

Climate/Nature-Related Financial Disclosure

~TCFD・TNFD Report~



November 2023

MS&AD MS&AD Holdings

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Climate/Nature-Related Financial Disclosure

The MS&AD Insurance Group has been promoting initiatives, within the medium- to long-term timeframe, to address climate change, which is a universal issue that has a significant impact on both society and our business operations. We, supporting the Task Force on Climate-related Financial Disclosures ("TCFD"), are carrying out climate-related disclosure.

Furthermore, the depletion of natural capital due to economic activities is also expanding globally, posing a significant risk factor for achieving a sustainable society. Our company group is committed to improve the sustainability of natural capital, while also progressing with nature-related disclosure taking reference from the beta version (v0.4) of the recommendations (v1.0) to be published by the Taskforce on Nature-related Financial Disclosures (hereinafter "TNFD") in September 2023.

1. Governance

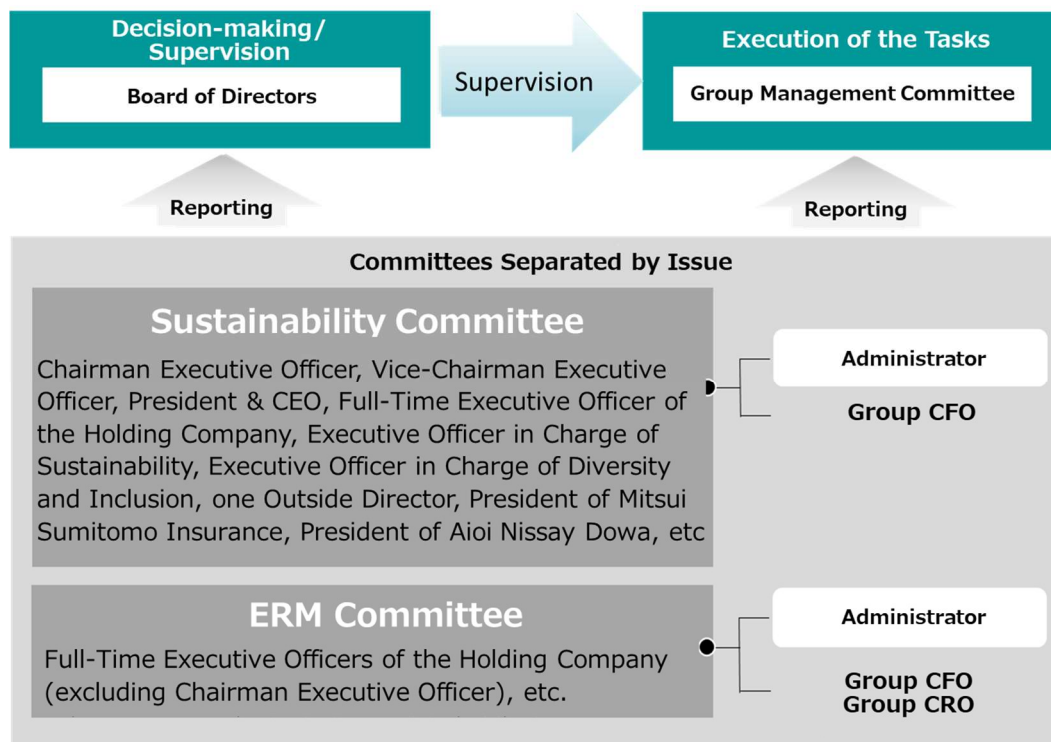
Our governance structure for sustainability, including climate/nature-related matters, consists of the Board of Directors, the Group Management Committee, and Task-Specific Committees.

In addition to matters specified by law and the Articles of Incorporation, the Board of Directors discusses and decides upon important climate/nature-related matters involving Group management strategy and important corporate management matters, including the Group's management policies, management strategies and capital policy, in addition to overseeing the duties of directors and executive officers. The Board of Directors allocates management resources according to risk appetite controlled with a balance of risk, return, and capital, and aims to increase corporate value over the medium to long term by achieving sustainable growth and improving profitability and capital efficiency based on soundness. In addition to appointing executive officers, the Board of Directors aims to separate management decision making and oversight by the Board of Directors from business execution by executive officers by clarifying their respective roles. Executive officers are responsible for executing business in the respective areas of business entrusted to them by the Board of Directors, and report on the status of business execution to the Board of Directors. The role of the Group Management Committee is to discuss management policies, management strategies, and other matters that are key issues to the Company and the Group companies. It also monitors specific business operations by receiving reports on approved matters under the rules for the Group Management Committee.

The task-specific committees have been established with the aim to deliberate on various key issues in management when executing operations as well as to coordinate perspectives across various departments. Sustainability-related issues and initiatives are reported to both the Board of Directors and the Group Management Committee for determination after discussion by, primarily, the Sustainability Committee and the ERM Committee.

The Sustainability Committee, headed by the Group CSuO (Chief Sustainability Officer) newly established in FY2023, consists of the presidents of each Group company, the Group CFO, the Group CRO, and the Director in charge of Diversity, Equity and Inclusion. It discusses policies, plans, and strategies for addressing sustainability issues. In FY 2022, the committee met four times under the chairmanship of the Group CFO (Director in charge of Sustainability). The main topics of discussion included FY2022 sustainability initiatives, promotion of DE&I, Group initiatives for respecting human rights, initiatives to achieve the target "Net Zero Carbon Emissions by 2050", and external collaboration in the areas of natural capital and climate change. These discussions were reported to the Board of Directors.

The ERM Committee, headed by the Group CFO and the Group CRO, discusses and coordinates important matters concerning ERM, as well as monitoring the status of risk/return/capital and the status of risk management, including climate-related risks and other matters. It was held eight times in FY 2022. One meeting held in February 2023 discussed how to manage Group Material Risk, which should be handled by management, including risk management with ongoing attention to climate change, and the Board of Directors determined the Group Material Risk. In addition, the ERM Committee discusses such issues as improving handling of natural catastrophic events including climate change and continuing monitoring of “depletion of natural capital (exhaustion of resources, deterioration of and crises of ecosystems, and human-induced pollution and accidents that cause major damage to the environment)” as examples of risk events which could adversely affect medium- to long-term Group management and management should also be conscious of (Group Emerging Risks). Details of the discussion are reported to the Board of Directors.



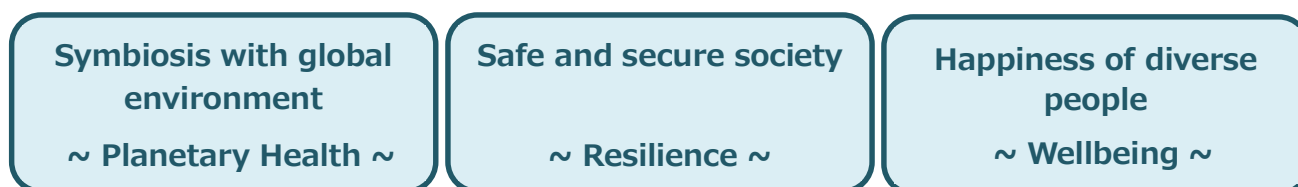
Climate/Nature-related governance structure

- Internal control (<https://www.ms-ad-hd.com/en/group/value/group.html>)

2. Strategy

Our medium-term management plan identifies “Symbiosis with global environment ~ Planetary Health~,” as one of the priority issues (materiality) of sustainability. Since the progress of global warming and depletion of natural capital are interconnected, positioning action on climate change and improvement of sustainability of natural capital as issues to be tackled in an integrated manner, we are promoting CSV initiatives that create shared value with society.

● Key Issues for Group sustainability



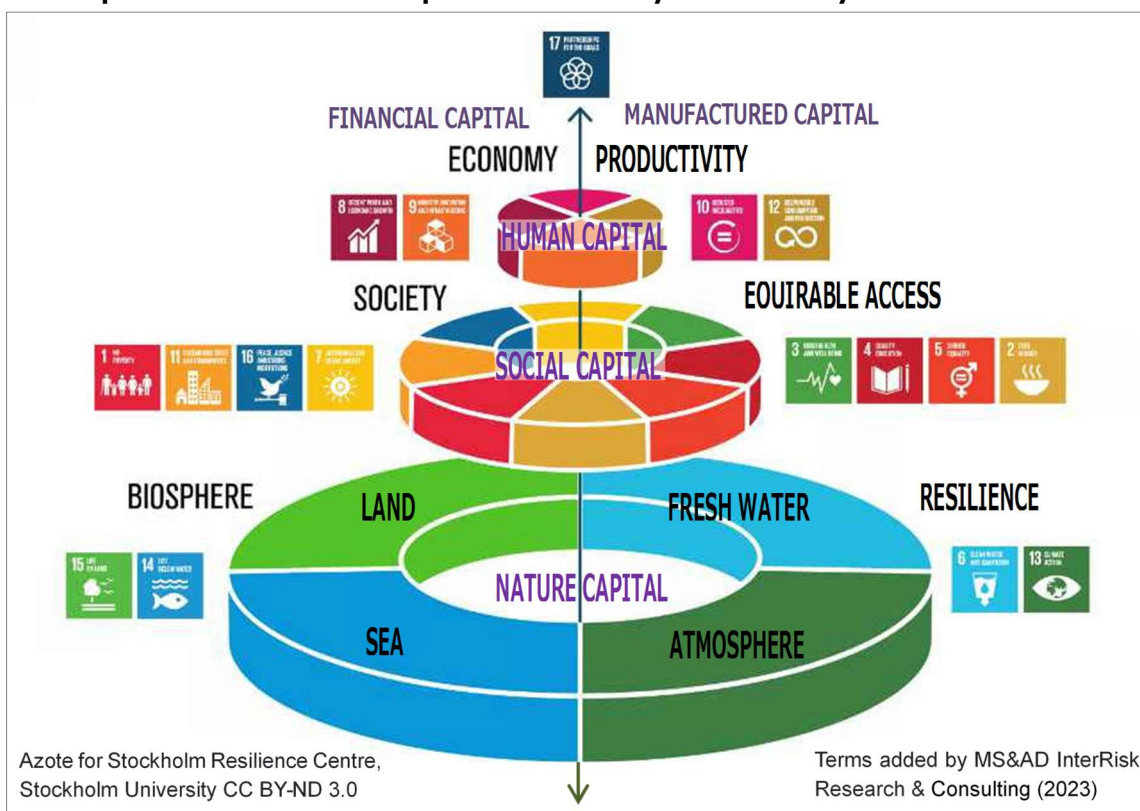
In 2015, world wide nations agreed to take steps to stop the global warming in line with the Paris Agreement. National governments, local governments, and corporations are working toward a decarbonized society. Meanwhile, with regard to biodiversity, the international target "Kunming-Montreal Biodiversity Framework" was adopted at the 15th Conference of the Parties to the Convention on Biological Diversity ("COP15"), held in December 2022. This framework sets out a so-called "nature-positive" direction with the aim of "halting and reversing biodiversity loss and putting nature on a recovery path by 2030," and sets forth a vision of "a world in harmony with nature" by 2050.

To realize a sustainable world as indicated in the SDGs, it is necessary to improve the sustainability of natural capital (land, ocean, air, freshwater, and the organisms living therein, etc.) that supports society and the economy, as illustrated below. Natural capital provides us with various benefits (ecosystem services) such as food and timber supply, water source recharging, and climate control. Among these ecosystem services are disaster prevention and mitigation functions, such as allowing heavy rainfall to be absorbed into the ground to prevent flooding and mitigate damage. On the other hand, global warming causes depletion of natural capital by such means as severe natural disasters, forest decline, and desertification. Decreases in forest areas and desertification lead to reduced absorption of CO2, which accounts for a large proportion of greenhouse gases, and thereby accelerates global warming. In order to realize a decarbonized society in harmony with nature, it is necessary to address climate change and improve the sustainability of natural capital.

