

# Disclosure in Accordance with the TCFD and TNFD Recommendations

## Basic Approach

### A. Establishment of Our Purpose

The TOPPAN Group's Purpose is "Breathing life into culture, with technology and heart." In order to fulfill our mission for a vibrant world in which the earth and all living organisms are interwoven and people enjoy fulfilling lives, we will build a sustainable future by not only providing products and services that meet customers' needs but also addressing social issues and promoting activities that protect the environment together with a wide range of stakeholders that include customers, society, partner companies, employees, and local communities.

### B. Formulation of Environmental Policy and Identification of Environmental Issues

To drive specific efforts to "realize a sustainable society," as advocated in the TOPPAN Group Declaration on the Global Environment established in 1992, we formulated the TOPPAN Group Environmental Policy in 2024. The policy sets out three elements: environmental issues to address, commitments, and systems and initiatives for implementation. Based on the policy, we will work to raise corporate value and enable a sustainable society through solutions to environmental issues.

 Environmental Policy >

<https://www.holdings.toppan.com/en/sustainability/environment/>

### C. Support for the TCFD and TNFD Recommendations

As a Group that conducts business worldwide, we recognize the scale of the impact of climate change on the Group. We consider climate change to be an important issue in sustainability management.

In 2019, we announced our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), an entity established by the Financial Stability Board. In 2020, we commenced a scenario analysis based on the recommendations. We continue to disclose the financial impact related to climate change and our responses to the same, in accordance with the TCFD recommendations.

At the same time, we recognize the significance of the impact of nature-related issues (issues related to natural capital\*), such as climate change and biodiversity, on our business. The TOPPAN Group provides a variety of products and services to over 20,000 client companies around the world. To proceed even further with the development of sustainable supply chains and the provision of products and services that contribute to the growth of the Group as well as customers and local communities, in 2023 we added "preserving biodiversity" as a theme for TOPPAN Group Environmental Vision 2050. In January 2024, we announced our support for the Task Force on Nature-related Financial Disclosures (TNFD) final recommendations and, as an Early Adopter, declared our intention to disclose the information according to the recommendations.

Climate change response and biodiversity conservation are interrelated in many ways, and therefore an integrated approach is necessary to finding a fundamental solution to these issues. This is a point we will continue to emphasize in the management of our business. On the other hand, the benefits gained from addressing these environmental issues sometimes come at the expense of one another. Focusing only on climate change may have a negative impact on our efforts to conserve biodiversity. Accordingly, we will examine our response to climate change and approaches to biodiversity by considering the synergies and trade-offs involved.

### D. Approach from Groupwide and Business-specific Perspectives

In November 2019 we established the *TOPPAN SDGs STATEMENT*, a pledge to our commitment to integrating the SDGs into management. The statement describes the "fulfilling, sustainable living" that we want to make possible through our SDG efforts and identifies environmental issues, including those associated with climate change and biodiversity, to be addressed through Groupwide activities and specific business activities. From both the perspectives of our businesses and the foundation that supports them, we are advancing initiatives addressing nature-related issues, including climate change and biodiversity.

 Approach to the General Requirements of the TNFD Recommendations >

[https://www.holdings.toppan.com/en/sustainability/environment/tcfdtnfd.html#anchor\\_02](https://www.holdings.toppan.com/en/sustainability/environment/tcfdtnfd.html#anchor_02)

\*Natural capital refers to the stock of animals, plants, water, soil, and air that provides benefits to businesses and society through ecosystem services. Biodiversity refers to the biodiversity of animals and plants, which are part of natural capital. It is deeply tied to water resources and soil due to its role in ensuring that natural capital remains healthy and stable by supporting recovery from floods, droughts, and other natural disasters, the carbon cycle and water cycle, and soil formation. In this report, the term "biodiversity" incorporates the meaning of "natural capital." The term "nature-related issues" is used in conjunction with "climate-related issues" in reference to issues related to biodiversity and natural capital in general.

# Governance

## A. Board of Directors' Oversight on Dependencies, Impacts, Risks, and Opportunities

### 1) Organizational initiatives and the responsibilities of the Board of Directors

Under the key concept of “Digital & Sustainable Transformation,” the Medium Term Plan (fiscal 2023-2025) defines “expanding ESG initiatives” as a priority measure for the medium-to-long term. We are strengthening efforts related to environmental, social, and governance (ESG) issues, including climate change and biodiversity. The Board of Directors recognizes the importance of climate-related issues in management strategy and considers climate change risks and opportunities when plotting out investments for business growth (including business

portfolio transformation centered on DX and SX for addressing social issues).

As for specific initiatives that address climate change and other ESG issues, the Board of Directors receives reports from the Management Committee regarding the details of actions that have been considered and discussed by the Sustainability Promotion Committee. The Board discusses, monitors, and supervises target setting and progress. The Board of Directors also recognizes that nature-related issues are an important part of management strategy. In addition to climate-related issues, the activities discussed and deliberated by the Sustainability Promotion Committee on nature-related issues will be reported through the Management Committee to the Board of Directors, which will discuss, monitor, and supervise target setting and the progress of initiatives.

