards that are stricter than the national and prefectural standards, and have notified the government and complied with them.

In FY2023, COD emissions in Japan were 54.3 t (down 15.9% from the previous year) and 104.7 t overseas (down 34.5% from the previous year.)

### Changes in COD emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

## Water Resource Management

### Assessment of water risk and countermeasures

Water risk ranks alongside economic risk as one of the most important risks that business enterprises face. It can directly impact enterprise activities in a variety of different ways, including flooding, drought, water pollution, and restrictions on the water available for use.

The artience Group assesses quantitative risk, qualitative risk, regulatory risk, and reputation risk at the basin level using Aqueduct Water Risk Atlas 4.0, an assessment tool of the World Resources Institute.

No business sites in Japan have been assessed as having a high overall water risk or an extremely high overall water risk. However, seven business sites have been assessed as having a high quantitative risk. In Asian region other than Japan (Southeast Asia, India, China, Taiwan, and South Korea,) more than half of the business sites have been assessed as having a high or extremely high overall water risk, qualitative risk and

quantitative risk. The assessment shows that water stress risk is extremely high in Thailand and India, river flooding risk is extremely high in Vietnam, Indonesia and Myanmar, and coastal flooding risk is extremely high in South China. Qualitative risk is extremely high in Southeast Asia and India. The forecast for 2030 in the Aqueduct BAU (business as usual) scenario shows that water stress risk will worsen at 17 business sites and water demand risk will worsen at 24 business sites. In particular, water stress is evaluated as "predicted to worsen significantly" in Thailand and India.

At business sites that have a high flood risk, the artience Group takes the flood control measures (relocating electric equipment, using sandbags, clarifying procedures for cutting off power, etc.,) which are taken at Toyo Ink (Thailand) Co., Ltd., which has experienced massive flooding, and conducts flood drills regularly.

The Group will continue to take steps to use water effectively and reduce water consumption to mitigate water stress risk and water demand risk, which are expected to worsen.

#### Water risk assessment for each business site

(Number of business sites assessed as having a high risk or an extremely high risk)

Area	Number of locations	Overall water risk	Quantitative risk	Quantitative risk							Qualitative risk	Untreated wastewater	Regulatory and reputational risk
				Water stress	Water depletion	Seasonal fluctuations	Ground-water level decline	River flood risk	Coastal flood risk	Drought risk			
Japan	13	0	7	0	0	0	0	0	0	0	0	0	0
Asia (excluding Japan)	22	13	15	9	4	1	2	8	6	2	13	16	5
Europe	4	1	3	3	1	0	0	0	0	0	0	0	0
Americas	5	0	3	2	0	0	0	0	0	0	0	0	0
Total	44	14	28	14	5	1	2	8	6	2	13	16	5

#### Water risk forecasts for each business site in 2030

(Number of business sites where water risk will worsen in the BAU scenario)

Area	Number of locations	Water stress	Annual fluctuations	Seasonal fluctuations	Water supply	Water demand	Water depletion
Japan	13	0	0	0	0	7	0
Asia (excluding Japan)	22	11	3	2	6	14	4
Europe	4	3	0	0	1	1	1
Americas	5	3	1	0	0	2	0
Total	44	17	4	2	7	24	5

#### Water withdrawal and amount of wastewater in regions with water stress (FY2023)

Locations rated as high or extremely high	Water withdrawal (thousand m <sup>3</sup> )	Ratio to total water withdrawal (%)	Amount of wastewater (thousand m <sup>3</sup> )	Ratio to total amount of wastewater (%)
Locations rated as high or extremely high	153.2	3.17	9.6	0.25

Scope of aggregation: Bases in the Asian region (excluding Japan) that were rated as having high or extremely high water risk, among 44 business sites surveyed in Japan and overseas using Aqueduct 4.0.

# Waste Management

## Basic approach

The artience Group is a manufacturing company. We cannot avoid generating waste in our production activities. We focus on waste oil, waste plastic, and waste water, which account for about 80% of waste treated off-site\* in Japan. Specifically, we take steps to minimize the amount of waste treated offsite through initiatives such as the development of production processes which are unlikely to generate waste, considering methods for treating waste, promoting the reuse and recycling of resources, and globally sharing knowledge about how to reduce waste.

\* Amount of waste treated off-site: The amount of waste sold as valuables and the amount of waste that was generated at our business locations and discharged from the premises without being recycled or transferred outside our business locations to outsource its disposal to waste disposers.

