# Taking on two global themes

**Climate Action and Natural Capital**

Materiality

③ Promote Responsible Care activities

The NOF Group endorses the recommendations of both the Task Force on Climate-related Financial Disclosures (TCFD) and the Taskforce on Nature-related Financial Disclosures (TNFD). We are committed to taking concrete action to address global issues such as climate change and the loss of natural capital, including biodiversity, while disclosing information in line with these recommendations.

## Policy (our fundamental view)

Responding to climate change and conserving natural capital (biodiversity, water, etc.) are urgent, shared global challenges. Failure to address them would entail a wide range of threats including extreme weather events, food crises, and the depletion of water resources. The Paris Agreement and the Kunming-Montreal Global Biodiversity Framework both emphasize the importance of corporate action in resolving these issues.

## Support for and engagement with the TCFD and TNFD recommendations

(1) In April 2022, the NOF Group announced its support for the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD). We also endorsed the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD) and joined the TNFD Forum in January 2025.

(2) Based on both the TCFD and TNFD recommendations, the Group will work to reduce climate- and nature-related risks and create opportunities for growth, as well as expand our information disclosure.

(3) By engaging in information disclosure according to both the TCFD and TNFD recommendations, the NOF Group will co-create new value with the power of chemistry toward the realization of a prosperous and sustainable society as stated in the NOF VISION 2030.

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

TNFD Forum Member

## General requirements under the TNFD Recommendations

**1. Application of materiality**
In assessing risks and opportunities for this disclosure, the NOF Group adopted a single materiality approach, ensuring alignment with our risk management practices and TCFD disclosures.

**2. Scope of disclosure**
Please see “Scoping: Defining the Scope of Analysis” (p. 084) in “Strategy”.

**3. Geographic areas with nature-related issues**
As areas with nature-related issues, we identified and analyzed all NOF Group production sites, as well as raw material production areas and procurement sites, corresponding to “(2) Scope of disclosure.” For details of the analysis results, see “Strategy” (p. 084–085).

**4. Integration with other sustainability-related disclosures**
We provide integrated disclosure regarding both climate change measures and the conservation of natural capital.

**5. Time periods considered**
For the assessment of risks and opportunities, we set short-term (2023–2025), medium-term (around 2030), and long-term (around 2050) time horizons (p. 088–089).

**6. Engagement with Indigenous peoples, local communities, and affected stakeholders**
Please see “Oversight of Stakeholder Engagement” in “Governance”.

## Governance

### Governance structure for climate change response and natural capital conservation

The NOF Group identifies materiality issues (important issues) related to sustainability through deliberations in the Strategic Meeting, which is composed of Directors concurrently serving as Operating Officers and Operating Officers with a title, and the Sustainability Committee, which is chaired by the President and Chief Executive Officer and all Directors participate. The Board of Directors then approves the materiality issues. As the secretariat of the Sustainability Committee, the Corporate Planning & Strategy Department, Corporate Technical Division, Human Resources & General Affairs Department, Purchasing Department, and Corporate Communications Department promote the formulation and specific development of sustainability strategies for the entire Group. The Committee also reviews materiality annually, reassessing materiality items, KPIs, numerical targets, and response policies to ensure continuous improvement in activity levels.

Responses to climate change and natural capital conservation are treated as important matters, including mid- to long-term goals, and are deliberated by the Sustainability Committee. In regard to risks, the Risk Management Committee conducts a comprehensive assessment, while the RC Committee supervises monitoring and managing the progress of risk countermeasures and reduction measures related to greenhouse gas emissions, pollutants emissions, and zero emissions. In addition, opportunities are discussed by the Executive Management Committee and the Priority Business Review Committee, and important matters are deliberated by the Executive Committee. Within the governance structure, these committees operate under the oversight of the Board of Directors. Their deliberation results are reported to the Board. In addition to regular reports once a year, a system has been put in place in which the consultation content of committees and meetings held on an ad hoc basis are reported to the Board of Directors as necessary for supervision and approval.

### Oversight of stakeholder engagement

We believe that stakeholder engagement is essential to ensure the long-term growth and the sustainability of a company. Because the business activities of the NOF Group may have impacts on Indigenous peoples, local communities, and others, we have established our CSR Procurement Policy and CSR Procurement Guidelines, and engage in dialogue with local communities. Our stakeholder engagement initiatives are discussed and supervised under the aforementioned governance structure.

Sustainability Report
▸ Stakeholder Engagement P.112
Human Rights (CSR Procurement Policy, etc.) P.168-171
Local Communities | Dialogue Activities / Cooperation with Communities P.216-217

## Risk Management

Within the NOF Group, the Risk Management Committee comprehensively identifies various management risks surrounding its business, and conducts company-wide risk assessment on the level of impact and potential for occurrence of each risk item in order to identify key risks for monitoring. In disclosing information based on TCFD and TNFD recommendations, a working group consisting of members selected from the Risk Management Committee and the RC Committee plays a central role in identifying the risks related to climate change and natural capital among the various management risks surrounding our business, and conducts risk assessments to determine the degree to which the impact will change in the future. The analysis results are reported to the Sustainability Committee, and important decisions are made related to climate change and natural capital-related risk countermeasures.

## Strategy

The TNFD has developed the LEAP Approach as an integrated framework for assessing nature-related issues and recommends its use to companies. The NOF Group has advanced its assessment of nature-related issues based on this approach.

### Analysis using the LEAP approach

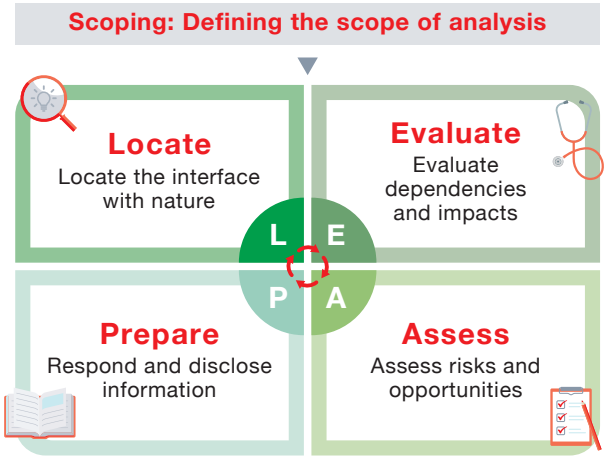
The LEAP approach is a process for systematic, science-based assessment of nature-related risks and opportunities. “LEAP” is an acronym for Locate (locate priority regions, i.e., regions with significant impacts on nature), Evaluate (identify and evaluate dependencies and impacts on nature), Assess (identify and assess nature-related risks and opportunities), and Prepare (prepare for disclosure). In addition, the approach begins with Scoping, involving defining the scope of the analysis.