### 2) Process and frequency of reports received by the Board of Directors

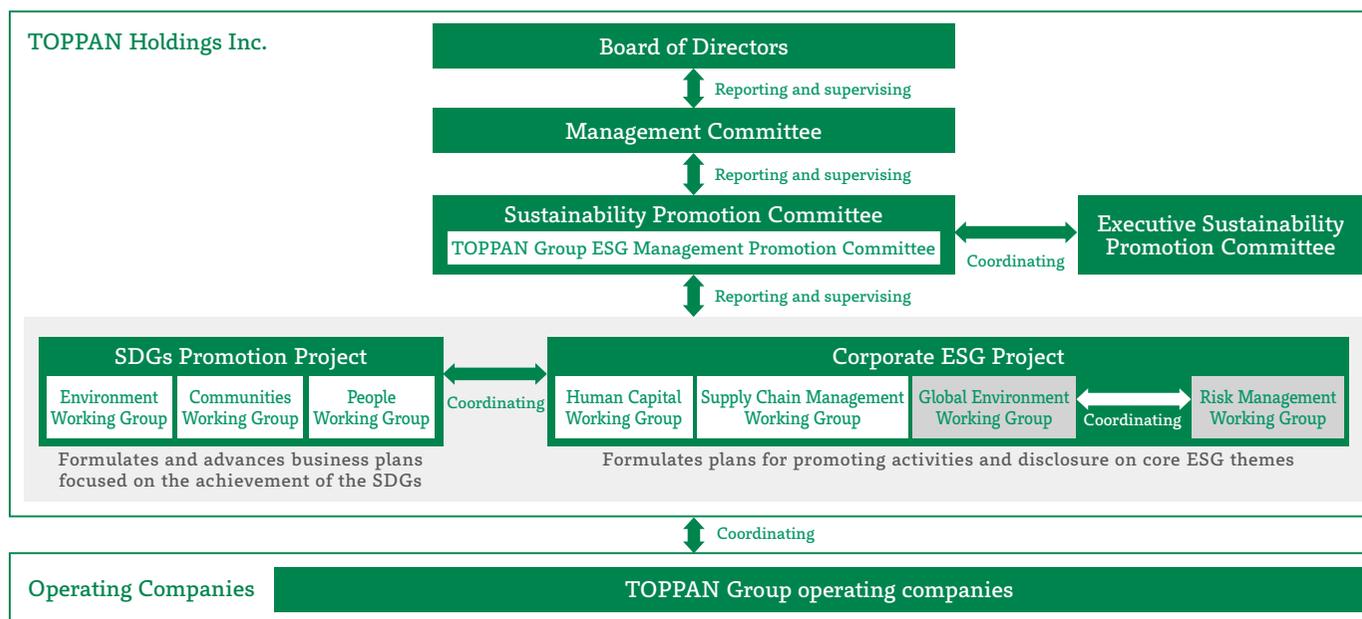
Each year in April, the Board receives and approves reports regarding greenhouse gas (GHG) emission volumes and the results of efforts focused on preserving biodiversity, contributing to resource circulation, and optimal water use in the previous fiscal year under the TOPPAN Group Environmental Vision's Medium-and-Long-Term Environmental Targets for Fiscal 2030, as well as reports regarding single-year targets for the current fiscal year. The Board also receives reports on the assessment and status of important risks and opportunities as well as the progress of efforts in relation to climate-related issues, and takes such issues into account as part of comprehensive decision-making on management strategy and other matters. In the event that new regulations, systems, or the like pertaining to climate-related issues are announced, the Board receives quarterly reports from the Sustainability Promotion Committee and discusses and decides on responses.

Going forward, we will address nature-related issues in the same way as climate-related issues.

## B. Management's Role in Assessing and Managing Dependencies, Impacts, Risks, and Opportunities

The Board of Directors has assigned responsibility for climate-related issues to the Sustainability Promotion Committee (chaired by the president & representative director) and supervises the activities undertaken by the committee. The Global Environment Working Group set up under the committee leads related efforts. The working group consists of personnel from responsible divisions and the business departments of Group companies. The working group coordinates assessments and countermeasures on climate-related issues in cooperation with the Risk Management Working Group and the SDGs Promotion Project via the TCFD Sub-Working Group.

Governance Structure for Addressing Climate- and Nature-related Issues



\*as of the end of September 2024

Through the Management Committee, the Board of Directors receives reports from the Sustainability Promotion Committee regarding the assessment, status, and target management of climate-related issues. The Board implements comprehensive decision-making with regard to such matters as management strategy, taking climate-related issues into account. The Board also assigns responsibility for nature-related issues to the Sustainability Promotion Committee and supervises the activities undertaken by the committee. In October 2023 we established a TNFD Sub-Working Group under the Sustainability Promotion Committee's Global Environment Working Group. The TNFD Sub-Working Group is taking the lead on initiatives addressing nature-related issues, and the Global Environment Working Group will coordinate efforts with those on climate-related issues when making reports to the Management Committee from here on.

The Executive Sustainability Promotion Committee has been established as a forum for exchanging views on future sustainability issues. Directors and external experts discuss ESG issues, including those related to climate and nature, and coordinate with the Sustainability Promotion Committee to consider important matters.

 [Promotion Structure for Sustainability Initiatives >](#)

<https://www.holdings.toppan.com/en/sustainability/structure.html>

## C. Stakeholder Engagement for Biodiversity

### 1) Approach to human rights

The TOPPAN Group regards human rights as a paramount principle guiding its business activities and sustainability initiatives. We continue to operate our business under the foundational tenet of "respect for human beings." The TOPPAN Group Human Rights Policy based on this tenet was formulated in October 2021. We promote environmental conservation

initiatives based on the TOPPAN Group Declaration on the Global Environment, the TOPPAN Group Environmental Policy, and the Basic Policy on Biodiversity. We advance such measures to avoid human rights violations whereby our operations adversely affect people's lives.

 [Human Rights >](#)

<https://www.holdings.toppan.com/en/sustainability/social/human-rights.html>

### 2) Human rights due diligence

The TOPPAN Group supports the United Nations Guiding Principles on Business and Human Rights and recognizes the need for due diligence to ensure human rights. We have clarified and evaluated human rights risks in the printing industry and identified five risks specific to us, in accordance with the TOPPAN Group Human Rights Policy formulated in October 2021. In fiscal 2022 and fiscal 2023, we assessed our stakeholders with a focus on the five risks we identified. Informed of the assessment results, the Sustainability Promotion Committee deliberated future initiatives.

We have also identified human rights risks related to local communities (health of local residents, rights of Indigenous people, etc.) for nature-related issues (soil, water pollution, etc.)

### 3) Engagement process

The TOPPAN Group understands the importance of engagement with local residents and Indigenous people. When acquiring or using land for business activities, we place emphasis on not only compliance with local laws and regulations but also gaining the understanding of local residents and Indigenous people who will be affected. We are also aware of the importance of hearing the opinions of a wide range of stakeholders in assessing and responding to nature-related issues, and participate in various organizations and consortiums, including the TNFD Forum and the 30by30 Alliance for Biodiversity established by the Ministry

of the Environment of Japan. In these ways, we gather information on external trends and stakeholder views on biodiversity, tie them to the TOPPAN Group's LEAP approach for assessing nature-related issues, and apply them in actual measures, such as the use of green spaces at our business sites and conservation and restoration efforts in surrounding areas.