## Targets and achievements

### Environmental goals of SIC-II (FY2021 - 2023)

Reduction of amount of waste treated off-site (Japan): 10,500 t (down 19% from the FY2020 level)

### Environmental goals of artience2027 (FY2024 - 2026)

Amount of waste treated off-site (Japan): 8,400 t (down 35% from the FY2020 level)

### asv2050/2030

#### Reducing the environmental impact of manufacturing Targets for 2030

Amount of waste treated off-site (Japan): 6,450 t (down 50% from the FY2020 level)

**Targets for 2050** Minimizing waste generation

### [Achievements in FY2023]

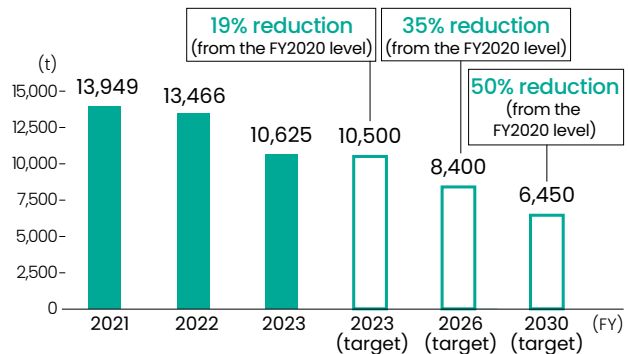
In FY2023, the amount of waste generated was 14,112 t in Japan (down 19.2% from FY2022) and 12,341 t overseas (down 14.4% from FY2022.) This groupwide decline in waste emissions resulted from production volume slowdown. External waste emissions in Japan were 10,625 t (down 21.1% from FY2022.) This reduction was achieved by active on-site treatment and reuse.

Going forward, we will continue to reduce emissions as much as possible by focusing on items that are frequently generated at our manufacturing sites, and continue considering wastewater treatment methods, aiming to reduce the amount of external waste emissions (in Japan) by 50% in comparison with FY2020, which is our target for 2030.

For the artience Group's operations in Japan as a whole, the final disposal ratio to the total volume of waste emissions was 0.15%, and zero emissions was achieved at all business locations.

[link](#) Page 88: ESG Data Collection > Waste Management

## Changes in amount of waste treated off-site (Japan)



Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 80.

\* The data on affiliates in Japan for FY2022 include figures of the Kansai Branch Office (Neyagawa), the Kansai Branch Office (Toyama), the Chubu Branch Office (Kasugai), Toyo Ink Hokkaido Co., Ltd., Toyo Ink Chushikoku Co., Ltd. (Okayama), Toyo Ink Chushikoku Co., Ltd. (Takamatsu) and Toyo Ink Kyushu Co., Ltd. (Fukuoka.)

\* In FY2023, Toyo Ink Co., Ltd. was consolidated and abolished as an organization, but the scope of aggregation remains unchanged from FY2022.

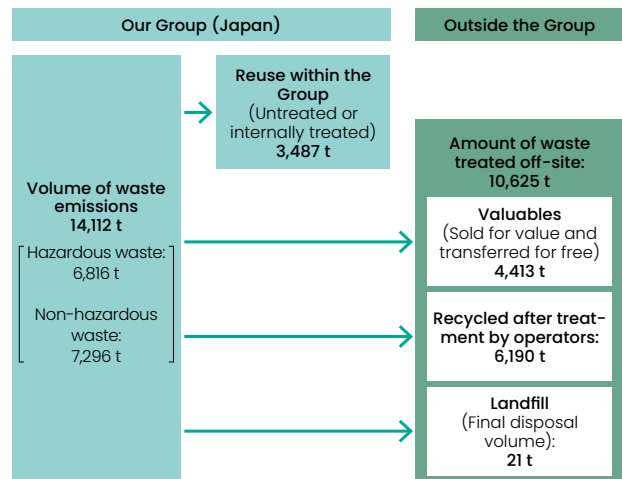
[link](#) Page 88: ESG Data Collection > Waste Management

## Overview of waste

The artience Group counts the volume of industrial waste, which is treated by contracted operators in Japan, valuables, and waste prior to intermediate treatment for internal reuse and other purposes as the volume of waste emissions in accordance with the Manual for Formulation of Industrial Waste Treatment Plans by Business with High-Level Emissions published by the Ministry of the Environment.

We define the final disposal volume as the volume of waste prior to volume reduction, such as the incineration of waste for final disposal. We define zero emissions as the state in which the ratio of the final disposal volume to waste emissions, or the final disposal ratio, is 1% or less.

## Overview of waste in Japan (FY2023)



Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 80.

\* In FY2023, Toyo Ink Co., Ltd. was consolidated and abolished as an organization, but the scope of aggregation remains unchanged from FY2022.