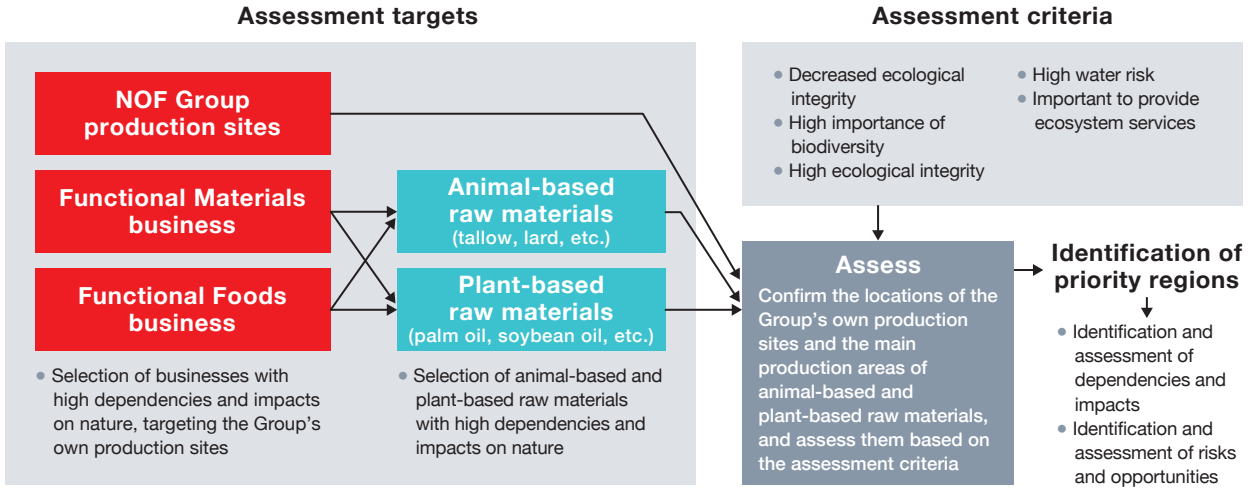
In recent years, the loss of natural capital, including biodiversity, has gained attention as a new global risk. The NOF Group uses naturally-derived raw materials such as palm oil. For this reason, we have recognized the loss of natural capital as a significant risk, formulated policies for natural capital conservation, and actively pursued related initiatives.

Since fiscal 2023, in line with the LEAP approach recommended by the TNFD, we have conducted activities to locate the interface (priority regions) with natural capital, identify and evaluate dependencies and impacts, and identify and assess risks and opportunities.

### Scoping: Defining the scope of analysis

The NOF Group set the scope of analysis regarding its relationship with natural capital as targeting “all production sites of the NOF Group,” and for upstream value chain analysis, the “production areas of plant-based and animal-based raw materials” used in the Functional Materials Business and Functional Foods Business, taking into account business scale as well as the level of dependency and impact on nature.



## Locate: Locate the interface with nature (identify priority regions*)

For both “all production sites of the NOF Group,” where NOF Group companies are directly engaged in operations, and “production areas of animal-based and plant-based raw materials” in the upstream value chain, we identified interfaces with nature based on location information (if detailed location data was unavailable, we estimated the location using available information). Specifically, we confirmed whether each production site and raw material production area qualified as a priority region by comprehensively considering both the perspective of impacts on nature (see right table) and the perspective of impacts on our business (production volume and procurement value).

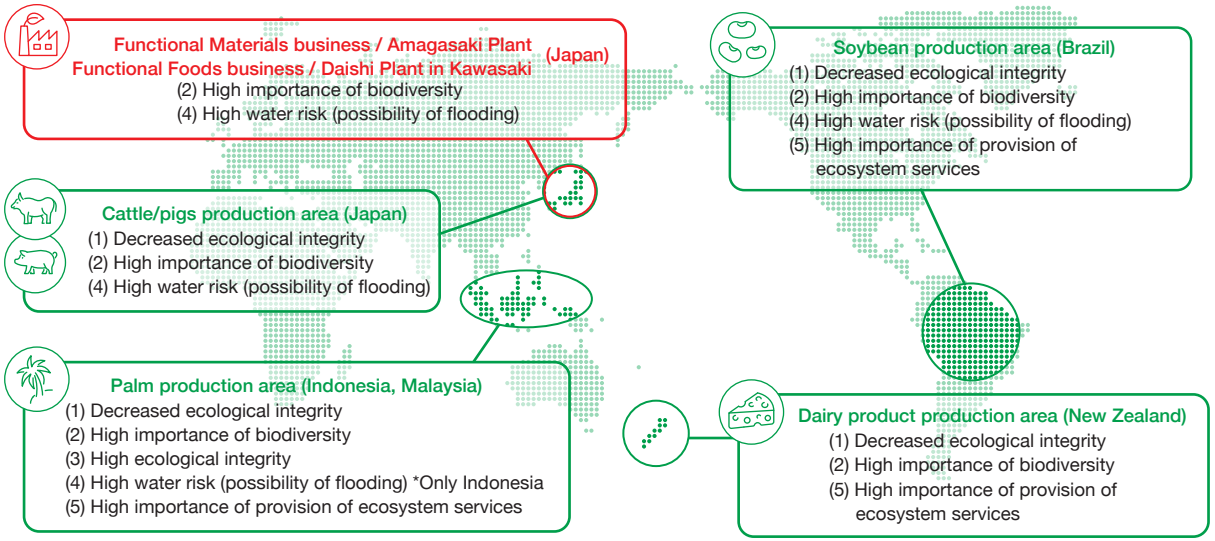
The results are shown in the figure to the right. As for production sites, the NOF Group’s priority region was identified as Japan, where animal- and plant-based raw materials are used. Specifically, we identified the Amagasaki Plant of the Functional Materials Business, and the Daishi Plant in the Kawasaki Works of the Functional Foods Business. As for raw material production areas designated as priority regions, we identified Indonesia and Malaysia (palm cultivation), Japan (cattle and pigs production), Brazil (soy cultivation), and New Zealand (dairy production). Among these raw materials, we recognized pigs, palm, soy, and dairy products as the highest-priority food raw materials.

* **Priority regions**: A region with links to nature that involves significant dependencies, impacts, risks, or opportunities, or that is ecologically vulnerable

### Impact on nature

| Impact on nature | Explanation |
|---|---|
| (1) Decreased ecological integrity*1 | Regions where ecosystem balance is disrupted, or healthy conditions are impaired (e.g., regions where forests are being cleared, wetlands reclaimed, or rivers polluted) |
| (2) High importance of biodiversity*1,2 | Regions of very high importance for biodiversity (diversity of various animals, plants, and microorganisms) (e.g., habitats for many endangered species, or regions essential for the survival of plants and animals) |
| (3) High ecological integrity*1 | Regions with very rich ecosystems that remain largely intact (e.g., regions with untouched forests or unpolluted rivers) |
| (4) High water risk*3,4 | Regions with water shortages (drought risk), regions prone to flooding or water-related damage, or regions with polluted water |
| (5) High importance of provision of ecosystem services*5 | Regions where the provision of “ecosystem services” to Indigenous peoples or local communities is important Ecosystem services: Services that benefit from nature, such as provisioning services (food, water, timber, fuel, etc.) and regulating services (climate regulation, water purification, flood/drought mitigation, etc.) |

### The NOF Group’s priority regions




The level of impact on nature in (1)–(5) in the table on the right was assessed using nature impact assessment tools recommended by the TNFD, which are listed in notes 1–5 below.