 [Participation in Initiatives and Collaboration with External Parties >](#)

[https://www.holdings.toppan.com/en/sustainability/environment/management.html#anchor\\_03](https://www.holdings.toppan.com/en/sustainability/environment/management.html#anchor_03)

 [Biodiversity >](#)

<https://www.holdings.toppan.com/en/sustainability/environment/biodiversity.html>

# Strategy

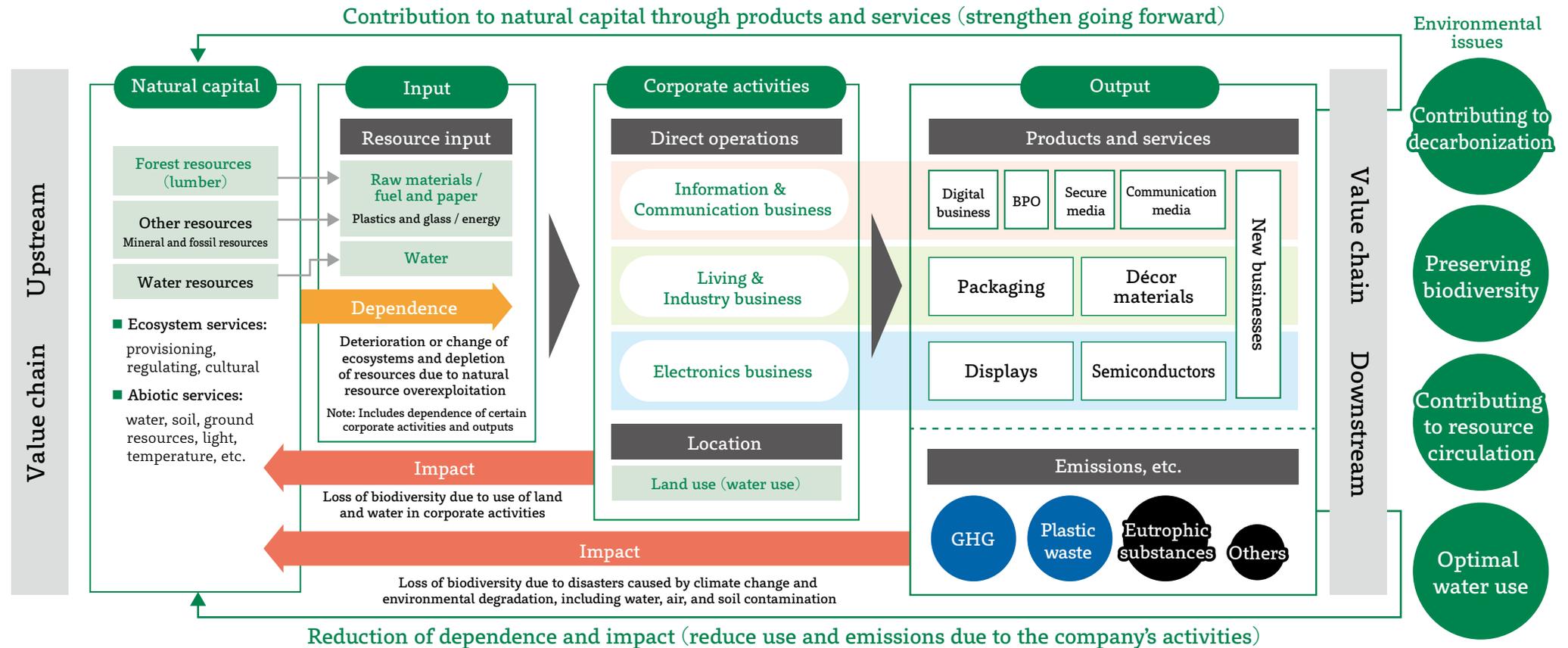
## A. The TOPPAN Group's Environmental Value Chain

The dependencies and impacts of the TOPPAN Group's business activities on natural capital are organized as follows.

In package manufacturing and communication media, two of our core businesses, we assume high dependence on paper as well as on forest resources (lumber) as raw material. We also assume that ground water use in the Information & Communication, Living & Industry, and Electronics segments is high in terms of both dependence and impact. Furthermore, we assume that the impact on biodiversity includes not only

manufacturing processes but also the discharge of plastic packaging materials and promotional materials into rivers, oceans, and other natural environments after use. We understand the importance of balancing climate change response and corporate sustainability in all areas of our business as well as the impact of greenhouse gas (GHG) emissions.

TOPPAN Group Environmental Value Chain Chart



## B. Risks and Opportunities

Regarding climate change, we have identified significant physical and transition risks in our scenario analysis and are assessing their financial impact while discussing measures to address them. As for nature-related issues, we will conduct scenario analysis going forward and expect to identify risks and opportunities based on an awareness of the changes in our external business environment and dialogues with experts.

### Risks and Opportunities for Climate- and Nature-related Issues

\*We plan to disclose principal measures for nature-related issues in the table below from October onwards.