## Waste Management

### Initiatives

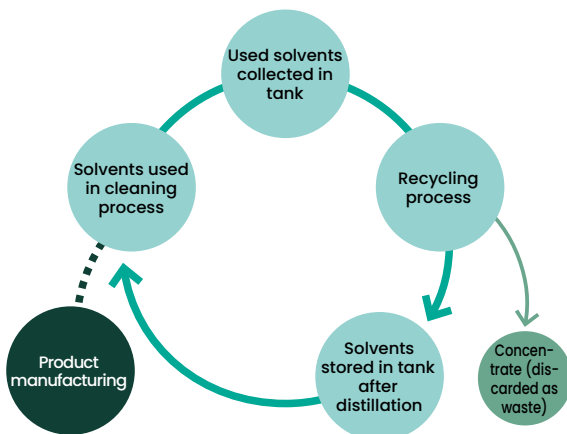
#### [Education on the proper management of waste]

The artience Group gives training on proper management of waste as part of the compliance training. In addition, we share information about waste treatment via our in-house system and clarified the criteria for selecting new industrial waste disposers to which we outsource the treatment in our efforts to reinforce our management system to avoid being involved in improper treatment.

In May 2023, we organized online briefings about waste management for all our facilities in Japan. The briefing session consisted of two parts, which were held three times each. The basic edition featured overall explanations on waste and the basics of the Act on Waste Management and Public Cleansing. The practical edition was designed to inform practical workers at individual sites of waste management procedures and internal rules. They were joined by a cumulative total of 380 personnel. Some of them commented that they help them learn the basics of the Act on Waste Management and Public Cleansing and that they were informative to the point of even covering practical matters.

#### [Reduction of waste solvents by introducing a solvent recycling system]

In June 2023, Toyo-Morton, Ltd. introduced a cleaning solvent recycling system at its Saitama Plant, reducing the amount of waste solvent generated in cleaning processes at its production facilities by 70% (in comparison with FY2022.) At the Toyo-Morton Saitama Plant, it was necessary to clean production equipment with solvents when switching between products, and the environmental impact of solvent waste after cleaning was an issue. The newly introduced cleaning solvent recycling system reduces waste by distilling and concentrating the used solvent, making it possible to reuse the solvent for cleaning after distillation.



#### [Plastic resource recycling]

#### Participating in the Saitama Prefectural Platform for Fostering Sustainable Use of Plastic Resources\*

The Saitama Factory of Toyo Ink Co., Ltd. joined the Saitama Prefectural Platform for Fostering Sustainable Use of Plastic Resources in May 2023 in support of its activities for cutting plastic waste emissions and for encouraging circular use of plastic resources. This platform will organize lectures, workshops and exchange meetings on the circular use of plastic resources. A working group established by volunteer members will explore construction of a model for sustainable use of plastic waste.

\* Established by the Saitama prefectural Government, the platform consists of business operators, municipal governments, consumer groups and other parties addressing circular use and the reduction of plastic resources for the purpose of controlling plastic waste emissions and fostering the circular use of plastic resources.

#### Solving the marine plastic litter issue participation in the Japan Clean Ocean Material Alliance

The Japan Clean Ocean Material Alliance was established in January 2019 under the leadership of the Ministry of Economy, Trade and Industry. The alliance is a public-private partnership for accelerating innovations to solve the marine plastic litter issue. artience Co., Ltd., representing our Group, participates in the alliance, identifying the latest technological trends, sharing information, and cooperating with other companies.

#### Participation in CEFLEX, which provides an international framework for solutions to the plastic waste issues

The artience Group participates in CEFLEX (Circular Economy for Flexible Packaging), established in 2017 as a consortium that works to create a circular economy in the field of flexible packaging in Europe. In its roadmap to creating a circular economy in the field of flexible packaging in Europe, CEFLEX aims to build an infrastructure by 2025 to collect, sort, and recycle used flexible packaging.



#### Recycling used plastics into new resources capital participation in R Plus Japan, Ltd.

To contribute to solving plastic issues to create a sustainable society, we have taken a stake in R Plus Japan, Ltd., a joint venture that started business in June 2020 and has been engaging in recycling used plastics.



