What Are the Initiatives That Support the Daigas Group's Sustainable Growth?

Initiatives for the environment, human rights, and compliance are natural duties for us as a company. They are also essential for the Group's sustainable growth.

This section presents the Group's initiatives for sustainability.

Sustainability

49 Disclosure based on the TCFD Recommendations
52 Environmental Impact throughout the Daigas Group Value Chain
53 Initiatives for Human Rights
54 Initiatives for Compliance

Courtesy of Freeport LNG Development, L.P.

Disclosure based on the TCFD Recommendations
—Recognition and Response to Risks and Opportunities—

Osaka Gas supported the TCFD recommendations in May 2019, and utilizes them as indicators to validate its climate change response.
We also participate in the TCFD Consortium*[1], where discussions take place on efforts toward information disclosure on responses to climate change based on the TCFD recommendations.

*1 TCFD Consortium: The TCFD Consortium was established on May 27, 2019, whose members from the Japanese private sector discuss how companies can effectively disclose information on tackling climate change and how financial institutions can use the disclosed information to make appropriate investment decisions. From the Japanese government, the Ministry of Economy, Trade and Industry, the Financial Services Agency, and the Ministry of the Environment participate as observers in the consortium.

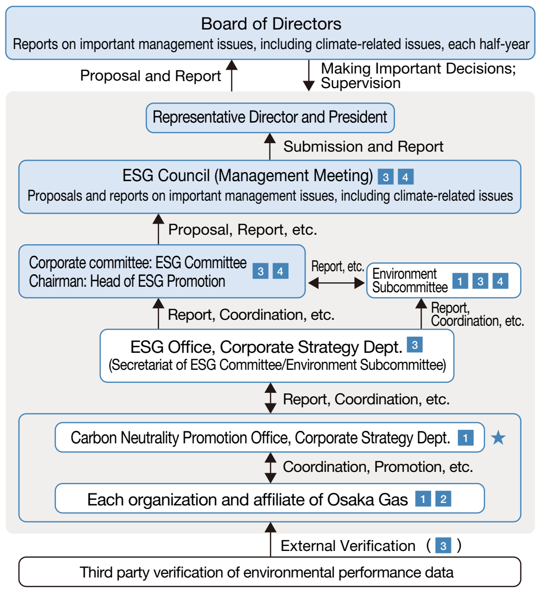
Climate Change Governance

The Daigas Group regards tackling climate change as a key management issue. Just as with other important business activities across the Group, the Board of Directors is responsible for making decisions on and supervising activities aimed at tackling climate change and other environmental issues. At the ESG Council (Management Meeting), which is held three times a year, executives discuss activity plans and activity reports related to ESG issues, including climate change issues, and submit reports to the Representative Director and President.

The Group also has the ESG Committee, chaired by the Head of ESG Promotion (Representative Director and Executive Vice-President), an executive who supervises the Group's sustainability activities, and consisting of the heads of related organizations. The ESG Committee meets three times a year for cross-organizational deliberation, coordination, and supervision of climate-change-related issues, including the planning and promotion of related business activities, progress in achieving relevant targets, and risk management and countermeasures. The committee submits to the Board of Directors deliberation proposals and reports on important agenda items, such as the status of achievement of sustainability-related ESG management targets and business projects expected to sustain a major financial impact due to climate change.

Directors other than Outside Directors are paid performance-linked remuneration, and the coefficient of ESG indicators achievement is used as one of the performance indicators. ESG indicators include CO_2 emissions and other climate change-related indicators toward achieving carbon neutrality.

Governance/Risk Management System for Climate Change



1 Plan formulation
- Response to cross-cutting issues relating to climate change*[2]
- Formulation of strategies relating to climate change*[2]
- Reflection in activities of each organization

*2 Including risks and opportunities associated with climate change

2 Implementation/Operation
- Actions for each target
- Performance tracking for each indicator

3 Checking
- Report and follow-up for each target and performance at the Environment Subcommittee, ESG Committee, and ESG Council (Management Meeting); third party verification of environmental performance data

4 Review
- Identification of issues
- Evaluation and implementation of countermeasures

★ Establishment of Carbon Neutrality Promotion Office (April 2022)
Oversight of establishment and promotion of strategies to achieve carbon neutrality; coordination, planning promotion and follow-up with each organization and affiliate.