The Group is working on initiatives for minimizing the impacts of climate change and supporting transition to a decarbonized society. While maintaining and improving financial soundness, we cover damages arising from natural disasters such as typhoons and floods. In pursuit of the target "Net Zero Emissions by 2050, we are also working to reduce environmental impacts associated with the Group's business activities by supporting development of new technologies that will minimize climate change risks and supporting transition to a decarbonized society.

In addition, transition towards a society in harmony with nature, we offer services for analyzing and evaluating the relationships between our clients' business activities and nature. We are committed to devising and implementing initiatives that mitigate burdens (negative impacts) on the environment and to supporting development of technologies that restore natural environments (positive impact), such as creating green spaces.

<Relationship between Natural Capital and Society or Economy in SDG Goals>



(1) Climate-Related Strategies

(i) Climate-Related Risks and Opportunities

[Climate-Related Risks]

We recognize that some climate-related risks and opportunities have impacts on the balance of a single fiscal year such as large-scale natural disasters, while others occur over the medium to long term.

In addition to business plans for a single fiscal year, the Group has formulated medium-term strategic plans based on various risks and opportunities, including those relating to climate issues. We aim to be a corporate group that supports a resilient and sustainable society, while, as a platformer of risk solutions, contributing to efforts to address climate change issues and growing with society.

We consider the effects of physical changes in weather conditions and the transition to a decarbonized society to be risks in our business operations, and are working to ensure stable earnings and financial soundness. We will maintain and strengthen a system that enables the prompt payment of insurance claims even in the event of a large-scale natural catastrophe. We will also mitigate risks by promoting disaster prevention and mitigation initiatives.

TCFD classifies climate-related risks into two categories: physical risks and transition risks. Physical risks are those associated with the physical impacts of climate change. They are further divided into two subcategories by how they manifest. One is "Acute physical risks" due to acute physical events such as typhoons and the other is "Chronic physical risks" due to changes in long-term climate patterns.

Transition risks are those associated with the transition to a decarbonized economy. They are classified into four subcategories by factor. "Risks from Policies and regulations on climate change mitigation and adaptation," "Risks from technology that supports the transition to a decarbonized society," "Risks from changes in market supply and demand," and "Risks from social reputation for responding to climate change"

Risks according to this classification are as follows.

Classification		Examples	Risk Examples in our Business Activities
Physical Risks	Acute	•Typhoons, floods, storm surges, heavy rains and wildfires	•Deterioration in income and expenditure due to the intensification of natural catastrophe, etc., and an increase in capital costs due to an increase in profit volatility
	Chronic	•Rising sea levels and mean temperatures •Changes in weather such as low rainfall and drought •Decrease in supply of water and other resources •Changes in the habitat of infectious disease vectors •Increase in heat stroke	
Transition Risks	Policies and Regulations	•Rise in carbon prices •Strengthening environmental regulations and standards •Change in energy composition •Rising number of climate-related litigation cases	•Decline in investment returns caused by deterioration in the performance of investee companies due to an increase in carbon costs
	Technology	•Progress in decarbonization technology •Changes in industrial structure due to a decrease in demand for low-carbon efficient products	•Reduced earnings due to inability to capture changing markets due to decarbonization
	Market	•Changes in supply and demand for goods and services	
	Reputation	•Criticism of delayed response to climate change	•Decreased reputation due to inadequate information disclosure and/or delayed response to climate change

[Climate-related Opportunities]

Rapid social and economic changes resulting from transition to a decarbonized society will bring opportunities for the Group's growth, such as stimulated demand for new insurance products and services, and improved performance of our clients along with new industries emerge or technological changes take place. TCFD classifies climate-related opportunities into five categories: Products/Services, Markets, Resilience, Resource Efficiency, and Energy Source.

"Products/Services" relates to the development and innovation of new low-emission products and services.

"Markets" relates to development of new markets.

"Resilience" relates to climate-related adaptation.

"Resource Efficiency" relates to efficient use of energy and resources.

"Energy Source" relates to the production and utilization of low-emission energy.

Opportunities in the Group's business activities are as follows:

Classification	Examples	Opportunity Example in our Business Activities
Products/ Services	<ul style="list-style-type: none"> •Development and expansion of low-carbon products and services •Adapting to the impacts of evolving climate change •Development of new products and services through R & D and innovation •Diversification of business activities •Changes in consumer preferences 	<ul style="list-style-type: none"> •Increasing new insurance coverage needs due to changes of clients' business •Increasing consulting needs for decarbonization and disaster prevention/mitigation •Expanding markets for Climate Change (Disclosure of information, Response to regulations, Provision of mitigation and adaptation measures, etc.)
Market	<ul style="list-style-type: none"> •Expansion of new and emerging markets •Occurrence of assets requiring new financial services 	
Resilience	<ul style="list-style-type: none"> •Improving Capacity to •Adapt to Climate Change 	<ul style="list-style-type: none"> •Increasing needs for disaster prevention and mitigation
Resource Efficiency	<ul style="list-style-type: none"> •Modal shift Efficient production and distribution •Building efficiency improvement •Relocation to high-efficiency buildings •Reduction of water usage and consumption •Widespread utilization of recycled materials and recycling processes •Shifting to raw materials and production process with low environmental burdens 	<ul style="list-style-type: none"> •Increase in compensation needs due to electrification of mobility, AI of building equipment, etc. •Increase in needs for services that promote accident prevention, reuse, and recycling
Energy Source	<ul style="list-style-type: none"> •Conversion to renewable energy and low-emission energy •Utilization of policies and incentives to support climate change measures •Use of new technology Utilization of the carbon market 	

(ii) Approaches Based on Climate-related Risks and Opportunities

The Group, in "Symbiosis with global environment ~ Planetary Health~," is working toward mitigating the impacts of climate change and supporting transition to decarbonization.

While ensuring financial soundness, we cover damages arising from natural disasters such as typhoons and floods. In pursuit of the target "Net Zero Emissions by 2050," we are also working to support a resilient and sustainable society by taking initiatives to support development of new technologies that will mitigate climate change risks and transition to a decarbonized society and reduce the environmental impacts associated with the Group's business activities.

[Climate Change Mitigation]

The Group has been working to reduce greenhouse gas emissions. We set a goal of reducing greenhouse gas emissions from our business activities to “Net Zero Emissions by 2050,” and committed to contributing to transition to a decarbonized society in cooperation with stakeholders.

In February 2023, the Cabinet approved the "Basic Policy for Realization of GX," which outlines plans to create new demand and markets in the fields of stable energy supply and decarbonization by accelerating GX (Green Transformation), leading to enhanced industrial competitiveness and growth of the Japanese economy. Efforts are underway to expand the introduction of renewable energy, support investments in the development of innovative technologies, and improve the environment, including electricity grid improvements and other efforts,

In order to promote transition to decarbonization among companies, the Group has set a KPI of attaining an annual average of 18% of premium growth rate in the years leading up to 2025 for insurance products which contribute to “Symbiosis with global environment ~ Planetary Health~” and we are supporting the establishment and social implementation of innovative technologies of next-generation energy such as renewables and hydrogen, CCUS* and carbon recycling through provision of new risk solutions which actively utilize DX (digital transformation).

*CCUS: Carbon dioxide Capture, Utilization and Storage

Reduction of GHG Emissions toward Realization of “Net Zero”

In order to realize “Net Zero Emissions by 2050,” conversion to low-emission energy is essential. The Group has been supporting the transition to decarbonized society through providing various products and services that can help to promote widespread adoption of renewable energy. In August 2022, we launched the “Optional Policy for Rental Car Costs when Hydrogen Stations are Non-operational,” an industry-first optional policy for automobile insurance dedicated to hydrogen vehicles, along with offering premium discounts for holders of this optional policy.

In September 2022, Mitsui Sumitomo Primary Life Insurance invested approx. JPY5.8 billion in a project regarding major renewable energies such as offshore/onshore wind and solar power with the aim of expanding renewable energy resources and reducing GHG emissions,

Aioi Nissay Dowa Insurance intends to launch a new service for visualizing the “CO2 emissions reduction effects of safe driving” for policyholders of Telematics automobile insurance, based on correlation between the company’s safe driving scores and fuel consumption levels.

It will promote safe driving/eco driving in addition to reduction of GHG emissions by visualizing CO2 emissions reduction volume as a result of safe driving.

We will contribute to resolving various issues toward realization of net zero emissions through providing relevant products/services.

● Implementation of “Business Activities with Consideration for Sustainability”

The Group published “Business Activities with Consideration for Sustainability” as our policy on dealing with sustainability. As an insurance and financial services group which provides safety and peace of mind, we conduct business activities with consideration for sustainability, and aim to enhance corporate value by contributing to solutions for sustainability issues with profound understanding through stakeholder engagement. Our underwriting takes into consideration issues and risks that could have negative impacts on society and the global environment, and we provide products and services that respond to the demands of society. Our investment considers ESG factors in pursuit of medium-to long-term returns and contribution to solutions of sustainability issues.

It is an essential role of an insurance company to support decarbonization of all of society through provision of products and risk consulting services that assist our corporate clients with their efforts to resolve climate change problems. The Group supports our corporate clients in their endeavors to resolve solutions to such issues as reduction of climate change risks in their existing business activities and creation of profit opportunities through new business that contributes to the zero carbon objective.

- Business Activities with Consideration for Sustainability
<https://www.ms-ad-hd.com/en/csr/summary/materiality.html>

● Support for Companies in Reduction of Greenhouse Gas Emissions

Since December 2021, the Group has been taking part in the “Partnership for Carbon Accounting Financials,” a global partnership of financial institutions aimed at developing methods for measuring GHG emissions of organizations included in underwriting portfolios, and has been actively involved in development of international standards regarding GHG emissions of financial institutions. With the outcome of these initiatives, we are proceeding with measurement of and target setting for greenhouse gas emissions of our underwriting portfolio, and support for transition to net zero society through engagements with corporate and individual clients in our underwriting portfolio.

In FY2022, we began measuring GHG emissions (Scopes 1 & 2) of our underwriting portfolio.

Classification by industry showed that the largest GHG emission volumes were occurring in the materials industry, followed by the consumer staples, and then the utilities. Finding that companies in our underwriting portfolio that are conducting business activities with high GHG emission volumes have implemented initiatives to reduce GHG emissions accompanied by development of innovative technology and that they require coverage for new risks in many cases, we have been proceeding with development/provision of products/services to support both those companies and individual clients in reducing their GHG emissions.

<Percentage of GHG emission volumes of our underwriting portfolio companies>

Type of Industry	Percentage of GHG emission volumes (Scopes 1&2)*
Materials (chemicals, cement, metals, steel, paper, etc.)	40.5%
Consumer Staples (foodstuffs, beverages, luxury goods, etc.)	36.4%
Utilities (infrastructure-related)	10.8%
Industrials (construction, machinery, trading companies, etc.)	4.7%
Consumer Discretionary (parts, clothing, appliances, retail, etc.)	4.1%
Energy	1.5%
Information Technology	1.2%
Others	0.8%

*Measurement coverage corresponds to 10% of gross premium income as at the end of March 2023.