Scenario	Risk Type	Drivers / Hazards	Potential Impact on Business	Dependency / Impact		Climate	Nature	Risk / Opportunity	Time Frame	Climate-related Issues		
				Financial Impact	Principal Measures Addressing Climate-related Issues							
					Principal Measures Addressing Climate-related Issues							
Transition	Existing regulations (carbon tax, carbon emission policies)	Introduction of / increase in carbon tax	Increase in operational costs due to introduction of carbon tax	Impact	GHG emissions	○	-	Risk	Medium term	Large	Implement Scope 1 & 2 GHG emission reduction activities towards the Medium-and-Long-Term Environmental Targets for Fiscal 2030 in order to achieve the TOPPAN Group Environmental Vision 2050; monitor systems, renewable energy technologies, etc., from a long-term viewpoint	
		Increase in renewable energy ratio	Increase in operational costs due to rises in unit prices for energy	Impact	GHG emissions	○	-	Risk	Medium term	Medium	Implement Scope 1 & 2 GHG emission reduction activities towards the Medium-and-Long-Term Environmental Targets for Fiscal 2030 in order to achieve the TOPPAN Group Environmental Vision 2050; monitor systems, renewable energy technologies, etc., from a long-term viewpoint	
	New regulations	Tightened regulations on single-use plastics	Increase in costs due to introduction of tax on plastic packaging	Increase in costs due to introduction of tax on plastic packaging	Impact	Waste GHG emissions	○	○	Risk	Medium term	Medium	Develop recyclable packaging products; establish specifications for raising percentage of recycled material used; pass on costs to prices
			Increase in procurement costs due to expanded demand for recycled plastic raw materials	Increase in procurement costs due to expanded demand for recycled plastic raw materials	Impact	Waste GHG emissions	○	○	Risk	Long term	Medium	Secure recycled materials through entry into recycling business; pass on costs to prices
			Growth in sales of recyclable plastic products (mono-material barrier packaging, etc.)	Growth in sales of recyclable plastic products (mono-material barrier packaging, etc.)	Impact	Waste GHG emissions	○	○	Opportunity	Medium term	Large	Strengthen the development of barrier films and expand their product lineup; expand network of bases for global supply
		Tightened control of wood procurement	Increases in paper prices due to stricter forest management regulations, including imposition of deforestation tax on paper suppliers	Dependency	Wood	-	○	Risk	-	-	-	-
	Market	Increase in raw material prices (due to crude oil prices)	Decrease in cost of procuring petrochemical-based film due to lower demand for crude oil	Decrease in cost of procuring petrochemical-based film due to lower demand for crude oil	Impact	GHG emissions	○	-	Risk	Medium term	Small	Check existing suppliers and find new suppliers; research/consider alternative products; monitor systems/markets from a long-term perspective
			Increase in cost of procuring non-petroleum-derived raw materials, such as paper and glass, due to carbon tax and increases in unit prices for energy on supplier side	Increase in cost of procuring non-petroleum-derived raw materials, such as paper and glass, due to carbon tax and increases in unit prices for energy on supplier side	Impact	GHG emissions	○	-	Risk	Medium term	Large	Check existing suppliers and find new suppliers; research/consider alternative products; monitor systems/markets from a long-term perspective
		Changes in customer/consumer attitudes	Growth in sales of environmentally friendly products and services, centered on SX products	Growth in sales of environmentally friendly products and services, centered on SX products	Impact	GHG emissions	○	-	Opportunity	Short term	Large	Expand the lineup and sales of environmentally friendly products
			Expanded sales of digital media solutions as an alternative to paper	Expanded sales of digital media solutions as an alternative to paper	Dependency	Wood	-	○	Opportunity	-	-	-
	Physical	Acute	Expanded markets for next-generation communications due to growth in remote monitoring needs	Expanded markets for next-generation communications due to growth in remote monitoring needs	-	-	○	-	Opportunity	Medium term	Medium	Create communications-related businesses, such as ZETA-based solutions, and metaverse-related businesses
				Loss of production opportunities and factory assets due to increased risk of flooding and water damage	Loss of production opportunities and factory assets due to increased risk of flooding and water damage	-	-	○	-	Risk	Medium term	Large
Outflow of chemical substances due to increased risk of flooding and water damage			Outflow of chemical substances due to increased risk of flooding and water damage	Impact	Soil/Water pollution	○	○	Risk	Medium term	Small	Examine the possibility of chemical leakage and formulate and implement countermeasures	
Changes in forest ecosystems		Increase in cost of procuring paper due to reduced paper supply as a result of the rising number of forest fires and pest infestations, etc.	Dependency	Wood	-	○	Risk	-	-	-		
Chronic		Changes in rainfall and weather patterns	Increase in costs due to water procurement risks and usage restrictions	Dependency	Water	○	○	Risk	Long term	Small	Consider alternative production plans to address water usage restrictions; assess water usage and water stress by region from a long-term viewpoint	
		Temperature rise	Growth in sales of relevant products due to growing needs associated with food loss and hygiene	-	-	○	-	Opportunity	Long term	Small to medium	Strengthen the development and sales of functional barrier packaging; strengthen the development of food-loss solutions	
	Decrease in yield of edible biomass feedstock (corn, etc.)	Expanded demand for bioethanol derived from waste, such as scrap wood and used paper that are difficult to recycle	Impact	Waste	○	○	Opportunity	-	-	Commercialize bioethanol derived from used paper and expand production capacity		

**SX** **DX** Products and services related to "Digital & Sustainable Transformation" (DX and SX), the key concept under the Medium Term Plan

\*Transition risks and opportunities: Assessed in the 1.5°C and 4°C scenarios based on the Net Zero Emissions by 2050 (NZE) scenario, the Announced Pledges Scenario (APS), and the Stated Policies Scenario (STEPS) presented in the World Energy Outlook 2023 (WEO 2023) from the International Energy Agency (IEA).

\*Physical risks and opportunities: Assessed in the 1.5°C and 4°C scenarios based on the Representative Concentration Pathways (RCPs), greenhouse gas concentration trajectories adopted by the Intergovernmental Panel on Climate Change (IPCC) (RCP 1.9 and RCP 2.6 for the 1.5°C scenario, RCP 7.0 and RCP 8.5 for the 4°C scenario).

\*Based on time frames of one year or less for the short term, two to three years for the medium term, and four to 30 years or more for the long term, the risks and opportunities in climate- and nature-related issues are examined by the relevant departments to ensure consistency with the TOPPAN Group's business plans for each fiscal year, medium-term plans, and long-term vision.

\*Financial impact: Small, less than 1 billion yen; medium, 1 billion yen to 10 billion yen; large, more than 10 billion yen

## C. Assessing the Impact of Climate Change on Our Business, Strategy, and Financial Planning through Scenario Analysis

### 1) Climate-related risks and opportunities the organization has identified over the short, medium, and long term

#### (1) Processes used to determine which risks and opportunities could have a material financial impact on the organization

The Global Environment Working Group set up under the Sustainability Promotion Committee is tasked with implementing the scenario analysis. Personnel from related divisions and Group companies participate in the working group to identify significant risks and opportunities related to climate change, assess the financial impacts, and consider measures based on those assessments. Business strategy personnel from related divisions and Group companies gathered in fiscal 2023 to formulate a scenario analysis coordinated with the medium-term plans of individual Group companies. We have assessed financial impacts and considered countermeasures with a focus on concrete businesses. Two pathways were examined in the scenario analysis: 1.5°C and 4°C scenarios with long-term forecasts up to 2050. Operations in Japanese and overseas sites have been considered throughout the value chain, from R&D to procurement, production, and product supply.

#### (2) Climate-related issues with a large financial impact

In the 1.5°C scenario, we reconfirmed that there are risks of increased costs accompanying the introduction of a carbon tax and higher prices for purchased energy. Given the expected shifts in consumer preferences, moreover, there are opportunities for increased sales of low-carbon-emission products and services and for gains in corporate value.

In the 4°C scenario, we confirmed that increased wind and flood damage resulting from higher atmospheric temperatures could lead to such risks as stoppages at major Group plants. We

continue to consider alternative production plans to manage these risks over the long term while periodically gathering information on flood-prevention technologies and taking steps to introduce them.

### 2) Impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning

#### (1) The organization's consideration of impact on business and strategy

To contribute further to the Net Zero society targeted by the TOPPAN Group Environmental Vision 2050, we are advancing a business portfolio transformation centered on digital and sustainable transformation under the Medium Term Plan. Between fiscal 2023 and 2025, we will invest approximately 300 billion yen in DX and SX businesses, including M&A and business investments in growth areas as well as capital investments in growth businesses and businesses in their initial phases.

#### (2) Resilience of the organization's strategy in consideration of different climate-related scenarios

Qualitative and quantitative analyses were conducted under multiple scenarios. These included the Net Zero Emissions by 2050 (NZE) scenario and the Stated Policies Scenario (STEPS) presented in the World Energy Outlook 2023 (WEO 2023) issued by the International Energy Agency (IEA) and the SSP 1-1.9, SSP 1-2.6 and SSP 5-8.5 scenarios combining radiative forcing with the Shared Socioeconomic Pathways (SSPs) scenarios presented in the Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC). The period covered is 2030 to 2050.