#### Examples of initiatives through business

- November 28, 2023 news release: Signed a joint development agreement regarding plastic recycling with Aikawa Iron Works and Hagiwara Kogyo
- September 26, 2023 news release: Established technology to deink UV-curable inks printed on plastic
- September 12, 2023 news release: Exhibiting recycling system for film packaging at "JAPAN PACK 2023"

## Waste Management

### TOPICS

#### **Initiatives to reduce industrial waste —Succeeded in making sludge valuable by introducing sludge volume reduction equipment—**

Toyo FPP Co., Ltd. (Kawaguchi) is engaged in a business focused on the manufacture of cylinder plates and flexographic plates, and wastewater treatment is essential to the plate-making process. Sludge is generated in the wastewater treatment process at the site, but until now it had been necessary to treat it as industrial waste, and reducing costs was an issue.

At the same time, the asv2050/2030 Sustainability Vision calls for a 50% reduction in external waste emissions in Japan by 2030 (comparison with FY2020.)

As part of our activities to achieve this target, we considered reducing the volume of sludge generated by approximately 45 t per year. The introduction of a thermal storage drying system made it possible to reduce the total amount of industrial waste generated by Toyo FPP Co., Ltd. by approximately 20%. In addition to reducing transportation costs, it is also possible to recycle the metal components contained in the sludge as valuable materials by finding an appropriate material recycling destination.

As a result, the amount of industrial sludge generated in the wastewater treatment process is now virtually zero. Going forward, we will continue considering how to ensure stable wastewater treatment as production volume increases.



May 16, 2023: Consideration of optimization conditions after introduction

# Pollution Prevention

## Basic approach

The artience Group's business activities depend on the earth's resources. The Group considers addressing environmental issues, such as air pollution and soil contamination, to be important issues. To create a sustainable, circular society, we will take steps to reduce environmental impacts in manufacturing and strive to reduce emissions of pollutants.

## Promotion system

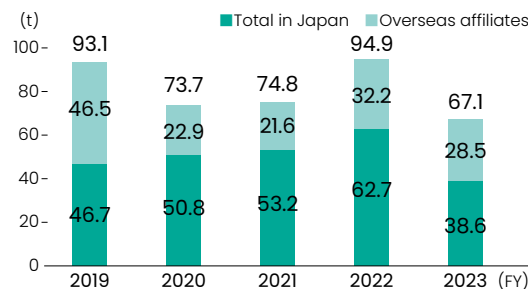
The ESG Promotion Office of artience Co., Ltd. takes the lead in reducing the environmental impact on the atmosphere and addressing soil and groundwater contamination, primarily at production bases but also at business sites in Japan and overseas, including those of affiliates.

## Achievements

### [Achievements in FY2023]

In Japan, the artience Group has been working on fuel conversion, introduction of cogeneration systems, appropriate management of fuel combustion conditions, and other measures to reduce air pollutants generated from boilers and other combustion equipment, such as nitrogen oxide (NOx,) sulfur oxide (SOx,) and particulates. Emissions of NOx, SOx, and soot and dust in Japan have been leveling off in recent years. Overseas representatives (affiliates) saw a decrease in NOx and soot and dust emissions, but a slight increase in SOx compared to the previous year. Going forward, we will continue working to reduce emissions.

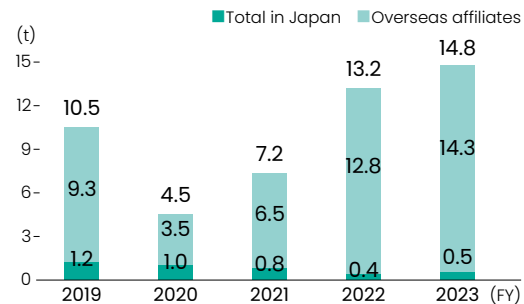
### Changes in NOx emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

\* Past figures have been recalculated retrospectively, given that overseas affiliates adopted a new calculation method in FY2020.

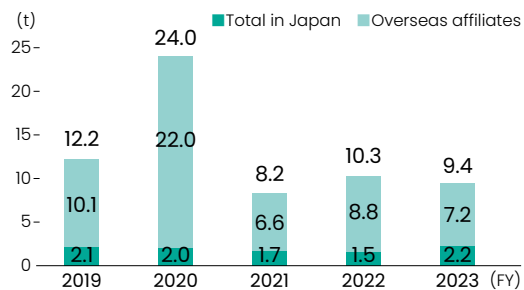
### Changes in SOx emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

\* Past figures have been recalculated retrospectively, given that overseas affiliates adopted a new calculation method in FY2020.

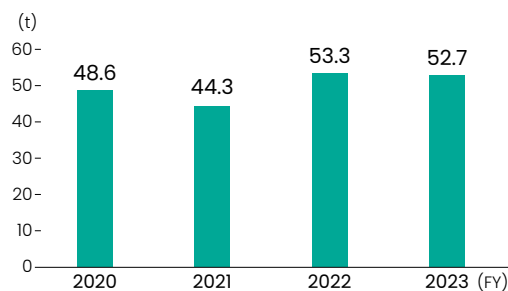
### Changes in particulate emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

\* Past figures have been recalculated retrospectively, given that overseas affiliates adopted a new calculation method in FY2020.