● Support for our investment and loan portfolio companies in reducing greenhouse gas emissions

Aiming to help our investment and loan portfolio companies reduce GHG emissions, we promote initiatives through engagement to address climate change, and we provide investment and loans in project financing and funding related to construction of renewable energy power generation plants, such as those for solar, wind and biomass. Mitsui Sumitomo Insurance, Aioi Nissay Dowa Insurance, Mitsui Sumitomo Aioi Life Insurance, and Mitsui Sumitomo Primary Life Insurance jointly invested in the impact funds which focus on climate change, and they also have been compiling

know-how.

With regard to initiatives through engagement with our clients on climate change, we are working to understand the organizational structures of our investee companies in relation to addressing climate change, their efforts toward reaching GHG emission reduction targets, their plans for technological innovation, and the challenges they face. For examples of the details of engagement, please refer to “3. Risk Management (4) As Responsible Institutional Investor” on Page 27.

● Reduction of greenhouse gas emissions with our value chain

In order to realize a decarbonized society, various innovations in business and society are essential. We will support the establishment and implementation of innovative technologies for a decarbonized society, like next-generation energy such as renewable energy and hydrogen, CCUS*, carbon recycling, etc., through the provision of insurance products.

*Carbon dioxide Capture, Utilization and Storage

We are working with our insurance agents, who are our Group's business partners, to reform their business processes by utilizing digital technology and other means and are promoting their sales activities through web communications without paper usage which save energy and resource.

GHG Emissions Issues: Working with Non-life Insurance Agencies

In fiscal 2023, in addition to providing insurance coverage for accidents and injuries, Mitsui Sumitomo Insurance began offering solutions for risks, not only before and after occurrence of accidents, etc., through its non-life insurance agencies ("Agencies"). As solutions to the climate change-related risks, the company provides services for installation of residential solar panels and storage batteries at no initial cost, together with a cloud-based basic calculation tool that allows customers to calculate their own GHG emissions, including CO2.

Starting in FY2022, the company is also providing "Zeroboard*1," a cloud-based service for calculating and visualizing GHG volumes emitted by Agencies themselves, to Agencies Organizations*2, free of charge, to support decarbonized management in Agencies.

*1: A cloud service offered by Zeroboard, Inc. for calculation and visualization of greenhouse gas emissions. It enables calculation based on the internationally recommended standard known as "Greenhouse Gas Protocol."

*2: Mitsui Sumitomo Agencies (MSA) and Advance Club, insurance agent organization comprising car maintenance service providers, of Mitsui Sumitomo Insurance and members of Professional Agents of Aioi Nissay Dowa Insurance. Aioi Nissay Dowa Insurance also provides small to medium enterprises in Japan with the same service free of charge.

● Reduction of GHG emissions from our business operation

We will promote business style reforms such as the use of remote work and telecommuting, and reduce the use of gasoline and electricity by reducing employee travel and office space. We are also reducing energy consumption and introducing renewable energy by installing state-of-the-art energy-saving equipment in our office buildings, installing solar power generation equipment, and replacing company-owned vehicles with fuel-efficient vehicles. In addition, we are working to reduce paper consumption by putting insurance policy applications, insurance claim procedures, and various announcements on the web.

[Climate Change Adaptation]

The Group provides insurance coverage for damage from natural disasters while ensuring financial soundness to provide society with peace of mind and safety. We have been promoting climate change adaptation by providing services to help eliminate or reduce damage and loss caused by natural disasters.

If natural catastrophe becomes more severe due to climate change, the amount of insurance claims may increase and in turn may lead to rise in reinsurance premiums. To this end, the Group utilizes reinsurance alternative methods such as cat bonds (bonds that incorporate a function to receive funds in the event of a natural catastrophe) and accumulate catastrophe reserve.

In FY 2019, Group companies MSI and Aioi Nissay Dowa Insurance have secured a joint common reinsurance option.

This option ensures stability of Group profits and losses over the period even when payments for insurance claims due to natural catastrophe reach a large amount throughout the year.

In preparation for a more severe natural disaster, we are also providing disaster and weather data analysis services using AI, and working to enhance disaster prevention, recovery, and adaptation capabilities. In the event of a natural disaster, we establish an efficient payment procedure that uses AI and drones to conduct damage investigations so that our clients can recover promptly by our insurance claims payment. Taking into account the impact of climate change, we will continue to control the retention of risk amount and secure the capital necessary to maintain our financial soundness. We will build a more stable earnings base by diversifying risks geographically and operationally through expansion of our overseas and life insurance businesses.

Free provision of “Global Future Flood Hazard Map”

The Group launched free access to the “Future Flood Hazard Map*” in April 2023 and expanded its coverage to all regions worldwide in September 2023.

The map can provide a comprehensive view of risks in current and future climate scenarios for companies with overseas entities in areas where flood hazard maps were not previously available, and to those planning to capture information on future global flood risks.

For our paid consulting service for companies, we will upgrade the resolution of flood hazard maps in the Japanese region from the conventional 90 m x 90 m to 30 m x 30 m to enable more detailed flood risk analysis.

*Developed based on the research results of the “LaRC-Flood® Project,” launched jointly by the University of Tokyo, Shibaura Institute of Technology and the Group. “LaRC-Flood” is the abbreviation for Large-scale Risk assessment of Climate change for Flood. This is a project launched by Yamazaki Laboratory, Institute of Industrial Science, University of Tokyo, Hirabayashi Laboratory, Department of Civil Engineering, Faculty of Engineering, Shibaura Institute of Technology, MS&AD Insurance Group Holdings Co., Ltd., and MS&AD InterRisk Research & Consulting, Inc., with the aim of conducting a “large-scale assessment of flood risk due to climate change.”

(URL : https://www.irric.co.jp/risksolution/sustainability/prediction_map/index.php) *Japanese only

Support in the Event of a Natural Disaster

The frequent occurrence of large-scale disasters due to the effects of climate change and other factors has heightened interest in disaster prevention and mitigation, as well as recovery in the event of a disaster. Against this backdrop, local governments across Japan are concluding agreements with businesses in anticipation of their roles in recovery efforts in the event of a disaster. The Group launched Disaster Countermeasures Support Insurance in August 2022. This product covers expenses, etc. incurred by a business operator that has concluded a disaster support agreement ("agreement") with a local government in cases where they provide supplies, dispatch personnel, and take other measures based on the agreement. Through this product, we support public-private partnership initiatives toward enhancement of local disaster prevention capabilities. We also provide a claim service without the requirement for conventional on-site surveys in the event of water damage, based on measurement of flood heights using drones and AI, and on customers' reports on damage situations, etc. utilizing chatbots. Even in the event of a large-scale flood disaster or the spread of an infectious disease that make on-site surveying difficult, this product enables fast claim without the need to wait for on-site inspections by building repair companies, etc. or insurance companies. Thus, we have been supporting rapid recovery from disasters.

(iii) Scenario Analysis

The Group has conducted scenario analyses to gauge the impact on insurance underwriting of covering damage arising from natural disasters (physical risk) and the impact on investment due to introduction of global warming countermeasures (transition risk).

For the analysis of physical risks, we analyzed changes in insurance loss arising from typhoons, the force of which are impacted by further global warming, and confirmed insurance loss might be increased. For the analysis of transition risks, we analyzed additional costs allocated to our investee companies in the context of responses to rising global temperature. We found the companies developing their global warming countermeasures might lead to reduce additional costs.

In the analyses, wide range assumptions have been set since the impact and likelihood of climate change are volatile. Our physical risk analysis is based on the Intergovernmental Panel on Climate Change (IPCC) scenario, and our transition risk analysis is based on the International Energy Agency (IEA) scenario.

The Group continuously updates and refines its scenario analysis in light of climate change mitigation and adaptation initiatives and from scientific point of view.

[Scenario Analysis of Insurance Underwriting (Physical Risk Analysis)]

Further global warming could increase the severity of natural disasters such as typhoons and the increased risk of resultant damage. Therefore, as a scenario analysis of physical risk, we analyzed the potential impact on insurance payment by typhoon severity associated with global warming. The project for considering methods of forward-looking scenario analysis that examines the potential effects of climate change on insurance underwriting was launched by the United Nations Environment Programme Finance Initiative (UNEP FI) in 2018. Over 20 insurance companies that signed on to the Principles for Sustainable Insurance (PSI), including the Company, participated in the project, and worked on developing scenario analysis methods in some groups based on the likely impacts of climate change subject to analysis.

The Company participated in the group for analyzing typhoons and hurricanes that have a significant impact on insurance underwriting and examined the impact of future global warming on the risk amounts arising from typhoons and hurricanes. Focusing on changes in the "intensity" and "frequency" of typhoons due to climate change, and referring to the results of research carried out by Knutson et al. (2020) thereon, we developed an analysis and

evaluation tool for 2050 in the 4°C scenario (RCP 8.5). Regarding storm surge changes caused by typhoons, we also developed an analysis and evaluation tool for 2030 and 2050 under the 2 °C (RCP 4.5) and 4 °C (RCP 8.5) scenarios, referring to the World Resources Institute (WRI)'s tool, Aqueduct Flood, for evaluating storm surge damage, etc. Results using the two analytical evaluation tools are as follows. Scopes of analysis are domestic non-life insurance book (e.g., property, marine, personal accident and auto line) that are expected to be paid out due to typhoons.

●Changes in typhoons themselves

In 2050 under the 4 °C scenario (RCP 8.5), insurance loss arising from typhoons could vary from approximately + 5% to approximately + 50% due to changes in "intensity," and from approximately – 30% to approximately + 28% due to changes in "frequency of occurrence".

●Change in storm surge caused by typhoons

In both the 2 °C (RCP 4.5) and 4 °C (RCP 8.5) scenarios in 2030 and 2050, insurance loss may increase by several percent.

Apart from the analyses mentioned above, we collaborated in FY2021 with the Bank of Japan and the Financial Services Agency in carrying out scenario analysis exercises referring to materials such as the assumptions of scenarios considered by Network for Greening the Financial System (NGFS), and analyzed the likely amounts of damage caused by natural disasters which were becoming increasingly intense under the impact of climate change.

In addition to the above, the Group is endeavoring to advance our knowledge by such means as research work through projects conducted jointly with academic institutions, and is working to improve accuracy in scenario analyses, such as developing an analysis method which reflects changes in typhoon intensity due to climate change.

We will continue to examine methods for assessing the impacts of climate change such as typhoons and floods, while referring to the analysis methods based on UNEP FI projects and information to be published by NGFS.

[Investment Scenario Analysis (Transition Risk Analysis)]

Introducing a policy called "Carbon pricing," which assesses the costs associated with GHG emission volumes, is discussed worldwide to promote reducing GHG emissions. This could be the risk of increased carbon cost burdens to companies. Therefore, we analyzed the potential future impact of increased carbon costs on the Group's investment portfolio as a transition risk scenario analysis.

For the analysis, we used analysis tools developed by Trucost, which company researches environmental data such as carbon emissions and climate change risks, we analyzed degrees that investee companies presently have the ability to pay the future carbon costs they would need to bear (carbon earnings at risk (EBIT at Risk)*).

*Shows the financial impact on the investment portfolio for each scenario, calculated by dividing the unpriced cost of carbon (UCC) by the earnings before interest and taxes (EBIT).

Taking into consideration that TCFD recommends scenario analysis based on the rise in temperature being maintained at 2°C or less, the Group used the following three scenarios for analysis:

High scenario: Scenario in which administrative measures are implemented that are sufficient to be in line with international targets (Paris Agreement) of keeping temperature increase to less than 2°C by 2100;

Medium scenario: Scenario in which long-term administrative policies are enacted to keep global temperature increase to 2°C but short-term administrative policy implementation is delayed; and

Low scenario: Scenario in which each nation voluntarily implements its own targets but global temperature increase reaches around 3°C.