#### Scenarios

	1.5°C	4°C
Transition scenario	IEA NZE 2050	IEA STEPS or APS
Physical scenarios	RCP 1.9 RCP 2.6	RCP 7.0 RCP 8.5

#### (3) Adaption plan for transition risks and physical risks

Scenario analyses have identified transition risks that the TOPPAN Group faces, including the expanded adoption of carbon pricing systems worldwide that increases operational costs for carbon neutrality. Physical risks include halts in production due to water damage from flooding at production sites and higher expenses for restoration. We are addressing these risks by reinforcing disaster-preparedness measures and reducing Scope 1 & 2 and Scope 3 greenhouse gas (GHG) emissions through the stepwise introduction of renewable energy. A new transition plan in place will neutralize Scope 1 & 2 and Scope 3 GHG emissions by 2050. Energy-efficient activities and facilities will be intensified under an internal carbon pricing (ICP) system that steps up our low-carbon investments and long-term carbon neutrality measures.

We will also be expanding business opportunities by linking forecasted shifts with the “Digital & Sustainable Transformation” of our business portfolio. We will develop more DX solutions to reduce GHG emissions across the supply chain and create new forms of sustainable packaging that improve recyclability and mitigate food loss.

Our ongoing scenario analyses will enhance our forecasting accuracy. We will stay resilient to an uncertain future by further integrating analysis results into management strategies.

#### ICP System Overview

Internal carbon price	130 U.S. dollars/t-CO <sub>2</sub> (at the time of introduction)
Scope and method	We will apply an internal carbon price to CO <sub>2</sub> emission increases or decreases brought about by capital investments and will preferentially invest in measures with higher CO <sub>2</sub> -reduction effects.
Pricing covered	Capital investments that increase or decrease CO <sub>2</sub> emissions

 Transition Plan for Carbon Neutrality by 2050 >

[https://www.holdings.toppan.com/en/sustainability/environment/#anchor\\_04](https://www.holdings.toppan.com/en/sustainability/environment/#anchor_04)

## D. Analysis of Dependencies and Impacts on Natural Capital and Biodiversity

### 1) Defining the scope of analysis

Based on the relationship (dependencies and impacts) between the TOPPAN Group's businesses and the natural environment, we carried out the "L" (Locate) and "E" (Evaluate) phases of our LEAP approach\*, focusing on direct operations and the upstream supply chain (procurement of lumber). For our direct operations, in order to comprehensively examine the TOPPAN Group's wide range of business domains, we used Think Nature Inc.'s big data on biodiversity and natural capital to carry out the Locate and Evaluate phases of the LEAP approach to analyze the degree of dependence and impact on the ecosystem for a total of 175 locations (124 in Japan and 51 overseas). In terms of our supply chain, we determined that priority needs to be given to the procurement of wood, which at over one million tons per year is the largest raw material procured in our business and is the raw material used in paper. The Locate and Evaluate phases were carried out on 21 countries regarding which we received responses from paper companies.

ENCORE, a biodiversity risk management tool, and Think Nature's big data on biodiversity and natural capital were used to conduct assessments of direct operations and supply chains. For direct operations, we categorized the operations of sites into 16 types, defined the production process for each operation, assessed the degree of dependence and impact of operations on the natural environment using ENCORE, and visualized the degree of risk at each site according to location. For the supply chain, due to the direct relationship between the procurement and production of lumber, we defined the production process as either large-scale or small-scale forestry operations, assessed the degree of dependence and impact on the natural environment using ENCORE, and visualized the degree of risk at each site according to location.

\*LEAP approach: An integrated approach developed by the TNFD to assess nature-related issues, such as interfaces with nature, dependencies and impacts on nature, risks, and opportunities. LEAP is an acronym for the following process:  
L: locate the interface with nature; E: evaluate dependencies and impacts; A: assess risks and opportunities; P: prepare to respond and report.

### Scope of Analysis

	Supply chain (lumber procurement)	Direct operations	Downstream
Locate	Analyzed biodiversity importance, ecosystem integrity, and water stress in 21 countries	Analyzed biodiversity importance, ecosystem integrity, and water stress at all 175 TOPPAN Group business sites worldwide	Began considering opportunities
Evaluate	Used ENCORE for forestry operations	Used ENCORE for all businesses <b>Scope of verification</b>	
Assess	Partially conducted	Partially conducted	
Prepare	Make a list of targets (partially conducted)		

### 2) Analysis

#### (1) Analysis of direct operations

	Objectives	Analysis	Results	Issues and Response
Locate	We assessed the biodiversity and condition of ecosystems in the vicinities of 175 business sites in Japan and overseas and investigated the impact of business activities on biodiversity to identify sites in sensitive locations.	<p><b>Identification of location:</b> We mapped sites of direct operations to enable location assessment at the 15-km grid level.</p> <p><b>Selection of key metrics:</b> Based on the TNFD guidance, we adopted seven metrics for assessment of ecosystem condition and conducted analysis with a particular focus on "biodiversity importance" and "ecosystem integrity" as indicators that underpin other metrics.</p> <p><b>Details of analysis:</b> We assessed biodiversity importance and ecosystem integrity for each business site and each type of operation.</p>	<p><b>Identification of sensitive locations:</b> Among the regions in which the TOPPAN Group operates, the United States, Southeast Asia, the United Arab Emirates, and South America overseas and Hokkaido, Okinawa, Hyogo, and Hiroshima prefectures in Japan were found to be high in both biodiversity importance and ecosystem integrity.</p>	<p><b>Relationship to the TOPPAN Group's material issues:</b> It was confirmed that our business operations have a high dependence on water-related ecosystem services and our water use has a high impact on ecosystems. We also confirmed that most of our operations have a high impact on water and soil pollution. We will strengthen our efforts in these areas, in keeping with the "optimal water use" and "hazardous substance control" advocated by the TOPPAN Group Environmental Policy.</p>
Evaluate	We identified the ways in which the business activities of all of our sites depend upon ecosystem services and what impact drivers are changing natural environments. By combining results with the results of the identification of sensitive locations in the Locate assessment, we evaluated dependencies and impacts to enable identification of important environmental issues.	<p><b>Grouping of operation types:</b> While the grouping is based on the TOPPAN Group's business segments of Information &amp; Communication, Living &amp; Industry, and Electronics, we classified the Living &amp; Industry segment's "beverage filling" operations into a separate group due to the large volume of water consumption assumed.</p> <p><b>Identification of highly relevant dependency drivers (ecosystem services) and impact drivers:</b> Using ENCORE, we identified 14 ecosystem services and seven impact drivers relevant to production processes corresponding to business site operations.</p> <p><b>Method for evaluating dependencies and impacts:</b> From the dependencies and impacts identified using ENCORE, we identified items with an impact level of M (medium) or higher and pinpointed sites requiring particular attention by cross-referencing with global map data linked to the respective items.</p>	<p><b>Identification of dependencies (ecosystem services):</b> Among the ecosystem services identified, ground water and surface water supplies in the Information &amp; Communication segment and the Living &amp; Industry segment were found to be highly relevant to the operations of business sites, requiring attention.</p> <p><b>Identification of impact drivers:</b> Among the impact drivers identified, the ecological impact of water use in the Information &amp; Communication segment and certain parts of the Living &amp; Industry segment was found to be highly relevant to the operations of business sites, requiring attention. Most of the businesses were also found to have a high impact on water and soil pollution.</p>	<p><b>Response going forward:</b> For each business site identified as requiring detailed analysis from the perspective of its geographical location, we will identify risks and opportunities and establish and implement countermeasures by closely examining the interfaces between our business activities and the natural environment, engaging with local residents, monitoring the dependence of local communities on the ecosystem, and ensuring traceability with greater precision. With regard to water resources in particular, having reconfirmed their importance, we will make optimal use of water through water conservation and wastewater use at our business sites with high water risk.</p>

