Initiatives for Global Environmental Issues

Toward Achieving Carbon Neutrality by 2050

In addition to expanding its Sustainability Innovation (SI) Business such as renewable energy, hydrogen, electrification-related materials, and other areas in which it has conventionally been involved, Toray Group is developing new SI products that contribute to GHG absorption, including CO_2 separation membranes. Through these efforts, the Group contributes to the reduction of GHG emissions of society as a whole, working to achieve carbon neutrality by 2050.

Moreover, Toray Group aims to reduce its own greenhouse gas emissions (Scope 1 and 2) and become carbon neutral by 2050. It will do so by expanding the SI Business, which in turn will provide Toray Group with sustainable energy and raw materials, as well as developing and introducing innovative processes and CO_2 recycling technologies that utilize CO_2 as a resource. To reduce greenhouse gas emissions across the entire supply chain, the Group will set targets centered on Category 1 (purchased goods and services), the largest component of Scope 3, by promoting bio-based and recycled raw materials.

Further, in order to achieve carbon neutrality, Toray Group recognizes the need to make changes and take a leap in technological innovation based on non-conventional ideas, as well as the need for efforts that are not limited to single corporations, but involve industry, government, and broader society working together to achieve this goal. The Group holds discussions and pursues dialogue with affiliated economic organizations, industry associations, and government, working with these entities to achieve the goals of carbon neutrality and the Paris Agreement by 2050.

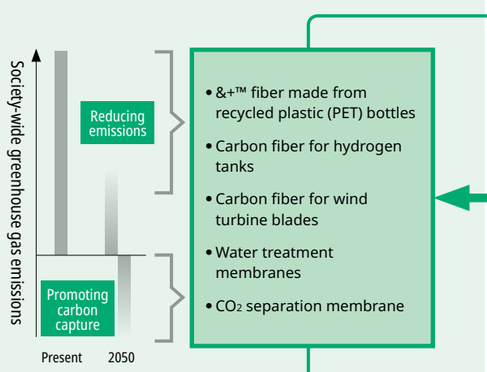
Toray also participates in the GX League, a collaborative industry-government initiative to promote carbon neutrality. Accordingly, the Group discloses information related to its carbon neutrality activities, which includes the setting of GHG emission reduction targets and follow-up on the results achieved.

Major organizations and their committees and subcommittees in which the Group holds membership (partial list)

- Nippon Keidanren (Japan Business Federation): Subcommittee on Global Environment, Committee on Environment
- Japan Chemical Industry Association: Technical Affairs Committee
- Japan Chemical Fibers Association
- Japan Environmental Management Association for Industry
- GX League
- TCFD Consortium

Contributing to building a carbon neutral world

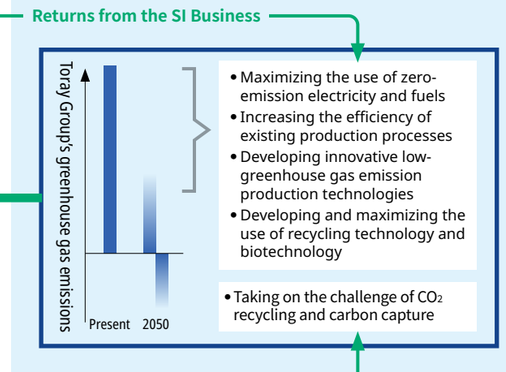
Expansion of greenhouse gas reduction contribution through the SI business



(Corresponding KPIs)	FY 2030 Target [Compared to FY 2013]
Supply of Sustainability Innovation products	**4.5**-fold
CO_2 emissions avoided in value chain	**25**-fold

Achieving carbon neutrality for the Toray Group by 2050

Adopting greenhouse gas emissions reduction technology in business activities



(Corresponding KPIs)		FY 2030 Target [Compared to FY 2013]
GHG emissions in production activities	GHG emissions per unit of revenue for the entire Toray Group	**50**% or more reduction
	GHG emissions of Toray Group in Japan	**40**% or more reduction