Our analysis covers domestic and foreign stocks (covers approx. 92% of domestic and foreign listed stocks on a

market value basis) and domestic and foreign bonds (also covers approx. 67% of domestic and foreign bonds on a book value basis) in our investment portfolio as of the end of March 2022. As for the assumption of investee companies' profits, the average value for corporate profits for the last 3 years is used to mitigate fluctuations in financial performance. Regarding GHG emission volumes, Scope 1 (directly emitted by the investee companies) and Scope 2 (indirectly emitted through the use of electric power, etc.) are examined.

The results of the analysis are shown in the table below. The carbon cost and transition risk increase in the high and middle scenarios. In the Group's investment portfolio as of the end of March 2022, it is estimated that in 2050, carbon earnings at risk may increase by approximately 8% in the low scenario and 31% in the high and medium scenario for stocks, and 14% in the low scenario and 49% in the high and medium risk scenario for corporate bonds

● MS&AD Group Carbon Earning at Risk (EBIT at Risk)

< Stocks (as of March 31, 2022) >

	Low Scenario	Medium Scenario	High Scenario
2030	4.2%	8.9%	18.2%
2040	6.8%	14.1%	27.6%
2050	7.9%	31.4%	31.4%

< Corporate bonds (as at March 31, 2022) >

	Low Scenario	Medium Scenario	High Scenario
2030	7.8%	14.6%	29.7%
2040	12.1%	22.2%	43.8%
2050	13.8%	49.4%	49.4%

This analysis is based on the current levels of greenhouse gas emissions by investee companies. If they promote decarbonization, the carbon cost allocated to them is reduced and then the future carbon earnings at risk will also be reduced. We will continue to mitigate the impact on the investment portfolio through engagement with investee companies.

(2) Nature-related Strategies

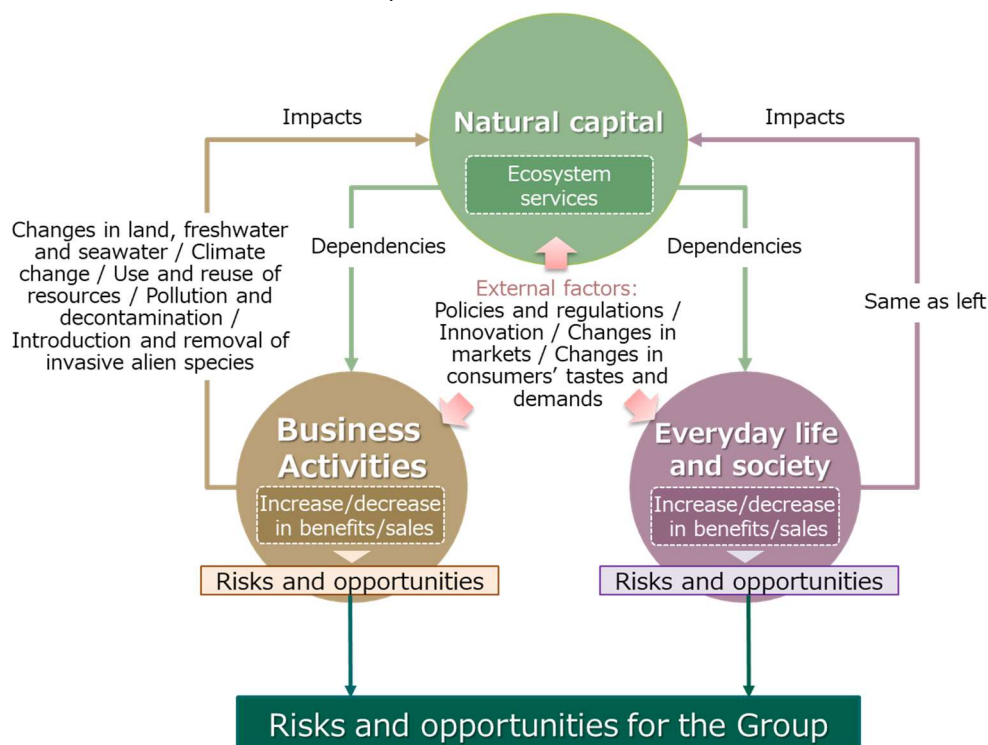
Understanding that improving the sustainability of natural capital is a key issue, the Group has been making ongoing efforts through activities such as the establishment of Japan Business Initiative for Biodiversity (JBIB) in 2008, nature-related consulting services, and joint research with universities. Approving TNFD, which was inaugurated in 2021, we are focusing on initiatives related to natural capital and biodiversity with the aim of realizing a nature-positive society and a world in harmony with nature*.

*Makoto Haraguchi of the Group (SVP of Sustainability Department, MS&AD Insurance Group Holdings, Inc.) was appointed as a Taskforce Member and he has been participating in the development of TNFD framework.

(i) Nature-related dependencies/impacts and risks/opportunities

Our lifestyles and business activities depend on and impact nature in various ways. As a result, natural capital changes and affects our business activities, our lifestyles, and the society. If natural capital is depleted, the benefits (ecosystem services) that our lifestyles and business activities rely on may decrease, resulting in increased costs that companies and society have to bear. Conversely, if natural capital is restored, there is a possibility of improved benefits and reduced cost burdens. Furthermore, business activities may be affected by external factors such as national and local laws and regulations, and technological innovations. These become nature-related risks and opportunities for

the business activities of companies, etc.; they also become risks and opportunities for the financial institutions that support those business activities and society itself.



The Group has identified risks and opportunities in line with the LEAP approach* advocated by TNFD, taking into account dependencies and impacts on nature. Considering the scope of analysis that should be prioritized, we focus on “non-life insurance business,” “financial services business,” and “risk-related service business” as the main targets, taking into account our business scale, impacts on natural capital, and evaluability.

Going forward, we will continue to promote nature-related initiatives within the Group by advancing assessment of risks and opportunities based on a more sophisticated analysis of dependencies and impacts on nature in our business activities.

* An integrated assessment process for managing nature-related risks and opportunities, focusing on the region or biome in which the business activities are carried out. “LEAP” stands for four phases: Locate, Evaluate, Assess, Prepare.

Pilot Implementation of LEAP Approach

The United Nations Environment Programme Finance Initiative (UNEP FI) hosted a pilot program for the LEAP approach in FY2022. We participated in the “Natural Rubber Industry in Indonesia” program and carried out a pilot analysis in cooperation with MS&AD InterRisk Research & Consulting and Think Nature Inc., a startup initiated by the University of the Ryukyus. (For details, see Appendix 1: implementation of LEAP Approach.) UNEP FI also held a pilot program on scenario analysis proposed by TNFD. We participated in this pilot program as well, and we are continuing to conduct research toward disclosure in line with TNFD.

[Nature-related Risks]

TNFD classifies nature-related risks into two categories: physical risks and transition risks.

Physical risks are further categorized, based on their occurrence, into two types: Acute physical risks due to sudden, physical events such as typhoons, insect or pest outbreaks, and chronic physical risks caused by long-term change.

Transition risks relate to the transition toward a world in harmony with nature. These are divided into four categories (“Risks from policies and regulations,” “Risks from technological innovations, etc.,” “Risks from changes in market supply and demand,” and “Risks from societal evaluations and reputation”).

Risks in line with this categorization are as follows:

TNFD Classification of Nature-related Risks		Examples	Examples of Impacts on Society and Economy	Risk Examples in our Business Activities
Physical risks	Acute	<ul style="list-style-type: none"> • Degradation of wetlands and forests due to typhoons, floods, forest fires • Insect and pest outbreaks 	<ul style="list-style-type: none"> • Increase in natural disaster damage • Decrease in harvest yields of agriculture, forestry and fishery products 	<ul style="list-style-type: none"> • Deterioration of insurance revenue and increased capital costs due to increase in profit volatility
	Chronic	<ul style="list-style-type: none"> • Degradation of wetlands and forests due to changes in weather such as low rainfall and drought 	<ul style="list-style-type: none"> • Decrease in harvest yields of agriculture, forestry and fishery products • Supply shortage and increased procurement costs for raw materials • Decrease in ecosystem services such as pollination and water source cultivation 	
Transition risks	Policies and Regulations	<ul style="list-style-type: none"> • Strengthening of regulations/ standards • Increase in litigations • Tightening of production volume regulations 	<ul style="list-style-type: none"> • Occurrence of regulatory compliance costs • Increase in litigation costs 	<ul style="list-style-type: none"> • Decline in investment returns caused by deterioration in the performance of investee companies
	Technology	<ul style="list-style-type: none"> • Progress in technology with less dependencies and impacts on natural capital. 	<ul style="list-style-type: none"> • Changes in industrial structure and supply/demand 	<ul style="list-style-type: none"> • Reduced earnings due to inability to respond to changes
	Market	<ul style="list-style-type: none"> • Changes in supply and demand for goods and services 		
	Reputation	<ul style="list-style-type: none"> • Criticism of involvement in and delayed response to depletion of natural capital 	<ul style="list-style-type: none"> • Criticism from customers, employees, etc. 	<ul style="list-style-type: none"> • Decreased reputation

● Dependencies /Impacts on Nature and Risks Related to Business Types of Our Underwriting and Investment/Loan Portfolio Companies

The Group, which conducts insurance business, believes that analyzing degrees of dependencies /impacts on nature of our clients (our underwriting and investment/loan portfolio companies) is more important than direct operation of our business. Therefore, we have organized, by industry, into two types of heat maps the situation of dependencies /impacts on nature and our ownership ratio. We have organized each of the dependencies on ecosystem service and the impacts of impact-driver*1 in five stages: Very High (VH), High (H), Medium (M), Low (L), Very Low (VL). We have also classified, by industry, our ownership ratio of the underwriting and investment/loan portfolio companies in three stages: High (H), Medium (M), Low (L).

Through this process, we have been able to deepen our understanding of the respective relationships between dependencies /impacts on nature and risks/opportunities in specific industries.

Through the heat mapping process, we found that a number of industries depend significantly on ecosystem services such as “climate adjustment*2,” “flood/storm prevention,” “groundwater,” and “surface water,” which exerted significant impacts on “utilization of terrestrial ecosystems,” “water use,” and “GHG emissions.”

The Group carefully determines the conduction of a transaction with any industry that exerts major impact on nature due to modification of land and/or water areas (agriculture, forestry, and fisheries involving hydroelectric power generation and large-scale new development) and for business activities in areas that are rich in biodiversity

(UNESCO World Natural Heritage Sites and Ramsar Convention-registered wetlands, etc.), based on environmental considerations, etc. of our underwriting and investment/loan portfolio companies.

*1: Factors that exert impacts on nature

*2: A function that regulates the environment and atmosphere on earth's surface and maintains climate conditions in a state suitable for human and biological activities.