### Changes in VOC emissions



Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 80.

[link](#) Page 89: ESG Data Collection > Pollution Prevention



## Pollution Prevention

### Initiatives

#### [Countermeasures against soil and groundwater contamination]

The Advanced Materials Research Laboratory of former Toyo Ink SC Holdings Co. Ltd. (in Tsukuba-shi, Ibaraki Prefecture) was designated as standing in an Area for which Changes in Form or Nature Require Notification on September 12, 2022 as a result of the investigation pursuant to the Soil Contamination Countermeasures Act. In response, it excavated and removed contaminated soil. On December 22, 2022, the designation was lifted.

Toyo Ink (Thailand) Co., Ltd. falls under industries specified in a ministerial ordinance regarding soil and groundwater pollution within factory grounds, which was issued by Thailand's Ministry of Industry in October 2016. This required the company to implement regular monitoring of soil and groundwater on its premises. The company consistently analyzes the groundwater and soil and reports the result.

In China, the Law on Prevention and Control of Soil Pollution, which is a national law that sets forth regulations concerning prevention of soil pollution, came into effect in January 2019. In the artience Group, two Group companies — Tianjin Toyo Ink Co., Ltd. and Shanghai Toyo Ink Mfg. Co., Ltd. — were designated as "enterprises subject to intensive supervision and management related to soil contamination." In response, the companies are advancing initiatives including identification and control of soil contamination risks.



Excavation and removal of contaminated soil (former Advanced Materials Research Laboratory of Toyo Ink SC Holdings Co., Ltd.)

#### [Compliance with the Law for Controlling Fluorocarbon Emissions]

Pursuant to the Act for Rationalized Use and Proper Management of Fluorocarbons, the artience Group has selected managers and identified applicable equipment for each company. We conduct simplified inspections of the equipment and have them examined by vendors periodically in accordance with the law.

In addition, fluorocarbons that leaked from the artience Group sites in Japan amounted to 91.3 kg in FY2023, and there was no business establishment of the artience Group where the calculated leakage of fluorocarbons exceeded 1,000 t-CO<sub>2</sub>, the amount that must be reported.

#### [Management of hazardous substances]

The artience Group holds polychlorinated biphenyl (PCB) waste from transformers, capacitors, fluorescent ballasts, and other devices for a long time at 12 business establishments in Japan, and notifies the government every year in accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes. We have carried out appropriate treatment of PCB waste, and completed the treatment at 11 business locations. For the high concentration PCB waste (fluorescent ballasts) stored at the remaining 1 business location, we have drawn up a plan and take a series of steps accordingly. Its treatment has finished in March 2024.

Regarding PCB waste in storage, we locked the depository, performed regular inspections and otherwise implemented stringent management. There was no loss, wrong disposal, leakage, or similar incident.

# Chemical Substance Management

## Basic approach

In its Basic Policy on Environment (revised in January 2024) and Basic Policy on the Management of Chemical Substances (revised in May 2024), the artience Group states that, "In the development and provision of products and services, the Group aims to reduce environmental impact throughout the entire product / service life cycle, from raw material procurement to production, distribution, use, disposal, and recycling, and works to protect and restore the environment and give consideration to people's health and safety." To comply with these basic policies, we control chemical substances appropriately in each stage of the process, including product design, the purchase (and import) of raw materials, production, storage, transport, and disposal and make efforts to replace or reduce highly hazardous substances.

**WEB** The Basic Policy on Environment and Basic Policy on the Management of Chemical Substances are posted on our website under Sustainability > Environment > Environmental Management.

## Promotion system

The Production Planning Office and the ESG Promotion Office of artience Co., Ltd. supervises and manages the environment, chemical substance management, and trade management for the entire Group. It also undertakes initiatives in compliance with laws and regulations and practices in each individual country.

