

TORAY GROUP

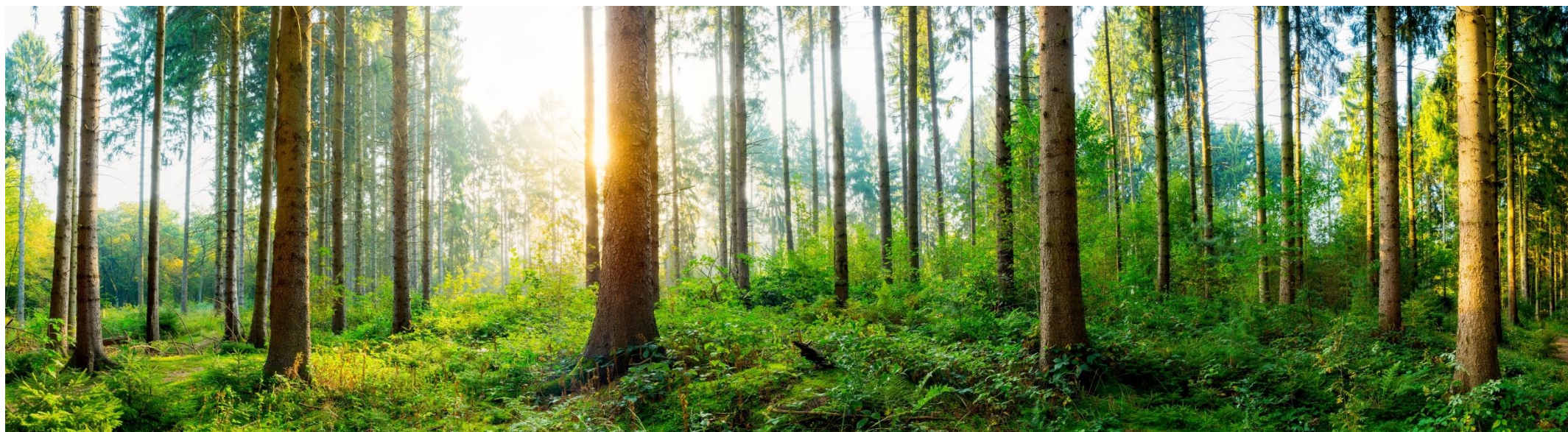
TNFD REPORT VER. 1

MATERIALS CHANGE OUR LIVES





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In recent years, along with heightened concern over climate change, the issue of biodiversity protection has gained international attention. There is a strong relationship between biodiversity and the planet's natural capital, such as water, air, plants, animals, and minerals, which support human activities. However, biodiversity and nature have been disappearing at an alarming rate due to climate change, the depletion of natural resources, and ecosystem destruction.

As part of efforts to address this situation, the Kunming-Montreal Global Biodiversity Framework was widely adopted at the 2022 UN Biodiversity Conference (COP15) in Canada. By striving for nature-positive outcomes, the framework aims to halt biodiversity loss and begin the recovery process by 2030. To promote efforts toward this goal, the Japanese government has released its National Biodiversity Strategy and Action Plan 2023–2030 .

In 2023, the Taskforce on Nature-related Financial Disclosures (TNFD) released its final recommendations, calling on companies to strengthen their efforts and information disclosure in the area of natural capital and biodiversity conservation.

For many years, Toray Group has been actively promoting global environmental conservation efforts, including biodiversity protection. The purpose of this report is to disclose the Group's strategies and initiatives to address biodiversity and natural capital challenges, with a view to further accelerating these efforts going forward.

Disclosure Based on TNFD Recommendations

Toray Group supports the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD) and is registered as a TNFD Early Adopter. This report provides information based on the four key pillars of the TNFD final recommendations: Governance, Risk and Impact Management, Strategy, and Metrics and Targets. Toray Group plans to continue enhancing and expanding its nature-related information disclosures.

I . Introduction

1 . Toray Group and Sustainability

Since its founding in 1926, Toray Group has operated based on the principle of "realizing that corporations are public institutions of society and contributing to society through our business." This approach has ensured the Group's steadfast commitment to fostering a sustainable society. In 1986, the Group established its current corporate philosophy, "Contributing to society through the creation of new value with innovative ideas, technologies and products."

One of the corporate commitments presented in Toray Group's Long-Term Corporate Vision, AP-G 2000, introduced in 1991, was to play an active role in protecting the global environment, and in the same year the Group established the Global Environment Research Laboratory. In the following year (1992), the management of Toray Group affirmed its determination to take active steps to address global environmental issues, one of which was the formation of the company-wide Global Environment Committee. In 2000, Toray established its first Three-Year Environmental Plan, which included targets for reducing greenhouse gas (GHG) emissions and atmospheric emissions of chemical substances. These efforts have continued over the course of five medium-term plans through to fiscal 2020.

The [Toray Group Sustainability Vision](#) was announced in 2018. This vision outlines the Group's long-term commitment to addressing global challenges such as population growth, the aging of societies, climate change, water scarcity, and resource depletion. The Sustainability Vision shows Toray's dedication to resolving these issues by providing innovative technologies and advanced materials, thereby helping the world address the challenge of balancing development and sustainability.

Toray Group's Vision for the World in 2050

- **A net zero emissions world, where greenhouse gas emissions are completely offset by absorption**
- **A world where resources are sustainably managed**
- **A world with a restored natural environment, with clean water and air for everyone**
- **A world where everyone enjoys good health and hygiene**

To realize the Sustainability Vision, Toray Group is committed not only to reducing the environmental impact of its own operations, but also to helping to reduce society's environmental impact through Toray's business activities. Since 2011, the Group has focused on its Green Innovation businesses, which help solve global environmental problems and resource- and energy-related issues. Since 2014, it has also pursued Life Innovation businesses, which contribute to better medical care and long, healthy lives and promote public health and human safety. Under the Medium-Term Management Program, Project AP-G 2025, covering the fiscal years 2023 to 2025, the Green and Life Innovation businesses have been integrated and redefined as the Sustainability Innovation (SI) Business. By expanding the reach of these businesses, Toray Group aims to further promote the sustainable development of society, including even greater contributions to water treatment across the value chain. Its goal is to enhance biodiversity and natural capital conservation while driving the Group's growth.



I. Introduction

2. Toray Group's Relation to Biodiversity and Natural Capital

Toray Group envisions “a world with a restored natural environment, with clean water and air for everyone” as one of the goals stated in its Sustainability Vision. It sees biodiversity conservation as a critical environmental issue alongside GHG emissions reduction. In 2000, the Group established its [Ten Basic Environmental Rules](#). Then in 2010, based on these rules, it launched a cross-organizational working group to develop biodiversity initiatives, and established the [Toray Group Biodiversity Basic Policy](#).

In 2023, this working group was renamed the Nature Positive (NP) Subcommittee, and its functions were partially revised. The following year, 2024, saw restructuring of the entire system for promoting initiatives aimed at realizing the Sustainability Vision. Currently, under the Climate Change Action Project, the Group is advancing nature positive initiatives and GHG emissions reduction in an integrated way.

Toray Group Biodiversity Basic Policy (Established December 2010)

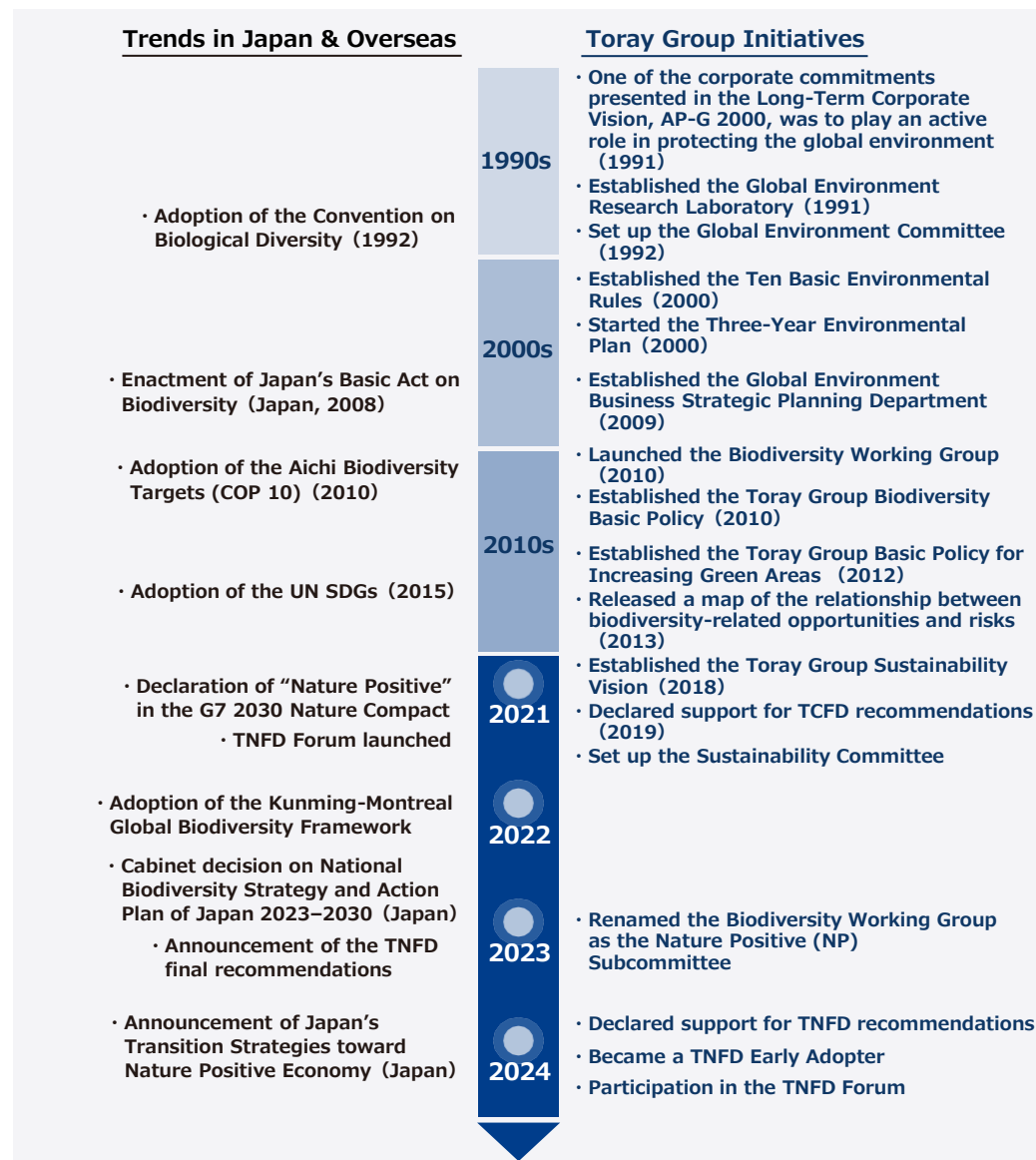
Basic Approach

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 the supply chain 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.