*1 WWF Biodiversity Risk Filter *2 Key Biodiversity Areas *3 WWF Water Risk Filter *4 WRI Aqueduct 4.0 *5 Global Forest Watch map, SIGWATCH

## Evaluate: Identify and evaluate dependencies and impacts

For the Functional Materials business and Functional Foods Business at the Amagasaki Plant and the Kawasaki Works (Daishi Plant), which use animal and plant-based raw materials identified as targets through the aforementioned Scoping and Locate steps, we used the ENCORE*1 tool to identify and evaluate their dependencies*2 and impacts*3 on nature. Specifically, we identified and evaluated dependencies and impacts on nature of both businesses across the value chain, including upstream (cultivation, livestock, import, and processing of raw materials), our own operations (manufacturing), and downstream (storage and transportation of products, as well as customers' manufacturing that uses our plant products as raw materials). The results were summarized in a heat map.

The evaluation showed that with respect to dependencies on nature, multiple processes of the value chain share a high dependency on water (groundwater and surface water). In addition, plant cultivation and livestock farming (cattle and pigs) showed many dependency items and generally higher levels of dependency.

Meanwhile, with respect to impacts on nature, water usage was also identified as having a high impact across the entire value chain, similar to the dependency findings. Even within our own manufacturing operations, we recognize water use as a particularly high-impact factor, and we will continue our efforts to reduce water consumption and maintain water quality.

*1 ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. A tool developed by organizations such as the Natural Capital Finance Alliance (NCFA), a financial-sector network, to help financial institutions understand the degree to which companies depend on and impact nature.

*2 **Dependency: Ecosystem services on which business activities rely** e.g., crop cultivation depends on ecosystem services such as water supply and pollination by insects.

*3 **Impact: Positive or negative effects of business activities on nature** e.g., chemical manufacturing impacts nature through water use and greenhouse gas emissions.

### Relationship of value chain to dependencies and impacts on nature

Level of dependency and impact: Large Small

| Process | | Dependency on nature | | | | | | | | | | | | | | | | | | | | | | Impact on nature | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Labor provided by livestock | Provision of raw materials such as fibers | Provision of genetic resources | Use of groundwater | Use of surface water | Pollination | Maintenance of soil quality | Ventilation by plants | Maintenance of the water cycle | Maintenance of water quality | Purification of pollutants | Dilution by water and air | Filtration of pollutants | Reduction of noise and light pollution | Regulation of river flow and other water volumes | Climate stabilization | Regulation of pests and diseases | Protection from storm and flood damage | Protection against soil erosion | Pest control | Water use | Use of terrestrial ecosystems | Use of freshwater ecosystems | Use of marine ecosystems | Other resource use | Greenhouse gas emissions | Air pollution | Water pollution | Soil contamination | Solid waste | Noise, vibration, and light pollution |
| Upstream | Cultivation | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | | | |
| | Livestock | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | | ■ | ■ | | | | |
| | Import | | | | | | | | | | | | | | | | ■ | | ■ | ■ | | | | | ■ | | ■ | ■ | ■ | ■ | | ■ | | | ■ |
| | Processing | | | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | | | | |
| NOF | Manufacturing | | | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Down-stream | Storage and transportation | | | | | | | | | | | | | | | | ■ | | ■ | ■ | | | | | ■ | | ■ | ■ | ■ | ■ | | ■ | | | ■ |
| | Manufacturing (functional materials business) | | ■ | | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Manufacturing (functional foods business) | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | | ■ | | | | | ■ | ■ | ■ | ■ | ■ | | | | |

Sustainability Report ▸ P.148-150



## The NOF Group's use and management of water

### Policy (our fundamental view)

The NOF Group makes efforts for the use and management of water resources as well as the appropriate treatment and management of plant wastewater in accordance with the Management Policy Regarding Responsible Care.

To this end, each plant and subsidiary is working on the following items.

(1) Operation and wastewater management of specified facilities based on the Water Pollution Prevention Law
(2) Thorough employee education on environment-related laws and regulations
(3) Assessment of environmental impact when new facilities are established
(4) Monitoring, confirmation, and enhancement of management status through internal audits
(5) Disclosure of information through regular community dialogue

In addition, at our business bases, we are working to reduce water consumption and improve efficiency in production. We achieve sustainable water resource management by promoting the effective use of water resources and reducing the burden on the environment.

Within the NOF Group, the RC Committee Chair, appointed by the President, is responsible for these initiatives. Through these efforts, we promote resource recycling and actively work to reduce environmental impact, thereby contributing to the realization of a sustainable society.

### Use of water resources

NOF has been carrying out the efficient use of water resources by estimating the amount of the water consumption. In fiscal 2024, the volume of water used was 7.886 million $m^3$, of which 1.407 million $m^3$ was groundwater and 1.805 million $m^3$ was city water.

Our water usage per million yen of sales has increased by approximately 0.7% over the previous fiscal year, making us more dependent on water use. For the appropriate management and protection of water resources, we conduct employee education and awareness-raising activities, recognize the importance of sustainable water use, and continue to work to reduce water consumption.

### Water stress (drought) assessment

We assessed water stress (drought)[*1] at our domestic and overseas production sites using the Aqueduct 4.0 tool of the World Resources Institute (WRI). The assessment showed that in 2024 and 2030, some sites in Europe and Southeast Asia will be located in regions under water stress. By 2050, it is expected that sites in South America will also face a higher risk of water stress. Going forward, we will continue working to reduce water usage.

### Prevention of water pollution

Wastewater from production activities is properly treated through treatment facilities before being discharged outside the plants. We monitor biochemical oxygen demand (BOD), chemical oxygen demand (COD), suspended solids,[*2] and the like in wastewater. Along with ongoing equipment upgrades, we are improving our water quality management system and operating in compliance with prescribed limits. In addition, there have been no cases of violations of laws and regulations related to water quality.

*1 Water stress is measured as the ratio of total water withdrawals to available, renewable surface and groundwater supplies. Water withdrawals include consumptive and non-consumptive uses for household, industrial, irrigation, and livestock purposes. Available, renewable water supplies include the impact that upstream consumptive water users and large dams have on downstream water availability.
*2 Particulate substances of 2 mm or less in diameter floating or suspended in water; one of the indicators of water quality.

## Assess: Assess risks and opportunities

Based on the aforementioned priority regions and the results of the dependency and impact analysis, the NOF Group identified and assessed our risks and opportunities in accordance with climate change scenarios (the 1.5°C/2°C scenarios and 4°C scenario). For the assessment, the level of impact and the timeline were defined as shown below.

Transition risks were assessed under the temperature representing the worst case scenario. NOF is focusing on promoting proactive consideration for the environment and developing products that contribute to environmental conservation. In responding to decarbonization markets such as electric vehicles and renewable energy, there may be risks of reduced sales in existing business areas or reputational impacts from the use of certain raw materials. However, we expect the following opportunities in the long term.

