TCFD REPORT

Task Force on Climate-related Financial Disclosures Report

2023

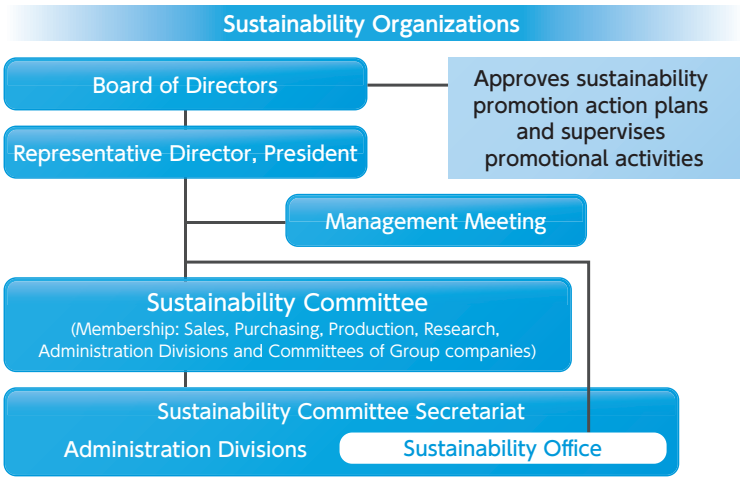
NIPPON FINE CHEMICAL CO., LTD.

Initiatives in Line with TCFD Recommendations

The Nippon Fine Chemical Group uses raw materials derived from fossils and fossil fuel as energy sources in the manufacture of many of our products. Based on our recognition that risks and opportunities due to climate change are key management issues, in December 2021, we declared our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We are using scenario analysis to assess the risks and opportunities of the impact of climate change on our business. Going forward, we will recognize the significance of such impact, strengthen the resilience of our strategies by reflecting such impact in our management measures and strengthen relationships of trust with our stakeholders.

Governance

We have established a Sustainability Committee, chaired by our Representative Director, President and composed of members selected from each division.
The Sustainability Committee identifies risks and opportunities based on scenario analysis of climate-related issues, assesses their importance, formulates promotion action plan, and manages the progress of activities.
The Sustainability Committee puts together a promotion action plan once a year, which the Board of Directors approves following deliberation by the Management Meeting.
The Sustainability Committee checks the state of activities on a quarterly basis, in principle, and reports the results of such checks to the Management Meeting. The Board of Directors receives semiannual reports and supervises promotional activities.



Details of external trends and information on climate change are shared with the Management Meeting and the Board of Directors through the Sustainability Committee obtained by endorsing the TCFD recommendations and joining the TCFD Consortium.
To promote the reduction of greenhouse gas emissions, the Board of Directors approved and announced a 38% reduction in carbon dioxide emissions by FY2030 compared to FY2013 levels. In addition, the state of achievement of materialities, including the reduction of carbon dioxide emissions, is reflected in performance-linked remuneration paid to directors and corporate officers.

●Sustainability Committee Agenda for FY2022

Timing of Meeting	Main Matters Discussed
April 2022	Evaluation indicators for materialities, formulation of numerical materiality goals, and proposed TCFD disclosures
July 2022	Formulation of a plan for achieving the numerical materiality goals and calculation of business impact assessments related to TCFD
August 2022	Details of TCFD business impact assessment estimates
September 2022	Details of TCFDs business impact assessment estimates and proposed disclosures
October 2022	Confirmation of the progress of the plan to achieve numerical materiality goals and details of the TCFD business impact evaluation estimates and countermeasures, and indicators and targets
November 2022	TCFD business impact evaluation estimates and countermeasures, and indicators and targets
December 2022	TCFD disclosure draft
January 2023	Confirmation of the progress of the plan to achieve numerical materiality goals and proposed TCFD disclosures
February 2023	Committee's final TCFD Group disclosure draft

Risk Management

The Company-wide Risk Management System Committee, chaired by the Representative Director, President and composed of managers, is the highest decision-making body in our risk management system (RMS). The committee discusses risk management policies, plans, implementation, RMS improvements, and other general RMS-related matters, and final decisions on such matters are made by the chairman based on the outcome of such discussions. The Company-wide RMS Committee identifies critical risks using a risk map based on the "impact on business activities" and "frequency of occurrence" evaluation axes. Risk management for sustainability-related matters is referred to the Sustainability Committee, which identifies materialities based on the degree of importance to stakeholders and the degree of importance to our Group. The Sustainability Committee has identified climate-related risks as one of the environmental materialities, and identifies and evaluates risks and opportunities based on the following evaluation axes to determine the level of materiality. The Committee formulates measures and creates promotion action plans for items that are assessed as having a significant impact on risks and opportunities. The Committee also manages the progress of the formulated plans and activities and reports such progress to the Management Meeting. The Management Meeting deliberates management plans and business strategies based on the state of current initiatives and other factors, and such plans and strategies are then approved by the Board of Directors.