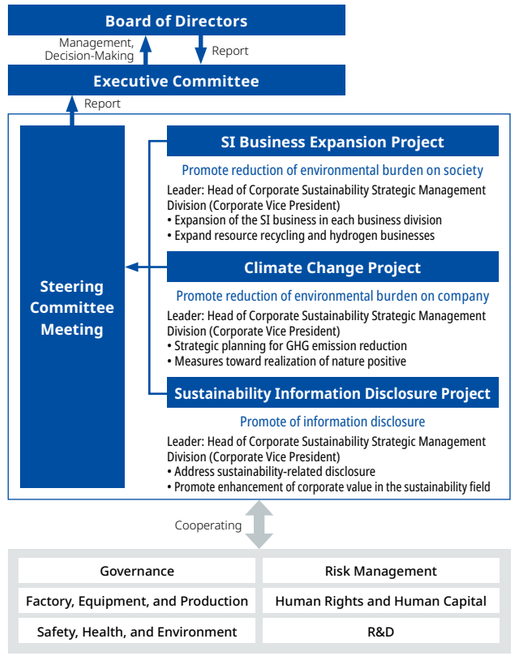
Disclosures Based on the TCFD Recommendations

Governance System Regarding Climate Change Issues

Aiming to realize the Toray Group Sustainability Vision, the Group formulates and promotes medium- to long-term roadmaps and action plans for climate change countermeasures and resource recycling issues through its SI Business Expansion, Climate Change Action, and Sustainability Information Disclosure projects, and manages progress toward achieving its numerical targets for 2030.

In 2025, to strengthen its response to expanding and increasingly complex sustainability issues, the Group integrated related departments to establish the Corporate Sustainability Strategic Management Division as an organization under the direct control of the President. This office centrally promotes the expansion of sustainability-related businesses such as climate change countermeasures and the circular economy, environmental impact reduction, and information disclosure.

The Board of Directors receives regular reports on the progress of these initiatives and appropriately monitors climate change response. Furthermore, when making management decisions, the Board considers climate-related opportunities and risks as a key factor in its oversight and comprehensive decision-making. The Executive Committee, which serves as a deliberative body for important Company-wide matters and assists the Board of Directors, also discusses important sustainability-related policies and topics.



Risk Management

The Toray Group has established the Risk Management Committee as a deliberative, consultative, and information-sharing body to promote risk management. In the periodic risk identification and assessment by the Committee, climate change-related risks are evaluated as relatively high-priority ones.

The Toray Group has a long-standing commitment to solving climate change issues through value chains by expanding its SI Business, as well as addressing climate-related risks such as strengthening its disaster response capabilities. Based on the results of detailed risk analyses and evaluations using the TCFD framework, the Group has re-evaluated these risks and is promoting countermeasures in a group-wide and agile manner.

Strategies

To identify the opportunities and risks related to climate change, which is unpredictable and uncertain, and to find out their potential impact, the Toray Group conducts both qualitative and quantitative scenario analyses in line with the TCFD recommendations. As its medium- to long-term strategy for realizing the Toray Group Sustainability Vision, the Group is promoting its Long-Term Corporate Vision, TORAY VISION 2030, and its Medium-Term Management Program, Project AP-G 2025.

The Paris Agreement target is to limit global warming to well below 2℃, preferably to 1.5℃, compared to pre-industrial levels. Looking to help achieve this target and achieve carbon neutrality in 2050, the Toray Group primarily analyzed the 1.5℃ increase scenario, but also considered the 2℃ increase scenario. The Group also looked at the 4℃ increase scenario assuming insufficient progress on efforts to ameliorate global climate change.

