

Climate Change Disclosure According to TCFD Recommendations

Basic Approach

Approach

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.

Back in 1992 we formulated a Declaration on the Global Environment to establish a basic Groupwide philosophy on environmental conservation. In April 2009 we revised this declaration into the TOPPAN Group Declaration on the Global Environment, a basic philosophy focused on more proactive approaches to Groupwide conservation activities.

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, to be addressed through Groupwide activities and specific business activities.

1. Governance

Promotion framework

a) Board of Directors' Oversight on Climate-related 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 2021-2022 and 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.

The Board of Directors recognizes climate change as an important issue 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.

2) Receipt of reports by the Board of Directors regarding climate-related issues—process and frequency

Each year in April, the Board receives and approves reports regarding greenhouse gas (GHG) emission results for the previous fiscal year under the TOPPAN Group Environmental

Vision's Medium-and-Long-Term Environmental Targets, as well as reports regarding single-year GHG emission targets for the current fiscal year.

On a quarterly basis, the Board receives reports regarding the assessment and status of climate-related issues. The Board also implements comprehensive decision-making with regard to such matters as management strategy, taking climate-related issues into account.

As for nonscheduled reports, in the event that new regulations, systems, or the like pertaining to climate-related issues are announced, the Board receives reports from the Sustainability Promotion Committee regarding evaluations and responses from related internal departments. Based on these, the Board then discusses and decides on responses.

b) Management's Role in Assessing and Managing Climate-related Risks and Opportunities

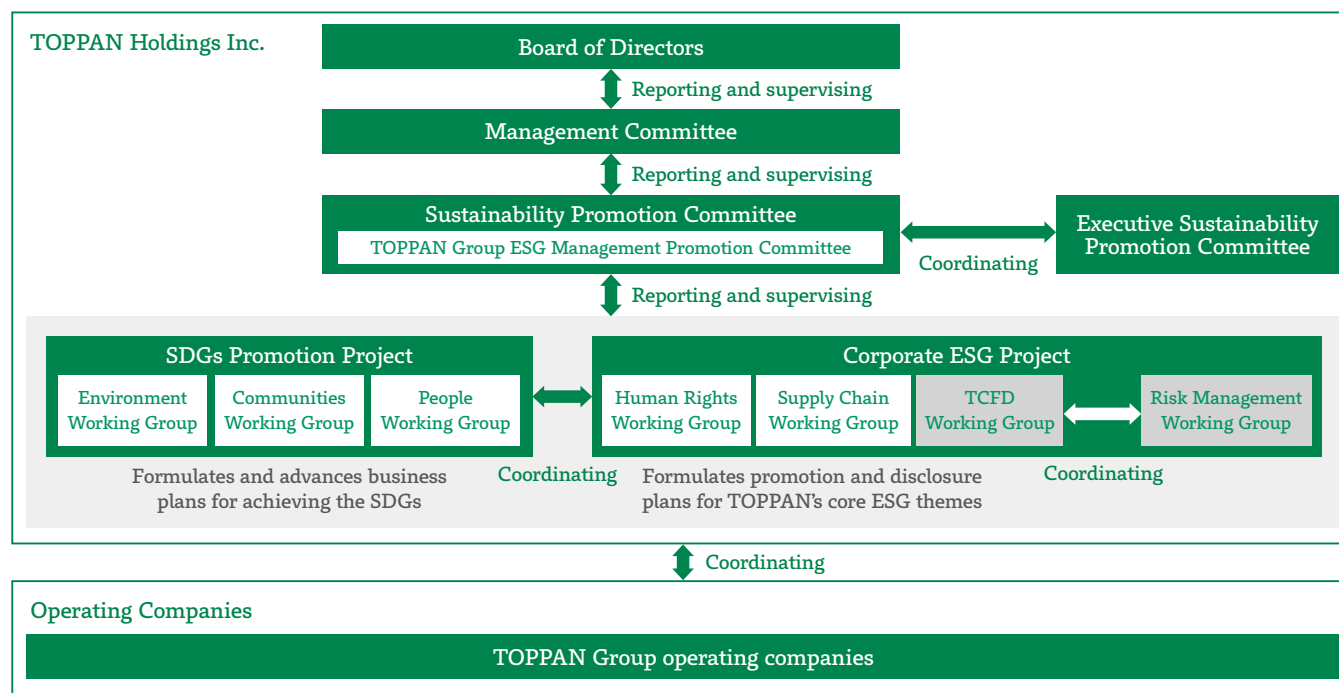
The Board of Directors has assigned responsibility for climate-related issues to the Sustainability Promotion Committee (chaired by the President & Representative Director) and supervises the activities undertaken by the committee.

