

Addressing Climate Change — Information Disclosure Based on the TCFD Recommendations

The Toyo Ink Group understands that the response to climate change is a material management issue with a huge impact on business activities. We expressed support for the Task Force on Climate-related Financial Disclosures (TCFD) in November 2020. In March 2023, we also announced our participation in the Japan Climate Initiative (JCI) in Japan. We are currently engaged in a number of activities to address climate change based on the Sustainability Vision “TSV2050/2030” at the core of the Group’s sustainability strategy, such as working to reduce CO₂ emissions with the aim of achieving carbon neutrality by FY2050. In this time’s disclosure, we updated our system for responding to climate change and added quantification data to the first disclosure in July 2022.

WEB The first disclosure in July 2022 is posted on the Company’s website under CSR > Five Material Issues > Material Issue 2 > Climate Change Information Disclosure Based on the TCFD Recommendation.
* In this content, “Metrics and Targets” are omitted from the core elements indicated by the TCFD recommendations. For more information on details of this core element, please visit our website.

Governance

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

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

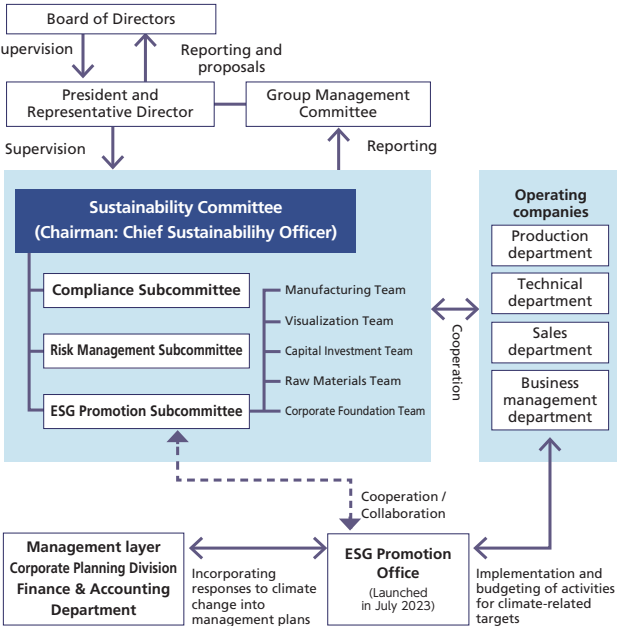
The ESG Promotion Subcommittee, which is a subordinate organization of the Sustainability Committee, is respon-

sible for collecting information on response to climate change, identifying, analyzing, and evaluating risks and opportunities, formulating internal rules, and disclosing information. To enhance the effectiveness of these activities for management, in July 2023 we established the ESG Promotion Office. Working in coordination with the Sustainability Committee, and through cooperation with senior management, the Corporate Planning Division and the Finance & Accounting Department, the office will seek to strengthen the incorporation of responses to climate change into the Group’s management plans. It will also seek to strengthen coordinated efforts within the organization by materializing and budgetizing climate-related targets for various activities, in cooperation with the management departments of each business company.

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

	Contents of report
May 2022	Proposals on a process for identifying high-priority risks and opportunities, specific outcomes and response measures
July 2022	Report on the content of climate change information disclosures (first phase) based on the TCFD recommendations (published in Integrated Report 2022)

System for addressing climate change (after July 2023)