Figure 1: Biodiversity & Natural Capital Protection Trends and Toray Group Efforts



II. Disclosure Based on TNFD Recommendations

1. Governance

(1) System

In 2024, Toray Group partially revised its framework for achieving the Sustainability Vision, which covers GHG emissions reduction, circular economy promotion, and nature-positive initiatives. The framework, shown in Figure 2, was created to drive these efforts forward.

In order to help achieve a nature-positive future, Toray Group promotes initiatives by focusing on the following two projects: 1) the Sustainability Innovation (SI) Business Expansion Project, which will contribute to reducing the GHG emissions of society in general through its business, and 2) the Climate Change Action (Climate Change) Project, which aims to reduce GHG emissions in its own business activities.

The SI Business Expansion Project is mainly advanced through initiatives within each business division. There are also subcommittees focused on individual initiatives that cross business areas such as materials for mobility, circular economy promotion, and hydrogen adoption, to promote collaborative approach to expand the scope of SI business activities. Under the Climate Change Project, efforts are being made to address both nature-positive initiatives and GHG emissions reduction in an integrated way. Within this project, the Nature Positive (NP) Subcommittee is driving discussions on overarching strategies and external communications to achieve nature-positive goals. Also under this project, the Challenge 50+ Project and the GHG Reduction Subcommittee are

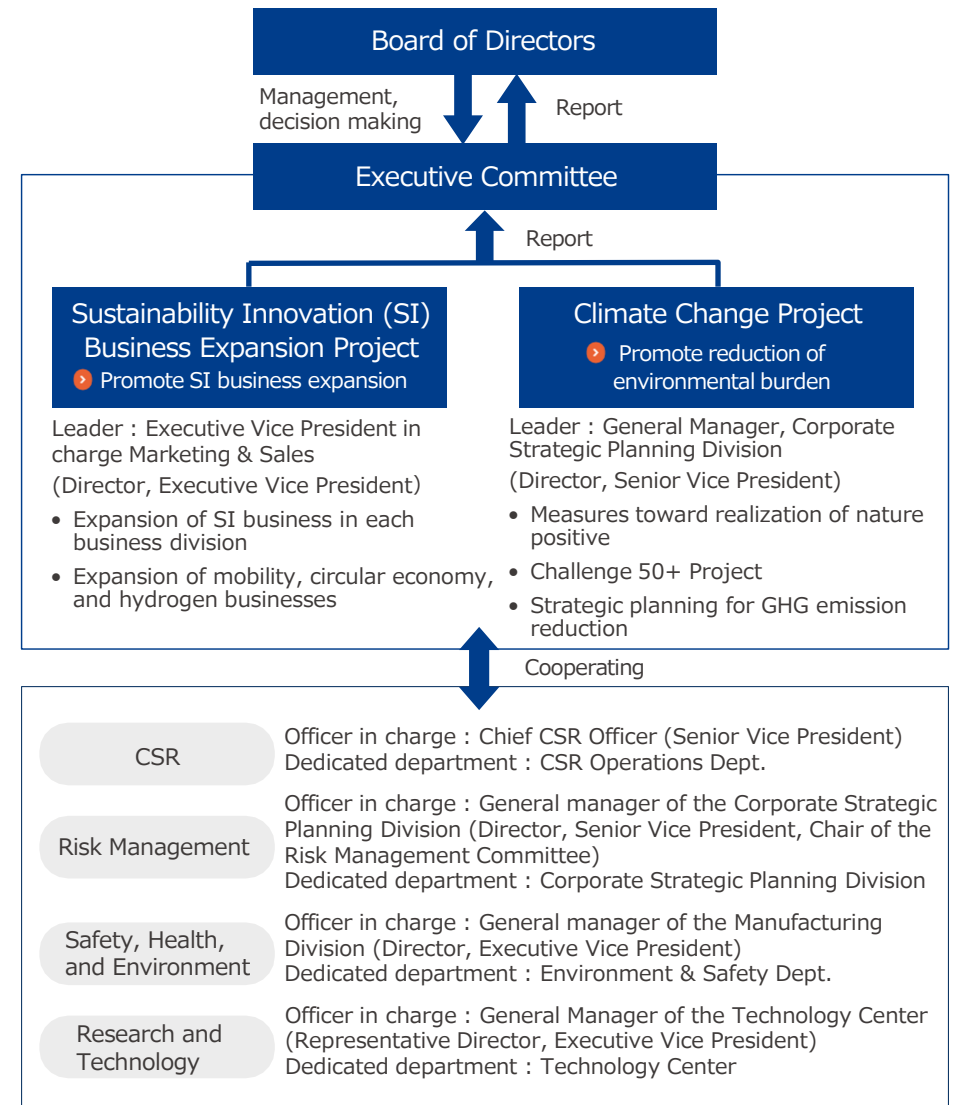
advancing GHG emissions reduction efforts across the Group.

These activities are closely linked to CSR, risk management, safety, health, and environmental initiatives, as well as research and technological development. Through coordinated efforts with these organizational areas, the two key projects are addressing issues related to reducing overall environmental impact.

The progress and outcomes of initiatives aimed at achieving the Sustainability Vision are reported to the Board of Directors at least once a year. The Board appropriately monitors the Group's nature-positive initiatives, considers these efforts as key factors in management decisions, and provides oversight and comprehensive decision-making to ensure proper implementation.

The Executive Committee, a deliberative body of the Board of Directors, discusses key issues related to management strategies, including the basic strategies and capital investment plans for the SI Business Expansion Project and the Climate Change Project. These deliberations are made as necessary in light of the ever-changing business environment. By enhancing agility in both oversight and execution, the Group aims to accelerate measures to reduce environmental impact across society and its own operations.

Figure 2: Governance Structure Related to Biodiversity and Natural Capital



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(2) Stakeholder Human Rights Policies and Engagement

Established in December 2017, the [Toray Group Policy for Human Rights](#) outlines the Group's commitment to respecting human rights across its entire supply chain. Moreover, the [Toray Group Biodiversity Basic Policy](#) stipulates its commitment to conducting business activities with consideration for stakeholders highly reliant on biodiversity and natural capital, including indigenous peoples, local communities, and other stakeholders.

- We practice fair use of genetic resources on the basis of relevant international agreements.
- We recognize the influence of biodiversity within the supply chain and pursue coexistence with nature.
- We strive to raise employee awareness on biodiversity and contribute to the building of a society that nurtures biodiversity through our communication with stakeholders.

Moreover, the Group conducts product safety reviews for all products and environmental risk assessments for its capital investments. As part of these efforts, the Group ensures that when new land is to be acquired for production site construction, an environmental assessment checklist is used to confirm matters related to biodiversity. This includes checking for relevant environmental regulations or the need to investigate conservation of rare species at the proposed site, as well as the potential concerns of local community organizations. Through these policies and initiatives, the Group strives to engage stakeholders, conserve biodiversity and natural capital, and help realize a sustainable society.



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2. Risk and impact management

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Toray Group has established a Risk Management Committee as a deliberative, consultative, and information-sharing body to promote risk management. As part of its regular identification and evaluation of risks, the committee also assesses risks related to biodiversity and natural capital (for details, visit the Toray website page, "[Risk Management](#)").

Currently, the Group is conducting evaluations and analyses of dependencies, impacts, opportunities, and risks in line with the LEAP approach recommended by TNFD. Toray is promoting dynamic cross-functional initiatives across the Group to address risks and impacts related to biodiversity and natural capital.

These include helping to resolve biodiversity and natural capital issues through the expansion of the SI Business across the value chain, as well as enhancing disaster response capabilities.



II. Disclosure Based on TNFD Recommendations

3. Strategy

Based on the TNFD-recommended LEAP approach, Toray Group evaluates nature-related dependencies, impacts, opportunities, and risks. Using these evaluations and their implications for each organization’s business model, value chain, strategy, and revenues, the Group devises strategies to address nature-related challenges.

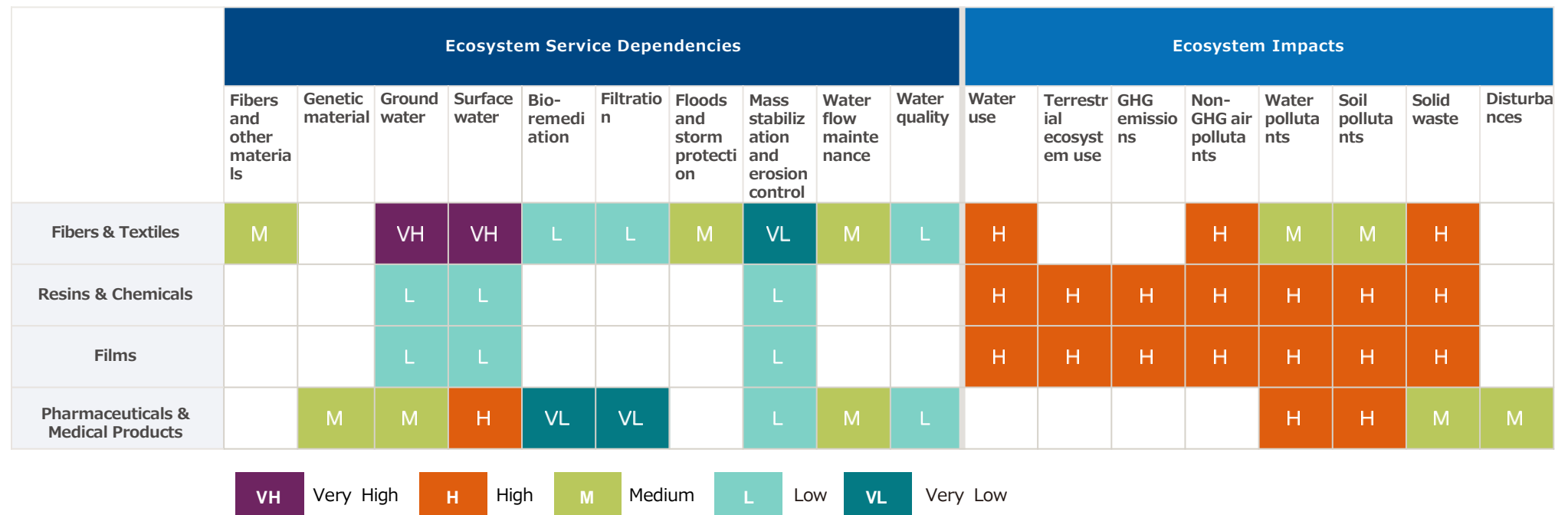
(1) Evaluation of Dependencies and Impacts

Employing ENCORE*1, an online tool recommended by TNFD, the Group assessed its dependency on ecosystem services and the influence of its impact drivers in relation to the sectors in which it operates. These assessments covered four Toray business areas*2 that fall within ENCORE’s scope: fibers, films, resins and chemicals, as well as pharmaceuticals and medical devices. Indicators related to dependencies and impacts were identified and prioritized for evaluation (see Figure 3). The assessment revealed significant levels of dependency and impact concerning water resources as well as notable impacts on water, soil, and air pollution.