Based on this scenario analysis, the Toray Group is working to reduce greenhouse gas emissions for both society as a whole and the Group itself by expanding the SI Business and utilizing the associated new technologies. Furthermore, the Group contributes to the realization of a circular society by creating various technologies, such as those for recycling plastic products and switching to bio-based materials, and for reusing water generated in manufacturing processes. Additionally, the Future TORAY-2020s (FT) Project aims to create and expand businesses and will focus on themes like hydrogen and fuel cell-related materials, biomass-based products and process technologies, and environmentally-friendly printing solutions. This project will also promote the development of applications for porous carbon fiber that can be used as support layers for gas separation membrane structures that separate mainly CO_2, biogas, and hydrogen.

Against this backdrop, business opportunities to mitigate climate change, centered on the SI Business, are significant for revenue around 2040. In particular, a new market around 800 billion yen is expected for bio- and recycled materials as economic systems change with the transition to a recycling-oriented society. In addition, around 400 billion yen market is expected to develop amid the growing need

for lightweight materials like carbon fiber and resin as mobility electrification accelerates. Meanwhile, including the water treatment business, there are also significant business opportunities for adapting to climate change, and these opportunities are expected even in the world of the 1.5℃ or 2℃ increase scenarios.

KPIs and Targets

The Toray Group has set forth its quantitative targets for FY 2030 in the Toray Group Sustainability Vision. In addition, as the milestone for the Vision, it has disclosed the results for FY 2023, as well as targets for FY 2025 as the interim target in the Medium-Term Management Program, Project AP-G 2025 (See P17).

Main Opportunities / Risks and Responses Related to Climate Change Around 2040

Social Change	Main Opportunities / Risks		Main Response by Toray Group	Magnitude of Opportunity 1.5℃	2℃	4℃
Increase in ratio of renewable energy	Opportunities	• Growth of renewable energy-related business • Growth of storage battery-related business	• Carbon fiber for wind turbine blades	L	↘	↘
	Risks	• Soaring energy costs • Delay in energy conversion to secure suppliers	• Energy conservation efforts	60.0 billion yen (Cost)	↘	↘
Establishment and raising of carbon taxes and GHG emissions reduction targets	Opportunities	• Growth of energy conservation-related business	• Lightweight materials (carbon fiber, resin) • Insulating and heat shielding products (insulation, heat shielding fibers, films, etc.) • Functional garments (cooling materials)	L	→	→
	Risks	• Increased procurement costs of fossil resource-derived raw materials and fuels • Criticism for fossil resource use • Loss of competitiveness due to carbon tax disparity • Decrease in existing users due to changes in the supply chain	• GHG emission reduction	85.0 billion yen (Cost)	↘	↘
Change in social systems for realization of hydrogen society	Opportunities	• Growth of business related to hydrogen manufacturing, transport, storage, and use	• Gas separation membrane (porous carbon fiber) • High-strength carbon fiber for hydrogen tanks • Components and materials used in fuel cells	L	↘	↘
	Risks	• Decline in material prices due to increased competition • Securing suppliers due to delay in conversion to hydrogen	• Strengthening competitiveness	L	↘	↘
Electrification of mobility	Opportunities	• Growth of materials business for electric mobility	• Lightweight materials (carbon fiber, resin) • Battery materials • Materials for motors and hydrogen tanks	400.0 billion yen (Revenue)	↘	↘
	Risks	• Decrease in demand for products related to internal combustion engines • Decline in material prices due to increased competition	• Responding to demand for electrification • Strengthening competitiveness	230.0 billion yen (Revenue)	↘	↘
Adoption of CCUS	Opportunities	• Growth of businesses related to CO_2 separation and recovery	• Gas separation membrane (porous carbon fiber)	M	↘	S
	Risks	• Thermal power generation electricity cost increase	• Energy conservation efforts	L	M	S
Changes to the economic system toward the realization of a circular society	Opportunities	• Growth of biomaterials business • Growth of recycled materials business • Growth of businesses contributing to waste reduction (emissions reduction, durability)	• Biopolymers • Membrane bioprocess, biodegradable materials • Recycled materials (Ecouse™, &+™, etc.) • High-performance packaging materials • VOC free waterless printing system for flexible packaging	800.0 billion yen (Revenue)	↘	↘
	Risks	• Increased waste disposal costs • Shrinking materials market due to the shift away from mass production and mass consumption • Opportunity loss due to delay in responding to a recycling-oriented society	• Strengthen waste management and promote recycling • Responding to demand for bio-based materials and recycling, etc.	300.0 billion yen (Revenue)	↘	↘
Increased demands from customers and investors to address climate change and disclose information	Opportunities	• Growth of customer base and increased investment due to climate change response • Growth in need for products with small carbon footprints	• Growth of businesses contributing to efforts to address climate change and reduction of GHG emissions	L	↘	↘
	Risks	• Increased demands to reduce GHG emissions • Lost opportunities due to delays in reducing GHG emissions and carbon footprint	• Reducing GHG emissions	L	↘	↘
Rise in temperatures	Opportunities	• Growth of businesses related to dealing with heat • Growth of businesses related to infectious disease measures	• Functional garments (cooling materials) • Insulating and heat shielding products (insulation, heat shielding fibers, films, etc.) • Components and materials for health status monitoring devices • Infectious disease protective wear and masks • Materials for air purification products	S	↗	↗
	Risks	• Less demand for warming materials and winter sports applications	• Meet demand for functional garments (cooling materials)	S	M	↗
Destabilization of water and food supply	Opportunities	• Growth of businesses related to water and food supply	• Water treatment • Fertilizer and agricultural chemical ingredients	L	↗	↗
	Risks	• Water usage restrictions	• Reduce water usage	M	↗	↗
Increased severity of disasters	Opportunities	• Growth of businesses related to disaster mitigation	• Reinforcement materials and protection netting • Water treatment	L	↗	↗
	Risks	• Impact on raw materials procurement, plant operations, etc.	• Business continuity plan • Strengthen supply chains	L	↗	↗