Committees / Organizations	Roles and activities in addressing climate change
Board of Directors	Supervises all initiatives relating to climate change that have been resolved and approved by the Group Management Committee.
Group Management Committee	Discusses and resolves important issues relating to addressing climate change and reports to the Board of Directors.
Sustainability Committee	Formulates specific policies, targets, and measures relating to addressing climate change, and implements activities in coordination with Group companies.
ESG Promotion Subcommittee	Implements and advances specific activities relating to group-wide sustainability activities, including responding to climate change. Holds regular monthly meetings, and irregular meetings on specific themes. Manufacturing Team: Support for implementing measures to reduce greenhouse gas (GHG) emissions at each production site, aggregation and sharing of information, cross-organizational planning. Visualization Team: Formulates rules, builds systems, and structures the organizational framework relating to visualization of CFP. Capital Investment Team: Formulates rules and establishes mechanisms for climate-related investments, and considers the introduction of ICP. Raw Materials Team: Works to build a sustainable supply chain and transition to low-carbon raw materials to reduce Scope 3 emissions. Corporate Foundation Team: Strategy development and disclosure practices for climate change information disclosure based on the TCFD recommendations.
Risk Management Subcommittee	Implements company-wide risk management activities. Identifies, analyzes, and evaluates climate-related risks in the same way as other corporate risks, in cooperation with the ESG Promotion Subcommittee. Meetings are held twice a year.
ESG Promotion Office (Launched in July 2023)	The practical center of company-wide sustainability activities. Works in cooperation with the management and finance departments to incorporate climate change responses into management plans, implement and budgetize various activities for climate-related targets.

Risk Management

Risk / Opportunity Management Process

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

ment process as for corporate risks in general.

The ESG Promotion Subcommittee identifies and evaluates climate-related risks, makes proposals and reports to the Group Management Committee and Board of Directors, and shares information and awareness within the Group through the Sustainability Committee, which meets once a year. Senior management and Group companies incorporate response measures and action plans based on these risks and opportunities into their medium-term management plans and business plans, and reflect them in specific measures.

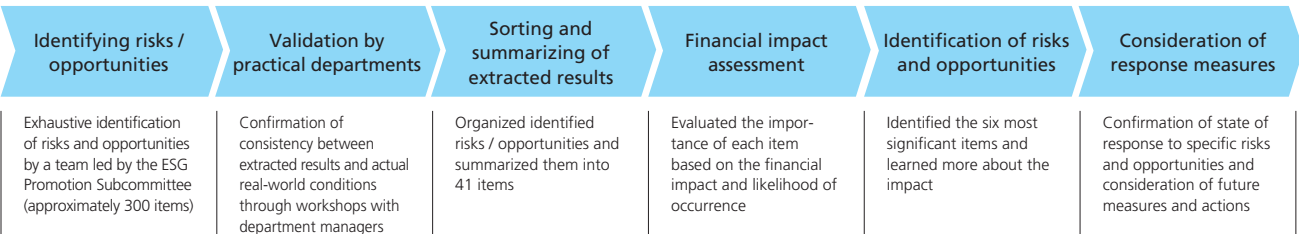
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Process for identifying and assessing risks / opportunities

Using a matrix of the categories of the risk and opportunity categories defined by the TCFD recommendations (Transition Risks: Policy and Legal, Technology, Markets, and Reputation; Physical Risks: Acute and Chronic; Opportunities: Resource Efficiency, Energy Sources, Products and Services, Markets, and Resilience) and the Group’s value chain processes (procurement, production, logistics, sales, R&D, management, use, and disposal,) the ESG Promotion Subcommittee exhaustively extracted risks and opportunities associated with climate change. The validity of the extracted results was confirmed through a workshop for depart-

ment managers at each Group company (held in February 2022 with 34 participants.) The subcommittee then summarized the approximately 300 identified risks and opportunities into 41 items, and evaluated their impact on two axes: financial impact and likelihood of occurrence in accordance with two different climate change scenarios (1.5°C and 4°C.) In this way, we identified four key risks and two key opportunities that are considered especially important to the Group based on the evaluation results.

Process for identifying and assessing climate-related risks and opportunities



Strategy

Basic policies and strategies

The Toyo Ink Group recognizes that the policies and measures taken by national and local governments in response to global climate change have a significant impact on market conditions, the procurement of raw materials and con-

sumer preferences and may have a strong impact on business continuity and business performance in the future. We analyze these risks and opportunities and reflect them in our management policies and business plans.