The TCFD Working Group set up under the committee leads Groupwide efforts to address climate-related issues. The group members consist 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.

Through the Management Committee, the Board of Directors receives reports from the Sustainability Promotion Committee regarding the assessment and status of climate-related issues as well as target management. The Board also implements comprehensive decision-making with regard to such matters as management strategy, taking climate-related issues into account.

Governance Structure for Addressing Climate Change and Other ESG Issues



2. Risk Management

Promotion framework

a) The Organization's Processes for Identifying and Assessing Climate-related Risks

The TCFD 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, legislation 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).

b) The Organization's Processes for Managing Climate Change Risks

The TCFD 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.


c) How Processes for Identifying, Assessing, and Managing Climate-related Risks Are Integrated into the Organization's Overall Risk Management

We have established a comprehensive risk management structure that covers risks related to climate change and other ESG issues. The divisions in charge 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” for the year.

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. “Climate change risks” were designated as significant risks for TOPPAN for the year fiscal 2023.

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 annual risk review.

 See the Risk Management section on page 138 >

3. Strategy

Promotion framework

a) Climate-related Risks and Opportunities the Organization Has Identified over the Short, Medium, and Long Term

1) Review status for risks and opportunities in the organization's time frames (short-, medium-, and long-term perspectives)

The time frames for risks and opportunities are as follows: short term, within one year; medium term, two to three years; and long term, four to more than 30 years. The scheduling is coordinated with our business action plans, that is, the fiscal-year plans, medium-term plans, and long-term vision. Climate-related risks and opportunities are assessed by related departments.

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

The TCFD 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 2022 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.

3) 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.

b) Impacts of Climate-related Risks and Opportunities on the Organization's Business, Strategy, and Financial Planning

1) Impact of identified climate-related issues on business strategy

Time frames: short term, within 1 year; medium term, 2 to 3 years; long term, 4 to more than 30 years
 Financial impact: small, less than 1 billion yen; medium, 1 billion yen to 10 billion yen; large, more than 10 billion yen

Scenario	Risk Type	Shifts in Social Trends	Risks and Opportunities	Time Frame	Financial Impact	Principal Measures / Potential Businesses and Services
Transition risks and opportunities*1	Existing regulations (carbon tax, carbon emission policies)	Introduction of / increase in carbon tax	Cost increases due to the introduction of emission-credit trading and a carbon tax on fossil-fuel-derived CO ₂ emissions	Medium term	Medium Increase of 9.6 billion yen from fiscal 2021	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 purchased energy prices	Medium term	Small to 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
			Expanded markets for green energy	Long term	Medium	Strengthen the development/sales of battery packaging materials for EVs; enter renewable-energy businesses
	New regulations	Tightened regulations on fossil-fuel-derived plastics	Expanded needs for the recycling of plastics from packaging and materials	Medium term	Large	Establish new recycling schemes; strengthen the development/sales of recyclable products, such as mono-material packaging SX
		Enhanced forest protection	Expanded use of pulp from forest-thinning operations and FSC-certified paper	Short term	Small	Promote the use of paper-based Cartocan and FSC-certified products (paper products, etc.) SX
	Market	Increase in raw materials prices	Increase in procurement costs for films, paper, etc.	Medium term	Large	Check existing suppliers and find new suppliers; research/consider alternative products; monitor systems/markets from a long-term perspective
			Decline in existing paper media accompanying the digital shift	Medium term	Medium	Accelerate initiatives for business portfolio transformation, a priority measure in the Medium Term Plan
		Reinforced GHG-emission reductions at client companies	Increase in customer needs for reducing GHG emissions across the entire supply chain	Short term	Large	Enhance resources for the Erhoent-X™ business, such as manufacturing DX support (NAVINECT, etc.) and Hybrid BPO services DX
			Increase in demand for environmentally friendly products	Decrease in demand for carbon-emitting products, such as disposable plastic products	Medium term	Small to medium
	Increase in demand for low-carbon/reduced-plastic products	Short term		Large	Strengthen the development/sales of ethical sales-promotion products and sustainable packaging SX	
Physical risks and opportunities*2	Acute	Increasing severity of acute, extreme weather conditions	Increased risk of plant shutdowns due to flooding / water damage	Medium term	Large	Continue to consider alternative production plans over the long term; periodically gather flood information and take steps to address flooding-prevention technology
			Outflow of chemical substances due to flooding / water damage	Medium term	Small	Consider the possibility of chemical leakage and formulate/implement countermeasures
		Expanded markets for next-generation communications due to growth in remote monitoring needs	Medium term	Medium	Create communications-related businesses, such as ZETA-based solutions, and metaverse-related businesses DX	
	Chronic	Changes in rainfall and weather patterns	Water usage restrictions	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	Long term	Small to medium	Strengthen the development/sales of functional barrier packaging; strengthen the development of food-loss solutions SX