*1 ENCORE (Exploring Natural Capital Opportunities, Risks, and Exposure) is an online tool for organizations to evaluate their dependencies and impacts on natural capital based on applicable business sectors and production processes. It was developed under the leadership of the Natural Capital Finance Alliance in collaboration with United Nations Environment Programme (UNEP) and World Conservation Monitoring Centre (WCMC).

*2 The sector names used by ENCORE corresponding to Toray’s four relevant business areas are as follows:
 Fibers & Textiles : Consumer Discretionary>Textile> Synthetic fiber production
 Resins & Chemical, Films : Materials>Diversified Chemicals> Polymerization
 Pharmaceuticals & Medical Products : Health Care> Pharmaceuticals manufacturing> Life science, pharma and biotech manufacture

Figure 3: ENCORE Materiality Assessment (Heatmap)



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(2) Strategy Formation

A. Analysis of the Group's Activities

The ENCORE tool discussed in the previous subsection (1) is designed for general assessment applicable to organizations in each relevant sector. Accordingly, the Group also conducted an analysis reflecting the specific characteristics of Toray Group's businesses. The Group has consistently addressed risks that negatively impact biodiversity and natural capital by helping to reduce societal risks through the expansion of its SI Business, as well as mitigating risks for its own activities. Based on a comprehensive understanding of the characteristics of these businesses, the Group used its own method to evaluate the importance of dependencies and impacts for these same areas as used in the ENCORE assessment across all its

businesses to identify priority initiative areas (see Figure 4). The results confirmed that Toray has dependencies and impacts related to water resources, as well as considerable impacts on water, soil, and air pollution, aligning closely with the dependency and impact ratings provided by ENCORE.

Next, the Group categorized its initiatives into four quadrants using the following labels: 1) dependencies and 2) impact on biodiversity and natural capital, 3) contribution through expansion of the SI Business (opportunities), and 4) risk reduction for its own activities (risks) (see Figure 5).

Figure 4: Materiality Assessment Using Toray's Own Method (Heatmap)

	Ecosystem Service Dependencies										Ecosystem Impacts							
	Fibers and other materials	Genetic material	Ground water	Surface water	Bio-remediation	Filtration	Floods and storm protection	Mass stabilization and erosion control	Water flow maintenance	Water quality	Water use	Terrestrial ecosystem use	GHG emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbances
Fibers & Textiles			H	H			H				H		H	M	H	M	H	
Resins & Chemicals			M	M			H				M		H	M	H	M	H	
Films			M	M			H				M		H	M	H	M	H	
Torayca & Advanced Composites			M	M			H				M		H	M	H	M	H	
Electronic & Information Materials			M	M			H				M		H	M	H	M	H	
Pharmaceuticals & Medical Products		L	M	M			H				M		M	M	H	M	H	
Water Treatment & Environment			M	M			H			H	M		H	M	H	M	H	

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Figure 5: Four-Quadrant Analysis: Dependencies, Impacts, Opportunities, and Risks

Impact Scope		Contribution Through SI Business Expansion (Opportunities)	Risk Reduction for Toray Group Activities (Risks)
Dependency on Nature	Land/forest use	<ul style="list-style-type: none"> Minimizing equipment footprint through high efficiency Improved efficiency in the use of fossil resources (recycling, metal-free, etc.) Improved efficiency in the use of biomass Development of functional landfills 	<ul style="list-style-type: none"> Minimization of land use Reduction of fossil resource (and mineral) use Reduction of biomass resource use Reduction of biomass waste
	Water systems (oceans, rivers, and lakes)	<ul style="list-style-type: none"> Improving water-use efficiency 	<ul style="list-style-type: none"> Reduction of industrial water use Reduction of wastewater
	Atmosphere	<ul style="list-style-type: none"> Filters 	<ul style="list-style-type: none"> Reduction of atmospheric gas emissions
	Ecosystems	<ul style="list-style-type: none"> Natural material alternatives 	—
	Other	<ul style="list-style-type: none"> Disaster prevention 	<ul style="list-style-type: none"> Minimization of heavy rain / flood impact
Impact on Nature	Land/forest use	<ul style="list-style-type: none"> Improved biomass raw material use efficiency and waste utilization (membrane-integrated saccharification process, etc.) 	<ul style="list-style-type: none"> Reduction of spill accidents Impact minimization during new plant construction Impact minimization for biomass raw material use Reduction of landfill waste Green space conservation
	Water systems (oceans, rivers, and lakes)	<ul style="list-style-type: none"> Improving water-use efficiency (Water reuse and seawater desalination) Reduction of waste plastic through recycling Reduction of environmentally hazardous substances Replacement of environmentally hazardous substances 	<ul style="list-style-type: none"> Reduction of water pollutant emissions Reduction of spill accidents Reduction of microplastic discharge Reduction of water usage Riverside cleanups
	Atmosphere	<ul style="list-style-type: none"> Reduction of GHG emissions (energy saving and new/renewable energy) Reduction of VOC emissions (environmentally friendly printing and gas separation membranes) 	<ul style="list-style-type: none"> Reduction of GHG emissions Reduction of air pollutant emissions
	Ecosystems	<ul style="list-style-type: none"> Reduction of GHG emissions (energy saving and new/renewable energy) Reduction of waste plastic through recycling Reduction of environmentally hazardous substances Replacement of environmentally hazardous substances Natural material alternatives 	<ul style="list-style-type: none"> Reduction of GHG emissions Reduction of plastic waste Reduction of environmentally hazardous substances emissions Green space conservation Cultivation of biotopes

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In addition, the relevance of the Group’s businesses and products was evaluated based on factors such as sales, revenue, and costs. As a result of this process, the Group comprehensively identified the following as high-priority initiative areas: reducing environmentally burdensome substance use, improving water-use efficiency, reducing GHG emissions, promoting a circular economy, reducing and optimizing the use of natural resources, and conserving nature and ecosystems. The opportunities and risks for these initiative areas were then listed (see Figure 6). These priority areas align with the recommendations for items to be considered set out in TNFD’s additional guidance for the chemical sector to which Toray Group belongs.

The priority initiative areas of GHG emissions reduction and circular economy promotion correspond to Toray’s Sustainability Vision goals of achieving a “net zero emissions world, where greenhouse gas emissions are completely offset by absorption (carbon neutrality)” and a “world where resources are sustainably managed (circular economy).” Integrating such initiatives into the Group’s activities aligns with Toray’s long-term strategy of helping to reduce the environmental impact across society through its business while mitigating environmental impacts for its own activities, thereby advancing realization of the world described in the Sustainability Vision.

Figure 6: Comprehensively High Priority Initiative Areas for Toray Group

Initiative Area	Contribution Through SI Business Expansion (Opportunities)	Risk Reduction for Toray Group Activities (Risks)
Reducing Environmentally Burdensome Substance Use	Expansion of water treatment membrane business Business expansion for low environmental impact products (environmentally friendly printing) OPP 1 Commercialization of gas separation membranes	Reduction of air and water pollutants Reduction of environmentally hazardous substance use RISK 1 Reduction of industrial waste (including plastic waste) Reduction of environmental spill accidents and disasters
Improving Water-Use Efficiency	Expansion of water treatment membrane business OPP 2	Reduction of industrial water use RISK 2
Reducing GHG Emissions (Carbon neutral initiatives)	Expansion of energy-saving related business OPP 3 Expansion of new energy related business (hydrogen and batteries) Expansion of renewable energy related business (wind turbines)	Thorough energy conservation RISK 3 Innovation in the process of switching to renewable electricity and zero-emission fuel
Promoting a Circular Economy (Circular economy initiatives)	Promotion of recycling Improved efficiency of biomass use OPP 4 Utilization of captured CO2	Reduction of plastic waste RISK 4
Reducing and Optimizing the Use of Natural Resources	–	Efficiency improvement for biomass resource utilization Reduction of natural raw materials use
Conserving Nature and Ecosystems	Expansion of natural material alternatives TOREFARM products and wildlife exclusion netting, etc.	Green space conservation and biotopes RISK 5

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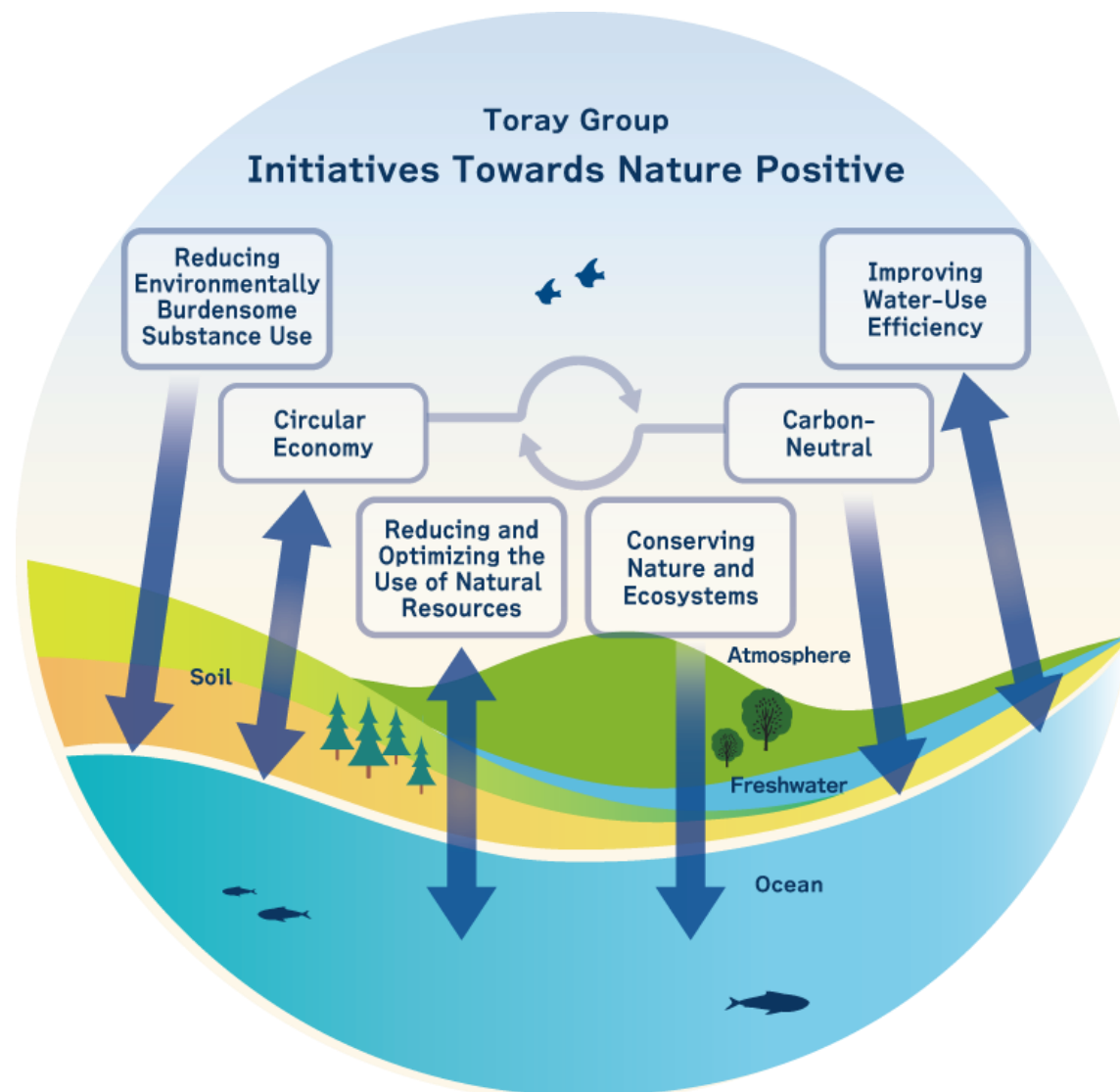
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Figure 7: Toray Group Initiatives to Achieve Nature Positivity

B. Approach Centered on High-Priority Initiatives

Toray Group is advancing the high-priority initiative areas identified in subsection A to achieve nature positivity and “a world with a restored natural environment, with clean water and air for everyone” as set out in its Sustainability Vision (see Figure 7).