<Dependency Heat Map: ecosystem services>

Sector	Ecosystem Service																						
	Animal-based energy	Bio remediation	Buffering and attenuation of mass flows mitigation	Climate regulation	Dilution by atmosphere and	Disease control	Fibres and other materials	Filtration	Flood and storm protection/floods/storms	Genetic materials	Ground water	Maintain nursery habitats	Mass stabilization and erosion control	Mediation of sensory impact	Pest control	Pollination	Soil quality	Surface water	Ventilation	Water flow maintenance	Water quality	Proportion of each sector that is underwritten	Proportion of investment and loans to each sector
Communication Services				M					VH													L	L
Consumer Discretionary		L			L		M	L	M		VH							H		M	L	M	M
Consumer Staples	VL	M	VH	VH	M	H	VH	M	VH	M	VH	VH	VH	L	H	H	H	VH	M	H	VH	L	L
Energy		M		M				M	H		VH		M					H			H	L	L
Financials													L									L	M
Health Care		VL						VL		M	M		L					H		M	L	L	L
Industrials													M									M	M
Information Technology					L			L			M							M				L	L
Materials	VL	M		VH		H	VH	VL	VH		VH		VH		H	H	H	VH		H		L	L
Real Estate		L						VL	VL		M		L	L				H				L	L
Utilities		VL		VH				L	H		M		H					VH		VH	L	L	L

VH H M L VL

<Impact Heat Map: Impact drivers>

Sector	Impact-drivers													Proportion of each sector that is underwritten	Proportion of investment and loans to each sector
	Terrestrial ecosystem use	Freshwater ecosystem use	Marine ecosystem use	Water use	Other resource use	GHGs emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbance	Biological alterations species			
Communication Services	H					H	M	L	L	M	M	H	L	L	
Consumer Discretionary	H	M	M	VH		VH	H	M	M	M	M		M	M	
Consumer Staples	VH	VH	VH	VH	H	VH	H	H	H	M	H		H	L	L
Energy	VH	VH	VH	VH		VH	H	M	M	H	H		L	L	
Financials	VL			VL		L	VL	VL		H			L	M	
Health Care				H		H	M	H	H	H			L	L	
Industrials	VH	H	VH	H		VH	H	M	H	M	H	M	M	M	
Information Technology	L	VL	L	M		VH	M	H	M	M			L	L	
Materials	VH	H	H	VH		VH	H	H	H	H	H	M	L	L	
Real Estate	VH	VL	VL	H		H	M	M	M	H	M	M	L	L	
Utilities	VH	VH	H	VH		VH	H	H	H	H	H	H	L	L	

VH H M L VL

<Analytical Method for Dependencies /Impacts on Nature and Risks Related to Business Types of Our Underwriting and Investment/Loan Portfolio Companies>

In the heat maps, we organized dependencies and impacts on nature, utilizing "ENCORE*1" and "SBTN Sectorial Materiality Tool for Step 1a*2." (For terms, see Appendix 2: Terms in Heat Maps, on page 36.

- Based on the ENCORE analysis results, we have identified business activities that depend on ecosystem services.
- Based on the results of analysis using SBTN Sectorial Materiality Tool for Step 1a, we have identified business activities that have a significant impact on natural capital.
- The percentages of investments and loans held covers domestic and foreign listed stocks, domestic and foreign corporate bonds, and domestic and foreign corporate loans in the investment and loan portfolios as at the end of March 2022.

*1: Nature-related risk management analysis tools provided by Natural Capital Finance Alliance and others

*2: A tool provided by SBTs for Nature to screen, by industry, degrees of environmental impact

[Nature- related Opportunities]

Toward a nature-positive society, if a company generates a significant negative impact on nature through its business activities, it may incur costs for reducing or avoiding such impact. Companies can reduce their financial burden by ascertaining these impacts and the associated risks, and taking preemptive countermeasures. With the Group's business model, the service "identify and inform on risks" as a starting point, our products and services "Prevent risks from occurring and minimize the impact of risk," and "Reduce the economic impact on the materialization of risks" enable us to provide our corporate clients with solutions, which we believe leads to Group opportunities.

Nature-related functions such as disaster prevention/mitigation and carbon sequestration/storage are called "Nature based Solutions (NbS)" overseas and "Green Infrastructure" in Japan, and implementation of these functions is progressing. In response to the increasing frequency and severity of floods and landslides due to climate change, the Ministry of Land, Infrastructure, Transport and Tourism is also promoting basin flood control (flood control not only in the river zone, but also across entire river basin). Taking into consideration such social momentum, the Group has launched initiatives toward the implementation of nature-related functions such as disaster prevention/mitigation and carbon sequestration/storage. We believe that business opportunities will also be created through public-private partnership and collaboration with the public sector, such as the national and local governments, as well as various stakeholders, including NPOs.

TNFD classifies nature-related opportunities into seven categories:

Products/Services, Markets, Resource Efficiency, Sustainable Use of Natural Resources, Capital Flows/Financing, Reputation Capital, and Nature Conservation/Restoration/Regeneration

"Products/Services" relates to the development and innovations of new products/services that have a positive impact or mitigate negative impacts on nature.

"Markets" relates to development of new markets.

"Resource Efficiency" and "Sustainable Use of Natural Resources" relates to efficient use or utilization of naturally derived resources to enhance sustainability.

"Capital Flows/Financing" refers to investment opportunities arising out of nature-related initiatives and activities.

"Reputation Capital" relates to reputation that arises with respect to nature-related initiatives and activities.

"Nature Conservation/Restoration/Regeneration" relates to conservation/restoration of nature.

Opportunities for Group business activities in line with the above classifications:

TNFD Classification of Nature-related Opportunities	Examples	Opportunity Example in our Business Activities
Products/ Services	<ul style="list-style-type: none"> •Development and expansion of products and services with positive impacts on nature or mitigating negative impacts on nature •Development and expansion of products and services related to Green Infrastructure 	<ul style="list-style-type: none"> •Increase in the need for insurance coverage for new products and services •Increase in the need for consulting to assist in the analysis of nature related risks and identification of opportunities, and the establishment of business strategies
Markets	<ul style="list-style-type: none"> •Expansion of new and emerging markets 	
Resource Efficiency	<ul style="list-style-type: none"> •Shift of production processes such as changing to raw materials with lower environmental impact •Spread of certification systems for nature-friendly raw materials 	<ul style="list-style-type: none"> •Development of financial services to facilitate increases in insurance coverage needs for new products and services and shift thereto •Increase in the need for services that promote accident prevention, reuse, and recycling •Occurrence of assessment of risks such as pollution and insurance coverage needs •Increase in insurance coverage needs for services and risks related to certification systems
Sustainable Use of Natural Resources	<ul style="list-style-type: none"> •Widespread of utilization of recycled materials and recycling processes •Reduction of water usage and consumption •Utilization of diverse raw materials (utilization of unused resources) •Pollution prevention and waste reduction 	

TNFD Classification of Nature- related Risks	Examples	Opportunity Example in our Business Activities
Capital Flows/Financing	<ul style="list-style-type: none"> •Expansion of nature-related Green Finance •Nature Conservation through utilizing public incentives 	<ul style="list-style-type: none"> •Increase in new opportunities for investment and lending
Reputation Capital	<ul style="list-style-type: none"> •Spread of collaboration with stakeholders at regional, national and international levels •Increase in environmental activities in the region 	<ul style="list-style-type: none"> •Expansion of market due to collaboration with local governments, regional organizations and consumers
Nature Conservation/ Restoration/ Regeneration	<ul style="list-style-type: none"> •Nature conservation and restoration activities •Implementation of Green Infrastructure in the region •Protection of rare fauna and flora 	<ul style="list-style-type: none"> •Increase in consulting needs and opportunities for investment and lending

● Dependencies and Impacts on Nature in Relation to Our Insurance Products and Services

In order to specifically identify nature-related opportunities for the Group, we believe it is important to understand the dependencies and impacts on nature in individual and corporate business activities that our Group’s insurance products and services target. We have analyzed how our insurance products and services can mitigate negative impacts on nature from individual and corporate business activities. The results are shown in the table below.

We will continue to develop products and services, further considering how individual and corporate business activities our insurance products and services target relate to nature and how we can contribute to mitigating negative impacts thereon.

Insurance Type	Individual and Corporate Business Activities	Dependencies upon Nature in Activities	Insurance Type	Individual and Corporate Business Activities
Automobile	• Vehicular travel	<ul style="list-style-type: none"> ◆ Land ◆ Mineral/ energy resources ◇ Soil formation ◇ Natural disaster mitigation 	<p>(i) Times of normalcy (no accidents):</p> <ul style="list-style-type: none"> ● GHG emissions ● Air pollution ● Land use change (ecosystem fragmentation by roads) ● Noise, light pollution <p>(ii) In the event of an accident:</p> <ul style="list-style-type: none"> ● Pollution due to accident or damage <p>(iii) After an accident:</p> <ul style="list-style-type: none"> ● Utilization of resources for repairs ● Pollution due to waste generation 	<p>(i) Times of normalcy (no accidents):</p> <ul style="list-style-type: none"> ○ Reduction of GHG emissions through promotion of safe driving by using Telematics technology such as dashcams ○ Prevention of roadkill with animal attention alert function <p>(ii) In the event of an accident: Nothing in particular</p> <p>(iii) After an accident:</p> <ul style="list-style-type: none"> ○ Resource conservation through utilizing recycled parts for repairs
Fire/ Facility owners (managers) Liability/ Erection All Risks	<ul style="list-style-type: none"> • Operation of business bases • Residence • Construction 	<ul style="list-style-type: none"> ◆ Land, ocean or freshwater area ◇ Raw materials supply 	<p>(i) Times of normalcy (no accidents):</p> <ul style="list-style-type: none"> ● GHG emissions ● Air pollution, water pollution / ocean pollution ● Use change of land, Ocean, freshwater area ● Utilization of resources <p>(ii) In the event of an accident:</p> <ul style="list-style-type: none"> ● Air pollution, water pollution ● Ocean pollution ● Pollution due to disaster-related waste generation <p>(iii) After an accident:</p> <ul style="list-style-type: none"> ● Utilization of resources for repairs, waste generation 	<p>(i) Times of normalcy (no accidents):</p> <ul style="list-style-type: none"> ○ Reduction in GHG emissions through support for carbon- neutral initiatives ○ Mitigation of pollution and utilization of resources by proposing accident prevention measures ○ Water resources conservation through basic evaluation service for water-related risks ○ Conservation of biodiversity through biodiversity-conscious land-use consulting <p>(ii) In the event of an accident:</p> <ul style="list-style-type: none"> ○ Reduction in GHG emissions through offering the Carbon Neutral Support Endorsement ○ Preservation and restoration of ecosystems such as forest resources through rapid forest rehabilitation under the “Forest Keeper,” Endorsement for forestry business operators, which covers reforestation costs ○ Endorsement for Extended Compensation for Pollution Damage for facility owners (managers) Liability Insurance <p>(iii) After an accident:</p> <ul style="list-style-type: none"> ○ Resource conservation through utilizing recycled parts and rebuilding
Hull/Cargo	• Land and ship transportation of cargo	<ul style="list-style-type: none"> ◆ Ocean or freshwater area (river, lake) ◆ Land 	<p>(i) After an accident:</p> <ul style="list-style-type: none"> ● GHG emissions ● Air pollution, water pollution ● Ocean pollution ● Introduction of alien species 	<p>(i) Times of normalcy (no accidents):</p> <ul style="list-style-type: none"> ○ Mitigation of pollution and utilization of resources by proposing accident prevention measures <p>(ii) In the event of an accident:</p> <ul style="list-style-type: none"> ○ Preservation and restoration of ecosystems through early

			<ul style="list-style-type: none"> ● Undersea noise, light pollution (ii) In the event of an accident: <ul style="list-style-type: none"> ● Pollution due to accident or damage ● Pollution due to waste generation (iii) After an accident: <ul style="list-style-type: none"> ● Utilization of resources for repairs 	removal of ocean pollution under Endorsement for Compensation of Additional Costs for Ocean Pollution (iii) After an accident: Nothing in particular
Life	•Healthy life	<ul style="list-style-type: none"> ◆Regional climate adjustment (mitigation of heat environment) ◆Air filtration ◆Water purification (for developing countries, etc.) 		