Risk Opportunity

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

*1 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 2021 (WEO 2021) from the International Energy Agency (IEA).

*2 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).

2) 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.

c) Resilience of the Organization’s Strategy in Consideration of Different Climate-related Scenarios

Qualitative and quantitative analyses were conducted under three scenarios (the Net Zero Emissions by 2050 [NZE] scenario, the Stated Policies Scenario [STEPS], and the Announced Pledges Scenario [APS]) presented in the World Energy Outlook 2021 (WEO 2021) issued by the International Energy Agency (IEA) and under multiple trajectories plotted out under the Representative Concentration Pathways (RCPs) presented in the Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC). The scenarios and trajectories analyzed covered the period from 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

Adaptation Plan for Transition Risks and Physical Risks

Scenario analyses have identified transition risks TOPPAN 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.

See the Transition Plan for Carbon Neutrality by 2050 on page 97 >

ICP System Overview

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

*Internal Carbon Pricing (ICP): A carbon price internally set and used by a company to promote low-carbon investments and measures. Companies can quantify climate change risks by virtually fixing the cost per ton of CO₂ emissions according to their own criteria. ICP can be considered a useful investment criterion for companies that seek to accelerate their investments in low-carbon facilities and energy-efficient measures towards achieving a decarbonized society.

4. Metrics and Targets

Policy

a) Metrics Used by the Organization to Assess Climate-related Risks and Opportunities in Line with Its Strategy and Risk Management Process

Our climate-risk indicators are Scope 1 & 2 and Scope 3 GHG emissions and the ratio of renewable energy out of total power consumption.

Our indicators for climate-related opportunities, meanwhile, assess how far a business mitigates climate change and helps solve social issues: percentage of operating profit contributed by DX/SX/frontier businesses and no. of services contributing to GHG-emission reductions under the TOPPAN Business Action for SDGs.

Apart from financial metrics, we look at progress towards GHG-emission reduction to determine performance-linked bonuses for directors. This additional metric defines the responsibilities of management in addressing climate risks.

b) Scope 1 & 2 and Scope 3 Greenhouse Gas Emissions

Scope 1 & 2 GHG emissions were 1,115 kt-CO₂e and Scope 3 GHG emissions were 5,929 kt-CO₂e for the Group as a whole, in fiscal 2022. While the Scope 1 & 2 emission target was achieved for the fiscal year, the Scope 3 emission target was not. Scope 1, 2, and 3 emissions have been calculated based on the GHG Protocol methodology and assured by an independent assurance provider.

c) The Organization’s Targets for Management of Climate-related Risks and Opportunities and Progress against Targets

Our targets for managing climate-related risks and opportunities are included among the TOPPAN Group Medium-and-Long-

Term Environmental Targets for Fiscal 2030 set towards achieving the carbon-neutrality goal cited in the TOPPAN Group Environmental Vision 2050. They are also included in the Medium Term Plan, and in the TOPPAN Business Action for SDGs, which defines the areas of focus for our measures to address the SDGs.

For Scope 1 & 2 greenhouse gas (GHG) emissions, a 28.2% reduction compared to the fiscal 2017 level was achieved in fiscal 2022. We will continue monitoring the current status and take consistent measures to work towards target achievement. For Scope 1 GHG emissions, such measures include the systematic replacement of utility facilities used for long periods with high-efficiency alternatives, the installment of systems that abate high-global-warming-potential (GWP) gases emitted from semiconductor production processes, and a switchover from those high-GWP gases to lower-GWP alternatives. The measures to reduce Scope 2 GHG emissions include safeguards to ensure that continuously operated equipment is shut down during long vacation periods.

For Scope 3 GHG emissions, a 20% reduction compared to the fiscal 2017 level was attained in fiscal 2022. We will work with suppliers to reduce GHG emissions throughout the entire supply chain pursuant to the requirements for the “contribution to decarbonization” stated in the TOPPAN Group Sustainable Procurement Guidelines.