Efforts toward carbon neutrality achievement, focused on climate change mitigation, may directly or indirectly create trade-offs that negatively impact biodiversity and natural capital. On the other hand, initiatives promoting a circular economy often minimize waste and reduce the need for newly extracted natural capital, generating positive effects or synergies that contribute to the recovery of biodiversity and natural capital. Toray Group aims to clarify the interactions between biodiversity, natural capital, carbon neutrality, and the circular economy. By pursuing integrated, unified initiatives, the Group seeks to avoid trade-offs and generate synergies that advance both environmental and business goals.



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(3) Identification of Priority Locations Through Risk Analysis and a Site Survey

As part of its strategy to achieve a nature-positive future, Toray Group recently conducted a risk analysis and a survey of its sites in high-risk regions to identify locations of priority where its operations have relatively high dependencies and impacts related to biodiversity and natural capital, as well as those that present significant opportunities and risks. The analysis and survey focused on drought, flooding and pollution risks as the targets of the Group's high-priority initiatives of improving water-use efficiency and reducing environmentally burdensome substance use.

A. Analysis Scope

Since Toray Group's businesses are primarily involved in transactions with other companies, the scope of analysis included both directly managed operations and the upstream value chain. For direct operations, the analysis covered Toray Group production sites and offices, totaling 423 locations. In the value chain, the analysis focused on 27 key raw materials with significant impact on Toray's businesses, of which ordering and inventory management are handled by the Purchasing & Logistics Division of Toray Industries, Inc., covering 67 production sites of business partners that supply Toray's plants in Japan (see Figure 8).

Figure 8: Numbers of Directly Operated and Value Chain Sites Analyzed

Type	Toray Industries, Inc	Group companies in Japan	Group companies outside Japan	Toray Group Total
Direct Operations	22 (14)	257 (46)	144 (64)	423 (124)
Value Chain	67 (67)	—	—	67 (67)

Figures in parentheses () indicate the number of production sites

B. Analysis Tools

To examine water risks, Toray used the digital [Aqueduct](#) platform, provided by the World Resources Institute (WRI), to identify risks related to drought and flooding. For pollution risks, the Group utilized the online [WWF Biodiversity Risk Filter \(BRF\)](#) to identify risks related to biodiversity.



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C. Analysis Results and Site Survey

As a result of the risk analysis outlined below, it was confirmed that 45 out of the 423 surveyed sites are located in high-risk regions. Based on this, detailed interviews were conducted with all directly operated sites located in the high-risk areas to investigate the current situation and mitigation measures in place. The findings from the site survey generally indicated that there are no major issues with the business operations.

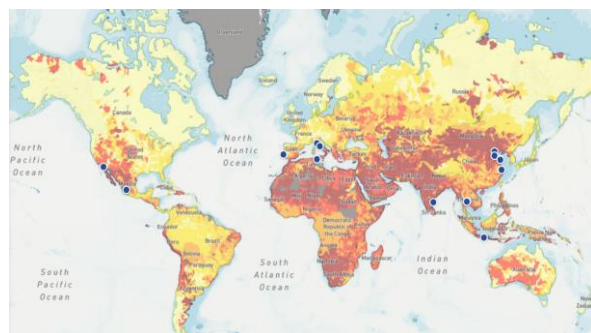
① Drought Risk

Regions with Group-related production sites and a rating of “extremely high” on Aqueduct’s five-level scale were identified as having a high risk of drought as shown below (see Figure 9).

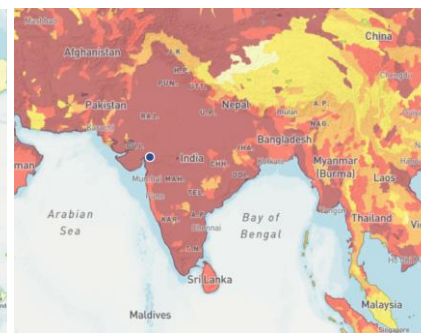
Figure 9: Results of Drought Risk Analysis

Type	High-risk Regions	Number of Sites (Total)	Percentage of All Sites Surveyed
Direct Operations	China, India, Indonesia, Italy, Mexico, Portugal, Thailand, Tunisia, United States	19	15%
Value Chain	India	1	1%

Drought Risk Direct Operations



Drought Risk Value Chain



Source: Aqueduct



Detailed interviews were conducted with all 19 directly operated sites located in high drought risk regions, and information on current conditions and risk mitigation measures was gathered.

• Production Site in India :

A Group production site in India was already aware of its drought risk, and has been reducing it by recycling 100% of plant wastewater and using it as non-potable water.

• 18 Other Sites :

It was confirmed that there are currently no immediate or potential risks at any of the Group’s 18 other sites in drought-prone regions. Among these, two sites in Thailand, two sites in Mexico, and one site in Italy have implemented the following measures.

Production sites in Thailand and Mexico : These four sites have installed backup systems such as those for the reuse of plant wastewater or the use of reservoirs.

Production site in Italy : This site uses a pipeline to draw water from a river that flows reliably year round.

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② Flood Risk

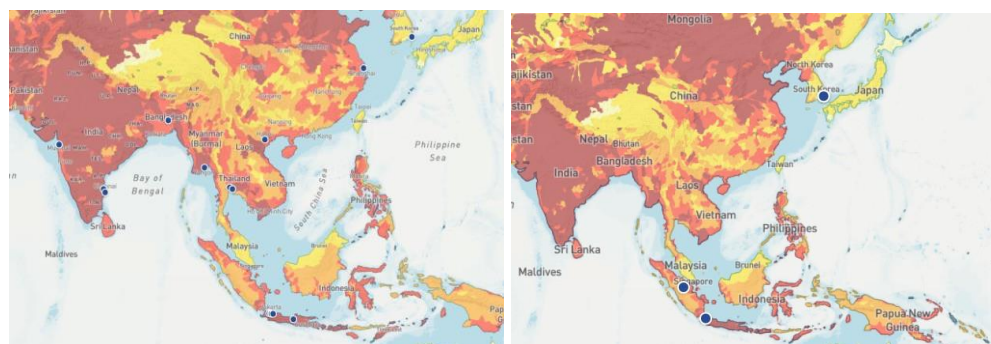
Regions with Group-related production and office sites and a rating of “extremely high” on Aqueduct’s five-level scale were identified as having a high risk of flooding as shown below (see Figure 10).

Figure 10: Results of Flood Risk Analysis

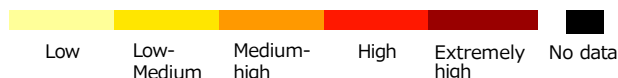
Type	High-risk Regions	Number of Sites (Total)	Percentage of All Sites Surveyed
Direct Operations	Bangladesh, China, India, Indonesia, Myanmar, South Korea, Thailand, Vietnam	29	7%
Value Chain	Indonesia, South Korea	4	6%

Flood Risk Direct Operations

Flood Risk Value Chain



Source: Aqueduct



Detailed interviews were conducted with all 29 directly operated sites located in high flood risk regions, and information on current conditions and risk mitigation measures was gathered.

• Seven Flood-Resilient Sites :

Of the 29 sites checked, seven sites had already recognized their flooding risks. The following measures were in place to reduce flood risk at one site in Vietnam, one site in South Korea, and five sites in Thailand.

Vietnam Office : This office ensures adherence to safety management guidelines to protect employees in the event of a flood disaster.

Production Site in South Korea : Repair work is being carried out on the aging plant building as a measure to prevent water inflow during a flood event. At the same time, measures to reduce flood risk are being planned. Long-term plans also include the possibility of relocating the factory.

Production Sites in Thailand : To minimize any potential impact on business, the following measures have been implemented to prepare for flood events.

- Installed drainage pumps with a flow rate of 5,000 m³/hour or higher, with monthly inspections
- Stockpiled sandbags and trained employees on the correct method for placing and stacking them
- Continuously monitoring real-time water levels using a Thai governmental website
- Adopted a manual outlining response measures based on water level changes, and trained all relevant staff on its use
- Providing refresher training on these measures once a year and reviewing them regularly
- Regularly clearing drainage channels

• Two Production Sites in Indonesia :

Two Group production sites in Indonesia are deemed to be at a moderate risk. However, due to their location at an elevation of over 20 meters above sea level and the relatively low frequency of flooding, no specific measures have been implemented.

• Remaining 20 Sites :

Currently, no immediate or potential risks have been identified for the 20 remaining sites. Of these, one production site in India is located 35 meters above sea level, and is also built on an elevated foundation.

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③Pollution Risk

Regions with Group-related production sites and a BRF pollution score above 4.5 were identified as high pollution risk areas as shown below (see Figure 11).

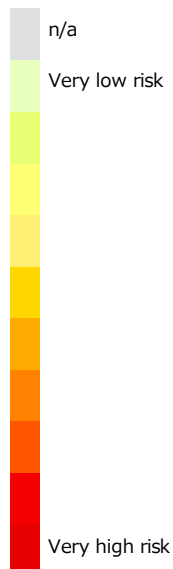
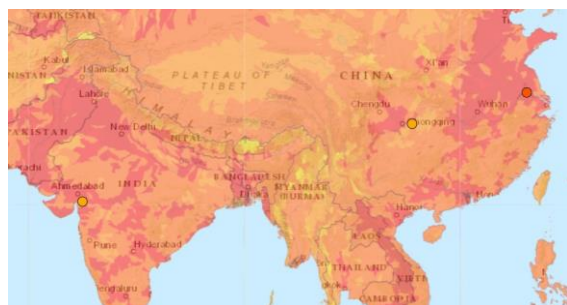
Figure 11: Results of Pollution Risk Analysis

Type	High-risk Regions	Number of Sites (Total)	Percentage of All Sites Surveyed
Direct Operations	China	2	2%
Value Chain	China, India	3	4%

Pollution Risk Direct Operations



Pollution Risk Value Chain



Source : BRF

Detailed interviews were conducted with the two directly operated sites located in those areas, and information on current conditions and risk mitigation measures was gathered.