- **Increased sales**: As consumer awareness of environmental conservation rises, sales will grow due to increased demand for products that contribute to environmental conservation.
- **Enhanced reputation**: Proactive measures for climate change and emissions management, as well as the development of products that contribute to environmental conservation, will improve the Company's reputation and credibility over the long term, also leading to higher stock value.

| Category | Cause | Value Chain | Major risks and opportunities | Overview | Level of impact 2023–2025 | Level of impact 2030 | Level of impact 2050 | Countermeasures |
|---|---|---|---|---|---|---|---|---|
| Transition risks 1.5°C and 2°C scenarios | Policies and regulations | NOF Manufacturing | **Increased manufacturing costs and decreased product sales due to environmental regulations (carbon tax, plastic tax, etc.)** | • Manufacturing costs rise due to costs associated with carbon taxes or switching to recycled or bioplastics<br>• Introduction of water intake restrictions or new emission regulations make it impossible to produce existing products, leading to declining sales | - | Large | Large | • Promotion of measures toward reducing greenhouse gas emissions<br>• Reduction and efficiency improvement of water intake<br>• Reduction of waste<br>• Reduction of pollutants<br>• Reduction of plastic usage<br>• Shift to recycled plastics and biomass plastics |
| | | NOF Manufacturing | **Compensation for damages due to environmental litigation, decline in sales due to plant shutdowns, and a drop in stock prices** | • Large compensation for damages is owed due to environmental lawsuits, such as those related to ground subsidence, while long-term plant shutdowns reduce sales and push down stock prices | - | Medium | Medium | • Measures toward reducing greenhouse gas emissions<br>• Measures toward reducing and improving efficiency of water intake<br>• Measures toward reducing waste<br>• Measures toward reducing pollutants<br>• Measures to reducing plastic usage<br>• Promotion and communication of proactive environmental initiatives |
| | | Upstream Cultivation and livestock | Higher procurement costs because of increased cultivation and production costs due to environmental regulations (regulations on methane emissions, wastewater, etc.) | • Costs to address methane emissions from livestock, farmland development, and water/soil pollution from pesticide and fertilizer use drive up raw material prices, increasing procurement costs (forecast based on the IPR Forecast Policy Scenario (FPS) + Nature scenario) | - | Medium | Medium | • Switch to lower-risk oil types<br>• Securing stable raw materials through multiple purchases and long-term contracts |
| | | Upstream Processing | Higher procurement costs and production interruption-caused reduced sales due to environmental regulations (beverage container tax, packaging tax, etc.) | • Compliance costs due to tighter regulations drive up raw material prices and procurement costs<br>• Production plant operations are suspended due to water intake restrictions and emission regulations, resulting in decreased sales | - | Small | Small | • Promotion of measures toward reducing greenhouse gas emissions<br>• Reduction and efficiency improvement of water intake<br>• Reduction of waste<br>• Reduction of pollutants<br>• Reduction of plastic usage<br>• Shift to recycled plastics and biomass plastics |
| | | Upstream Import | Higher distribution costs due to environmental regulations (SOx regulations, etc.) | • Compliance costs to address tighter regulations are passed on to prices, raising distribution costs | - | Small | Small | • Promotion of joint delivery and modal shifts |
| | Sharp rise in raw material and fuel prices | Upstream Cultivation and livestock | **Increased procurement costs due to soaring raw material prices** | • Sharp rise in prices of raw materials such as petrochemicals and vegetable and animal-based oils and fats due to a decrease in the supply of petroleum, etc. and an increase in demand for biofuels | - | Large | Large | • Securing stable raw materials through multiple purchases and long-term contracts<br>• Utilization of biomass chemicals<br>• Switching from petrochemical-based raw materials to plant-based raw materials<br>• Carbon recycling (solvent recycling, etc.) |
| | | Upstream Import<br>NOF Manufacturing | Higher energy and transportation costs due to soaring crude oil and natural gas prices | • Higher energy and transportation costs due to soaring crude oil and natural gas prices | - | Medium | Medium | • Introduction of energy-saving equipment, review of processes<br>• Promotion of joint delivery and modal shifts |
| | Evaluation and reputation among stakeholders | Upstream Cultivation and livestock | **Reputational damage and falling stock prices due to the use of certain raw materials** | • Using raw materials that negatively impact natural capital, such as illegally cultivated palm oil, harms the Company's reputation and lower stock prices | Large | Large | Large | • Procurement of sustainable palm oil<br>• Selection of suppliers and business partners with lower regulatory risks |
| | | NOF | **Decline in evaluation and reputation due to delays in ESG investment** | • Deterioration of evaluation from investors in ESG investment and reputation among customers due to delay in measures to address climate change and nature | - | Small | Small | • Development and provision of products that contribute to environmental conservation<br>• Promotion and communication of proactive environmental initiatives |
| | Market | Downstream Products | Changes in the sales destination environment due to the shift to a decarbonization market | • Decrease in sales due to decline in market share of gasoline and diesel vehicles | - | Medium | Medium | • Strengthening our response to decarbonization markets, such as electric vehicles and renewable energy |

* For details on the 1.5°C and 2°C scenarios and levels of impact, see the notes on p. 089

| Category | Cause | Value Chain | Major risks and opportunities | Overview | Level of impact 2023–2025 | Level of impact 2030 | Level of impact 2050 | Countermeasures |
|---|---|---|---|---|---|---|---|---|
| Physical risks 4°C scenario | Extreme weather | Upstream Cultivation, livestock, processing | **Increase in cultivation/production and procurement costs due to degradation of ecosystem services** | • Procurement costs rise and sales decline due to soaring prices of palm oil and rapeseed oil resulting from degradation of ecosystem services such as pollination, soil quality, and water cycle maintenance<br>• Water shortages and crop damage from pests and diseases cause instability or soaring prices in raw material procurement, increasing procurement costs | Large | Large | Large | • Switch to lower-risk oil types<br>• Selection of suppliers and business partners taking into account risks at the production area (ensuring traceability)<br>• Securing stable raw materials through multiple purchases and long-term contracts |
| | | Upstream Import<br>NOF Manufacturing | **Decrease in sales caused by damage to production sites and supply chains from storm and flood damage** | • Flood damage from heavy rains, floods, and storm surges results in factory repair costs, production interruptions, or reduced production capacity, leading to sales declines | - | Large | Large | • Rain water countermeasures and disaster prevention measures for buildings and facilities<br>• Multiple purchases of raw materials<br>• Review the business continuity plan (BCP) and conduct education, training, and audits |
| | | NOF Manufacturing | **Increase in equipment costs and decline in sales due to production interruptions associated with degradation of ecosystem services** | • Water shortages cause production interruptions or reduced production capacity, resulting in decreased sales | - | Small | Small | • Reduction and efficiency improvement of water use at high-risk sites<br>• Diversification of production items at manufacturing sites (preparing for alternative production) |
| | | NOF | **Increase in storage costs due to high temperatures and heatwaves** | • Rising temperatures affect refrigerated and air-conditioned warehouse storage | - | Medium | Medium | • Ongoing review of facility investment plans |
| Opportunities | Resource efficiency | NOF Manufacturing | **Decrease in manufacturing costs through improved resource efficiency** | • Improved resource efficiency during manufacturing, such as reduced water, energy, and waste, leads to lower environmental impacts and cost reductions<br>• Promotion of decarbonization and infrastructure development in society results in cost reductions from renewable energy use, subsidies, and tax incentives | - | Medium | Large | • Reduction of greenhouse gas emissions<br>• Reduction and efficiency improvement of water use<br>• Reduction of waste<br>• Reduction of plastic usage |
| | Capital flow/ financing | NOF | **Diversification of financing methods** | • Sustainable finance and other forms of environmental funding become more active, expanding the options for financing such as green bonds and green loans for upgrading to low-impact facilities and for development costs of environmentally friendly products | - | Small | Small | • Utilization of positive impact finance and the like |
| | Reputation | NOF | **Improved evaluations and reputation, leading to higher stock prices** | • Proactive climate change measures, emissions management, and development/provision of products that contribute to environmental conservation enhance investor evaluations in ESG investment and reputation among customers, driving stock prices upward | - | Medium | Medium | • Development and provision of products that contribute to environmental conservation<br>• Promotion and communication of proactive environmental initiatives |
| | Market | Downstream Products | **Increase in sales due to growing demand for products that contribute to environmental conservation** | • Rising consumer interest in climate change, water pollution, air pollution, and forest protection boosts demand for environmentally friendly products, leading to increased sales | - | Large | Large | • Development and provision of products that contribute to environmental conservation |