*1 Excerpt from Toray Group TCFD Report VER.2.1 https://www.toray.com/global/sustainability/tcfd/pdf/TCFD_report_v2.pdf
*2 Items that are difficult to estimate quantitatively with a certain degree of accuracy are classified into the following three levels (large, medium and small) according to the magnitude of their impact on revenue or core operating income.
Large (L): Revenue of 50 billion yen or more or core operating income of 5 billion yen or more
Medium (M): Revenue of 10 billion yen or more but less than 50 billion yen, or core operating income of 1 billion yen or more but less than 5 billion yen
Small (S): Revenue less than 10 billion yen or core operating income less than 1 billion yen
The impact on revenue was analyzed for the sales aspect, and the impact on core operating income was analyzed for the cost aspect. In cases where the same size classification for each climate scenario was considered to have varying degrees of impact within that classification, a gradient was used, with darker colors used for those deemed to have a greater impact. The gradient represents changes within the same category of "social change" and does not represent differences in the magnitude of impact between different categories.
*3 The risk due to introduction of carbon taxes, since it is currently difficult to forecast Toray Group's GHG emissions in 2040, it was calculated by multiplying FY 2022 GHG emissions (5.12 million tons-CO_2, based on a calculation method that uses the degree of management control Toray Industries has over the individual subsidiary) by forecast carbon taxes in 2040 under the 1.5°C increase scenario (developed countries: USD 110/ton-CO_2). Toray Group will continue working to reduce GHG emissions ahead of 2040.