## Targets and achievements

### Environmental goals of SIC-II (FY2021 - 2023)

Chemical substance emissions (Japan): 118.2 t (down 10% from the FY2020 level)

### Environmental Goals of artience2027 (FY2024 - 2026)

Chemical substance emissions (Japan): 105.0 t (down 20% from the FY2020 level)

### asv2050/2030

#### Reducing the environmental impact of manufacturing Targets for 2030

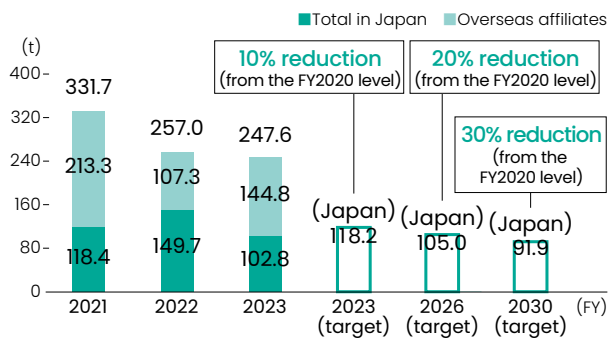
Chemical substance emissions (Japan): 91.9t (down 30% from the FY2020 level)

\* The target for the amount of chemical substances released in Japan was revised due to a revision of the operation method of the aggregation system and a review of substances covered by PRTR in FY2023.

## [Achievements in FY2023]

We calculated the emissions in FY2023 of chemical substances designated as Class I and listed under the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) and of substances designated by the Japan Chemical Industry Association. The amount of emissions was 102.8 t from the affiliates in Japan (down 31.3% year on year,) and 144.8 t from overseas affiliates (up 34.9% year on year.)

### Changes in chemical substance emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 80.

\* Past figures have been recalculated retrospectively due to the revision of the operation method of the aggregation system and a review of substances covered by PRTR in FY2023.

**link** Page 89-91: ESG Data Collection > Chemical Substance Management

## Chemical Substance Management

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### Initiatives

#### [Response to chemical substance management regulations]

The artience Group developed the Chemical Substance Management Rules, under which it advocates the appropriate management of chemical substances contained in raw materials and products in accordance with their management standards. We continue to reduce risks from chemical substances in accordance with the New Material Screening Regulations, which are screening criteria for newly adopted materials, and the Chemical Substance Risk Management Regulations.

The Chemical Substance Risk Management Regulations define chemical substances with a significant impact on humans and the environment, the manufacturing and use of which are prohibited or restricted by international treaties, laws and regulations in Japan and overseas as "artience Group (arg) Prohibited Chemical Substances." Accordingly, we monitor and control the inclusion of any such chemical substances in products. In addition, we assess the risks of chemical substances from the perspective of workers' exposure to them, hazards and other factors to determine chemical substances whose use should be reduced or replaced is encouraged as "arg Restricted Chemical Substances." We have harmonized the standards for the control of chemical substances used in products from design to completion throughout the artience Group.

#### [Risk assessment of chemical substances]

The artience Group implements risk assessment of chemical substances at all company locations in Japan where chemical substances are handled, including manufacturing facilities and R&D divisions, in accordance with the Occupational Safety and Health Act.

We implement and manage risk assessment under a system that facilitates risk assessment. The system was organized by assigning chemical substance managers in addition to the existing health and safety managers.

From 2021, certain substances are being added to the substances for which labeling and notification are required under the Industrial Safety and Health Act. As a result, we are required to conduct risk assessment for additional chemical substances. We will be conducting risk assessment for those substances one by one and will take safety and health measures as needed.

#### [Personnel development through in-house training courses]

The artience Group provides in-house seminars (which are given by internal and external lecturers) and distributes educational videos as part of in-house education for legal compliance and the provision of information to customers. The seminars and videos are about outlines and revisions of laws and regulations and safety and health measures that are related to participants' work. In FY2023, a total of 1,000 employees took these courses.

# Biodiversity

## Basic approach

The artience Group recognized the importance of biodiversity from an early stage, and has made it its policy to engage in nature conservation initiatives, including efforts to preserve biodiversity, and we have independently carried out activities such as local reforestation and river / lake cleanup.

Prior to the 10th Conference of the Parties to the Convention on Biological Diversity (COP 10) held in Nagoya, Aichi Prefecture, following the establishment of the Keidanren (Japanese Business Federation) Declaration of Biodiversity in March 2009, the artience Group organized and integrated the concepts and activities related to biodiversity so far and instituted the "Basic Policy on Biodiversity."

The Group is dependent on a large amount of natural capital, such as naturally derived raw materials and water resources, and recognizes that its production activities have an impact on ecosystems. In the midst of a biodiversity crisis, the Group revised its Policy on Biodiversity in January 2024, in order to contribute to the achievement of goals set forth in the Kunming-Montreal Global Biodiversity Framework, and the realization of nature-positive operations.

As a chemical manufacturer, we will work to conserve biodiversity through the sustainable use of biological resources, the reduction of chemical emissions, and the provision of products that contribute to sustainability.