●Assessment Axis for Climate-Related Risks and Opportunities

1. Identify risks and opportunities related to climate change that may affect the Group with reference to the TCFD Final Report
2. Evaluate identified risks and opportunities from the perspective of their impact on the Group's business activities, customers, suppliers, etc., and the likelihood of their occurrence
3. Evaluate the impact of each item from both a qualitative and a quantitative perspective using scenario analysis to determine relative importance

Strategies

We have added ARBOS which is NFC Group company and in environmental hygiene product business, to the strategies for the impact of climate change on our business. We set 2030 and 2050 as the time frame for considering, and have analyzed scenarios for "risks and opportunities associated with the transition to a low-carbon economy" and "risks and opportunities associated with the physical impact of climate change" in a "1.5˚C world" in which climate change measures have progressed and the Paris Agreement targets have been realized and in a "4˚C world" in which no new climate change measures are taken and greenhouse gases have increased. In assessing the impact on our business, we found that under the 1.5˚C scenario, there will be a significant impact on our business of policies and regulations relating to carbon taxes and emission reductions and concerns about procurement of naturally derived raw materials, while there will also be opportunities to expand the sale of materials for perovskite solar cells. Under the 4˚C scenario, we found that there will be a significant impact on our business of soaring crude oil prices and concerns over the procurement of naturally-derived raw materials, while there will also be opportunities to expand the sale of materials for perovskite solar cells as under the 1.5˚C scenario.
Nippon Fine Chemical alone has reduced Scope 2 by switching all purchased electricity to renewable energy since May 2022. In the future, we will promote Scope 2 reductions by expanding this switch to Group companies. We will also implement fuel conversion from heavy oil to city gas for boilers, and continue to consider Scope 1 reductions by upgrading aging facilities to save energy and replacing company vehicles with EVs, etc.

●Main Scenarios Referenced

	1.5˚C Scenario	4˚C Scenario
Transition-related Risks and Opportunities	International Energy Agency (IEA) IEA NZE2050	International Energy Agency (IEA) IEA STEPS*
Physical impact-related Risks and Opportunities	Intergovernmental Panel on Climate Change (IPCC) SSP1-1.9	Intergovernmental Panel on Climate Change (IPCC) SSP5-8.5

*Substitute due to there being no 4˚C scenario

Results of 1.5°C and 4°C Scenario Analysis (affected items)

		Risk/Opportunity Category	1.5°C World	4°C World
Transition	Policies/Regulations	Carbon tax and carbon price	Carbon taxes will be introduced to achieve the 1.5°C target, carbon prices will rise, emissions trading will become more common, and production, transportation, and procurement costs will increase.	Efforts related to carbon pricing will not have progressed and remain largely unchanged from the current situation.
		Carbon emission targets/ policies in each country	- Global regulations on palm plantation development will be tightened, palm oil supplies will be squeezed, and there will be pressure on supply and demand. - The introduction of carbon taxes in the EU will trigger a global trend of imposing the same level of tax on virgin plastics, including in Japan, which will lead to higher procurement costs.	- Palm oil supplies from newly developing countries will grow and supply and demand is stable. - The obligation to use recycled plastic will not be introduced and use will remain largely unchanged from the current situation.
	Industry/Market	Soaring price of raw materials	Oil prices will decline as a result of a significant drop in demand due to low-carbon technology innovation and policies to reduce CO_2 emissions.	With no restrictions on fossil fuels, the global demand for energy is increasing. The price of petroleum-derived raw materials will rise in line with the rise in the price of crude oil.
		Development of new products and services through R&D and innovation	Globally, the amount of solar power generation equipment introduced in 2030 is expected to be 4.3 times the current level, which will increase the demand for raw materials.	Globally, the amount of solar power generation equipment introduced in 2030 is expected to be 3.1 times the current level, which will increase the demand for raw materials.
Physics	Chronic	Increase in average temperature/changes in precipitation and temperature patterns	The quantity of wool grease produced will decrease, making it difficult to procure, following the decrease in raw wool production due to the reduced demand for wool as a result of higher average temperatures.	- More frequent and prolonged droughts associated with higher average temperatures will suppress sheep numbers due to feed shortages and higher feed prices. The number of sheep will also decrease due to the fall in the birth rate caused by the heat. - The quantity of wool grease produced will decrease, making it difficult to procure, following the decrease in raw wool production due to the reduced demand for wool.
			There will be no change in the supply of rapeseed oil due to higher average temperatures, and procurement costs will remain virtually unchanged.	There will be a decrease in rapeseed oil production due to higher average temperatures and lower labor productivity will result in a fall in supply and higher procurement costs.