The growing DX, SX, and frontier businesses represented 19% of the total operating profit in fiscal 2022. Our business portfolio transformation has achieved dependable results through revenues earned in growth businesses generated from our efforts to address climate change and other social challenges. We will further enhance profits in growth businesses and intensify synergies within the Group to capture the opportunities related to climate change.

The number of services contributing to GHG emission reductions was 29 in fiscal 2022. Our core packaging business

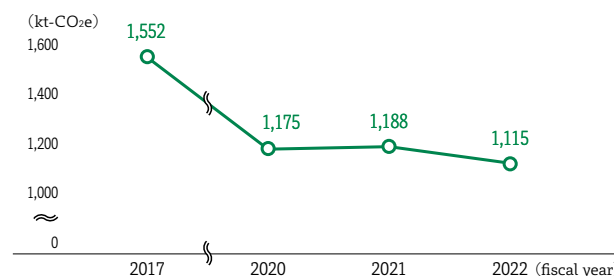
developed multiple new products with advanced materials such as biomass and recycled materials as alternatives to petrochemical-derived materials, in fiscal 2022. We will boost our drive to develop materials and packaging that contribute to GHG emission reductions and will expand our lineup of

products and services in emerging markets (e.g., energy conversion devices essential for a hydrogen society).

See the TOPPAN Group Environmental Vision 2050 on page 96 >

See the TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030 on page 96 >

Scope 1 & 2 Greenhouse Gas Emissions
(subject to the Group medium-and-long-term environmental targets) ✓

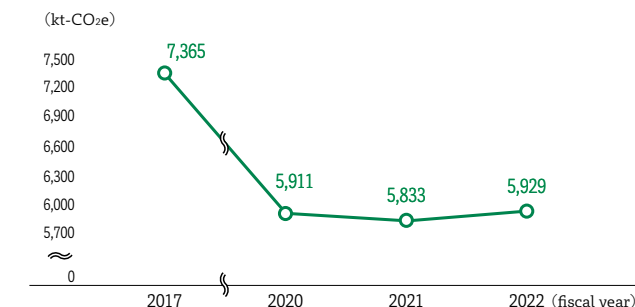


*For Scope 1 and 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the adjusted emission factor according to the method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers issued by the Ministry of the Environment (MOE) of Japan. Meanwhile, GHG emissions associated with electricity consumption at overseas sites are calculated using country-specific conversion factors published by the International Energy Agency (IEA).

GHG emissions associated with fuel consumption, excluding electricity consumption, are calculated globally by the MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers.

*The fiscal 2017 result is adjusted based on the revised medium-and-long-term environmental target (see page 96). (The result before the revision was 1,373 kt-CO₂e.)

Scope 3 Greenhouse Gas Emissions
(subject to the Group medium-and-long-term environmental targets) ✓

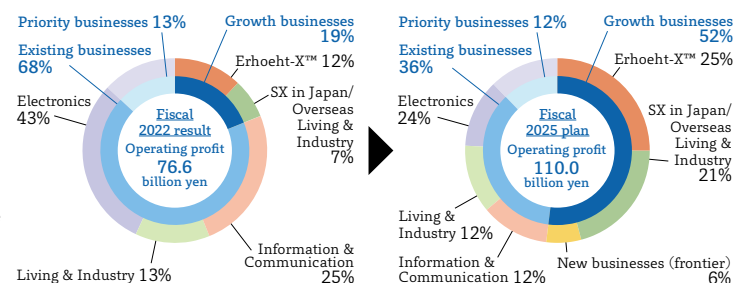


*Methods for calculating the Scope 3 GHG emissions are presented on page 107.

*The fiscal 2017 result is adjusted based on the revised medium-and-long-term environmental target (see page 96). (The result before the revision was 6,122 kt-CO₂e.)

Breakdown of Operating Profit for Growth Businesses

*The denominator used for calculating percentages is operating profit before the deduction of adjustments.



TOPPAN Business Action for SDGs

No. of Services Contributing to GHG Emission Reduction*

Fiscal 2022 result: 29
Fiscal 2025 target: 40
Fiscal 2030 target: 50

*Services that provide value primarily in terms of GHG emission reductions. Target values are cumulative totals leading up to the target year.

See the “Activities and targets set out in TOPPAN Business Action for SDGs” on page 23 >

*Every indicator assured by an independent assurance provider is marked with an assurance stamp ✓.