Strategy

Scenario analysis

The Group has been working on climate change scenario analysis using scenarios published by an external organization (International Energy Agency, IEA) with the aim of understanding the impact of climate change on the Group's business on a medium- and long-term basis and using its results as reference material for evaluating and preparing countermeasures.

We assessed our energy businesses (gas, electricity and related businesses in Japan and overseas) which are expected to experience the greatest impact from climate change among the Group's businesses, assuming the scenarios that take into account the progress of energy conservation and changes in the composition of power sources, etc. (1.5°C Scenario (NZE2050) and 2.6°C Scenario (STEPS)*[3]).

We steadily implement initiatives to increase the resilience of the Group's businesses, while applying the suggestions gained from scenario analysis to our evaluation of medium- and long-term business strategies. Moreover, as the global response to climate change continues to progress, the scenario's preconditions may also change in the future. We will continue to deepen our scenario analysis, renewing our assumptions in line with the latest conditions as necessary, taking into account scenarios established by external authorities.

*3 Authority: IEA "World Energy Outlook 2021"

Recognition of risks and opportunities

Using a multi-track scenario analysis, the Daigas Group identified anticipated risks and opportunities, based on the environment surrounding its domestic and overseas energy businesses, evaluated them, and examined countermeasures in the short- to medium-term toward 2030 and the long-term toward 2050.

The Group is engaged in gas and electricity businesses, primarily in the Kansai region, which use natural gas as their main raw material and fuel. The external environment is undergoing various changes due to climate change. We have classified the major factors associated with these changes into “transition risks” and “physical risks,” and identified the major risks and opportunities. Significant risks for the Group related to climate change include the possibility that rising sea levels and natural disasters such as typhoons and torrential rains due to localized abnormal weather events, etc. may cause damage to our manufacturing/distribution equipment. In addition, it is possible that our businesses may be affected by significant increases in the carbon tax rate in Japan, or an increased desire among our customers to switch to non-fossil fuels. However, promotion of the development and spread of renewable energy and technologies for carbon neutrality also represents a significant opportunity for the Group.

The Group will pursue sustainable growth by promoting portfolio management through diverse businesses in order to respond appropriately to the identified risks and opportunities.

Evaluation of Risks and Opportunities

					Impact on Business	
			Scenario	Impact	Short- and Medium-Term	Long-Term
Risks	Physical	Physical risks	2.6°C	Damage to facilities arising from meteorological disasters	Increase in capital investment costs and insurance premiums	Increase in facilities countermeasure costs
Risks	Transition	Market	2.6°C	Switch to natural gas	Increase in prices due to greater competition in LNG procurement	Further price hikes and impediments to procurement, due to increasing competition in LNG procurement
Risks	Transition	Market	1.5°C	Switch to non-fossil fuel energy	Fall in sales of gas and thermal power	Fall in sales of gas and thermal power
Risks	Transition	Reputation	1.5°C	Focus of investment criteria on low-carbon or decarbonized businesses	Diminished capital procurement power in gas-related businesses	Declining investment in fossil fuels businesses
Risks	Transition	Policy and legal	1.5°C / 2.6°C	Introduction of a carbon tax	Carbon tax burden on gas and thermal power businesses	Increasing burden with rising carbon tax rates
Opportunities	Physical	Physical Opportunities	2.6°C	Increase in awareness and support measures for weather disaster countermeasures	Increase in sales of products /services with disaster response function	Expansion of decentralized energy systems
Opportunities	Transition	Market	2.6°C	Switch to natural gas	Switch to LNG in Japan; Expansion of LNG business oversea	Switch to LNG and expansion of sales of high-efficiency equipment abroad
Opportunities	Transition	Technology	1.5°C	Development of renewable energy and CCUS technologies	Expansion of development of renewable energy sources	Introduction of "e-methane," expansion of renewable energy sources, utilization of thermal power generation with CCS
Opportunities	Transition	Policy and legal	1.5°C / 2.6°C	Implementation of a national policy for the mass introduction of renewable energy sources	Expansion of sales of electricity from renewable energy sources	Expansion of sales of electricity from renewable energy sources
Opportunities	Transition	Technology	1.5°C / 2.6°C	Development of AI/IoT	Participation in decentralized power sources aggregation business	Expansion of decentralized power sources aggregation business