(ii) Approaches Based on Nature-related Risks and Opportunities

Under our Priority Issue “Symbiosis with global environment ~ Planetary Health~,” we are working on integrated initiatives with respect to relevant climate/nature related issues. The Group’s underwriting and investment/loan portfolio companies cover a wide range of industries and companies whose respective dependencies and impacts on nature lead to risks and opportunities. Accordingly, we are promoting public awareness of and disseminating information on business activities and nature-related risks and opportunities.

Through identifying customers’ risks, duly informing those customers of the results, and providing insurance products and services, we are working to respond to climate change and to support nature-positive initiatives. Some of these initiatives are still in the research and development stage, and we are also collaborating with other companies, countries, and researchers.

Since enhancement of natural disaster prevention and mitigation functions, together with improving the sustainability of natural capital, leads to the control of damage due to natural disasters, we are working on natural regeneration and conservation with research/ development activities in the region.

● Nature-related Products and Services

We provide insurance products and services that help to mitigate negative impacts on nature or bring about positive impacts on nature. As a "Risk-Solution Platformer," pursuing creation of a nature positive society, we will continue to research optimal solutions through the provision of insurance products and services, and will work to create opportunities. (Each event example is linked to Global Targets of the Kunming-Montreal Biodiversity Framework (GBF) adopted at COP15. (For details of the targets, see page 23)

Consulting Related to Natural Capital/TNFD

Related target*:15

Companies are required to be aware of their dependencies and impacts on nature in an extensive and precise manner through their business activities, and to formulate strategies based thereon, taking into account business risks and opportunities. The Group has been providing services such as risk assessment of natural capital and biodiversity in business activities, including “Basic Evaluation of Biodiversity-related Risks - Water-related Risks,” “Biodiversity-conscious Environmental Supply Chain Consulting” and “Biodiversity-conscious Land-use Consulting.

- Basic Evaluation of Water-related Risks
Companies are now required to identify and disclose their water-related risks. We offer services for assessing such risks (depletion, contamination, flooding/droughts, etc.) in respect of their business units, both within and outside of Japan.
- Biodiversity-conscious Environmental Supply Chain Consulting
We conduct environmental risk analyses of raw materials procurement tailored to specific industry sectors, and we support approach prioritization and formulation of supply chain management measures.
- Biodiversity-conscious Land-use Consulting
We offer comprehensive support, ranging from surveys and analysis through formulation of development/action plans for use of environments such as offices and company-owned lands, and planned enhancement of biodiversity.

Aiming at enhancement of these services, we have also been participating in biodiversity-related initiatives and advancing joint research through industry-government-academia collaboration. In FY2022, we entered into a co-creation agreement with Think Nature Inc., a startup initiated by the University of the Ryukyus. The Group will continue to provide comprehensive nature-related consulting services on individual themes such as procurement, products, land utilization, and social contributions of companies in all aspects of their business operations.

Endorsement for Compensation of Additional Costs for Responses to Marine Contamination

Related target:7

Formerly, although the conventional insurance covered liability for damages due to marine contamination damage, the costs of such actions as preservation and restoration of damage to the natural environment, which vessel operators voluntarily carried out, were not covered. This endorsement covers the costs incurred by vessel operators for such activities as preventing the spread of damage to the natural environment and restoration thereof that they have carried out beyond the scope of liability in the event of damage to the natural environment. Through coverage of such costs, including those for preventing expansion of damage due to marine accidents and for restoring damaged natural environments (protection, early cultivation and transfer of coral reefs, mangrove forest cleanup, tree planting), we complement the social responsibilities of vessel operators.

Liability Insurance for “Noyaki (grassland restoration burning)”

Related target:10

In February 2023, we launched Japan’s first liability insurance for accidents related to “Noyaki, (grassland restoration burning)” an early spring tradition in Aso, Kumamoto Prefecture. In Aso, open burning has long been carried out for the purposes of maintaining and restoring grasslands, conserving biodiversity, storing carbon, and recharging downstream water sources, but ensuring safety and security has been an issue as fire accidents have occurred.

We will contribute to conservation of natural environment by maintaining functions of the grassland restoration burning through providing coverage of damage related to the spread of fire to other property during the burning.

Prevention of Roadkill through Use of Animal Alert Service

Related target:4

Automobile accidents rank high as a cause of death for rare species of animals such as Iriomote cats (roadkill). In order to prevent the occurrence of such accidents, an alert function has been installed in dedicated dashcams for automobile insurance to advise drivers to drive with caution when approaching areas inhabited by rare species. In addition, we will make donations, based on sales amount of automobile insurance incorporating dedicated dashcams, to relevant organizations, including those that work on protection of rare animals and reduction of roadkill incidents.

● Initiatives for Conservation/Restoration of ecosystem (Contribution to Disaster Prevention/Mitigation, and Regional Revitalization)

Local natural environments provide a range of benefits to local community before the utilization of business activities in various ways, such as procurement of raw materials and land for factory sites. Accordingly, companies need to consider the sustainable use of nature and the utilization of ecosystem services in cooperation with various stakeholders who are involved in natural environment in the local area.

As an MS&AD Ramsar Supporter, the Group has been promoting wetland biodiversity conservation activities since FY2010. Focusing on disaster prevention and mitigation functions of the ecosystem, we have been participating in research projects and initiatives of Eco-DRR* and Green Infrastructure since FY2015. Since FY2022, while proceeding with specific implementation in the region, we have also been working to quantitatively measure the effects of disaster prevention/ mitigation and to disseminate information on Nature based Solutions.

*Abbreviation of “Ecosystem-based Disaster Risk Reduction,” which means disaster prevention and mitigation utilizing ecosystems.

MS&AD Green Earth Project (Nature Conservation/Regeneration at Three Locations in Japan)

Related target:8,11

Following the 2022 G7 Summit in Germany, the communiqué issued by the G7 Climate, Energy, and Environment Ministers' Meeting in Japan in 2023 also included a commitment to expanding and strengthening "Nature Based Solutions." The Group has been proactively working on the concept of "Green Resilience," which utilizes the blessings of nature to promote industrial development and achieve disaster prevention/mitigation. The Group has been implementing forestation and waterside conservation activities, and also initiated environmental conservation activities that contribute to disaster prevention and mitigation, decarbonization, and regional revitalization at three locations in Japan (Kuma River basin in Kumamoto Prefecture, Minamisanriku Town in Miyagi Prefecture, Inbanuma Basin in Chiba Prefecture) in FY2022. We integrated these activities with an environmental initiative launched by Group employees, "MS&AD Green Earth Project" and in collaboration with research institutions, local NPOs, and local governments, we set goals based on regional issues and are promoting green resilience activities. We hope to make use of the findings gained through the MS&AD Green Earth Project for the Group's products and services.

Mitsui Sumitomo Insurance Surugadai Building With Biodiversity-friendly Green Spaces and Rain Storage Function

Related target:3,8,11

The green zones surrounding Mitsui Sumitomo Insurance's Surugadai Building and the Surugadai New Annex (Surugadai Green Spaces) are highly regarded as corporate green spaces that reflect consideration for biodiversity. In the demonstration project in relation to Certification as a Symbiotic Site with Nature, which the Ministry of the Environment started in 2023, these green spaces were evaluated to be Equivalent to Certified as a model initiative for rooftop greening.

The Surugadai Building and the Surugadai New Annex were completed in 1984 and 2012, respectively. They are pioneering examples of office building with green spaces, having 7,090 m² of such spaces (40.8% of total site area). As a connecting site between the neighboring green spaces, the area has created a network of ecosystems that are divided by urbanization, which developed a habitat for birds, and provided green spaces that take biodiversity into consideration while making use of existing trees. In addition, the rooftop garden of the Surugadai Green Spaces can store 750 tons of rainwater, which is equivalent to three hours of heavy rainfall at 100 mm/hour, and contributes to protection against urban downpour disasters. In the sites, there is ECOM Surugadai, a facility opens to the community, where activities such as communication of environmental information and workshops take place.

● Nature-related Research and Development through Collaboration

We recognize that dependencies and impacts on nature of corporate business activities and the risks and opportunities that arise therefrom, as well as solutions that contribute to mitigation of such risks and to nature positivity, are areas that still require ongoing consideration and research. We are working toward a nature-positive society through proactive collaboration with a variety of stakeholders, such as initiatives in which companies in various industries participate, collaboration with academia with nature-related knowledge, and establishment of alliances to support companies in our role as a financial institution.

[Japan Business Initiative for Biodiversity (JBIB)]

This is an initiative launched mainly by companies (14 companies) taking part in the “Story of Biodiversity Told by Companies” held in 2007, with the aim of learning from each other and taking action to promote biodiversity conservation in business activities. As at the end of June 2023, the number of member companies had increased to 59. It is developing voluntary activities such as disclosing nature-related information and studying the relationship between dependencies and impacts on nature in business activities. It also participates in the Conference of the Parties (COP) to the Convention on Biological Diversity and has exchanged views with relevant ministries and agencies. As a leading Japanese biodiversity initiative, it is making advanced efforts to conserve biodiversity in the corporate sector. The Group has been serving as the chair company since JBIB’s founding in April 2008

[Financial Alliance for Nature-positive Solutions (FANPS)]

Four financial institution groups, including our Group, Sumitomo Mitsui Financial Group, Inc., Norinchukin Bank and Development Bank of Japan, launched a finance alliance in February 2023. This is aimed at supporting a shift to nature-positive solutions in corporate business activities. It also entered into a joint research agreement with the National Institute for Environmental Studies to investigate solutions that contribute to nature positivity, and to receive advice from a scientific perspective. In response to the Kunming-Montreal Biodiversity Framework adopted in December 2022 and the disclosure recommendations published by the TNFD in September 2023, companies are required to take nature-positive initiatives based on appropriate understanding of nature-related risks and opportunities. FANPS is working to research and organize nature-positive solutions and to develop financial products that support and promote conversion of nature-positive solutions to business activities.

*Among 23 global targets of the Kunming-Montreal Biodiversity Framework (GBF), those related to the Group initiatives are as follows:

- Target 3: By 2030, conserve at least 30% of the world’s land and oceans as protected/conservation areas and other effective area-based conservation measures (OECM) (the "30 by 30" target).
- Target 4: Secure urgent management actions to significantly reduce risks of extinction, and minimize conflicts between humans and wildlife.
- Target 7: Halve release of excess nutrients into the environment, halve the quantity of pollutants released into the environment, halve the overall risks from pesticides and highly toxic chemicals, and prevent/reduce plastic pollution.
- Target 8: Minimize the impacts of climate change on biodiversity through nature-based solutions and ecosystem-based approaches.
- Target 10: Ensure agriculture, aquaculture, fisheries, and forestry areas are sustainably managed, contributing to the resilience and long-term efficiency and productivity of production systems, as well as to food security.
- Target 11: Restore, maintain, and enhance nature’s contributions through nature-based solutions and ecosystem-based approaches.
- Target 12: Increase the area, quality, accessibility and benefits of green and water-friendly spaces in urban localities, and ensure urban planning that takes biodiversity into consideration
- Target 15: Ensure that business operators (businesses), especially large corporations and financial institutions, evaluate and disclose risks related to biodiversity, their dependencies upon and impacts on biodiversity, and take measures to provide the information necessary for sustainable consumption.