• Site 1 :

Currently, no immediate or potential risks have been identified. Through technology adoption and process management, the risk of pollution from the site’s exhaust emissions has been reduced to an acceptable level.

• Site 2 :

The plant is currently under construction and is scheduled to begin commercial production in July 2025. The site will primarily produce food-grade aromatic chemicals and the planned equipment and operations will strictly comply with relevant environmental regulations.

(4) Future Initiatives

Through the recent analyses, relevant high-risk regions for water and pollution risks were identified. However, the site survey that followed revealed that no immediate or potential risks exist at the Group’s directly operated sites in these regions of concern, or that appropriate risk reduction measures have been implemented. As a result, the Group concluded that there are no directly operated sites that should be designated as priority locations for management. Going forward, the following actions will be taken.

- Additional confirmation of potential flood risks at two Indonesian sites (including a review of actual flood risks and the necessity of mitigation measures).
- Identification of priority locations in the value chain through a survey of supplier sites located in high-risk regions.

In addition to water and pollution risks, the Group will investigate and analyze risks related to biodiversity and natural capital, and develop strategies to address these challenges.

II. Disclosure Based on TNFD Recommendations

4. Metrics and Targets

Toray Group has established nature-related metrics and targets as shown in Figure 12. As a result of the analysis conducted in fiscal 2024, the following six items have been confirmed to be highly important for the Group from the perspective of nature-related dependencies and impacts, as well as opportunities and risks. For the analysis results and strategies related to nature-related dependencies and impacts, opportunities and risks, please refer to part II. section 3. (Strategy) in this report.

Toray Group manages nature-related dependencies and impacts, opportunities and risks using the following metrics and targets set in the Sustainability Vision and CSR Roadmap 2025, and strategically promotes efforts toward achieving these goals across the entire Group.

Figure 12: Nature-Related Indicators, Targets, and Achievements

Initiative Area	Metric		FY2013 Result (base year)	Target		FY2023 Result
				Fiscal Year	Target Value	
Reducing Environmentally Burdensome Substance Use	Reduction of VOC atmospheric emissions		—	2025	72% or more compared to FY2000	72.5%
Improving Water-Use Efficiency	Water filtration throughput contribution by Toray's water treatment membranes *1		27.23 million tons/day	2030	3.5-fold	2.7-fold
	Water usage in production activities	Per unit of revenue across the Toray Group	14,693 tons/100 million yen		50% or more reduction	35% reduction *2
Reducing GHG Emissions	CO ₂ emissions avoided in value chain *3		40 million tons	2030	25-fold	10.3-fold
	Greenhouse gas emissions in production activities *4	Per unit of revenue across the Toray Group *5	356 tons/100 million yen		50% or more reduction	36% reduction *2
		Greenhouse gas emissions of Toray Group in Japan *5,6	2.45 million tons		40% or more reduction	26% reduction *2
	Increase in solar power generation capacity		—	2025	10% increase compared to FY2022	101% increase
	Year-on-year reduction in logistics CO ₂ emissions per unit		—		an annual reduction of 1%	12% reduction
Promoting a Circular Economy	Waste recycling rate in manufacturing processes *7		—	2025	87% or more	87%
Reducing and Optimizing the Use of Natural Resources			—			
Conserving Nature and Ecosystems	Oil procurement needs met by palm oil sourced in a manner that is environmentally responsible and respectful of human rights		—	2025	90%	— *8

- *1 Annual additional water treatment volume generated using water treatment membranes. Calculated by multiplying the daily treated water production capacity of each membrane (RO/UF/MBR) by the number of units sold.
- *2 The value for the base year, fiscal 2013, was calculated including companies that joined Toray Group in fiscal 2014 or later.
- *3 Toray independently calculated lifecycle CO₂ emissions reduction effect throughout a product's value chain in accordance with chemical sector guidelines from the Japan Chemical Industry Association, the International Council of Chemical Associations (ICCA), and the World Business Council for Sustainable Development (WBCSD).
- *4 In line with the growing share of zero-emission power sources such as renewable energy in the power mix of countries worldwide, Toray aims to adopt an equivalent or higher proportion of zero-emission power by fiscal 2030.
- *5 In accordance with the GHG Protocol, which is the international standard for emissions-related calculations, Toray uses the operational control approach for emissions calculation for its affiliated companies.
- *6 Toray aims to achieve reductions exceeding the industrial sector's allocation (a 38% reduction in absolute terms) as outlined in the Japanese government's comprehensive plan under the Act on Promotion of Global Warming Countermeasures (Cabinet decision on October 22, 2021).
- *7 The waste recycling rate is calculated as (recycled materials + valuable materials) / (total waste + valuable materials).
- *8 There was no specific value for fiscal 2023, as Toray was working toward a group-wide target value (70%) for both fiscal 2023 and 2024 as a short-term goal. The current plan is to survey the Group's major suppliers of oils containing palm oil (targeting suppliers that accounted for more than 90% of relevant purchases in fiscal 2023).

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Through its Sustainability Innovation (SI) Business, Toray Group is advancing initiatives to help reduce the environmental impact of society. The following sections provide information on the Group’s initiatives in four areas: 1) reducing environmentally burdensome substance use, 2) improving water use efficiency, 3) reducing GHG emissions, and 4) promoting a circular economy. The Group’s analysis of its nature-related dependencies and impacts, opportunities and risks revealed these areas to be highly important.

Based on its strategy for addressing nature-related issues, the Group is advancing its activities to help effectively reduce society’s overall environmental impact, while creating synergies between nature-positive, carbon-neutral, and circular economy initiatives.

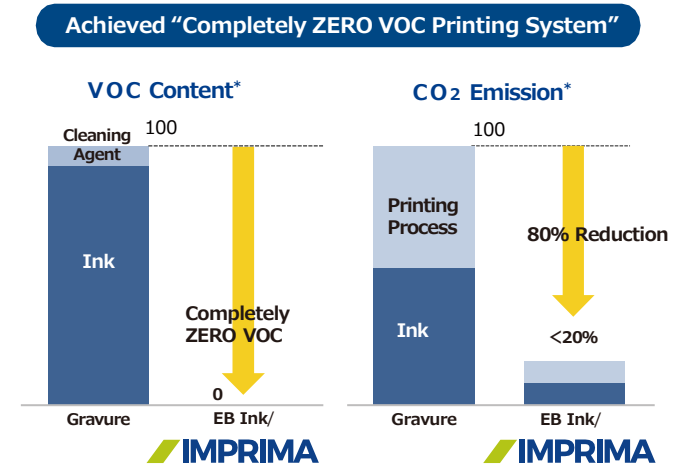
(1) Reducing Environmentally Burdensome Substance Use OPP 1

Toray Group is working on the development of technologies and products to help reduce the environmental impact of chemicals.

Development of a VOC-Free Printing System

The Group is co-developing a VOC-free waterless version of the gravure printing method widely used in Asia and elsewhere to print flexible packaging. The new system will enable the complete elimination of volatile organic compound (VOC) emissions, which has been a challenge in gravure printing. By using energy-saving LED-UV technology to dry the applied ink, the usual need for solvent drying and treatment of exhaust fumes is eliminated. This also reduces electricity consumption to less than one-sixth of previous levels and cuts CO₂ emissions associated with electricity use by 80% (see Figure 13).

Figure 13: VOC and CO₂ Emissions Reduction with Toray’s VOC-free Printing System



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(2) Improving Water-Use Efficiency OPP 2

Toray Group aims to help solve global water resource issues through membrane treatment technology. This includes expanding the Group's worldwide sales, production, and technical support for reverse osmosis (RO) membranes, as well as nanofiltration (NF), ultrafiltration (UF), and microfiltration (MF) membranes, which are used in seawater desalination, wastewater reuse, and industrial applications.

Seawater Desalination to Support Agriculture

Campo De Dalías in the Spanish province of Almería, is an agricultural region known for intensive agriculture applying the advanced farming techniques. Approximately 75% of the crops produced in this area are exported to supply nearly half of the demand in Europe. The region's economy has rapidly developed due to its thriving tourism industry, and there has been a sharp increase in water demand for irrigation, tourism, and local residents. As a result, excessive use of groundwater has led to its depletion, and seawater intrusion into the aquifer, threatening the water supply for all stakeholders.

To minimize groundwater use and secure alternative water sources, a seawater desalination plant has been established, equipped with Toray RO membranes. The plant desalinates 100,000 cubic meters of water every day, providing water for the daily needs of 300,000 people and irrigation for 8,000 hectares of farmland. Since it began operation in 2016, the RO membranes have not needed replacement and have been operating efficiently. Not only does the facility meet a range of needs as an alternative water source, but it also helps replenish groundwater resources.



Campo De Dalías Seawater Desalination Plant



Pharmez MBR Tank

Ultra-Efficient Wastewater Treatment in an Indian Economic Zone

In the Pharmez Special Economic Zone (SEZ), an industrial complex outside Ahmedabad, Gujarat, India, wastewater from 12 pharmaceutical sites had been collected and treated using a membrane bioreactor (MBR) process. However, due to repeated operational issues, an increasing demand for treated water, and the need to comply with environmental policies, there was a push to explore options for high-efficiency wastewater volume reduction. As a result, an integrated membrane system (IMS) was adopted, featuring Toray's RO and NF membranes and MBR module technology.

The daily treatment capacity of the new MBR system, capable of continuous stable operation, is 4,500 cubic meters, and when combined with original MBR treatment equipment, the processing capacity has increased sevenfold. Furthermore, the Toray MBR modules have resulted in simplified maintenance, energy savings, and minimized equipment installation area. Moreover, the water recovery rate of the high-recovery RO/NF system has reached a total of 97.1%. Since the new system began its stable operation in 2018, there have been no operational issues, and no membrane or module replacements have been necessary.

Wastewater Reuse with Low-Fouling, High-Durability RO Membranes in Thailand

Over 500 factories and 1,100 manufacturers are located in the Amata City Chonburi Industrial Estate of Chonburi Province and in the Amata City Rayong Industrial Estate of Rayong Province in Thailand. Naturally, these businesses and surrounding communities need to have a reliable water supply.