The Policy on Biodiversity is posted on our website under Sustainability > Environment > Biodiversity.

## Promotion System

We are engaged in various initiatives within the environmental management system.



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## Targets

### Environmental goals of artience2027 (FY2024 - 2026)

Promotion of biodiversity: Conservation of forest and aquatic ecosystems through tree-planting, ecological surveys, strengthening of water management at production bases

\* Continued from SIC-II (FY2021-23) targets (details provided on page 17)

## LEAP approach based on the TNFD framework

In our biodiversity conservation activities, we have implemented the LEAP approach outlined in the TNFD framework to understand the Group's dependence on natural capital, its impact, and its risks and opportunities, and to formulate strategies. This time we evaluated the scope of direct operations, covering all of the Group's businesses.

### [Understanding our dependence and impact on nature]

With the use of the biodiversity management and evaluation tool, called Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE), we evaluated the artience Group's dependency and impacts on nature in the industrial subgroups of general chemistry and special chemicals. The evaluation has revealed that, while its dependency on natural assets is low overall, its use of water, its use of land eco-systems, its GHG emissions, non-GHG air pollutants, water contaminants, soil pollutants and solid waste have significant impacts on nature.

### ■ Results of evaluation with ENCORE (Factors impacting nature and levels of impacts)

Factors impacting nature	Sector: Materials Industrial Subgroup: General Chemistry	Sector: Materials Industrial Subgroup: Special Chemicals
Use of water	Very high	High
Use of land eco-systems	High	High
GHG emissions	N/A	High
Non-GHG air pollutants	Medium	High
Water contaminants	High	High
Soil pollutants	High	High
Solid waste	N/A	High

## Biodiversity

### [Risks and Opportunities]

The artience Group has identified points of contact with (input from and output into) nature in the business process from procurement of raw materials to disposal and recycling and the effects of the contact on biodiversity, including habitat deterioration, raw materials from forests and mountains near human habitats, invasion of native habitats by non-native species, exposure to chemical substances, and global warming and climate change, and has thereby identified clear risks to biodiversity.

In terms of opportunities, the asv2050/2030 Sustainability Vision sets the goals of increasing the net sales ratio of sustainability-enhancing products to 80% by 2030, reducing CO<sub>2</sub> emissions from a life cycle perspective, and making all products sustainability-enhancing products by 2050. We are expanding the range of products for which demand is expected to increase in the future.

Additionally, since natural environments vary greatly between locations and cannot be measured by a single indicator, TNFD recommends information disclosure with an emphasis on regional characteristics.

The Group assessed 44 business sites in Japan and overseas, and identified priority regions. Going forward, we will engage in risk management tailored to each region.

### ■ Biodiversity risk assessment items for business sites

Assessment items	Assessment tools	Indicators
Importance of biodiversity	WWF Biodiversity Risk Filter	Scape Physical Risk
Water stress	Aqueduct Water Risk Atlas 4.0	Baseline water stress
Significant potential dependencies and impacts	ENCORE Hotspots Terrestrial	Combined hotspots of natural capital depletion

### ■ Number of business sites rated as high or extremely high risk by region

	Importance of biodiversity		Water stress		Significant potential dependencies and impacts	
	High	Extremely high	High	Extremely high	High	Extremely high
Japan	0	0	0	0	0	0
Asia (excluding Japan)	5	0	4	5	3	0
Europe	0	0	1	2	0	0
Americas	0	0	2	0	0	0

### [Strategy]

With regard to water environments in particular, one site in China and two sites in Thailand, India, and Europe have been assessed as being at extremely high-risk, and we will work to address water risks at these sites.

### [Metrics and Targets]

Based on the concept behind the core indicators in the Guidelines for Planning and Monitoring Corporate Biodiversity Performance by the International Union for Conservation of Nature (IUCN) and the above findings on relations between business activities and biodiversity (risks and opportunities), we have tracked and managed progress in targets and KPIs for our past activities for cutting environmental impacts and others as biodiversity management indicators.

### ■ Biodiversity indicators and their changes

Biodiversity indicator	FY2021	FY2022	FY2023	Reference pages
Water consumption (thousand m <sup>3</sup> )	5,595	4,857	4,833	26, 86
CO <sub>2</sub> emissions (Japan) (t-CO <sub>2</sub> )	79,380	73,404	59,669	23, 24, 83
Specific energy consumption (overseas) (L/t)	164.1	164.1	156.5	23, 24, 83
VOC emissions (Japan) (t)	44.3	53.3	52.7	89
NOx emissions (t)	74.8	94.9	67.1	31, 89
SOx emissions (t)	7.2	13.2	14.8	31, 89
Particulate emissions (t)	8.2	10.3	9.4	31, 89
COD emissions (t)	148.7	224.5	159.0	26, 87
Amount of waste treated off-site (Japan) (t)	13,949	13,466	10,625	28, 88
Sales of sustainability-enhancing products*1 (billion JPY) (Sales ratio (%))	97.0 (64.4)	105.0 (62.4)	124.8 (53.6)	18

\*1 Due to a review and revision of standards, as of FY2023, products that were previously referred to as environmentally friendly products until FY2022 will be referred to as sustainability-enhancing products.