(2) Analysis of supply chain

	Objectives	Analysis	Results	Issues and Response
Locate	We assessed the current status of biodiversity and ecosystems in 21 countries from which lumber is sourced and identified interfaces with sensitive locations in the supply chain.	<p><b>Identification of location:</b> We organized the data for regions from which lumber is sourced, by cross-referencing regions in which forestry is conducted with the geographical regions of the 21 countries from which lumber (pulp and chips) is procured (including some at state or prefectural level).</p> <p><b>Dependency and impact screening for relevant businesses:</b> Due to the direct relationship between the procurement and production of lumber, we defined the production process as either large-scale or small-scale forestry operations and confirmed dependencies and impacts on the natural environment using ENCORE.</p> <p><b>Assessment of ecosystem condition in locations from which lumber is sourced:</b> We calculated a summary value (average) by cross-referencing the geographical regions from which lumber is sourced against big data for biodiversity worldwide and extracting a score for seven metrics related to ecological sensitivity.</p> <p><b>Details of analysis:</b> From the seven metrics calculated for each site, our analysis focused on biodiversity importance and ecosystem integrity as metrics of particular importance for identifying interfaces with sensitive locations.</p>	<p><b>Identification of sensitive locations:</b> South Africa, Fiji, Malaysia, Vietnam, and Australia were found to be high in both biodiversity importance and ecosystem integrity, requiring particular attention.</p>	<p><b>Relationship to the TOPPAN Group's material issues:</b> Pest control functions were found to be highly relevant as an ecosystem service, and it was confirmed that the use of terrestrial ecosystems has a significant impact on the ecosystem. We will strengthen our efforts in these areas in keeping with the theme of "preserving biodiversity" advocated by the TOPPAN Group Environmental Policy.</p> <p><b>Response going forward:</b> We will assess the actual state of pest problems and forest degradation caused by forestry to identify drivers, determine the issues to address, and clarify the methods to resolve them. A detailed inspection will be conducted to measure the actual impact of lumber procurement on terrestrial ecosystems in relevant regions.</p>
Evaluate	We assessed dependencies and impacts to identify important environmental issues in sensitive locations in the 21 countries from which lumber is sourced.	<p><b>Identification of relevant dependency drivers (ecosystem services) and impact drivers:</b> Using ENCORE, we identified 14 dependency drivers (ecosystem services) and four impact drivers that are related to production processes (large-scale or small-scale forestry) corresponding to lumber procurement.</p> <p><b>Method for evaluating dependencies and impacts:</b> For the items above, among the dependencies and impacts identified using ENCORE, we selected items with an impact level of M (medium) or higher. By cross-referencing the regions in which there are planted forests or from which lumber is sourced against global map data corresponding to the 14 dependencies and four impacts, we assessed the current situation for relevant dependencies and impacts in the procurement regions.</p>	<p><b>Identification of dependencies (ecosystem services):</b> Among the ecosystem services identified, pest control functions were found to be particularly relevant to the procurement of lumber, requiring attention. This was followed by ground water supply functions.</p> <p><b>Identification of impact drivers:</b> Among the impact factors identified, the ecological impact from the use of terrestrial ecosystems was found to be highly relevant to the procurement of lumber.</p>	

Direct Operations: Identification of Dependencies and Impact Drivers

		Dependencies: ENCORE result													
		Ground water supply	Surface water supply	Fibres and other materials	Flood and storm protection	Mediation of sensory impacts	Water flow maintenance	Water quality	Bio-remediation	Dilution by atmosphere and ecosystems	Filtration	Mass stabilisation and erosion control	Climate regulation	Soil quality	Ventilation
Business category	Information & Communication	VH	VH	M			M						VL		
	Living & Industry (excluding beverage filling)	VH	VH	M	M	M	M	L	L	VL	VL	VL	VL		VL
	Living & Industry (beverage filling)	VH	VH		M		M	M	L	L	L	L		VL	
	Electronics	M	M							L					

		Impacts: ENCORE result						
		Water use	GHG emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbances
Business category	Information & Communication	VH		M	H	H		
	Living & Industry (excluding beverage filling)	VH	H	H	H	H	M	M
	Living & Industry (beverage filling)	H	H		M	M	H	
	Electronics				H	H	M	M

Five-level ENCORE materiality rating: VH = Very High; H = High; M = Medium; L = Low; VL = Very Low

Ecosystem condition assessment: (Dependencies) Score at or under a certain threshold is considered to indicate potential risk. S = lowest score; A = second lowest score; B = third lowest score (Impacts) Score at or above a certain threshold is considered to indicate a potential significant impact. S = highest score

Supply Chain (lumber procurement): Identification of Dependencies and Impact Drivers

		ENCORE result	Ecosystem Condition Assessment																					
			Vietnam	China	Thailand	U.K.	U.S.A.	Uruguay	South Africa	Korea	Brazil	Malaysia	Japan	Chile	Fiji	Indonesia	Germany	Australia	Russia	New Zealand	Canada	Sweden	Finland	
Dependencies	Animal-based energy																				A	A		
	Climate regulation																							
	Disease control																	A						
	Fibres and other materials																				B		A	
	Flood and storm protection					A											A							
	Ground water		A					S						A			A	A						
	Mass stabilization and erosion control																							
	Pest control		S	S	S	S	S	S	A	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Surface water																							
	Water flow maintenance																	B						
Impacts	Terrestrial ecosystem use	VH				S		S	S		S													
	GHG emissions	H				S	S		S			S					S							
	Water pollutants	H	S			S		S								S								
	Soil pollutants	M	S			S		S								S								

\*A more detailed analysis including an Integrated Locate and Evaluate Analysis for Lumber Procurement can be found on our website.