Industrial wastewater contains organic and inorganic components, which makes fouling an issue for water reuse systems. To resolve this issue, these two industrial zones have adopted Toray's low-fouling, high-durability RO membranes. Since the water treatment plant began operation in 2015, it has operated with reliability and no membrane or module replacements have been required. This low replacement rate has made it one of the most successful wastewater reuse facilities in Thailand.

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(3) Reducing GHG Emissions OPP 3

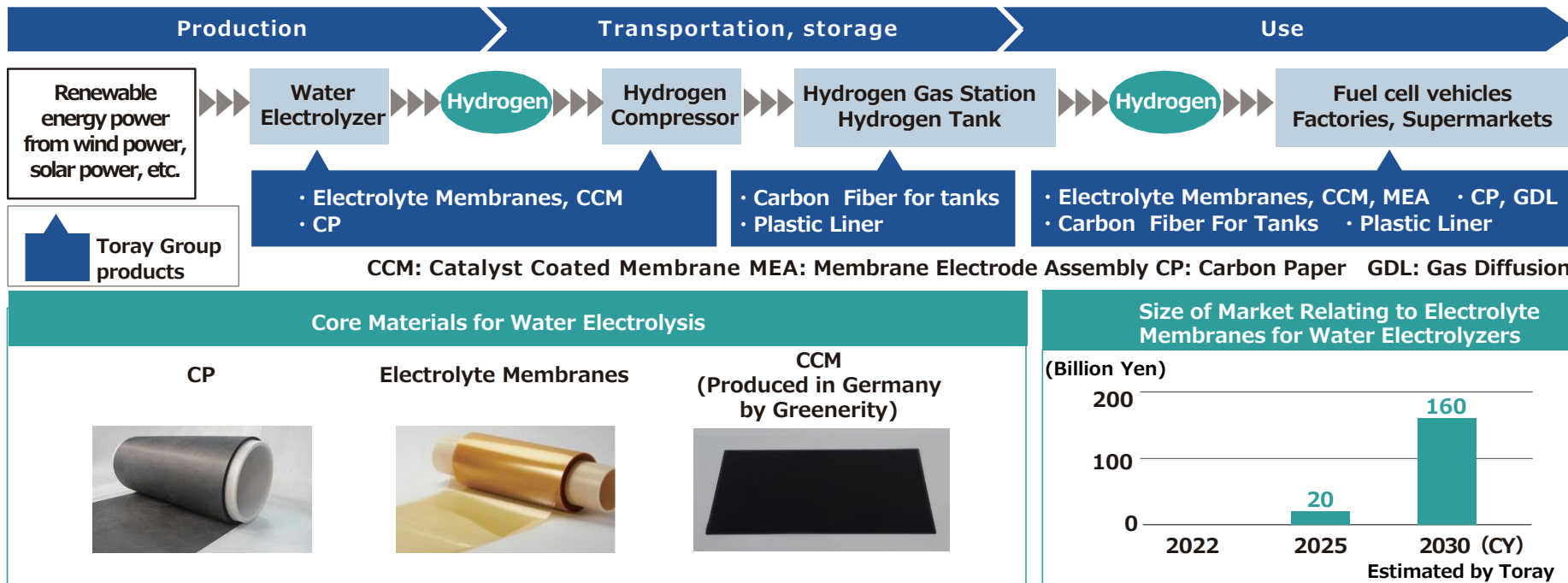
By expanding the supply of technologies and products related to renewable energy, energy-saving, hydrogen, electric mobility, CO₂ separation and capture, etc., Toray Group is helping to reduce GHG emissions within the value chain.

Hydrogen and Fuel Cell-Related Business

The Group has positioned hydrogen and fuel cell materials as a key area for future growth. Accordingly, it develops and manufactures a wide range of core materials across all related areas, from hydrogen production to transportation, storage, and utilization (see Figure 14).

For more details, see the [Toray Group TCFD Report Ver. 2.1](#).

Figure 14: Toray's Hydrogen/Fuel Cell-Related Products and the Potential Market Size for Electrolyte Membranes for Water Electrolyzers



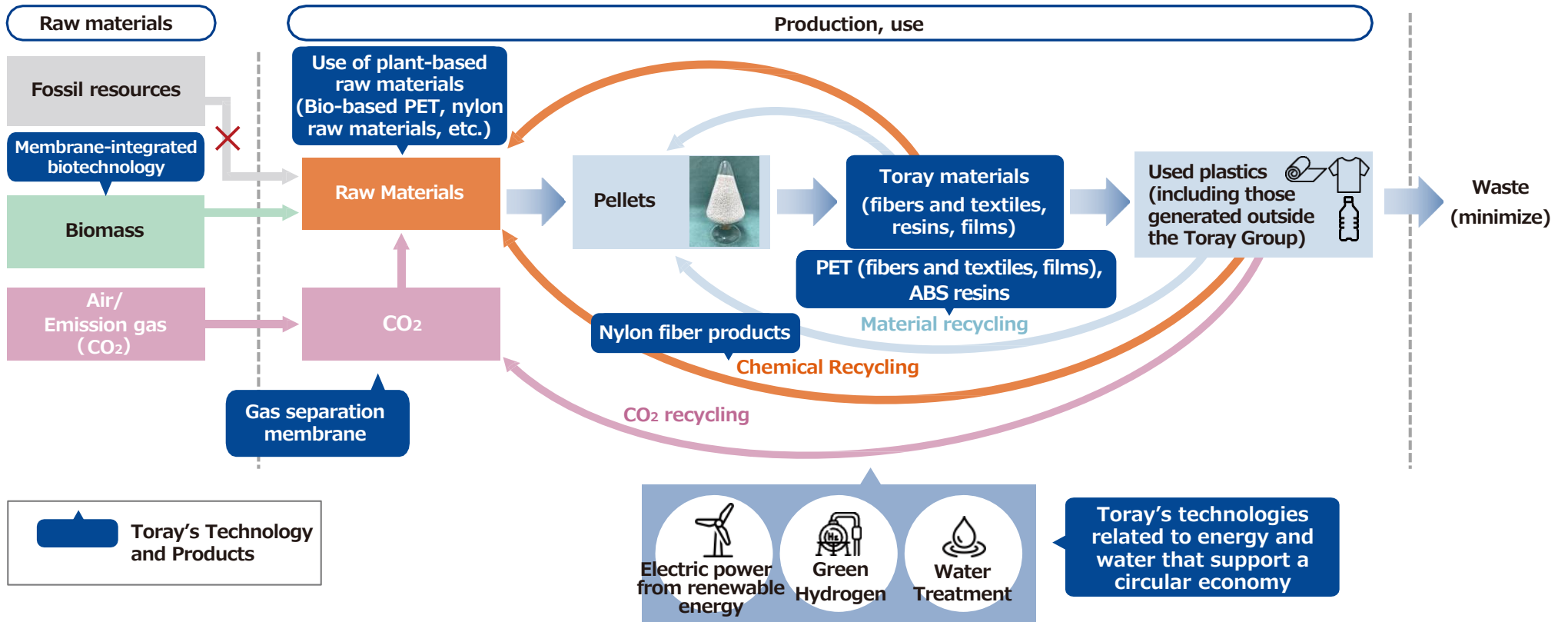
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(4) Promoting a Circular Economy OPP 4

In addition to the recycling of plastic products and the use of biomass-based raw materials, the Group is helping to achieve a sustainable circular economy by enabling more effective resource utilization. It is promoting this through various technologies such as those to support renewable energy, hydrogen transition, and water reuse.

Figure 15: Toray Efforts to Help Realize a Circular Economy



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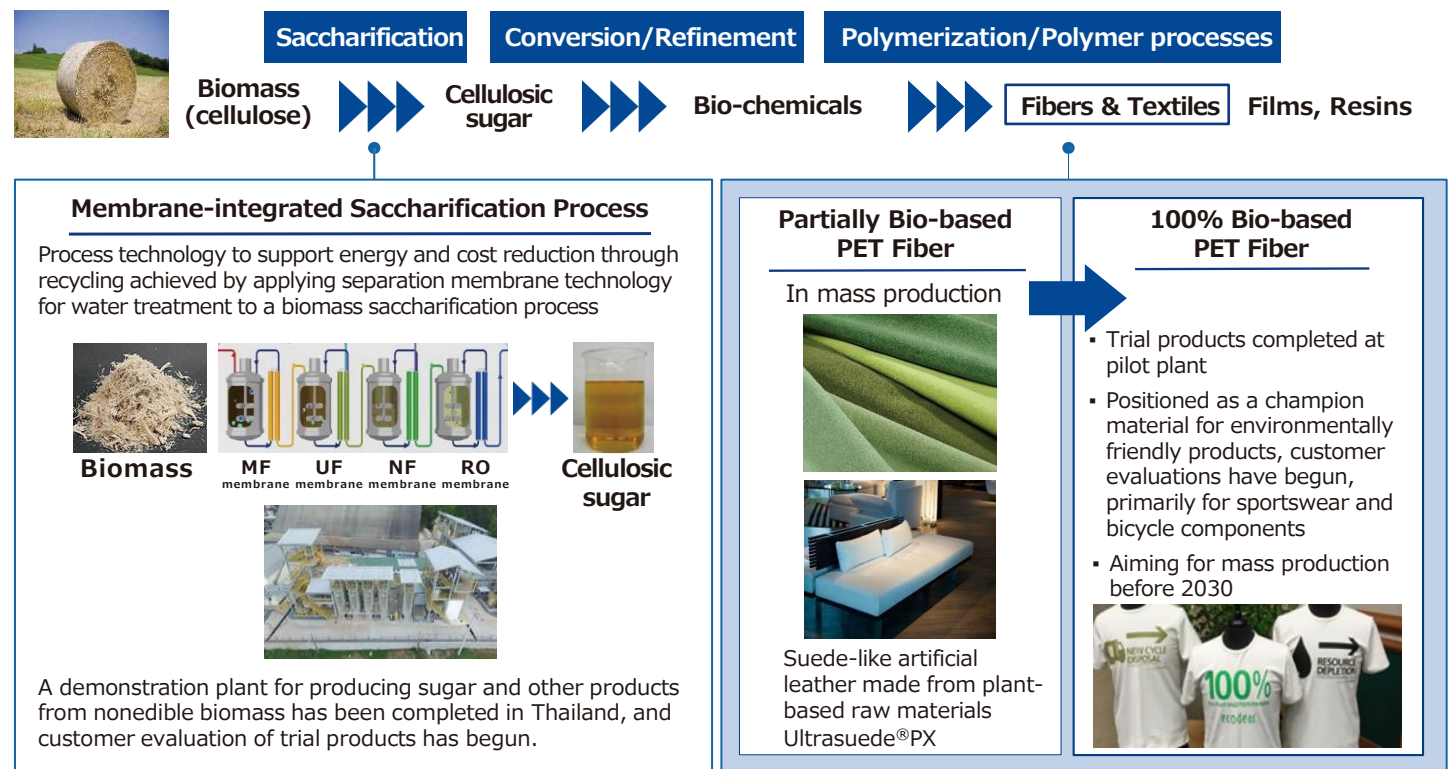
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Development of a Membrane-Integrated Bioprocess

Toray Group is advancing the development of a membrane-integrated bioprocess to enable biomass-based raw materials to be manufactured with greater efficiency. This technology significantly enhances the production of raw sugars from nonedible biomass and improves fermentation efficiency, thereby contributing to biomaterial production from biomass-based raw materials. Currently, the Group is operating a technology demonstration project for a saccharification process that produces sugars from nonedible biomass. Through the commercialization of this process, the Group aims to establish a supply chain for producing materials and chemicals from nonedible biomass. Toray sees the new process as a way to promote waste reduction and upcycling by utilizing otherwise discarded nonedible biomass.

