

Planet

Corporate Statements

The Kuraray Group
Code of Conduct

TOP STATEMENT

Sustainability Long-term
Vision and Sustainability
Medium-term Plan

Materiality of Kuraray
Group

Planet

Environmental
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Global Warming
Prevention

Reduction of
Environmental Risk

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(integrated report) /
Sustainability website

Initiatives, etc.

Planet priority measures in the Sustainability Medium-Term Plan

Planet	GHG emissions	Benchmarks		2024	2026
		Scope1+2	Year 2019:3.2 million tons-CO ₂ e	No increase in emissions compared to 2019	
		Scope3	Year 2019:0.9 million tons-CO ₂ e (Japan)	<ul style="list-style-type: none"> Target the entire Group and identify the category dominates for more than two-thirds of emission In fiscal 2023, formulate numerical reduction targets for fiscal 2024 and fiscal 2026 	

Result in 2022 and Target in 2023

Planet	GHG emissions	Result in 2022		Evaluation in 2022	Target in 2023
		Scope1+2	2,896 thousand tons-CO ₂ e	target achieved (3,230 thousand ton-CO ₂ e or less)	No increase in emissions compared to 2019
		Scope3	<ul style="list-style-type: none"> Target the entire Group and identify the category dominates for more than two-thirds of emission In fiscal 2023, formulate numerical reduction targets for fiscal 2024 and fiscal 2026 		

Environmental Management

Global Warming Prevention

Updated

Reduction of Environmental Load

Environmental Accounting

Environmental Data

Sustainability Medium-term Plan for Planet

- Global Warming Prevention / GHG Emissions and Reduction Measures
- Global Warming Prevention / Response to TCFD Recommendations and Internal Carbon Pricing

Global Warming Prevention

Response to TCFD Recommendations

In November 2020, Kuraray Group endorsed the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD)* in recognition of the importance of the climate change control as one of our high-profile issues. The Sustainability Medium-Term Plan, which started from 2022, includes measures to mitigate climate change such as reducing greenhouse gas (GHG) emissions, pursuing energy savings, expanding the products that contribute to improve the natural environment and responding to the Circular Economy. In addition to implement these measures gradually, we will enhance the disclosures of strategy, based on governance and scenario-based analysis, risk-management, indicators and targets which are recommended by TCFD.

*TCFD stands for "Task Force on Climate-related Financial Disclosures" which has been established under Financial Stability Board (FSB) to review how to correspond to climate change disclosures and requirements from the financial sector.

In Kuraray Group, Sustainability Committee, chaired by the president, promotes sustainability activities. Under the umbrella of this committee, we will establish several project teams to implement the global measures outlined in the Sustainability Medium-Term Plan and promote each project. In addition to confirm the progress of the projects relates to climate change control, TCFD Promotion Project Team, which has been established under the umbrella of Sustainability Committee, will enhance the disclosure based on TCFD Guidance.

Topics discussed at Sustainability Committee are going to be reported to the Board of Directors and the feedback from them would be reflected in the future sustainability activities.

Strategy

In 2021, Kuraray Group selected the risks and opportunities for events occurring in the transition to a low-carbon society and for physical events caused by climate change as shown in Table 1 below.

Table1: Risks and Opportunities by Climate Change in Kuraray Group

Items	Social changes caused by climate change	Business risks	Business opportunities
Transition Risk to Low-carbon society	Policies and Legal	Carbon Taxes and Carbon Emissions Targets at each countries Rising carbon prices, Energy mix changeRenewable energy subsidy policy and energy-saving policy	- Decrease in revenue from the burden of carbon taxes on GHG emissions and energy procurement - Strengthening CO ₂ Emissions Reductions and Installing Emissions Trading - Introduction of Carbon Border Adjustment Mechanism
		Decarbonize technologies Replacement with low-carbon products and renewable materialsCreating a circular economy	- Increase in manufacturing costs and a decrease in the use of plastic products due to changes to environmentally friendly designs that premise resource recycling in order to comply with plastic regulations - Decrease in internal-combustion engine related products due to increase of electric mobility ratio
		Changes in customers and investors behavior Increasing demand for climate change control	- Decline in competitiveness due to avoidance of high GHG emissions products - Divestment from companies who do not put an effort to tackle decarbonization
	Reputation	Catastrophic disasters of weather conditions Increase in typhoons, heavy rain, sand, and cold wave	- Increased damage to plant and production capacity reduction or shutdowns due to flooding in areas nearby the oceans and rivers - Shutdown or decrease in revenue due to supply chain disruption
		Average temperature Increase Increase in heat wave and heat stress	- Decline in production efficiency due to unfavorable working environment caused by temperature rising
		Changes in weather and rainfall patterns Occurrence of drought	- Decline in production capacity or shutdown due to rising water costs caused by drought - Revenue decrease in the agricultural business due to a decline in agricultural production caused by poor crop yield
	Acute	Sea level rise Occurrence of storm surges and high waves	- Decline in production capacity or shutdown due to flooding - Cost increase by water exposure prevention measures (breakwaters, raising, relocation)
			- Expand business of disaster countermeasure-related materials
	Chronic		- Expand business that reduce scarce water supply and food losses - Expand business related to plant factories that are less affected by climate change

In 2022, we have started scenario analysis based on the below 2-degree scenario (including a 1.5-degree scenario) in which the transition to a low-carbon society is progressing and the 4-degree scenario in which climate change is advancing, and in 2023 we completed a business impact assessment of the major risks and opportunities for the entire Kuraray Group. For this, we drew on insights from reports such as the World Energy Outlook published by the International Energy Agency (IEA). The results are shown in Table2.