Addressing Climate Change Risks and Opportunities

	Financial impact	Risks	Opportunities
Small	Less than 100 million yen		
Medium	100 million yen to less than 500 million yen		
Large	500 million yen or more		

	Period	Reason for Adoption
Medium-term	Until FY2030	Measure in line with the FY2030 38% reduction target for carbon dioxide emissions
Long-term	Until FY2050	Measure in line with FY2050 carbon neutrality goal

Scenario	Risk/Opportunity	Target Business	Impact on Business		Financial impact	Countermeasures	Period
1.5°C Scenario	Carbon tax and carbon price	F/E	The introduction of carbon pricing, a policy approach that puts a price on carbon causing carbon emitters to change their behavior, may increase procurement and transportation costs due to the increase in the price added to carbon emissions by suppliers and transporters, as well as the direct tax burden.	Risks	Large	Nippon Fine Chemical alone switched all purchased electricity to renewable energy in 2022, and reduced CO_2 emissions by switching the energy source for its boilers from heavy oil to city gas.	Already implemented
						- Use a carbon neutral natural gas heat source. - Introduce heat source equipment that uses energy that does not emit carbon dioxide. - Introduce carbon dioxide capture and separation technology. - Improve product production processes and develop new products by introducing flow reactors and using enzymes. - Reduce carbon dioxide emissions by consolidating suppliers and sales destinations. - Reduce carbon dioxide emissions by replacing company vehicles with EVs, etc.	Long-term
	Increase in average temperature/changes in precipitation and temperature patterns	F	Reduced demand for wool as a result of rising average temperatures may make it difficult to procure naturally-derived raw materials (wool grease) and procurement costs may increase.	Risks	Large	- Consider using biomass and algae-derived oils and fats. - Expand recycling of by-products of products. - Reduce the amount of wool grease purchased by reducing the quantity of products sold.	Long-term
	Develop new products and services through R&D and innovation	F	The introduction of carbon pricing will encourage the use of renewable energy and the demand for solar power generation equipment will increase.	Opportunities	Large	Develop materials for perovskite solar cells and expand sales.	Medium-term
4°C Scenario		F	The use of renewable energy will be encouraged and the demand for solar power generation equipment will increase.	Opportunities	Large		
	Soaring price of raw materials	F/E	Soaring crude oil prices following an increase in demand for fossil energy may increase the cost of procuring petroleum-derived raw materials.	Risks	Large	- Consider substitution with non-petroleum-derived raw materials. - Consider using biomass and algae-derived oils and fats. - Promote the 3Rs for plastics, which are made from petroleum-derived raw materials.	Long-term
	Increase in average temperature/changes in precipitation and temperature patterns	F	More frequent and prolonged droughts associated with higher average temperatures will suppress sheep numbers due to feed shortages and higher feed prices and reduce birth rates due to the heat. In addition, reduced demand for wool may make it difficult to procure naturally-derived raw materials (wool grease) and procurement costs may increase.	Risks	Large	- Consider using biomass and algae-derived oils and fats. - Expand recycling of by-products of products. - Reduce the amount of wool grease purchased by reducing the quantity of products sold.	Long-term
			There will be a decrease in rapeseed oil production due to higher average temperatures and lower labor productivity will result in a fall in supply and higher procurement costs.	Risks	Medium	- Consider using biomass and algae-derived oils and fats. - Multiple supply sources.	Long-term