3. Risk Management

Based on the MS&AD Insurance Group Risk Appetite Statement, we have determined to clarify the amount of risk that can be held under normal conditions and to take risks based on its capital policy in order to realize its management vision. We develop a Group medium-term management plan that is in line with our Risk Appetite Statement. Also, we aim to ensure soundness and improve capital efficiency and RoR based on the ERM cycle.

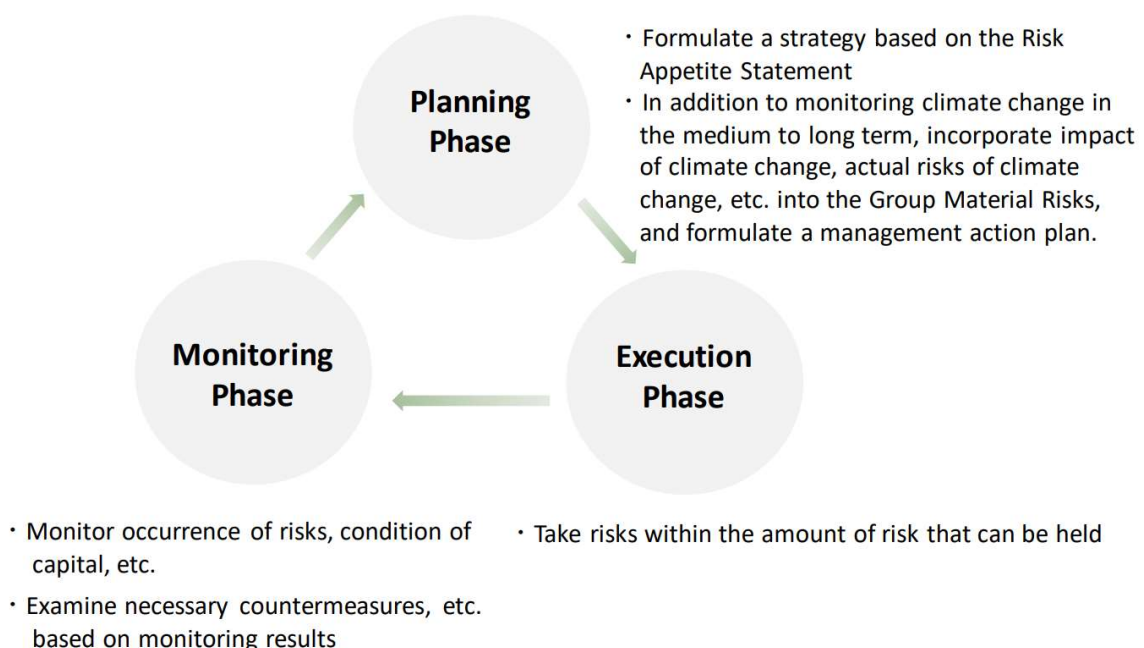
As for underwriting risk, we are working to advance growth strategies and assertively take on risks, while also striving to set appropriate insurance conditions, appropriately control natural catastrophe risks, and expand our returns. With regard to asset management risk, we strive to implement comprehensive asset and liability management that takes into account the characteristics of liabilities, and the reduction of strategic equity holdings, and to expand our returns while securing the soundness and liquidity of assets.

In terms of risk management at the Group, based on the MS&AD Insurance Group Basic Policy on Risk Management, we recognize risks including climate-related risks, quantitatively determine the magnitude and possibility of their occurrence, and optimize their scope and extent. We also process risks by possession, transfer, and avoidance, verify their effects, and improve the processing method based on the results. The status of risks is reported to the Management Committee. Matters concerning climate-related risks are also reported to the Group Management Committee and the Board of Directors after discussing by the ERM Committee.

The Group selects risks to be controlled by management as Group Material Risks, and formulates Management Action Plans after assuming their occurrence scenarios, taking into account factors such as “climate change”, and regularly monitors the status of risks. Thus, the Group has been working to control risks. In the following table are shown the key scenarios for individual Group Material Risks established while paying attention to climate change. We establish and manage the scenarios in accordance with the Management Action Plan, and we also conduct regular medium- to long-term monitoring.

In addition, because “depletion of natural capital (exhaustion of resources, deterioration of and crises of ecosystems, and human-induced pollution and accidents that cause major damage to the environment)” could have impacts on Group management over the medium and long terms, we conduct regular status monitoring as one of the Group Emerging Risks.

● ERM cycle



● Group Material Risks and Key Scenarios for Climate Change

Group Material Risks Related to Climate Change	
	“Key scenarios” related to climate change
Occurrence of large-scale natural catastrophe	Increase in insurance payments due to occurrence of large-scale natural catastrophe in Japan and overseas such as wind/flood disasters, wildfires, snow/hail disasters, and drought
Significant increase in credit risk	Deterioration in the performance and default positions of our investment/loan portfolio companies due to factors such as strengthening of regulations in relation to transition to decarbonization and delays in response thereto.
Occurrence of behavior that is detrimental to the corporate value of the Group, loss of social credibility	Deterioration in reputation and financial burden due to deficient responses to issues concerning sustainability, such as those relating to climate change and associated lawsuits, etc. within the Group
Pandemic of new influenza and other diseases	Occurrence of a situation where the Group is unable to properly execute its business/services due to a pandemic of new infections influenced by global warming and other factors. and their prolonged impacts, etc.
Changes in insurance market	Increase in claims payment due to new insurance underwriting in relation to responses to climate changes, such as low-carbon and decarbonization technologies.

(1) Management of Natural Catastrophe Risks

The Group manages natural disaster risks through measuring and understanding the risk levels for covered events by geography and type of disaster, using a model which incorporates engineering knowledge, mainly that relating to meteorology and architecture. Of these risks, those subject to the impacts of climate change include typhoons, floods and forest fires.

In addition to carrying out stress testing of large-scale natural disasters, for wind/flood disasters in Japan with large risks and wind/flood disaster risks in the U.S.A, we aim to maintain financial soundness by setting the maximum risk levels (risk limits) for the Group and for each company, using the levels of risk that occur once every 200 years as a basis.

We have also been working to further refine the model based on the latest academic knowledge and the status of occurrence of natural disasters, in collaboration with external organizations that are conversant with natural disaster risks.

Additionally, we are working on such topics as incorporating the effects of climate change into stress tests and having the uncertainties of climate change reflected in the risk levels for the entire Group.

About Stress Testing

We conduct stress tests to confirm the impact of various stress events on capital and risk levels.

In order to complement the limitations of statistical methods for risk measurement, stress testing identifies portfolio vulnerabilities and assesses the need for and urgency of countermeasures, using scenarios that take account of significant changes in the external environment and other factors selected based on the Group's portfolio and risk profile.

We have been conducting tests based on assumptions of more severe stress, such as "consecutive typhoons," "flooding of multiple rivers," and "consecutive hurricanes in North America," and making estimates based on assumptions of the impact of long-term climate change on "domestic typhoons."

(2) Control of the Retained Amount of Natural Catastrophe Risks

Based on risk levels by geography and by disaster type, we are working to underwrite insurance appropriately, procuring reinsurance, issuing cat bonds, and accumulating contingency reserves. Through these measures we improve the financial soundness of the Group as a whole and to reduce the risk of fluctuations in profit and loss during a given period.

Group-wide Natural Catastrophe Risk Control

We are working on Group-wide control of natural disaster risks by establishing a basic policy regarding the Group's net retention of natural disaster risks in Japan and overseas, and carrying out reinsurance (outward/inward) procurement based on the policy of each Group company.

Reducing Risk of Fluctuations in Profit and Loss

For natural disasters in Japan, in addition to reinsurance by MSI and Aioi Nissay Dowa Insurance respectively, we have secured joint reinsurance for both companies that targets their total, annual cumulative damage amounts. This has functioned effectively with respect to domestic natural disaster occurrences, and in 2023 we have secured reinsurance possessing a similar function, and are reducing risks of fluctuations in profit and loss.

(3) Litigation Risks in Insurance Underwriting

As lawsuits related to climate change are becoming more frequent, claims for liability insurance covering litigation risks may increase. Liability insurance is a product which covers such payouts as damages for which our customers (hereinafter, "Insured") are liable and legal costs incurred in lawsuits. Major liability insurance products covering litigation risks with respect to climate change include the following:

Product	Coverage	litigation Risks Related to Climate Change
Property Owner's (Manager's) Liability Insurance	Damages, legal costs, etc. for which the insured becomes liable as a result of injuries or damage to a third party or its property shall be paid as insurance benefits. Covered by this insurance are such bodily injuries and property damage as have a causal relationship with the insured's business activities, etc.	The insured may face litigation for such reasons as omitting to take measures for prevention or mitigation of damage due to climate change in the course of the insured's business activities.
Directors' and Officers' Liability Insurance (D&O Liability Insurance)	Paid as insurance benefits will be damages, legal costs, etc. for which an insured company director becomes liable in a claim for damages filed for its act (or omission of act) while performing its duties as a director.	It is possible that a lawsuit is brought against an insured company director for such reasons as delay or deficiency in taking measures against climate change, or insufficient disclosure of information by the company, etc. We sometimes observe such lawsuits being filed for the purpose of encouraging behavior modification in relation to climate change issues.

With regard to litigation risk relating to climate change in insurance underwriting, the Group ascertains the risk situation through confirming factors such as the state of underwriting of relevant insurance products and the litigation occurrence status under the management control of Group Material Risks. We also define "depletion of natural capital (exhaustion of resources, deterioration of and crisis over ecosystems, and human-induced pollution and accidents that cause major damage to the environment)" as one of the Group Emerging Risks and monitor the situation thereof in order to fully understand the medium- to long-term trend of relevant risk events.

(4) As Responsible Institutional Investor

The "Japan's Stewardship Code," a set of principles for "responsible institutional investors," published by Financial Services Agency, is a code of conduct for institutional investors who invest in listed shares, etc. in Japan. As an asset owner, the Group supports its intent.

The Group has a policy of conducting "constructive dialogue (engagement) with investee companies, focusing on management issues, shareholder returns policy, and other non-financial information such as ESG from the perspective of enhancing the corporate value of the investee and

promoting sustainable growth over the medium to long term, in accordance with Japan's Stewardship Code. In addition, toward realization of a decarbonized society, we are encouraging them to reduce GHG emissions and disclose information based on TCFD recommendations. Specific matters to be confirmed include organizational structures in relation to addressing climate change, their efforts toward reaching GHG emissions reduction targets, their plans for technological innovation, and any challenges they face.

< Examples of initiatives for engagement in relation to climate change >

Example 1	Example 2
<p>We had a discussion with a chemical manufacturer which is experiencing technological issues in its attempts to reduce GHG emissions, and we exchanged views on the feasibility of its transition plan with a 2030 reduction target.</p> <p>While checking specific schedules for measures such as conversion to biomass fuel and mixed combustion and use of ammonia in that company's private power generation equipment, we have been conducting a frank dialogue on issues such as fuel supply and costs, and we plan to have ongoing dialogue with the company.</p>	<p>We had a discussion with a logistics company which has issues in responding to climate change, and exchanged views.</p> <p>The company has recently expressed support for the TCFD recommendations, and plans to conduct scenario analyses, going forward. Therefore, we helped the company to deepen its understanding of the significance of such analysis by providing information on how important it is and introduction of some case examples where analysis led to the discovery of strengths and weaknesses of strategies in companies which carried out the scenario analyses.</p>

(5) Collaboration with Nature-related Stakeholders

In June 2022, we established the TNFD Consultation Group of Japan (commonly known as TNFD Japan Council*) in order to increase understanding of nature-related risks and opportunities in corporate business activities, and we held a total of seven study sessions and workshops, etc. We also disseminated and discussed global trends in business and natural capital and biodiversity, including TNFD, in the “Story of Biodiversity Told by Companies” a Business and Biodiversity symposium, which we have been holding since FY2007. With more than 900 participants in FY2022, we are working to disseminate and raise awareness of nature-related risks and opportunities for stakeholders.