Financial impact : Small　　Financial impact : Large

Strategies/Countermeasures for Risks and Opportunities

		Short- and Medium-Term	Long-Term
Risks	Physical	● Implement disaster countermeasures for facilities	
Risks	Transition	● Diversify procurement sources ● Develop and expand sales of renewable energy power sources in Japan and abroad ● Engage in dialogue with investors Please see the following material for our major initiatives*	
Risks	Transition	● Investigate, develop, and verify CCUS/"e-methane" technologies	● Full-scale introduction of CCUS/ "e-methane," hydrogen, etc. and establishment of supply chains
Opportunities	Physical	● Development and sale of equipment with disaster response functions	
Opportunities	Transition	● Develop and expand sales of renewable energy power sources in Japan and abroad ● Develop and sell high efficiency, compact decentralized power sources (CHP, fuel cells) ● Expand fuel switching, sales of high efficiency equipment in Japan and abroad ● Verify and participate in the decentralized power sources aggregation business Please see the following material for our major initiatives*	
Opportunities	Transition	● Further develop energy-saving technologies	● Full-scale introduction of CCUS/ "e-methane," hydrogen, etc. and establishment of supply chains

* ▶Carbon Neutral Vision　▶Energy Transition 2030

Financial Impact of Climate Change Risks and Opportunities

In its Medium-Term Management Plan 2026, the Daigas Group expects to invest 100.0 billion yen in the carbon neutral field (renewable energy, e-methane, etc.) for a future earnings structure as investment for growth from FY2025.3 to FY2027.3.

The Daigas Group is actively contributing to the spread of renewable energy, and estimates that the sales impact of expanding its renewable energy business in FY2031.3 will be on the order of 100 billion yen.

It should be noted that there are uncertainties and assumptions in the above estimation of financial impact. In practice, the impact may vary significantly as a result of changes in key factors.

Initiatives to Reduce Greenhouse Gas Emissions

Initiatives to reduce greenhouse gas emissions are a crucial mission for the Daigas Group. We focus on reducing CO_2 emissions, not only from our own business activities, but also from customers who use the energy we provide. In the Daigas Group Energy Transition 2030 (ET2030), we have set a target of reducing CO_2 emissions in our domestic supply chain by 5 million tons by FY2031.3 compared to FY2018.3, and we are taking various initiatives to reduce CO_2 emissions.

Under the Daigas Group Carbon Neutral Vision, we have established the goal of contributing 10 million tons per year of CO_2 emissions reductions in FY2031.3. This indicator will enable us to contribute to reductions throughout society, and we therefore use it as a management target linked to the Group's business initiatives.

Initiatives Ensuring Resiliency for a Carbon Neutral Society

Securing a stable supply of energy, a core social infrastructure, is one of the major climate change-driven challenges facing society as a whole. By continuing to provide a range of services, including multiple sources of clean energy such as gas and electricity utilizing technologies for carbon neutrality, disaster response equipment, and the widespread and advanced use of energy, the Daigas Group will strive to contribute to society in terms of stable supply and resilience toward a carbon neutral society.

The Daigas Group will aim to achieve both business growth and stable social infrastructure, and promote activities that contribute to reducing CO_2 emissions throughout society, promote the advanced use of gas, and develop technologies for carbon neutrality, in response to the growing global trend toward carbon neutrality.

Please see P.33-P.37 for an overall picture of the Daigas Group's efforts to provide carbon neutral energy.

Risk Management

When deciding on the Daigas Group's business plan and investment plan, the internal organizations responsible for the gas, electricity and other businesses analyze the risk factors and their impact on each business, distill and identify risks, and submit these together with other business risks, etc. to the Management Meeting for deliberation. Climate change risks in the formulated plans are managed through a PDCA cycle, and are reported and followed up at the Environment Subcommittee, ESG Committee, and ESG Council (Management Meeting).

Decisions on climate-related risks and sustainability, including investment decisions, are made by the Board of Directors and the Management Meeting. Matters related to climate change that were proposed or reported by March 31, 2024, included those listed below.

- Resolutions for collaboration and participation in projects for a carbon neutral society, based on the Carbon Neutral Vision
- Formulation and disclosure of Medium-Term Management Plan 2026
- Monitoring of the results for indicators used to manage climate change response, etc.

Please see P.49 for the risk management system for climate change

Indicators and Targets

The Daigas Group will proceed to contribute to radically reducing CO_2 emissions and realizing a carbon neutral society, through initiatives such as energy conservation, the advanced use of natural gas, and the widespread use of renewable energies.