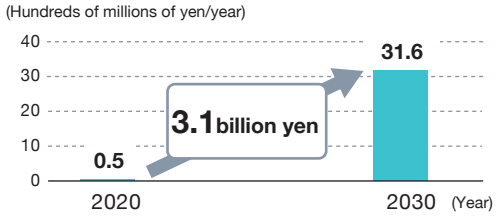
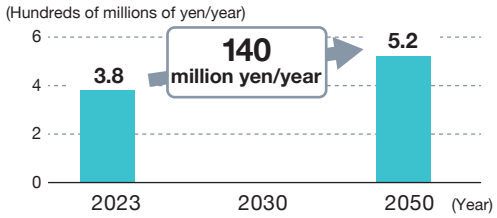
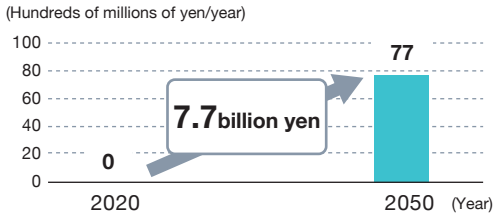
* 1.5°C and 2°C scenarios: Decarbonization scenarios that assume that necessary measures will be implemented to limit the temperature increase to 1.5°C or 2°C or less compared to pre-industrial times (International Energy Agency (IEA) "Net Zero Emissions by 2050" (NZE2050), "Stated Policies Scenario" (STEPS), etc.)

* 4°C scenario: Decarbonization scenario that assumes that necessary measures will be implemented to limit the temperature increase to 4°C or less compared to pre-industrial times (International Energy Agency (IEA) "Net Zero Emissions by 2050" (NZE2050), "Stated Policies Scenario" (STEPS), etc.)

* **Level of impact: [Risks] Impact amount:** Over ¥1 billion (high), ¥100 million–¥1 billion (medium), under ¥100 million (low)
**[Opportunities] Impact amount:** Over ¥1 billion (high), ¥100 million–¥1 billion (medium), under ¥100 million (low)
**[Opportunities] Market size:** Over ¥30 billion (high), ¥3 billion–¥30 billion (medium), under ¥3 billion (low)

## Financial impactsFinancial impacts

Steam, electricity, and other forms of energy are consumed mainly in the manufacturing processes of the NOF Group. As transition risks brought about by climate change, the financial burden is expected to increase due to rising carbon tax rates and higher unit prices of renewable energy charges,* and the total impact is estimated to be around 3.3 billion yen. In addition, the NOF Group has established a business continuity plan for physical risks with the 4°C scenario assuming 7.7 billion yen in facilities damage in the event that a major typhoon, which occurs once every 500 to several thousand years, breaks through embankments and floods our waterfront plants.

| Category | Scenario | Risks | Details of risks | Financial amount of impact | Notes |
|---|---|---|---|---|---|
| Transition risks | 1.5°C | **Carbon tax** | Financial burden from tax increases |  | Domestic Group<br>$CO_2$ equivalent emissions in fiscal 2020, with a carbon price of 20,000 yen per ton of $CO_2$ in fiscal 2030. (Scope 1 + 2) |
| | | **Renewable energy charges** | Increased energy costs |  | Domestic Group<br>The unit price of the renewable energy charge for fiscal 2030 is set at 4.1 yen/kWh based on fiscal 2020 electricity consumption. |
| Physical risks | 4°C | **Storm surges** | Flooding of facilities due to storm surges |  | NOF<br>We estimated the amount of facility damage due to embankment failures caused by a once-in-500-to-several-thousand-year major typhoon. |