Basic policy on activities to address climate change

The Toyo Ink Group recognizes that climate change is a serious business risk, and actively engages responses to global demands. At the same time, we will endeavor to contribute to the improvement of social sustainability through comprehensive sustainability activities, including addressing climate change.

1. Tracking and reducing greenhouse gas (GHG) emissions in all business activities
2. Provision of products and services that contribute to helping customers and consumers address climate change
3. Building a business foundation that facilitates proactive activities to address climate change
4. Appropriate disclosure of information on the Group’s activities to address climate change

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Strategy

Scenario analysis

The purpose of scenario-based analysis is to grasp and understand risks and opportunities that will arise from anticipated climate change and what kind of impact they will have on the Group, confirm the resilience of the Group’s sustainable growth strategy in the expected future, and consider the need for further measures. The degree of financial impact and likelihood of occurrence up to fiscal 2030 (which is the target period of the analysis) for the four key risks and two key opportunities identified by the

Group were shown, qualitatively, in three stages.

In performing these analyses, we referred to a 1.5°C scenario, which envisages a world in which various measures are taken to limit the average temperature rise to 1.5°C in comparison with pre-industrial levels, and a 4°C scenario, which envisages a world in which existing political policies and systems continue to be operated as they are currently, the impact of physical risks due to climate change increases.

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

Financial impact: 3=impact of several billion JPY or higher; 2=impact of around one billion JPY; 1=impact of less than one billion JPY
Likelihood of occurrence: 3=already occurring at the present time, or almost certain to occur in the future; 2=relatively high likelihood of occurrence; 1=low likelihood of occurrence
Period of increase in impact: Short-term = around 1 year (period of annual plan) Medium-term = around 3 years (period of medium-term management plan)
Long-term = around 10 years (interim target year of TSV2050/2030 = period up to FY2030)
For our 1.5°C scenario, we refer to the IEA World Energy Outlook: Net Zero Emission by 2050 Scenario and IPCC: SSP1-1.9 scenario.
For our 4°C scenario, we refer to IEA World Energy Outlook: Stated Policy Scenario and IPCC: SSP5-8.5 scenario.
Scope of analysis: Existing businesses of the entire Group and new businesses anticipated at this time

Quantitative analysis① Amount of impact from carbon taxes

As a Group whose main business is chemical manufacturing, and which has a large amount of CO₂ emissions from its production activities, we recognize that the introduction of carbon taxes in the regions where we operate both in Japan and overseas will have a strong impact on the Group’s finances.

The Group has therefore quantitatively analyzed the extent to which the interim targets of the TSV2050/2030

sustainability vision formulated and disclosed in January 2022—CO₂ emissions: 35% reduction in Japan (from the fiscal 2020 level,) 35% reduction in other countries (compared to the fiscal 2030 BAU)—will reduce the financial impact of carbon taxes. For both scenarios used in the analysis, we confirmed that achieving the TSV2030 targets would reduce the impact by approximately 38%.

Scenario		1.5°C	4°C
Carbon tax per ton of emissions* (2030)		14,950 JPY/t-CO ₂	7,475 JPY/t-CO ₂
FY2030BAU	CO ₂ emissions	Japan: 88,400 t-CO ₂	Overseas: 146,000 t-CO ₂
	Impact from carbon tax	3.51 billion JPY	1.74 billion JPY
When TSV2030 targets are achieved	CO ₂ emissions	Japan: 50,000 t-CO ₂	Overseas: 95,000 t-CO ₂
	Impact from carbon tax	2.17 billion JPY	1.08 billion JPY
Difference		-1.34 billion JPY	-0.66 billion JPY