Field		Indicators	Targets	Target FY
Climate Change		CO_2 emissions of Daigas Group	Net-zero CO_2 emissions	2051.3
			27.02 million tons*1 Domestic: 5 million tons less than FY18.3	2031.3
	Contribution to CO_2 emissions reductions across society	Avoided emissions*2	10 million tons	2031.3
			7 million tons	2027.3
	CO_2 emissions reductions from our own business activities	Renewable energy development contribution	5 GW	2031.3
			4 GW	2027.3
		Percentage of renewables in our power generation portfolio in Japan	Approx. 50%	2031.3
			Approx. 30%	2027.3
		CO_2 emissions reduction in the Group company offices and vehicles	100%	2031.3
			67%	2027.3
	Contribution by development of technologies	Promotion of e-methane practical application	1% e-methane in gas grid	2031.3
			Final investment decisions in e-methane supply chain PJ	2027.3
		Promotion of methanation technology development	Establishing a pilot-scale (400 Nm^3/h class) SOEC technology	2031.3
			Transition to the second phase of SOEC GI funds business	2027.3

*1 Emissions in domestic supply chain (Scopes 1, 2 and 3)
*2 Calculate the estimated effect of CO_2 emissions reduction in one year of the target FY by introducing high efficiency facilities and low carbon energy, etc. to customer side and the company's business activities in and after FY2018.3.

Environmental Impact throughout the Daigas Group Value Chain in FY2024.3

The Daigas Group calculated the amount of greenhouse gas (GHG) emissions from companies that constitute the Daigas Group's value chain network, based on the GHG Protocol, an international emission accounting standards. The methodology of the calculation and its results have been certified by an independent organization to verify their reliability and accuracy.
Described below are GHG emissions in FY2024.3.

Combined GHG emissions by the Daigas Group and value chain companies **25.63** million t-CO_2e

- Scopes 1 and 2 …… **4.77** million t-CO_2e (19% of the total emissions)
- Scope 3 …………… **20.87** million t-CO_2e (81% of the total emissions)

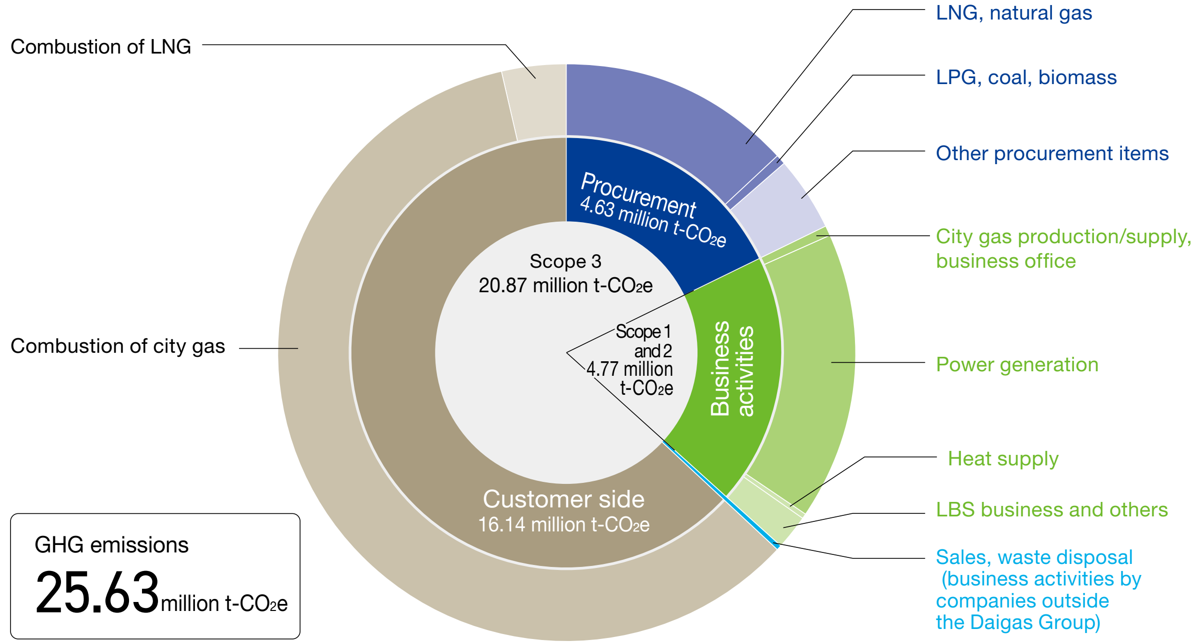
Major causes of emissions

- GHG emissions from city gas and LNG combustion on the customer side amounted to 16.14 million t-CO_2e tons in the reporting year in terms of CO_2, accounting for about 63% of the total.
- GHG emissions through electricity generation, as measured in terms of CO_2 in the year, amounted to 4.03 million t-CO_2e, accounting for about 16% of the total emissions, which represented the majority of GHG emissions from the Group's own business activities.
- GHG emissions associated with material and fuel procurement totaled 4.63 million t-CO_2e, as measured in terms of CO_2 in the year, accounting for about 18% of the total emissions. The procurement of energy sources, especially LNG, accounted for over 70% of that amount.