For more details, visit the Toray website page, "[Realizing a Circular Economy.](#)"

Figure 16: Development Process for Toray's Biomass-based Materials and Progress



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Toray Group is actively promoting initiatives to reduce the environmental impact of its production activities. The following sections provide information on the Group's initiatives in four areas: 1) reducing environmentally burdensome substance use, 2) improving water-use efficiency, 3) reducing GHG emissions, and 4) promoting a circular economy — areas identified to be highly important through the Group's analysis of its nature-related dependencies and impacts, opportunities and risks.

(1) Reducing Environmentally Burdensome Substance Use RISK 1

One of Toray's [Ten Basic Environmental Rules](#) is to achieve zero emissions of environmental pollutants. Accordingly, the Group is promoting initiatives aimed at preventing any emissions of harmful chemical substances into the environment as the ultimate goal.

Reducing Environmental Impact Throughout Product Life Cycles

Prior to introducing new products to the market, including those still under development, Toray Group conducts environmental assessments, covering everything from raw material procurement to product recycling and disposal. Internal experts also carry out product safety reviews. To minimize each product's impact on nature, prohibited chemicals and substances of concern such as Substances of Very High Concern (SVHCs) under the EU's REACH Regulation are properly managed starting in the product design stage.

Initiatives at Plants

Toray Group plants are implementing the following measures.

- Reducing sulfur and nitrogen oxides emissions found in flue gas by downsizing coal-fired boilers
- Decreasing atmospheric emissions of [PRTR-regulated](#) substances by enhancing recovery systems
- Continuing efforts to reduce wastewater and the environmentally hazardous substances it may contain by employing RO membranes to treat and reuse factory wastewater and by engaging in water conservation activities

Initiative Example : At Toray Industries, Inc.'s Ehime Plant, wastewater is treated using activated sludge to render it safe before discharge. As a new environmental initiative, the plant launched a Blooming Flowers Project in 2023, using surplus sludge and treated water from the wastewater system to grow flowers. Since any residual antibacterial agents or detergents in poorly treated wastewater could potentially harm flowers, the flower garden serves as a visual indicator of the safety of the plant's treated wastewater, thereby enhancing water quality management. Moreover, this utilization of surplus sludge has helped reduce the plant's industrial waste by approximately three tons annually.



Wastewater treatment using the activated sludge method

Audits and Education to Strengthen Environmental Management

To enhance the group-wide system for managing environmentally hazardous substances, the following initiatives have been implemented.

- Self audits by executives and the Environment & Safety Department to improve environmental management at each production site
- Regular wastewater management information exchange meetings for wastewater management staff at Toray Industries, Inc. and its affiliated companies in Japan, as well as expert-led guidance sessions on wastewater management for affiliates worldwide

(2) Improving Water-Use Efficiency RISK 2

Toray Group has comprehensive knowledge of local regulations pertaining to wastewater from its plants, and verifies important water quality metrics such as chemical oxygen demand (COD) before discharging any wastewater into public water bodies.

As a specific example of these efforts, Toray Sakai Weaving & Dyeing (Nantong) Co., Ltd., located in Nantong, China, recycles all water used for its looms. Moreover, wastewater from its dyeing process, approximately 1,300 tons per day, is purified using Toray RO membrane water treatment technology before being discharged. Similar measures are in place at plants of other affiliated companies outside Japan. This includes the recycling of wastewater and cooling water, and the reduced use of external water supplies.

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(3) Reducing GHG Emissions RISK 3

As a milestone toward achieving the [Sustainability Vision](#), by 2030 Toray Group is aiming for a 50% reduction in its Scope 1 and 2 GHG emissions per unit of revenue compared to fiscal 2013. To achieve this, the group-wide Challenge 50+ Project has been launched.



New power reception and transformation equipment enabling grid power purchasing



New gas boilers to enable transition to cleaner fuel

Main initiatives under the Challenge 50+ Project

- Thorough implementation of energy conservation activities both in Japan and overseas, and promoting synergy effects by enhancing cooperation between regions
- Reduction and elimination of coal use
Example : Through fuel conversion and switching to purchased electricity, two Indonesian subsidiaries stopped using coal as fuel.
- Adoption of renewable energy
Example 1 : Adoption of renewable energy equipment
The Group has been expanding the installation of renewable energy equipment at Toray Industries, Inc. and its affiliates worldwide. In fiscal 2023, additional equipment was installed at the company's Shiga site. Overseas, new equipment was installed and began operating at nine locations in China and one in India.
Example 2 : Adoption of carbon-free power sources
Toray Industries, Inc.'s Tokyo headquarters began using 100% renewable electricity in April 2022 (thereby reducing associated emissions by 1,500 tons of CO₂ per year)

For more information, please see the [Toray Group TCFD Report Ver. 2.1](#).

(4) Promoting a Circular Economy RISK 4

Under its [Ten Basic Environmental Rules](#), Toray Group is striving to continuously reduce its waste output, ultimately aiming for zero emissions of waste materials into the environment.

Recycling Promotion Initiatives

- Investigating and promoting various recycling methods by cooperating with partners in the supply chain. These include plastic (PET) beverage bottle recycling, the recycling of discarded fishing nets, and validation of chemical recycling technology for Nylon 6 resin used in automotive parts.
- Promoting the reuse of recovered PET film raw materials for applications in films, fibers, and resins, while also expanding the sales of products with a higher content of recycled polypropylene
- Meetings held to share information on waste disposal and recycling companies among Toray Industries, Inc. and its affiliates in Japan, thereby promoting improvements in their pre-consumer recycling rates,* such as introducing charges for carbon fiber scraps

* Recycling and reusing materials generated during the manufacturing process before products are released to the market.

For more details, visit the Toray website page, "[Realizing a Circular Economy](#)."

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Toray Group is engaged in diverse business activities worldwide, sourcing raw materials and supplies from a wide range of industries and locations. By collaborating with suppliers and subcontractors across the supply chain, it strives to minimize any negative impacts of its business activities on biodiversity and natural capital.

In addition to ensuring quality and stable supply, the [Toray Group CSR Procurement Policies](#) outline a commitment to achieving a supply chain that is ethical, environmentally conscious, socially responsible, and that respects human rights. For implementing these policies, the [Toray Group CSR Procurement Guidelines](#) provide concrete and detailed guidance. In order to further promote CSR throughout the supply chain, the Group asks suppliers to follow these guidelines, and it regularly monitors and assesses their compliance efforts. The Guidelines also include nature-related objectives, such as striving for raw materials procurement that takes biodiversity into account, while preserving biodiversity and striving for its sustainable use.

The Toray Group CSR Procurement Policies and Procurement Guidelines are regularly reviewed to ensure they keep pace with evolving social conditions and environmental changes.

(1) Initiatives for Raw Material Procurement

Management of Environmentally Hazardous Substances

RISK 1

To help protect human health and the global environment by ensuring the proper management and reduced use of environmentally hazardous substances across the supply chain, the Toray Group CSR Procurement Policies emphasize a commitment to managing these substances responsibly and procuring raw materials with environmental impact in mind.

The Toray Group CSR Procurement Guidelines stipulate measures to ensure that products do not contain substances prohibited by relevant laws and regulations worldwide. Specifically, the Toray Green Procurement Guidelines outline prohibited and managed substances in compliance with regulations such as Japan's Act on the Regulation of Manufacture and Evaluation of Chemical Substances, its Industrial Safety and Health Act, and the EU's RoHS Directive. Additionally, each business area identifies and manages relevant substances based on the laws and regulations concerned.

Procurement of Sustainable Palm Oil

RISK 5

As part of efforts to help conserve biodiversity, Toray Group regularly surveys its use of biomass-based raw materials in product manufacturing. It also mandates that the potential impacts of such materials on biodiversity and natural capital be checked during the development process for all products.

In particular, the Group has designated palm oil as a priority raw material for monitoring. Since fiscal 2020, Toray has been surveying applicable suppliers to determine whether they use certified palm oil and whether a switch to sustainable oil is feasible. The Group will continue to promote the use of palm oil that is produced in ways that support environmental conservation and respect for human rights.

(2) Logistics Initiatives

Promoting the Recovery and Reuse of Packaging Materials

OPP 4

RISK 4

As part of efforts to create a circular economy, Toray Group is developing a global system to recover and reuse packaging materials left behind after customers unpack its products.

In fiscal 2023, Toray Industries, Inc. generated a total of 590 million yen from the recovery of packaging materials, a decrease of 60 million yen (9.2%) compared to the previous fiscal year.*

Furthermore, the company is working to reduce new purchasing by sharing information internally about the inventory packaging material in the recovery process, such as temporary stock at collection centers.

* The amount of material recovered has also declined due to reduced shipments of fibers and films.

For more information, visit the Toray website pages, "[Establishing Sustainable Supply Chain](#)" and "[Toray Group Distribution Initiatives](#)."

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Toray Group believes that the foundation of its business activities lies in contributing to society through core businesses and building relationships of trust with local communities.

The Group prioritizes the environment and local communities as key areas for community engagement. Toray's SI Business seeks to address global environmental and resource/energy challenges. By leveraging the specialized technologies and human resources developed through this business, the Group promotes ongoing environmental conservation activities as well as educational programs for students. To drive positive societal change, the Group carries out these initiatives in collaboration with diverse stakeholders, including local community organizations and NGOs.

(1) Greening and Conservation Activities on Company Premises

RISK5

Toray Industries, Inc., and its affiliates in Japan develop and implement greening and conservation policies and plans for their business sites and factories based on the [Toray Group Basic Policy for Increasing Green Areas](#).^{*1} These efforts aim to preserve the natural forests^{*2} that have been nurtured since the start of operations.

Under the guidance of the late Akira Miyawaki, professor emeritus at Yokohama National University and renowned plant ecologist, Toray Industries, Inc. has been promoting an initiative to create forests on its manufacturing sites. This initiative involves collecting acorns from nearby shrines and forests to cultivate saplings for planting. The aim is to help grow forests that preserve the genetic characteristics of local ecosystems.