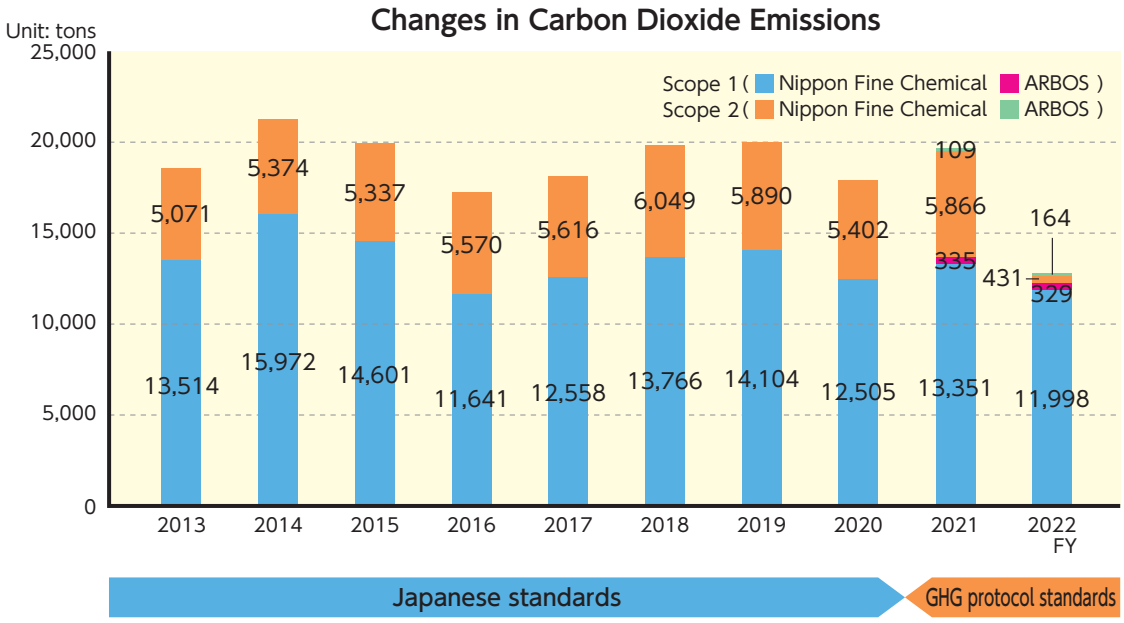
F: Functional Products Business E: Environmental Hygiene Products Business

●Develop Materials for Perovskite Solar Cells

The films for perovskite solar cells, which are expected to form the next generation of solar cells and which are currently being developed, can be manufactured at low cost. They are expected to be used for multiple applications due to being both light and very flexible, and not requiring as much installation space as older types. Nippon Fine Chemical is working on the development and practical use of Spiro-MeOTAD (SFA) and other materials used as novel organic hole transport materials that offer high performance for perovskite solar cells, the most promising new renewable energy source.

Indicators and Targets

The greenhouse gas emitted by the Nippon Fine Chemical Group is mostly energy-derived carbon dioxide. In October 2021, the Japanese government published its Plan for Global Warming Countermeasures for Scope 1 and 2* which calls for a 46% reduction in Japan's overall GHG emissions by FY2030 compared to FY2013 levels. Within this overall goal, the industrial sector' s target is a 38% reduction in energy-derived carbon dioxide by FY2030, and so we are working to reduce our carbon dioxide emissions by 38% in FY2030 compared to FY2013. Despite adding Group company ARBOS (environmental hygiene products business) to our carbon dioxide emissions from FY2021, we have not changed our carbon dioxide emissions reduction target for FY2030. Nippon Fine Chemical alone has reduced Scope 2 by switching all purchased electricity to renewable energy since May 2022. In the future, we plan to conduct Scope 3* calculations to reduce the amount of greenhouse gas emissions throughout our supply chain. We will also work to achieve carbon neutrality by 2050. In addition, the state of achievement of materialities, including the reduction of carbon dioxide emissions, is reflected in performance-linked remuneration paid to directors and corporate officers.



Note: - Japanese standards: calculated based on Act on the Rational Use of Energy and Act on Promotion of Global Warming Countermeasures
- GHG emissions from FY2021 are calculated based on GHG protocol standards

*Scope 1: Direct GHG emissions from an operator' s own fuel combustion
Scope 2: Indirect GHG emissions from the use of electricity and heat supplied by other companies
Scope 3: indirect emissions not included in Scope 1 and Scope 2
(emissions by other companies related to the company' s activities)