Environmental impact reduction initiatives

- As a way of reducing GHG emissions, we will continue to actively introduce highly advanced energy-efficient power generation facilities and renewable energy sources to customers.
- We will continue our efforts to improve fuel efficiency regarding the operation of LNG tankers in collaboration with resource suppliers in material procurement.

■ GHG emissions throughout the Daigas Group value chain in FY2024.3 (actual results)



Companies subject to the calculation of GHG emissions : 69 companies in total, including Osaka Gas Co., Ltd., 2 overseas subsidiaries and 66 companies among 159 consolidated subsidiaries, are subject to calculation of GHG emissions. Those housed in office buildings as tenants and whose environmental data are difficult to grasp and whose environmental effects are minimal and overseas companies, except two companies, are not subject to such calculation.

CO_2 emission factors used (GHG scopes 1 and 2)

- Electricity: 0.65 kg-CO_2/kWh (Average emission factor of thermal power plants in FY2014.3, stipulated in the Plan for Global Warming Countermeasures issued by the government in 2021.)
- City gas: 2.29 kg-CO_2/m^3 (based on Osaka Gas data)
- Others: Factors listed under the Law Concerning the Promotion of Measures to Cope with Global Warming

Sources of emission factors used for calculating CO_2 emissions (GHG scope 3)

- Production and transmission of city gas: "Life cycle evaluation of city gas" on the website of the Japan Gas Association
- Production and shipment of LNG: Calculation of life cycle greenhouse gas emissions of LNG and City Gas 13A (papers presented at research presentation meetings of the 35th Meeting of the Japan Society of Energy and Resources, June 2016)
- Production and shipment of LPG and coal: Future forecast for life cycle greenhouse gas emissions of LNG and City Gas 13A (Energy and Resources, Vol. 28, No. 2, March 2007)
- Other main emission factors: Emission factors for calculating supply-chain greenhouse gas emissions, etc. (Database Ver. 3.3) published in March 2023 by the Ministry of Environment

Initiatives for Human Rights

The Daigas Group believes it is important to establish a system to respect human rights of those who are affected by business activities of the Group, and to proactively disclose our initiatives in this regard, in accordance with “the UN Guiding Principles on Business and Human Rights.” In accordance with “the Daigas Group Human Rights Policy,” we are undertaking efforts that promote respect for human rights and the achievement of sustainable business growth by promoting the Human Rights Due Diligence.

Human Rights Due Diligence

System for Carrying Out Human Rights Due Diligence

The Human Rights Center in the Human Resources Dept., Compliance Office and Internal Control Planning Team in the General Affairs Dept., and the ESG Office in the Corporate Strategy Dept. work together to promote human rights due diligence activities.

The Board of Directors, which makes decisions on and supervises the important business activities throughout the Group, supervises matters involving human rights issues. At the ESG Council (Management Meeting), which is held three times a year, executives discuss activity plans and activity reports related to ESG issues, including human rights issues, and submit reports to the President.