## Biodiversity

### Participation in biodiversity organizations

The artience Group has endorsed the purposes of the Keidanren (Japan Business Federation) Declaration for Biodiversity and Guideline (revised in December 2023,) and has participated in the Keidanren Initiative for Biodiversity Conservation. Additionally, our Group is also a participant in the CLean Ocean Material Alliance (CLOMA,) which was established in January 2019 to address the marine plastic litter problem.

When the 30by30 Roadmap was formulated in April 2022, companies, municipalities, and other organizations voluntarily formed the 30by30 Alliance for Biodiversity. The Group declared its support for the Alliance in June 2022.



The logo of the 30by30 Alliance for Biodiversity

#### [Demonstrative test of simple monitoring]

One of the main measures under the 30by30 Roadmap is promoting the establishment, management, and conservation of OECM, and a system to certify OECM sites as "sites in harmony with nature" has been in place since FY2023. Under this certification system, a simple monitoring method is being developed that allows companies that own sites to act as administrators and continuously monitor sites. The Group is also cooperating with this effort, and on August 8 and 9, 2023, a two-day demonstrative test of simple monitoring focusing on common species of insects was conducted in a company-owned forest at Toyochem Co., Ltd.'s Kawagoe Factory.

In an effort led by PREC Institute, Inc., a research organization, and accompanied by representatives from the Ministry of the Environment (MOE), we conducted surveys in company-owned forests, including visual surveys, nighttime call surveys, and surveys using traps installed on the forest floor and trees. As a result, we were able to identify a large number of insects selected by the MOE as "insects found in favorable environments in urban green spaces," including beetles such as earth-boring dung beetles, *eusilpha japonica*, and *plethrophthalmus nigrocyaneus*, as well as cicadas such as *hyalessa maculaticollis* and *platypleura kaempferi*, oriental longheaded grasshoppers / locusts, and Japanese oakblue butterflies.

Based on these results, the MOE plans to publish guidelines for simple monitoring.



A visual survey in progress



Installing a trap on the forest floor

### Major biodiversity conservation activities

#### [Ecosystem research and the preservation of valuable species in a company-owned forest (Kawagoe Factory, Toyochem Co., Ltd.)]

There is a strip of woodland running from the northeast to the southwest near the Kawagoe Factory, of Toyochem Co., Ltd. The woodland is a part of the Santome-shinden area, which was developed in the Genroku era of the Edo period (late 17th century.) The area has housing land, arable land, and a mixed forest. On the southwestern part of the site of the Kawagoe Factory, there is woodland (company-owned forest). In the south lies woodland, which surrounds our athletic fields. These woodlands are connected to woodlands around them and may play an important role in terms of biodiversity conservation in the area.

To learn about wildlife in the company-owned forest and the woodland around the athletic fields, we conducted two surveys primarily of plants and birds in December 2016 and June 2017. In the surveys, we have found 169 species of 68 families of plants, 24 species of 16 families of birds, and 3 species of 3 families of animals. Those species include the Riverstream orchid, a threatened species to be protected listed in Saitama Prefecture Red Data Book 2011 (plants,) and the Japanese green woodpecker and the bunting, threatened species listed in Saitama Prefecture Red Data Book 2018 (animals.)

Based on the finding, the Kawagoe Factory strives to protect the Riverstream orchid and conserve the ecosystem in the company-owned forest.



Birds survey



*Cymbidium goeringii*  
(Riverstream orchid)

#### [Environmental beautification activities on Lake Biwa Day (Moriyama Factory, Toyo Visual Solutions Co., Ltd.)]

In Shiga Prefecture, July 1st is designed as "Lake Biwa Day" under the Shiga Prefecture Basic Environmental Ordinance. It is a symbolic day when environmental protection activities, including cleanups of lakeside and riverside areas and roads across the prefecture, take place with a shared attachment to the lake. The Moriyama Factory of Toyo Visual Solutions Co., Ltd., which is located near Lake Biwa, has consistently taken part in environmental cleanup activities on Lake Biwa Day.