* Charges for promotion of renewable energy generation

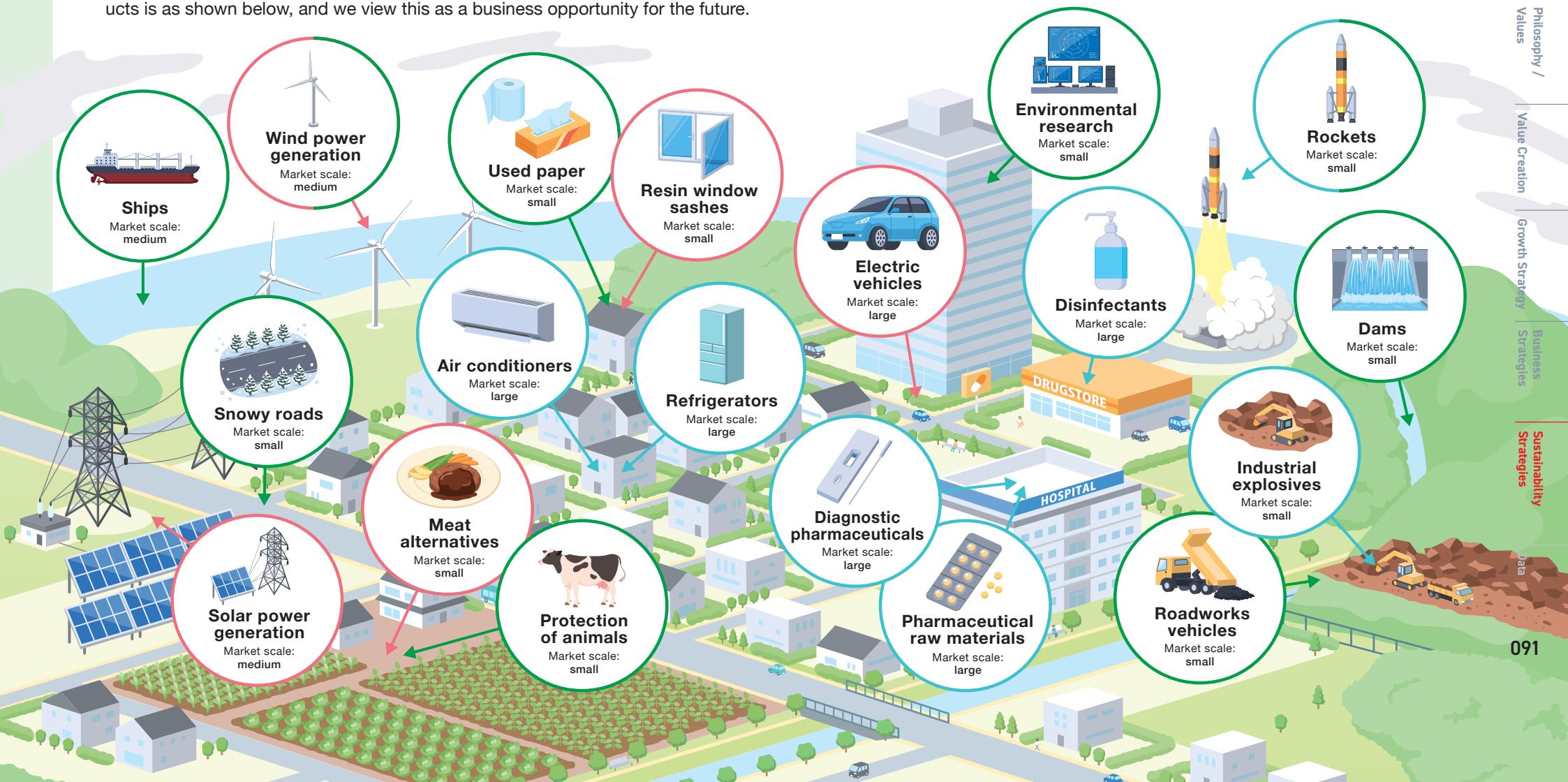
Sustainability Report ▸ P.131-134



# Products that Contribute to the Environment

○ Climate change (mitigation) ○ Climate change (adaptation) ○ Biodiversity

Within the NOF Group, we are creating a variety of products that contribute to the environment while advancing research and development of technologies that address climate change, biodiversity, resource saving and recycling, and alternatives for hazardous or legally regulated substances. The market scale for these products is as shown below, and we view this as a business opportunity for the future.



## Metrics and targets

The NOF Group has set the reduction of greenhouse gas emissions as one of the goals of its Responsible Care (RC) activities, and has been working on various energy-saving measures. In view of the 2050 Carbon Neutral Declaration announced by the government in October 2020 and its new targets to reduce greenhouse gas emissions announced in April 2021, the NOF Group has decided to set new targets to reduce greenhouse gas emissions.

In addition, within the NOF Group's materiality KPIs and CSR procurement, we have established climate- and nature-related targets and are promoting initiatives to address risks and opportunities.

With regard to the nature-related targets, we have begun collecting the metrics data shown below as part of the TNFD core global disclosure metrics and the chemical sector core disclosure metrics. Going forward, we will continue collect and expand the scope of metrics data while advancing efforts to reduce environmental impacts.

| | Goals (KPIs) | Numerical targets | Target year | Details of major initiatives |
|---|---|---|---|---|
| **Contribute to the Environment/Energy field** NOF Group | **Net sales of strategic products in the Environment/Energy field** | 15% increase (compared to FY2022 results) | 2025 | • Supply of strategic products to the Environment/Energy field |
| **Promotion of CSR-based procurement** NOF | **Coverage rate of CSR questionnaire (based on value of purchases)** | 85% or more | 2025 | • Implementation of CSR questionnaire for suppliers (suppliers with value of purchases between ¥1 and ¥5 million/month) |
| | **Improvement requests via interviews to target suppliers in order to firmly establish CSR-based procurement (based on number of companies)** | 85% or more | 2025 | • Implementation (ahead of schedule) of improvement requests via interviews to target suppliers |
| **Resilience enhancement** NOF Group | **BCP education and training hours** | Total of 4,000 hours or more | Every year | • Enhancement of each BCP manual<br>• Improvement of response capabilities through expanded training scenarios<br>• Inspection and confirmation of location activities through audits |
| **Response to climate change** | **$CO_2$ emissions** Domestic Group | 40% reduction (compared with FY2013) | 2030 | • Promotion of a shift to energy sources with low environmental impact<br>• Promotion of introduction of energy-saving facilities<br>• Promotion of efficient energy use and visualization |
| | **Carbon neutrality** NOF Group | Aim for achievement | 2050 | |
| **Chemical safety** | **Emissions of substances subject to PRTR Act after revision in FY2021** Domestic Group | under 170 tons/year | Every year | • Creation and execution of emission reduction measures<br>• Reevaluation of production processes |

| Metric no.* | Driver of nature change | Indicator | Metric | Reporting scope | 2024 results |
|---|---|---|---|---|---|
| - | Climate change | GHG emissions | Scope1+2<br>Scope3 | ▸ P.095 | |
| C1.0 | Land/ freshwater/ ocean-use change | Total spatial footprint | Total surface area controlled/managed by the organization | 102nd Annual Securities Report | |
| | | | Total disturbed area | NOF Group | 0 thousand m² |
| | | | Total rehabilitated/restored area | NOF Group | 0 thousand m² |
| C1.1 | | Extent of land/freshwater/ ocean-use change | Extent of land/freshwater/marine ecosystem use change | NOF Group | 0 thousand m² |
| | | | Extent of land/freshwater/marine ecosystem conserved or restored | NOF Group | 0 thousand m² |
| | | | Extent of land/freshwater/marine ecosystem that is sustainably managed | Sustainability Report ▸ P.148 | |
| C2.0 | Pollution/ pollution removal | Total amount of pollutants released to soil split by type | PRTR Act-controlled substances | Sustainability Report ▸ P.153 | |
| C2.1 | | Wastewater discharged | Volume of water discharged | Sustainability Report ▸ P.148-149,153 | |
| | | | BOD, COD, suspended solids<br>PRTR Act-controlled substances | | |
| | | | Temperature of water discharged | NOF Group<br>(Regulated sites: Chidori Plant, Daishi Plant) | 25–32°C<br>In accordance with Kawasaki City ordinance |
| C2.2 | | Waste generation and disposal | Weight of waste (total) | Sustainability Report ▸ P.158 | |
| | | | Weight of waste (hazardous) | NOF Group | 7,395 tons |
| | | | Weight of waste (non-hazardous) | NOF Group | 141,248 tons |
| | | | Weight of outside disposal waste<br>Final disposal quantity by landfill | Sustainability Report ▸ P.158-159 | |
| | | | Recycled amount | Sustainability Report ▸ P.158-159 | |
| C2.3 | | Plastic pollution | Weight plastic used | NOF | 2,648 tons |
| C2.4 | | Total amount of non-GHG air pollutants | NOx, SOx, particulate matter<br>VOC<br>Hazardous air pollutants<br>PRTR Act-controlled substances | Sustainability Report ▸ P.151-153,156 | |
| C3.0 | Resource use/ replenishment | Water withdrawal and consumption from areas of water scarcity | Water withdrawal from areas of water scarcity | NOF METAL COATINGS EUROPE N.V. | 453 thousand m³ (5.7% of the NOF Group total) |
| | | | Water consumption from areas of water scarcity | PT.NOF MAS CHEMICAL INDUSTRIES | 152 thousand m³ (8.1% of the NOF Group total) |
| - | - | Revenue from pesticide use, by toxicity level | No revenue from pesticides | – | |
| - | - | Rate of change in PFAS production | No production or use of PFAS | – | |
| - | - | Compliance violations | Violations of environmental laws and regulations | Sustainability Report ▸ P.164 | |