Table2: Business Impact of the Kuraray Group's Major Risks and Opportunities in Climate Change Scenarios

	Risks and opportunities	Business impact	Business impact in 2030	
			Scenario	
			4°C	Below 2°C
Transition Risk to low-carbon society	Decrease in revenue from the burden of carbon taxes on GHG emissions and energy-procurement	Costs due to carbon tax*	Medium	Large
	Impact of achieving GHG emission reduction initiative targets	Change in purchase cost of fossile fuels/oil-derived raw materials	Small	Medium
	Expand business of products made by bio-materials	Changes in utility costs (electricity)	Small	Medium
	Expand business of recycling-related products	Costs avoided by GHG emission reduction initiatives	Medium	Large
	Expand business of food loss reduction products	Increase in operating income from biomass-derived products	Small	Medium
	Expand business in electric mobility related products due to increase in electric mobility ratio	Increase in operating income for recyclable plastic products	Medium	Medium
	Decrease in internal-combustion engine related products due to increase electric mobility ratio	Increased in operating income of food packaging materials	Small	Small
Physical Risk by climate change	Increased damage to plant and production capacity reduction or shutdowns due to flooding in areas nearby the oceans and rivers	Change in operating income for electric mobility-related products	Small	Small
	Decline in production efficiency due to unfavorable working environment caused by temperature rising	Change in operating income of automotive fuel and air intake related products	Small	Small
	Expand business that reduce scarce water supply	Costs of damage caused by future increases in flooding	Medium	Small

*Below 2°C scenario (including 1.5°C scenario); \$140 / ton-CO₂e for Advanced countries and \$25 / ton-CO₂e for Emerging countries in 2030. 4°C scenario; \$90 / ton-CO₂e for EU in 2030

The impact of * carbon prices on GHG emissions and energy procurement in the 2° C or below scenario was significant. After the implementation of measures to reduce GHG emissions in 2030, Kuraray Group was expected to bear a burden by carbon tax of approximately 32 billion Japanese yen, indicating the possibility of increased operating costs. As a countermeasure, we will steadily advance our GHG emission reduction program toward the goal of zero-carbon emissions by 2050, while at the same time reflecting the market value created by highly environmental contribution products in product and service prices.

*Calculated based on World Energy Outlook 2022 at \$140 /ton-CO₂e for developed countries, \$25 /ton-CO₂e for emerging countries [2030, 1.5° C scenario]

In the future, we will respond to the major impacts derived from scenario analysis, while at the same time reviewing and reflecting the calculation detail in a timely manner in response to changes in the environment.

Risk Management

Kuraray Group conducts risk management for both "Mitigation" and "Adaptation" to the risks listed in Table 2.

In order to "mitigate" the risk of transition to a low-carbon society, we are reducing GHG emissions and expanding sales of products that contribute to the natural environment. Progress is confirmed by the Sustainability Committee (chaired by the president).

Meanwhile, each organization conducts annual risk self-assessments of "adaptation" measures against climate change to strengthen disaster countermeasures and business continuity. The results of these assessments are discussed by the Risk Management and Compliance Committee (chaired by the director in charge of the Corporate Sustainability Division), and if countermeasures are necessary, the president identifies them as management risks and appoints a person in charge to proceed with countermeasures.

Metrics and Targets

As our long-term goal for mitigating climate change, we will target to reduce our own GHG emissions (Scope1 and 2) by 30% in 2030 compared with in 2019 and to achieve carbon net zero in 2050. In the Sustainability Medium-Term Plan, we have set the following targets for reducing GHG emissions related to climate change and for the Revenue ratio increase of natural environment contributing products.

Table3: Measures and Targets Related to Climate Change in the Sustainability Medium-Term Plan

			Benchmarks	2024	2026	2027 and beyond
 Planet	GHG emissions	Scope 1+2	Year 2019: 3.2 million tons	No increase in emissions compared to 2019		<ul style="list-style-type: none"> ● 2030: 30% reduction compared to 2019 ● 2050: Carbon Net Zero
		Scope 3	Year 2019: 0.9 million tons (Japan)			<ul style="list-style-type: none"> ● Target the entire Group and identify the category dominates for more than two-thirds of emission ● In fiscal 2023, formulate numerical reduction targets for fiscal 2024 and fiscal 2026
 Product	Revenue Ratio of Natural Environment / Living Environment Contributing Products (Of which, Revenue Ratio of Natural Environment Contributing Products)		Fiscal 2020: 46% (16%)	55% (23%)	60% (27%)	

Internal Carbon Pricing(ICP)

The Kuraray Group uses ICP to incentivize energy saving, identify revenue opportunities and risks, and inform investment decision making, aiming to realize a low-carbon society.

The Kuraray Group's ICP

Internal carbon price	¥10,000/t-CO ₂ (calculated using internal exchange rates overseas)
Starting Date	January, 2022
Scope	Capital investment entailing a change in CO ₂ emissions
Method of application	The costs of changes in CO ₂ emissions will be calculated using the internal carbon price and used as a criterion for investment decisions

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