Fighting Climate Change in Production Activities

Energy Management

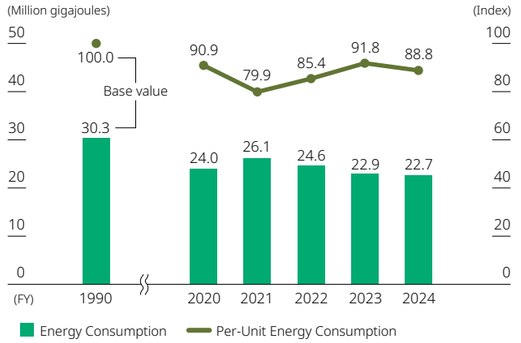
As part of its energy management, the Toray Group promotes energy conservation activities across the entire Group, with each company and plant setting annual energy-saving targets and monitoring the implementation status on a monthly basis. Toray Industries, Inc. undergoes audits of its environmental data, including energy consumption, to identify opportunities for improving energy performance. Based on these results, the Company carries out energy conservation activities with a target of reducing its Per Unit Energy Consumption Index* by 2% annually.

In FY 2024, as a result of promoting more efficient energy use and reducing waste and loss, energy consumption decreased by 0.9%. Meanwhile, production volume increased by 1.4%, resulting in a 3.2% improvement in the Per Unit Energy Consumption Index. Compared to FY 1990, the baseline year for reducing the index, this represents an 11.2% improvement.

As part of its energy conservation activities, the Toray Group holds an annual "Group-Wide Energy-Saving Technology Presentation" every June to share and recognize the results of these activities across the Group. Additionally, the Group conducts "energy-saving diagnostics" at the plants of Toray Industries, Inc. and its subsidiaries and affiliates in and outside Japan, where teams composed of members well-versed in manufacturing processes and equipment come up with ideas to save even more energy. In FY 2024, diagnostics were conducted at three plants of Toray Industries, Inc., resulting in greenhouse gas emission reductions of more than 5,000 tons of CO_2-equivalent per year.

*Initiatives to Reduce Scope 1 and Scope 2 Emissions

Energy Consumption and Per Unit Energy Consumption Index (Toray Industries, Inc.)



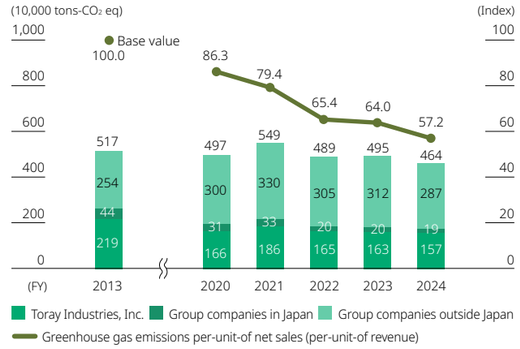
* The energy consumption shown in this graph does not include renewable energy

Initiatives to Reduce Scope 1 and Scope 2 Emissions

As its greenhouse gas emission (Scope 1 and 2) reduction target, in its "CSR Roadmap 2025," the Toray Group has set the goal to "achieve a 40% reduction in greenhouse gas emissions per unit of revenue by FY 2025 compared to FY 2013" and is implementing systematic reduction measures. The Group is also promoting activities toward its goal of a 50% reduction in Scope 1 and 2 emissions per unit of revenue by FY 2030 and is considering even more ambitious reduction targets as well as measures to achieve such targets.

In FY 2024, the total GHG emissions (Scope 1 and 2) for the entire Toray Group were 4.64 million tons of CO_2-equivalent, a 6.3% decrease year-on-year. In terms of emissions per unit of revenue, in addition to an increase in Group-wide revenue, emissions were minimized through greenhouse gas reduction initiatives (such as promoting energy conservation via process improvements, utilizing renewable energy, and reducing coal use), resulting in a 42.8% reduction compared to FY 2013. Amid these efforts, the Group reviewed its internal carbon pricing system (price set for FY 2024: ¥10,000/ton-CO_2) to ensure that the system functions as an incentive for accelerating GHG emission reduction initiatives.