Disclosure in Accordance with the TCFD and TNFD Recommendations >

<https://www.holdings.toppan.com/en/sustainability/environment/tcfdnfd.html#anc2>

### 3) Approach to opportunities

#### a) Biodiversity as a business opportunity

The World Economic Forum estimates that the transition to a nature-positive economy will create 10 trillion dollars in business opportunities by 2030<sup>1</sup>.

According to calculations by Nature4Climate, a U.S. climate change initiative, investments in pre-seed, seed, and early stage startups specializing in the development of nature-related technologies more than doubled between 2020 and 2022<sup>2</sup>.

<sup>1</sup> Source: *The Future of Nature and Business*, World Economic Forum

<sup>2</sup> Source: *The state of nature tech: Building confidence in a growing market*, Nature4Climate

#### b) Potential for the TOPPAN Group to contribute

The TOPPAN Group's vision of "becoming a leading provider of solutions to social issues worldwide through DX and SX" is highly congruent with efforts to resolve nature-related issues. There is no shortage of opportunities to contribute to natural capital and biodiversity by utilizing DX technology to provide solutions that address nature-related challenges faced by customers, and therefore we will strengthen discussions on how we can utilize these opportunities going forward.

## Use Cases and Examples of Business Opportunities for the TOPPAN Group

### (1) Sustainable packaging (recyclable plastic products, etc.)

The TOPPAN Group provides eco-friendly packaging that reduces products' environmental impact and supports growth of our customers' businesses. We achieve this by employing sustainable materials and packaging designs that are optimized for each stage of the life cycle of our customers' products. We are working to improve recyclability by switching from packages consisting of composite materials to mono-material barrier packaging. By offering products that utilize recycled materials (such as mechanically recycled PET film) sourced as raw materials, we drive the effective use of resources. We also consider recycling schemes to reduce impact on biodiversity caused by the discharge of used plastic packaging materials into rivers, oceans, and other natural environments.



Mono-material barrier packaging



Packaging using mechanically recycled PET film

### (2) Décor materials and sheets as an alternative to wood

Since the launch of our décor materials business in 1956, for more than 60 years we have provided décor materials that bring color to people's lives, such as décor sheets used for furniture, fittings, floors, and more. By leveraging our capabilities in both design and technology, we develop attractive décor materials and spaces with enhanced design quality, functionality, and durability. As an alternative to wood, these décor material products can help lower dependence on forest resources (lumber) and contribute to preservation of biodiversity.



Décor sheets for interiors



Décor sheets as part of spatial design

[Sustainable flexible packaging >](https://www.toppan.com/en/living-industry/packaging/products/sustainable_flexible_packaging/)

[https://www.toppan.com/en/living-industry/packaging/products/sustainable\\_flexible\\_packaging/](https://www.toppan.com/en/living-industry/packaging/products/sustainable_flexible_packaging/)

[TOPPAN Inc. Environmental Design Subdivision >](https://forest.toppan.com/english/)

<https://forest.toppan.com/english/>

## Risk Management

### A. The Organization's Processes for Identifying and Assessing Climate- and Nature-related Risks

The Global Environment Working Group is responsible for identifying and assessing climate-related risks. The risks identified are categorized into the following types in relation to the Group businesses we operate and the products and services we provide: technology risk, market risk, reputation risk, legal risk, risks related to existing and new regulations, and risks related to rapid or gradual physical changes. The working group then identifies potential risks and opportunities associated with each risk type, both upstream and downstream, throughout the entire value chain from R&D to procurement, production, and product supply. The impacts are assessed over the short term (within one year), medium term (two to three years), and long term (four to more than 30 years).

The TNFD Sub-Working Group, established under the Global Environment Working Group in October 2023, is responsible for identifying and assessing nature-related dependencies, impacts, risks, and opportunities. Going forward, it will follow a process similar to the one used for climate-related risks and examine financial impacts and countermeasures in detail.

### B. The Organization's Processes for Managing Climate- and Nature-related Risks

The Global Environment Working Group is responsible for formulating and advancing plans to address climate-related risks based on the results of impact assessments factoring in financial impacts. The assessment results and plans are reported to the Sustainability Promotion Committee and evaluated in a committee review. Based on reports from the committee, the Board of Directors manages climate change risks and supervises the risk

management process.

In a similar manner, the TNFD Sub-Working Group will assess the dependencies, impacts, risks, and opportunities of nature-related issues going forward.

### C. How Processes for Identifying, Assessing, and Managing Climate- and Nature-related Risks Are Integrated into the Organization's Overall Risk Management

We have established a comprehensive risk management framework that covers risks related to climate change and other ESG issues. Relevant departments and the Risk Management Working Group (led by the director in charge of risk management, attended by persons in charge of risk management at the responsible divisions, and administered by the Compliance Department in the Legal Division) work together to control individual risks under the supervision of the Board of Directors. The Risk Management Working Group performs risk assessments once yearly and identifies the risks that can exert severe adverse impacts on Group management as "significant risks." Once identified, the significant risks are reported to the Sustainability Promotion Committee and evaluated in a committee review. The Board of Directors receives reports from the committee and supervises the finalization of the annual risk review.

When designating the significant risks, the working group considers the results of Groupwide risk assessments, the likelihood that risks will arise over the medium to long term, and the frequency and severity of the risks if they do. The working group also carefully reviews the social and environmental shifts in the regions where we do business overseas and the matters pertinent to our sustainability management, such as environmental issues associated with climate change. "Risks related to climate change and loss of biodiversity" and "risks related to environmental pollution (leakage of harmful substances, illegal dumping of waste, etc.)" have been designated as significant

risks for the TOPPAN Group for fiscal 2024.

For the significant risk associated with loss of biodiversity, we have established a risk management process similar to that followed for climate-related issues.