In 1973, this activity began at the Mishima Plant when approximately 4,000 employees collected acorns from Mishima Taisha Shrine and Mount Hakone. Over the past 50 years, these efforts have created an environmental conservation belt surrounding the plant. The native trees grown from these acorns, including Japanese bay tree, camphor, and bamboo-leaf oak, now cover an area of approximately 10,000 square meters.

Toray Industries, Inc. has implemented similar greening activities using the same shrine forest method^{*3} at 12 sites altogether, including the Mishima Plant, and the Basic Research Center, achieving green areas totaling approximately 200,000 square meters. These efforts reflect the company's commitment to environmental conservation.

*1 Established in 2012, evolving out of greening policies that were first established in 1973

*2 Includes forestation made up of species historically common in the area as well as indigenous forests

*3 Shrine forest method: a greening method using native trees sampled at local Shinto shrine forests to cultivate green spaces similar to local natural forests



Mishima Plant of Toray Industries, Inc. shortly after the initial tree planting (1973)



Mishima Plant current state (photo taken in 2023)

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Nature Symbiosis Site Certification

Created through coordinated efforts by 12 companies, including Toray Industries, Inc. (Tokai Plant), the Chita Peninsula Greenbelt was officially recognized in October 2023 as one of Japan's first "[nature symbiosis sites](#)" by the Ministry of the Environment. This designation aims to help realize the government's nature positive goals by recognizing areas where biodiversity conservation is being promoted through private sector initiatives. The recent recognition acknowledges the efforts of these companies to not only maintain and manage their green spaces, but also to collaborate with local governments, university students, experts, and NPOs. Other recognized efforts include the continuous development of waterfront biotopes and wildlife mounds, and other initiatives that contribute to improving biodiversity in the surrounding regions.

The Inochi-wo-Tsunagu Project, led by the Chita Peninsula Ecological Network Council, promotes nature symbiosis and biodiversity conservation activities. The project promotes collaboration between local students, companies, government bodies, and experts. It allows corporate green spaces to be used by students as field research sites and focuses on human resource development through the use of green areas. As part of project events for the public to explore corporate green spaces, the Tokai Plant showcased its biodiversity initiatives and enabled visitors to experience fieldwork activities, such as observing aquatic life in a water biotope.

External Recognition

As a result of its greening efforts, the Tokai Plant of Toray Industries, Inc. was certified in 2022 as "Excellent Stage 2" in the green cultivation (Sodateru Midori) category of the Social and Environmental Green Evaluation System (SEGES). This green certification program is provided by Japan's Organization for Landscape and Urban Green Infrastructure.

Furthermore, the Tokai Plant is collaborating with university students to conserve the rare southern Japanese rice fish that live in the plant biotope, along with an herbaceous plant Fujibakama that help provide a network of ecosystems for the chestnut tiger butterfly. As a result, Toray Industries, Inc. has been recognized as an Aichi Biodiversity Certified Company.

For more details about these greening and biodiversity conservation activities, visit the Toray website page, "[Biodiversity Initiatives](#)."



SEGES Excellent Stage 2 certification

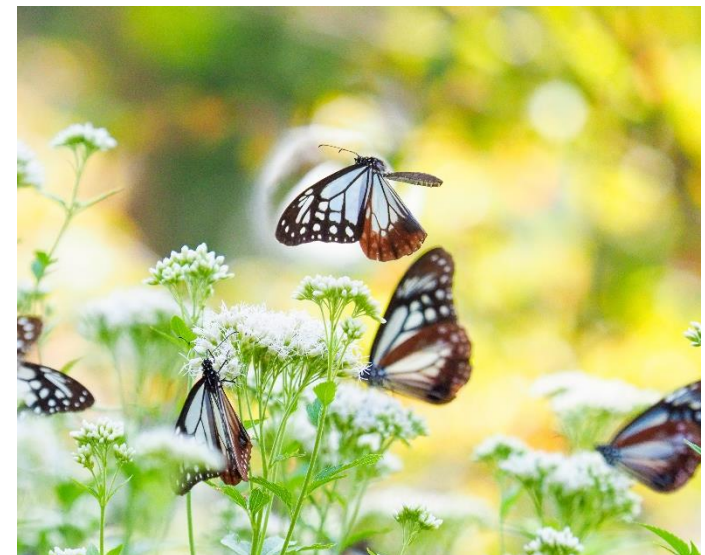


あいち生物多様性 認証企業

Aichi Biodiversity Certified Company logo



Fujibakama (a near-threatened species designated by the Ministry of the Environment) cultivated at the Tokai Plant



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(2) Regional Environmental Conservation Activities

In addition to greening conservation activities at its manufacturing plants, Toray Group employees are regularly participating in river and coastal cleanups in cooperation with municipalities and NPOs.



Cleanup activity

Learning About Ecosystem Impact Through the Arakawa Clean-aid Program

Since 2014, Toray's head office in Tokyo has been partnering with an NPO, the Arakawa River Clean-aid Forum, to carry out the Toray Group Arakawa Clean-aid program. This initiative gets Toray Group employees and their families involved in cleanup activities along the Arakawa River, and provides opportunities for them to learn about human impacts on ecosystems and the global environment. More than just bagging litter, it incorporates a systematic approach where participants record and categorize all the debris collected using a survey card. Before each event, the Arakawa River Clean-aid Forum gives an environmental talk to participants on topics such as the current waste situation along the river, the impact of litter on living organisms, and how the survival of these organisms affects human life. By pairing educational talks with the cleanup activities, participants gain a deeper understanding of their efforts, making the initiative even more meaningful.



Aozora Science School

(3) Educational and Awareness-Raising Programs

Toray Group provides environmental education programs for young students. Using its products as teaching materials, it offers hands-on classes where kids can learn through nature-based activities.

Support for Science and Environmental Education

To foster youthful interest in science and environmental topics, Toray has developed science experiment and environmental education programs that incorporate its products as teaching tools. These programs are delivered through specially-designed classes taught by Toray Group employees who visit nearby elementary and secondary schools. In addition to conducting these classes, Toray also provides teaching materials (free loan of experiment kits), which are used in 72 schools across Japan, including elementary, junior high, and senior high schools.

Aozora Science School

Since 2015, Toray has been running Aozora Science School,* a hands-on learning program to foster children's interest in and an affinity for science by offering fun activities to learn about science in the natural environment.

For more information on Toray's Regional Environmental Conservation Activities and Educational and Awareness-Raising Programs (subsections 2 and 3 above), visit the Toray website page, "[Activities Carried Out in Fiscal 2023.](#)"

* As part of programs provided by JTB Corporation, Aozora Science School is an overnight hands-on learning program delivered by Leave a Nest Co., Ltd.



The Kunming-Montreal Global Biodiversity Framework envisions a world living in harmony with nature by 2050. Achieving this vision requires immediate actions to halt biodiversity loss and initiate recovery by 2030, embracing the concept of nature positivity.

Going forward, Toray Group remains committed to its corporate philosophy, “Contributing to society through the creation of new value with innovative ideas, technologies and products.” By providing innovative technologies, advanced materials, and collaborating with stakeholders, the Group aims to address diverse societal challenges and achieve sustainable development together with stakeholders.

1. General TNFD Disclosure Recommendations Reflected in This Report

1. Application of Materiality

Based on the double materiality approach, Toray identifies, evaluates, and discloses nature-related issues by considering two perspectives: importance to stakeholders and importance to Toray Group.

2. Scope of Disclosure

Toray Group assessed its risks related to drought, floods, and pollution for both direct operations and the upstream value chain. The results of this investigation are the primary focus of this report.

3. Location of Nature-related Issues

An assessment was conducted for 423 directly operated sites and 67 upstream value chain sites using online tools such as the WRI's Aqueduct platform (to assess water risks) and the Biodiversity Risk Filter (to evaluate its impacts on nature). Priority locations identified through this process are disclosed in part II. section 3. (Strategy) in this report.

4. Integration with Other Sustainability-related Disclosures

Efforts related to biodiversity and natural capital are closely connected to various sustainability issues, including climate change and circular economy promotion. Currently, these initiatives are disclosed in this report, as well as in the [Toray Group CSR Report](#) and [TCFD Report](#). Moving forward, Toray will consider integrating these disclosures to provide a more comprehensive overview.

5. Time Horizons Considered

For this report, the period from publication until fiscal 2025 is deemed to be the short term, and fiscal 2026 to 2030 is considered as the medium term, while fiscal 2031 and beyond is the long term. This report covers assessment results for short-term opportunities and risks.

6. Engagement of Indigenous Peoples, Local Communities, and Affected Stakeholders

In cooperation with NPOs, local students, companies, and governments, Toray Group promotes dialogue and other activities to advance biodiversity conservation and ways to live in harmony with nature. The details of the Group's efforts are covered in part II., sections 1. (Governance) and 3. (Strategy) in this report, as well as in the [Toray Group CSR Report](#).



2. Response to TNFD Core Global Disclosure Metrics

Toray Group's response to relevant TNFD core global disclosure metrics are shown in Figures 17 and 18 below.

Figure 17: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts

Metric no.	Driver of nature change	Indicator	Toray Group disclosures
	Climate change	GHG emissions	CO ₂ reduction contribution to the value chain
C1.0	Land/freshwater/ocean-use change	Total spatial footprint	—
C1.1		Extent of land/freshwater/ocean-use change	—
C2.0	Pollution/pollution removal	Pollutants released to soil split by type	—
C2.1		Wastewater discharged	Water treatment contribution
C2.2		Waste generation and disposal	Waste recycling rate in manufacturing processes
C2.3		Plastic pollution	—
C2.4		Non-GHG air pollution	Reduction of VOC atmospheric emissions
C3.0	Resource use/replenishment	Water withdrawal and consumption from areas of water scarcity	<ul style="list-style-type: none"> Water usage from production activities Water stress survey
C3.1		Quantity of high-risk natural commodities sourced from land/ocean/freshwater	—
C4.0	Invasive alien species and other	Measures against unintentional introduction of invasive alien species (IAS28)	—
C5.0	State of nature	Ecosystem condition	—
		Species extinction risk	—

The Group is currently analyzing nature-related dependencies and impacts, opportunities, and risks using the LEAP approach, and will disclose results as they become available.

Figure 18: TNFD core global disclosure indicators and metrics for nature-related risks and opportunities

Metric no.	Category	Metric	Toray Group disclosures
C7.0	Risk	Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related transition risks (total and proportion of total).	—
C7.1		Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related physical risks (total and proportion of total).	—
C7.2		Description and value of significant fines/penalties received/litigation action in the year due to negative nature-related impacts.	—
C7.3	Opportunity	Amount of capital expenditure, financing or investment deployed towards nature-related opportunities, by type of opportunity, with reference to a government or regulator green investment taxonomy or third-party industry or NGO taxonomy, where relevant.	—
C7.4		Increase and proportion of revenue from products and services producing demonstrable positive impacts on nature with a description of impacts.	—

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