* Metric no. of TNFD metric

# Progress and Results for Climate Change Response

## Measures to meet greenhouse gas emission reduction targets

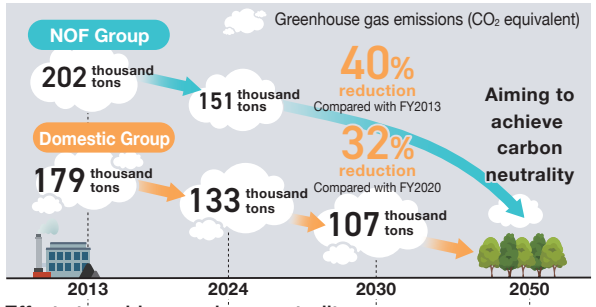
The NOF Group has set a mid-term target of reducing greenhouse gas emissions by 40% from the fiscal 2013 level by fiscal 2030, and a long-term target of becoming carbon neutral by 2050. The 2025 Mid-term Management Plan period is positioned as a period for building up reduction measures to be implemented in the next Mid-term Management Plan period, and we will promote reductions while controlling the increase in emissions associated with the expansion of production facilities.

As a specific measure, in order to increase the use of renewable energy, we will promote the electrification of our facilities and reduce carbon emissions. Furthermore, we are reviewing our production processes and considering improvement measures to minimize environmental impact, such as reducing the amount of energy used, minimizing emissions, and utilizing renewable energy sources. We also plan to expand fuel conversion and the introduction of electricity certified to come from non-fossil fuel sources. During the 2025 Mid-term Management Plan period, we are planning a 2.1 billion yen environmental investment for these initiatives.

Moreover, in order to promote the conversion to renewable energy and decarbonization even more, we are further expanding our trial initiative for internal carbon pricing (ICP). This initiative not only helps refine the economic assessments of facility investments and business strategies, but also raises employees' awareness of energy conservation and serves as a mechanism to promote decarbonization across all business activities. We are also advancing greenhouse gas reduction efforts through forest maintenance activities. By utilizing Fukushima Prefecture's carbon dioxide certification, we have carried out tree planting and thinning, and received certification for absorbing 282 tons of carbon dioxide from 2012 to 2013.

We will contribute to the mitigation of global warming by taking proactive steps to realize a sustainable future.

Reduction of GHG ($CO_2$ equivalent) generated by our business activities [Scope 1, 2]




Efforts to achieve carbon neutrality


Sustainability Report ▸ P.138-139

## GHG reduction strategy

We have established and disclosed our Management Policy Regarding Responsible Care as well as CSR Procurement Policy, declaring our commitment to GHG reduction measures across the entire supply chain. To implement these policies, we have set Responsible Care guidelines within the Group that address climate change mitigation and adaptation, biodiversity, resource recycling, research and development, and manufacturing.

At our production sites, we are promoting the shift to lower-impact energy sources for Scope 1, improving energy efficiency for both Scope 1 and Scope 2, and responding in line with each category of Scope 3. We are also working on research and development for environment-related product lines that contribute to climate change mitigation and adaptation.

For externally procured raw materials, we have established our CSR Procurement Guidelines to promote the procurement of materials with low environmental impact. To this end, we work to raise supplier awareness, participate in the Declaration of Partnership Building with suppliers to put these principles into practice, and advance sustainable procurement activities. Furthermore, as part of the Japan Chemical Industry Association's Responsible Care initiatives, we actively participate in dialogue with suppliers and local communities. Moreover, we are pursuing decarbonization innovations throughout the supply chain. This includes industry-academia collaborative projects focused on the research and development of biomass-derived materials and the effective utilization of unused exhaust heat.

Through these initiatives, we are reducing GHG emissions under Scope 3 and enhancing the overall sustainability of our entire supply chain.

Sustainability Report
▸ $CO_2$ emissions from energy use and our initiatives P.141-142
$CO_2$ emissions volume during transportation P.143

## Scope 1 and 2 $CO_2$ emissions

Domestic Group | NOF Group

(Thousand tons of $CO_2$)

| | | FY2013 | FY2022 | FY2023 | FY2024 | FY2030 (target) |
|---|---|---|---|---|---|---|
| Domestic Group | Scope1+2 | 179 | 144 | 135 | 133 | 107 |
| | Compared with FY2013 | - | (35) | (44) | (46) | (72) |
| NOF Group | Scope1+2 | 202 | 175 | 159 | 151 | - |
| | Compared with FY2013 | - | (27) | (43) | (51) | - |

## Scope 2 $CO_2$ emissions according to the location-based criteria and market-based criteria

Domestic Group | NOF Group

(Thousand tons of $CO_2$)

| | Location-based criteria | | | Market-based criteria | | |
|---|---|---|---|---|---|---|
| | FY2022 | FY2023 | FY2024 | FY2022 | FY2023 | FY2024 |
| Domestic Group | 110 | 106 | 107 | 84 | 84 | 84 |
| NOF Group | 133 | 129 | 124 | 103 | 101 | 102 |

## Scope 3 calculations

(Thousand tons of $CO_2$)

| Category | FY2023 | FY2024 | | Calculating method |
|---|---|---|---|---|
| 1 Purchased products and services | 453.3 | 520.5 | *1 | Calculated by multiplying the quantity and cost of each item of purchased raw materials, consumables, and repair materials by emission intensity by division according to the databases*4 |
| 2 Capital goods | 53.3 | 52.5 | NOF Group | Calculated by multiplying acquisition cost of fixed assets by emission intensity according to the databases*4 |
| 3 Fuels and energy-related activities not included in Scope 1 or 2 | 36.8 | 38.0 | NOF Group | Calculated by multiplying the sum of fuel, electricity, and steam consumption by emission intensity according to the databases*4 |
| 4 Transportation and distribution (upstream) | 26.7 | 29.9 | *2 | Calculated from ton-kilometers of transportation for purchased raw materials and ton-kilometers of transportation for delivered products for which the company is the consignor; Calculated using the method prescribed under the reporting and disclosure system |
| 5 Waste generated in business activities | 9.7 | 10.7 | NOF Group | Calculated by multiplying the weight of each type of waste generated at production sites by emission intensity according to the databases*4 |
| 6 Business travel | 0.5 | 0.5 | NOF Group | Calculated by multiplying the number of employees by emission intensity according to the databases*4 |
| 7 Employee commuting | 1.4 | 1.1 | *3 | Calculated by multiplying the amount of commuting expenses by emission intensity according to the databases*4 |
| 8 Leased assets (upstream) | - | - | | Not applicable, as no corresponding activities exist |
| 9 Transportation and distribution (downstream) | - | - | | Not applicable, as no corresponding activities exist |
| 10 Processing of sold products | 17.8 | 26.6 | NOF | Calculated by multiplying the sales volume of edible oils and industrial explosives by emission intensity according to the databases*4 |
| 11 Use of sold products | Not determined | Not determined | | Not calculated due to difficulty in collecting the necessary data for calculation |
| 12 End-of-life treatment of sold products | 0.6 | 292.3 | NOF | FY2023: Calculated for packaging materials of shipped products by multiplying the weight of each type with the emission intensity according to the databases*4<br>FY2024: Calculated by multiplying the weight of containers subject to the Containers and Packaging Recycling Law and the sales volume of chemical products requiring waste disposal with the emission intensity according to the databases*4 |
| 13 Leased assets (downstream) | - | - | | Not applicable, as no corresponding activities exist |
| 14 Franchises | - | - | | Not applicable, as no corresponding activities exist |
| 15 Investments | - | - | | Not applicable, as no corresponding activities exist |
| Total | 600.1 | 972.1 | | |