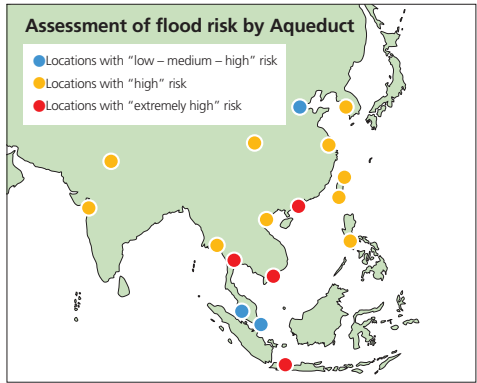
* For a carbon tax per ton of emissions, we referred to the IEA World Energy Outlook 2021. The 1.5°C scenario quotes the carbon tax price for developed countries given by the Net Zero Emission by 2050 Scenario, while the 4°C scenario quotes the EU carbon tax price given by the Stated Policy Scenario.
* The FY2030 BAU assumes that domestic and overseas activity (net sales) will increase by 15% and 23%, respectively, in comparison with FY2020, and that emissions intensity will remain unchanged from FY2020.

Quantitative analysis② Amount of damage in the event of flooding in areas with high water risk

The Group uses the World Resources Institute (WRI) water risk assessment tool Aqeduct 3.0 to assess physical risks (quantitative and qualitative,) water stress, flood risk, and regulatory and reputational risks on a river basin level. As a result, more than half of our overseas offices in Asia (South-east Asia, India, China, Taiwan, and South Korea) have been assessed as having some kind of water risk (high to significantly high.) In particular, the risk of flooding is significantly high in China (South China,) Vietnam, Indonesia, and Myanmar.

This time, we estimated the amount of damage caused by flooding at business sites located in areas indicated as having a high flood risk. At business sites located in such high-risk areas, we are working to reduce risks by deploying countermeasures implemented by Toyo Ink (Thailand) Co.,

Ltd. (Thailand)—which has experienced large-scale flood damage in the past—across the board, and by conducting regular drills in preparation for the occurrence of floods.



Amount of damage in the event of flooding*1 at business sites in areas with high flood risk (estimated)

Category	Specific damage	Number of locations	Amount of damage (estimated)
Direct damage*2	Damage to buildings (offices, factories, warehouses, etc.)	3	2,429 million JPY
	Damage to equipment (production equipment, vehicles, office equipment, etc.)	3	6,618 million JPY
	Damage to inventory (products, work in process, raw materials, etc.)	3	6,816 million JPY
Indirect damage*3	Opportunity losses due to shutdowns	3	7,326 million JPY
Other damages			—
Total			23,189 million JPY

*1 Under the climate scenario of a 4°C rise at the end of the 21st century, we assumed that floods would occur on a scale of about once every 100 years.
*2 We set damage ratios for each depth of inundation (flooding,) and estimated the amount of damage to buildings, equipment, and inventory at each business site.
*3 We set an average number of shutdown days for each depth of inundation, estimated the number of days of shutdown for each affected site, and estimated the amount of opportunity losses.

Quantitative analysis③ Reducing CO₂ emissions by using environmental value product lines that contribute to sustainability

Under our TSV2050/2030 Sustainability Vision, we added criteria for products with lifestyle value (value that can contribute to the improvement of the sustainability of society) to our existing environmental value criteria for environmentally friendly products and redefined them as sustainability-enhancing products. The Group is accelerating R&D efforts and shifting its product portfolio with the goal of achieving a sales ratio of 80% or more of these sustainability-enhancing products by fiscal 2030.

The environmental value products line is a set of functional products that can reduce environmental impact throughout the product lifecycle, such as through the use of low-carbon raw materials, product weight reduction (achieving the same performance as conventional products with less amounts used,) and energy saving during use. As an example, we have quantified the reduction rate for CO₂ emissions that can be achieved by shifting to biomass and water-based raw materials of gravure inks for packaging materials, which the Group is working to achieve.

CO₂ emission reduction effects when using environmental value products (gravure inks for packaging materials)