Greenhouse Gas Emissions and Greenhouse Gas Emissions Per Unit of Net Sales (Per Unit of Revenue) (Toray Group)



- The value for the baseline year, FY 2013, is calculated using Japanese accounting standards. This value includes data from companies that joined the Toray Group during or after FY 2014.
- For the baseline year of FY 2013 and from FY 2023 onward, the calculation method has been changed to the new one based on the GHG Protocol, an international calculation rule, which involves multiplying by the degree of management control.
- GHG emissions from FY 2020 to FY 2022 are based on the conventional calculation method of multiplying by equity share. If using the same calculation method multiplied by management control capabilities as in FY 2023, the GHG emissions for FY 2022 would be 5.12 million tons.

Measures to Reduce Scope 3 Emissions

In FY 2024, the Toray Group's Scope 3 emissions totaled approximately 16.37 million tons of CO_2-equivalent, including upstream categories 1–8 and downstream categories 9, 11, 12, 13, and 14. By category, Category 1 (purchased goods and services) accounted for the largest share at 52% of the total. This was followed by Category 12 (end-of-life treatment of sold products) at 27%. Together, these two categories accounted for 79% of total Scope 3 emissions.

The Group has set targets centered on Category 1, which accounts for the largest share, and has started to engage with suppliers. At the same time, to comply with the CSRD (EU Corporate Sustainability Reporting Directive) and the SSBJ (Sustainability Reporting Standards Board of Japan)

standards, the Group is expanding the scope of its information gathering and promoting systemization.

Scope 3 Emissions by Category (FY 2024) (10,000 tons-CO_2)

Category	GHG Emissions	Percentage of Emissions
Category1: Purchased goods and services	854.7	52%
Category2: Capital goods	75.2	5%
Category3: Fuel-and energy-related activities not included in Scope 1 or Scope 2	93.3	6%
Category4: Upstream transportation and distribution	17.3	1%
Category5: Waste generated in operations	0.8	0%
Category6: Business travel	0.6	0%
Category7: Employee commuting	2.1	0%
Category8: Upstream leased assets	0.5	0%
Category9: Downstream transportation and distribution	2.8	0%
Category10: Processing of sold products	—	—
Category11: Use of sold products	146.7	9%
Category12: End-of-life treatment of sold products	441.9	27%
Category13: Downstream leased assets	1.1	0%
Category14: Franchises	0	0%
Category15: Investments	—	—
Total	**1,637.1**	**100%**

Introduction of Renewable Energy

In its CSR Roadmap 2025, the Toray Group has set the rate of increase in solar power generation capacity as a KPI and is promoting the introduction of renewable energy facilities.

In FY 2024, the rate of increase was 182%, owing to the capacity expansion at Shiga Plant of Toray Industries, Inc., new installations at Ishikawa Plant, and expansion of the solar power generation system at a Group company's plant in China. Additionally, since FY 2017, Tokai Plant of Toray Industries, Inc. has been co-firing carbon-neutral sludge to fuel its boilers.

In addition, since April 2022, all power consumed by the Toray Industries, Inc. Head Office in Tokyo has been effectively 100% renewable energy. This is expected to reduce greenhouse gas emissions by approximately 1,500 tons of CO_2-equivalent annually based on global standards. Furthermore, the Company's Nagoya Branch began procuring effectively renewable electricity in FY 2023, followed by Osaka Head Office in FY 2024 and Chugoku-Shikoku Branch in FY 2025. At Shiga Plant and Gifu Plant , some electricity was switched to CO_2-free power sources starting in FY 2024 to reduce CO_2 emissions from the electricity used in the Ultrasuede production process. This is expected to reduce greenhouse gas emissions by approximately 7,100 tons of CO_2-equivalent annually.

Ishikawa Plant Solar Power Generation Facility

Environmental Accounting

Toray Industries, Inc. introduced environmental accounting in FY 1999 and has been calculating the effects of its environment-related investments and costs. In FY 2024, environment-related investment amounted to 6.73 billion yen, an increase of 4.93 billion year-on-year, mainly due to increased investment in equipment to control acrylonitrile air emissions. Meanwhile, environment-related expenses totaled 9.16 billion yen, a decrease of 0.54 billion yen year-on-year, primarily due to a reduction in fuel consumption.