*1 NOF on a standalone basis, 10 domestic affiliate companies (Nichiyu Kogyo Co., Ltd.; YUKA SANGYO CO., LTD.; NiGK Corporation; Showa Kinzoku Kogyo Co., Ltd.; Nippon Koki Co., Ltd.; Nippo Kogyo Co., Ltd.; NOF METAL COATINGS ASIA PACIFIC CO., LTD.; JAPEX Corp.; NIKKA COATING CO., LTD.; NICHIYU LOGISTICS CO., LTD.), and 2 major overseas affiliate companies (Changshu NOF Chemical Co., Ltd.; PT. NOF MAS CHEMICAL INDUSTRIES)

*2 NOF on a standalone basis, 7 domestic affiliate companies (Nichiyu Kogyo Co., Ltd.; YUKA SANGYO CO., LTD.; NiGK Corporation; Showa Kinzoku Kogyo Co., Ltd.; Nippon Koki Co., Ltd.; Nippo Kogyo Co., Ltd.; NOF METAL COATINGS ASIA PACIFIC CO., LTD.)

*3 10 domestic affiliate companies (NICHIYU TRADING CO., LTD.; NICHIYU LOGISTICS CO., LTD.; Nichiyu Kogyo Co., Ltd.; YUKA SANGYO CO., LTD.; NiGK Corporation; Showa Kinzoku Kogyo Co., Ltd.; Nippon Koki Co., Ltd.; Nippo Kogyo Co., Ltd.; JAPEX Corp.; NOF METAL COATINGS ASIA PACIFIC CO., LTD.)

*4 Databases used: IDEA Ver. 3.5, IDEA Lab, Research Institute of Science for Safety and Sustainability, National Institute of Advanced Industrial Science and Technology (AIST); Emissions Intensity Database Ver. 3.5 for Calculating the Greenhouse Gas Emissions of Organizations through the Supply Chain (Ministry of the Environment)

# Progress and Results for Biodiversity Conservation

In addition to “forest planting” through creation of green areas alongside roads as well as thinning and pruning company-owned forests, we are implementing plans that contribute to biodiversity at our sites across Japan through protection activities mainly for endangered species, extermination of invasive non-native plants, and donation activities.

## Company-wide

Recycling of plastic waste

Going paperless

Use of FSC-certified paper

RSPO membership, participation in the Japan Business and Biodiversity Partnership, endorsement of the Keidanren Initiative for Biodiversity Conservation, participation in JaSPON, endorsement of TCFD, and participation in TNFD

Donations aimed at protecting the global environment (WWF, Green Fund, Keidanren Nature Conservation Fund, etc.)

Introduction of alternative methods to animal testing in the evaluation of cosmetics materials (animal welfare)

Green procurement

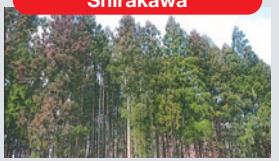
## Kawagoe, Kawasaki, Kansai, Aichi, and Indonesia

Installed solar panels

## Bibai

Protection of Japanese swamp lantern clusters
Nippon Koki Co., Ltd.

## Shirakawa



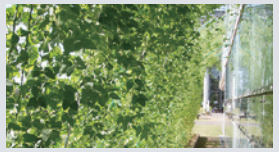
Forest maintenance
Nippon Koki Co., Ltd.

## Kawasaki

Purchase of electricity certified to come from non-fossil fuel sources

Food waste reduction
(functional foods)

Modal shift, joint deliveries



Participation in the Kawasaki City Green Office Promotion Council
Creation of rooftop greenery, green walls, and greenery on our grounds

Participation in the Forest Restoration Partner System
NOF METAL COATINGS ASIA PACIFIC CO., LTD.

## Aichi

Taketoyo community tree planting festival (seedling purchase and sponsorship)

Weeding of the Designated Invasive Alien Species “lanceleaf tickseed”

## Amagasaki

Participation in “Amagasaki Forest Central Green Space Forest Planting” volunteer activities

## China


Forestation activities
NOF (Shanghai) Co., Ltd.

## Oita

Modal shifting


Tree planting at Yufuin NOF forest

# Spotlight on conservation initiatives

NOF METAL COATINGS ASIA PACIFIC CO., LTD.

## Participation in the Forest Restoration Partner System

In Kanagawa Prefecture, the Kanagawa Forest Restoration 50-Year Project is underway to restore forests, which cover about 40% of the prefecture's land (about 95,000 hectares). The initiative aims to prevent degradation and erosion caused by insufficient forest management and to pass on the rich blessings of nature to future generations. As part of this initiative, NOF METAL COATINGS supports forest maintenance on an area of about 12 hectares (equivalent to about two Tokyo Domes). This area has absorbed about 247 tons of CO2 over five years. The decision has been made to name a portion of the forest designated by the prefecture as "NOF METAL COATINGS Forest."


Nippon Koki Co., Ltd.

## Forest maintenance activities

Fukushima Prefecture, where Nippon Koki Co., Ltd.'s Shirakawa Plant is located, has established the Fukushima Prefecture Carbon Dioxide Absorption by Forest Maintenance Activities Certification System to certify the effectiveness of forest maintenance activities conducted by companies and organizations in the prefecture in terms of carbon dioxide absorption as a numerical value. This certification aims to promote participation in forest maintenance activities, thereby contributing to the continued exhibition of the multifaceted functions of forests, such as the prevention of global warming, and the revitalization of communities in mountain villages. Nippon Koki Co., Ltd., which owns approximately 149 hectares of forest in Nishigomura, Nishishirakawa-gun, Fukushima Prefecture, has been certified as having absorbed 282 tons of $CO_2$ (2012 to 2013) through its activities.

Oita Works

## Tree-planting activities

At our Oita Works, we endorsed Oita Prefecture's "Forest Creation with Corporate Participation" program and carried out tree-planting activities in the forests of Yufu City. The activities included tree planting and thinning in order to conserve forest environments and watershed areas with the conclusion of agreements with landowners and forest cooperatives through mediation by Oita Prefecture. An area of approximately 2.8 hectares has been named "Yufuin NOF Forest," with plans to plant 2,000 broadleaf trees, mainly sawtooth oaks. In March 2025, we planted 200 saplings, about one-tenth of the total. Yufuin NOF Forest is expected to absorb about 160 tons of $CO_2$ over five years as the saplings grow.


NOF (Shanghai) Co., Ltd.

## Tree-planting activities

NOF (Shanghai) Co., Ltd. is actively engaged in tree-planting activities with the aim of improving the environment in the Shanghai area and mitigating global warming. In fiscal 2024, 16 employees planted about 20 Japanese ash trees in the Fengxian District of Shanghai. Through these tree-planting activities, we will continue to contribute to the improvement of the global environment.