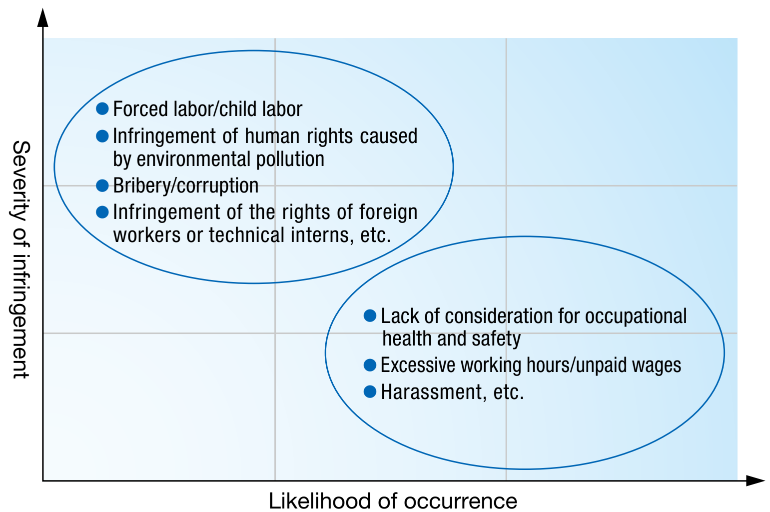
In addition, the Group also has the ESG Committee, chaired by the Head of ESG Promotion (Representative Director and Executive Vice-President), who supervises the Group’s sustainability activities, and consisting of the heads of related organizations. The ESG Committee is held three times a year in principle for cross-organizational deliberation, coordination, and supervision of issues and planning, promotion related to human rights due diligence.

Initiatives Undertaken in FY2024.3

In FY2024.3, we continued to conduct checks through the “G-RIMS,” a self-inspection tool, a compliance survey of employees to see how well they understood compliance, and questionnaire surveys targeting major business partners of the Group. In addition, upon receiving opinions from external experts in the previous fiscal year that highly serious human rights issues may occur overseas, we have worked to identify and address human rights risks at our overseas subsidiaries. We undertook efforts to gradually expand the scope of our investigation, including starting to conduct questionnaire surveys targeting major suppliers and conducting on-site audits by adding the confirmation of human rights risks to the existing quality audit framework.

The investigation results showed no serious risks related to human rights.

■ Matrix Assessment of Human Rights Risks



Identification of Key Human Rights Risks (Assessment)

Based on the FY2024.3 investigation results and cases handled by consultation desks, as well as discussions with experts, we identified important human rights themes that the Daigas Group should consider in the course of its business activities. As a result, no significant changes from FY2023.3 were identified.

Among the human rights risks that may occur in the course of the Group's business activities, 14 items were identified as significant human rights risks. Such risks include forced labor, child labor, and bribery/corruption in the oversea business, and infringement of the rights of foreign workers or technical interns in the domestic business, in addition to lack of consideration for occupational health and safety, infringement of human rights caused by excessive working hours or unpaid wages, and harassment. We take various measures to prevent and mitigate these risks, under relevant policies and other systems.

In addition, during discussions with experts, recommendations were made regarding the importance of assessing human rights risks by business in the value chain, and continuing to conduct surveys, investigation, and audits in areas identified as those with key human rights risks. We will continue to consider and respond to such issues.

We also assess human rights risks in new businesses. For example, we investigate the status of legal compliance concerning labor standards and health and safety as part of due diligence for M&A deals. We thus confirm that serious human rights issues do not exist in companies joining the Group.

Initiatives for Compliance

The Group's view on compliance is that it is not only about observing laws and regulations but also entails sensible corporate activities based on sound ethics. Recognizing that to maintain trust of stakeholders, it is essential to ensure that officers and employees put compliance into practice, we are continually conducting training sessions and employee surveys to raise awareness.

In addition, "Compliance Desks" have been established as one of the systems for early identification of incidents of violations of laws and regulations or misconduct, and for prompt and appropriate response.

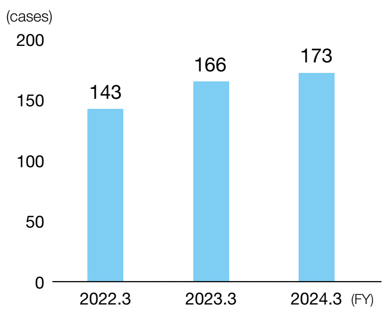
Initiatives Undertaken by the Compliance Desks (Internal Reporting System) in FY2024.3

The desks accepted a total of 173 consultations and reports in FY2024.3. We examined the necessity of factual investigations on these cases and conducted interviews, evidence checks, etc. Measures to remedy the situation and prevent recurrence were taken as necessary. We found no serious violations of laws and regulations.

When cases are brought to the "Compliance Desks," violations of laws and regulations, etc., are remedied if any violations are found in the investigations. Even if no violations are found, improvements are made as necessary in order to maintain and improve a sound work environment.

The content of report accepted, investigation results, remedies, and other matters are reported to and shared by the Compliance/Risk Management Subcommittee and the ESG Committee to prevent recurrence.

■ Number of Consultations and Reports



■ Breakdown of Report Content in FY2024.3