Biodiversity Initiatives

The Toray Group Biodiversity Basic Policy Established December 2010

Basic Approach

The Toray Group appreciates the gifts of nature that biodiversity provides and strives to realize the conservation and sustainable use of biodiversity. The Group contributes to society through the development and dissemination of products and technologies which advance conservation of biodiversity.

Action Guidelines

1. We take into consideration the impact of our business activities on biodiversity and strive to realize the conservation and sustainable use of biodiversity.
2. We endeavor to develop environmentally friendly technologies and products and contribute to the conservation of biodiversity by making them available for use.
3. We practice fair use of genetic resources on the basis of relevant international agreements.
4. We recognize the influence of biodiversity within supply chains and pursue coexistence with nature.
5. We strive to raise employee awareness on biodiversity and contribute to the building of a society that nurtures biodiversity through our communication with stakeholders.

The Toray Group positions biodiversity conservation as a key global environmental issue on par with reducing greenhouse gas emissions. Through its business activities—such as producing safe and reliable drinking water with its water treatment technology, conserving water resources through the reuse of wastewater, and air purification using fiber-based filter materials—the Group contributes to biodiversity conservation and a nature-positive world. In product safety reviews for all products and environmental risk assessments for capital investments, the Group uses environmental assessment checklists to confirm that the amounts of regulated substances in exhaust gas, wastewater, and waste from manufacturing do not exceed legal limits. When assessing new land use, Toray confirms regulations applicable to production bases, the necessity for surveys on rare species, and any requests from citizens' groups.

Toray Industries, Inc. has declared its support for the recommendations on information disclosure published by the Taskforce on Nature-Related Financial Disclosures (TNFD) and registered as a TNFD Early Adopter in January 2024. Toray also participates in the TNFD Forum, which supports TNFD discussions; is a promotion partner of Nippon Keidanren's Declaration of Biodiversity; and has been a member of the 30 by 30 Alliance for Biodiversity, founded by the Ministry of the Environment in 2022, since its inception.

Opportunities & Risks Related to Biodiversity

An analysis of biodiversity-related opportunities and risks arising from all stages of the supply chain in the Group's business activities, from upstream to downstream, identified several key areas. Opportunities include contributing to CO_2 emission reductions by providing products that lead to lighter aircraft components, as well as forest and habitat protection through products that contribute to the conservation of green spaces and water resources. Risks include the reduction of natural capital due to the use of water and energy resources, climate change and increased environmental loads due to emissions into the atmosphere and water systems, all of which are having various impacts on biodiversity.

Preservation of Greenery

The plants of Toray Industries, Inc. and its Group companies in Japan create and implement factory greening policies and plans based on the "Toray Group's Basic Policy for Increasing Green Areas" to maintain the healthy natural forests[*1] that the Group has been nurturing since the plants began operating. These sustainable greening activities also contribute to the environmental preservation of local communities. Specifically, Toray Industries' 12 plants, including Mishima Plant, and the Basic Research Center have created approximately 200,000 m^2 of green space using the "shrine forest method[*2]."

*1 Natural forests or forests created by tree species based on the potential native vegetation.

*2 Modeled after traditional forestry techniques used by Japanese shrines, this greening method reproduces green spaces in a state close to that of natural forests by using trees native to the area.

Mishima Plant: Immediately after planting in 1973 (top), present day (bottom)

Disclosures Based on the TNFD Recommendations

In December 2024, the Toray Group published the "Toray Group TNFD Report Ver. 1," which outlines its initiatives related to biodiversity and natural capital. The report is structured according to the four pillars of Governance: Risk and Impact Management, Strategies, and KPIs and Targets, and it includes survey and analysis results based on the LEAP approach.

https://www.toray.com/sustainability/activity/environment/pdf/TNFD_report.pdf