 See the Significant Risks for Fiscal 2024 on page 143 >

## Metrics and Targets

### A. Climate Change Metrics and Targets

#### 1) Metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process

Our metrics for climate-related risks are Scope 1 & 2 and Scope 3 GHG emissions and the ratio of renewable energy out of total power consumption. Our metrics for climate-related

opportunities, meanwhile, assess how far a business mitigates climate change and helps solve social issues: percentage of operating profit contributed by growth businesses (including DX and SX) under the Medium Term Plan and number of services contributing to GHG-emission reduction under the TOPPAN Business Action for SDGs. Apart from financial metrics, we look at progress towards GHG-emission reduction targets to determine performance-linked bonuses for directors. This additional metric defines the responsibilities of management in addressing climate-related considerations.

#### 2) The organization's targets for management of climate-related risks and opportunities and progress against targets

We demonstrated our commitment to working with local communities and the entire supply chain to address environmental issues by expanding the TOPPAN Group Environmental Vision 2050 in 2023 and establishing a new theme of targeting net zero for Scope 3 GHG emissions. In addition to

### Climate-related Issues: The TOPPAN Group's Metrics, Targets, and Fiscal 2023 Results

Metrics	Targets		Fiscal 2023 Results
	Target Years	Target Values	
Scope 1 & 2 GHG emissions	Fiscal 2030	Reduce by 54.6% compared to the fiscal 2017 level (1,552 kt-CO <sub>2</sub> e)(Renewable energy ratio of 25%)	Reduced by 32.7% compared to the fiscal 2017 level (1,552 kt-CO <sub>2</sub> e) (Renewable energy ratio of 2.5%)
	Fiscal 2050	Net-zero emissions	
Scope 3 GHG emissions	Fiscal 2030	Reduce by 54.6% compared to the fiscal 2017 level (6,904 kt-CO <sub>2</sub> e)	Reduced by 17.3% compared to the fiscal 2017 level (6,904 kt-CO <sub>2</sub> e)
	Fiscal 2050	Net-zero emissions	
Percentage of operating profit contributed by growth businesses	Fiscal 2025	60%	43%
Number of services contributing to GHG-emission reduction	Fiscal 2025	40	36
	Fiscal 2030	50	

 Contributing to Decarbonization >

<https://www.holdings.toppan.com/en/sustainability/environment/globalwarming.html>

 Medium Term Plan >

<https://www.holdings.toppan.com/en/ir/management/policy.html>

 Initiatives and Accomplishments Related to Materiality >

<https://www.holdings.toppan.com/en/sustainability/progress.html>

updating the Vision, in the TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030, which are aligned with the target year of the SDGs, we have revised the reduction

targets for Scope 1 & 2 and Scope 3 GHG emissions in line with the globally targeted 1.5°C threshold.

## B. Nature-related Metrics and Targets

We are addressing a variety of nature-related issues to achieve the targets of the TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030.

### Nature-related Issues: The TOPPAN Group's Metrics, Targets, and Fiscal 2023 Results

Environmental Issues for the TOPPAN Group	Related Core Global Disclosure Metrics		Targets	Status of Response	
				Relevant Data	Response Going Forward
Preserving biodiversity	Land/freshwater/ocean-use change	1) Total surface area controlled/managed 2) Total disturbed area (land / freshwater / ocean) 3) Total rehabilitated/restored area (land / freshwater / ocean)	(Medium-and-Long-Term Environmental Targets for Fiscal 2030) ・Contribute to the conservation of regions in which humans coexist with nature both inside and outside the Group, covering an area equivalent to 10% of the area of manufacturing sites	1) Area of TOPPAN Inc.'s manufacturing sites: 2,302,000 m <sup>2</sup> 2) No data (to be compiled and surveyed in the future) 3) Total area rehabilitated/restored (voluntarily): 96,000 m <sup>2</sup>	1) Collect data on Group sites, including those overseas 2) Collect and organize land records 3) Expand collaboration with NPOs
	Resource use/replenishment	Quantity of high-risk natural commodities sourced (wood)	Confirm 100% legality in procurement of raw materials of paper by fiscal 2025	・100% confirmation of legal compliance in TOPPAN Inc.'s procurement of raw materials of paper Volume of paper procured: 474,962 tons	・Ascertain procurement volume by country ・Ascertain volume procured based on sustainable management plan and certification programs
Contributing to resource circulation	Pollution / pollution removal	1) Volume of pollutants released to soil 2) Volume of wastewater discharged and volume of pollutants in wastewater 3) Weight of hazardous and nonhazardous waste generated and weight disposed of 4) Non-GHG air pollutant emission volume	3) Reduce final landfill waste disposal by 60% (5,296 tons) compared to the fiscal 2017 level (8,739 tons) Increase waste plastic material recycling rate by 9%pt. (to 65%) compared to the fiscal 2017 level (56%)	1) No data (to be compiled and surveyed in the future) 2) Total wastewater discharge: 8.616 million m <sup>3</sup> ; BOD load: 32,799 kg; COD load: 1,344 kg; nitrogen discharge: 24,793 kg; phosphorus discharge: 8,626 kg 3) Hazardous waste discharge: 22,295 tons (of which, material recycling: 16,145 tons; thermal recovery: 3,825 tons; simple incineration: 1,192 tons; landfill disposal: 1,134 tons; and other: 0 tons) Non-hazardous waste discharge: 266,666 tons (of which, material recycling: 222,302 tons; thermal recovery: 37,490 tons; simple incineration: 3,057 tons; landfill disposal: 3,816 tons; and other: 2 tons) 4) VOC emissions into the atmosphere: 3,616 tons	1) Identify soil pollutants to assess 2) - 3) - 4) -
		・Amount of reusable plastics used (and sold)	・No target set	・No data (to be compiled and surveyed in the future)	・Survey amount procured by the Group and cases where it is contained in materials supplied by customers
Optimal water use	Resource use/replenishment	1) Volume of water withdrawal and consumption 2) Volume of water withdrawal and consumption from areas of water scarcity 3) Volume of water contributed to reduction, reuse, and replenishment	2) Achieve water withdrawal reduction targets for at least 50% of sites (four out of seven sites) with high water risk (water stress exceeding 40%)	Total water withdrawal: 11.316 million tons; total water consumption: 2.700 million m <sup>3</sup> 1) Breakdown of water withdrawal: Industrial water: 581 thousand m <sup>3</sup> (of which, 3,761 m <sup>3</sup> from sea water) Municipal water: 4.760 million m <sup>3</sup> Groundwater: 5.952 million m <sup>3</sup> Rainwater used: 22 thousand m <sup>3</sup> 2) Total water withdrawal: 661 thousand m <sup>3</sup> ; total water consumption: 31 thousand m <sup>3</sup> *Results of business sites in areas with 40% or more water stress under the Aqueduct 4.0 framework 3) Use of water circulated on premises: 2.301 million m <sup>3</sup>	1) - 2) Identify regions with water risk 3) -

\*We will also consider other core global and additional metrics.