We are also contributing to realize a nature-positive society, playing a role in connecting real business into policy/research through activities whereby Group employees serve as committee members for the Ministry of Land, Infrastructure, Transport and Tourism, the Ministry of the Environment, and the Ministry of Education, Culture, Sports, Science and Technology, alongside university research group members, and as members of university research groups.

*A TNFD-accredited council in Japan that discusses visions for nature-related business and financial services and future adoption of a disclosure framework. Similar councils have been established in Australia and New Zealand, ASEAN, Brazil, Colombia, France, India, Netherlands, Kenya, Northern Europe, Switzerland, the UK and Canada (as at August 2023).

4. Metrics and Targets

(1) Metrics for Risks and Opportunities

● Metrics for "Creating Shared Value with Society (CSV initiatives)"

Metrics related to the provision of products and services that contribute to “Symbiosis with global environment ~Planetary Health~” are set as one of the indicators for measuring the progress of CSV initiatives. The results are reflected in performance-linked compensation for directors.

➤ Impact of CSV initiatives (<https://www.ms-ad-hd.com/en/csr/quality/impact.html>)

● Metrics for products/services that contribute to climate change responses / improvement of sustainability of natural capital

Annual average premium growth rate of 18% in years to 2025 in insurance products which contribute to “Symbiosis with global environment ~ Planetary Health” as KPI of our medium-term management plan in order to accelerate the provision of products and services covering risks related to climate change.

Item	Scope	Target	FY2022
Products and services which contribute to “Symbiosis with global environment ~Planetary Health~”	Group companies (Japan) + and other affiliates	18% of annual average revenue increase	17.9%

● Metrics for natural catastrophe risk levels in insurance underwriting

Risk levels that occur once every 200 years.

● Metrics for ESG thematic investing including climate change responses / improvement of sustainability of nature capital

Zero carbon transition requires technological innovation and capital investment toward a drastic reduction of greenhouse gas emissions. Factors such as growth of demand for funding and needs for new financial products and services will likely bring about opportunities for financial institutions. The Group is working on ESG thematic investing aimed at leading to solutions for various social issues on the premise of ensuring profitability.

(Unit: JPY billion)

Example of Topics	End of March 2023
	Outstanding balance of investment and loan
Investment in funds with ESG themes	81.2
Support for initiatives designed to reduce GHG emissions	
Renewable/Next Generation energies (solar power, wind, hydrogen, etc.)	60.0
Transition-/Sustainability-linked finance	15.1
Green finance	87.8
Support for global sustainable development	
Social sustainability (including supranational bonds)	118.5
Impact investment* for regional revitalization and healthcare, and other investments	11.4
Total	374.0



● **Metrics for investment in venture business including climate change responses/ improvement of sustainability of nature capital**

We are promoting cooperation and collaboration with innovation partners that contribute to resolving social issues, such as such as Jupiter Intelligence, a company which offers AI-based climate change risk assessment that responds to TCFD.

Item	End of March 2023
Number of MS&AD Group climate/nature-related investments through MS&AD ventures (all cases)	8 (89)

(2) Environmental Burden of Our Business Activities

- **Greenhouse gas emissions and energy consumption from our Group's business activities**
- **Water consumption, waste emissions, etc. from our Group's business activities**

➢ ESG data/materials ISO26000 Core Subjects (Environment)
<https://www.ms-ad-hd.com/en/csr/data.html#012>

(3) Metrics and Targets for Reduction of Environmental Burdens of Our Business Activities

● **Targets**

The Group set medium- to long-term greenhouse gas emission reduction targets in FY 2010 and has been working to reduce greenhouse gas emissions associated with its business activities. Having achieved FY 2020 greenhouse gas emissions reduction target (30% reduction from the FY 2009 level) set there, we set new Paris Agreement aligned targets in May 2021 in line with the Paris Agreement.

< Greenhouse gas emissions Reduction Target >

Target	FY2030	FY2050	FY2022
Scope 1・2*1	-50% compared to basic fiscal year (FY2019)	Net zero	▲26.8%
Scope 3*2	-50% compared to basic fiscal year (FY2019) (Categories 1, 3, 5, 6, 7 and 13)	Net zero (All categories)	▲26.9%

*1: Scope 1 refers to direct emissions from our Group, such as gasoline from company-owned vehicles.

Scope 2 refers to indirect emissions from consumption of purchased electricity, etc.

*2: Indirect emissions through the Group's business activities other than Scope 2. Category 1 refers to purchased products and services (covered by paper and mail). Category 3 refers to fuel and energy activities other than Scope 1 and Scope 2. Category 5 refers to waste from operations. Category 6 refers to business trips by employees. Category 7 refers to employee commuting. Category 13 refers to leased assets

< Renewable Energy Usage Rate >

Target Year	Usage Rate	FY2022
FY 2030	60%	21.1%
FY 2050	100%	

● **Metrics**

Reduction rates of total energy consumption and greenhouse gas emissions are monitoring metrics for reduction of environmental burden of our business activities.

(4) Greenhouse Gas Emissions in Our Investment and Loan Portfolio Companies

The following table shows the carbon footprints (CO₂ equivalent of greenhouse gas emissions from business activities) of our investment and loan portfolio companies. Scope 1 and Scope 2 greenhouse gas emissions of our investment and loan portfolio companies are measured using Trucost's tool for calculating greenhouse gas emissions using a proprietary modeling approach, and PCAF estimates when there is not enough information disclosed by our investment and loan portfolio companies or publicly available. Assets subject to the analysis are domestic and foreign stocks (covering approx. 99% of domestic and foreign listed stocks on a market value basis), domestic and foreign bonds (covering approx. 67% of domestic and foreign bonds on a book value basis), and domestic and foreign loans (covering approx. 48% of domestic and foreign loans on a book value basis) out of the Group's investment and loan portfolio as at the end of March 2022).

With revisions to TCFD recommendations in October 2021, we are adopting PCAF standards for measuring greenhouse gas emissions in our investment and loan portfolio companies.

< Greenhouse Gas Emissions Our Investment and loan Portfolio Companies >

(Unit: kt-CO₂e)

End of March 2022	Stocks	Corporate bonds	Corporate loans
Scope 1 + Scope 2 for our investment/loan portfolio companies	2,302	2,400	286

*GHG emissions from commercial real estate totaled 51 kt-CO₂e out of our investment and loan portfolio companies as at the end of March 2022

(5) Weighted Average Carbon Intensity (WACI) in Our Investment and Loan Portfolio Companies

Weighted average carbon intensity (WACI)* is used as metrics of the carbon intensity of our investment/loan portfolio. Scope 1 and Scope 2 for our investment/loan portfolio companies are calculated through information disclosed by the companies, Trucost's tool, and estimated value provided by PSAF. Subject assets are same as those of "(4) Greenhouse Gas Emissions in Our Investment and Loan Portfolio Companies" (stocks, corporate bonds and corporate loans).

* It is an indicator which is a weighted average of "the ratio of GHG emissions vs. sales amount" in each of our investment/loan portfolio companies and "percentage of holding in the Group's investment/loan portfolio companies."

< Weighted average carbon intensity (WACI) in our investment and loan portfolio companies >

(Unit: t-CO₂e/US \$1 million)

End of March 2022	Stocks	Corporate bonds	Corporate investment
Scope 1 + Scope 2	114.5	221.5	273.2

(6) Remuneration for Directors and Officers in Relation to Climate/Nature Issues

As part of the initiatives contributing to medium- to long-term performance, we have non-financial indicators reflected in the performance-linked remuneration for directors and officers excluding external directors. Countermeasures against climate change and initiatives related to the improvement of the sustainability of natural capital are included in the evaluation of these indicators.

The standard ratio of performance-linked remuneration to total remuneration is 50% for President & CEO and 30-40% for other directors and officers.

- Policies for determining the content of individual remuneration for Directors, etc.
(<https://www.ms-ad-hd.com/en/group/value/corporate.html#015>)

● Further climate-related information

Strategy

- Impact of natural catastrophe on insurance underwriting profit: MS&AD Integrated Report (P.137)
(https://www.ms-ad-hd.com/en/ir/library/disclosure/main/015/teaserItems2/0/link/MSAD2023_E.pdf)
- Medium-to Long term Targets (<https://www.ms-ad-hd.com/en/csr/summary/kpi.html#link-list-3>)
- ESG integration and sustainability approach (<https://www.ms-ad-hd.com/en/csr/summary/esg.html>)
- Impact of CSV Initiatives on society and our company
(<https://www.ms-ad-hd.com/en/csr/quality/impact.html>)

Risk management

- ERM and Risk Management (https://www.ms-ad-hd.com/en/group/value/risk_management/erm.html)

Metrics and Targets

- Targets (KPI) and Results (<https://www.ms-ad-hd.com/en/csr/summary/kpi.html>)
- ISO 26000 Core Subjects (Environment) (<https://www.ms-ad-hd.com/en/csr/data.html#012>)

Appendix 1: Implementation of LEAP Approach

LEAP is an integrated assessment process for managing nature-related risks and opportunities, focusing on the region and biome in which a particular business operates. The process consists of four phases:

Locate: identify the interface between the business and nature;

Evaluate: diagnose the dependencies upon and impacts on nature;

Assess: evaluate risks and opportunities important to the business; and

Prepare: prepare for developing, managing the progress of, and disclosing strategies.

[UNEP FI Pilot Program]

The Group participated in the pilot program* hosted by United Nations Environment Programme Finance (UNEP FI) that identified regions, biomes and industries, and conducted L, E and A phases under the theme, "Natural Rubber Industry in Indonesia" as the LEAP approach for financial institutions recommended by TNFD for identifying risks and opportunities. This program has been carried out in collaboration with MS&AD InterRisk Research & Consulting and Think Nature Inc., a startup launched by the University of the Ryukyus.

Indonesia is a major producer of so-called "Forest Commodity," agricultural products at the very upstream of the supply chain, which are often sourced from areas where the forest has been cleared. As various Japanese companies use such agricultural products as raw materials, this relates to dependencies and impacts on nature, and to risks and opportunities for a number of Japanese companies, while ASEAN with Indonesia as a major member country is our key region (generating the dominant share of non-insurance gross premiums in the region). Accordingly, we have selected this theme among various areas and industries.

*Conducted by the UNEP FI from July 2022 through March 2023 with the objective of reflecting the findings from the financial institutions participating in the program into the development of risk analysis methods in the TNFD disclosure framework.

● Scoping: Evaluating the relationship between this theme and our business

- Utilizing the Multi-Regional Input Output model*1, we calculated for each country the area (deemed) of forests used in relation to the investment in the natural rubber and automobile-related industries, according to the amounts invested by the Group in such industries.
- Evaluating the impact on biodiversity by multiplying the calculated deemed area by the START indicator*2 for each country revealed that we have had an impact on biodiversity through our investments in the natural rubber industry, we found out and that the country most strongly impacted was Indonesia.

*1 A method that quantifies the environmental impact of the entire supply chain for each specific industry by converting sales figures into indicators such as "GHG emissions" and "forest input area."

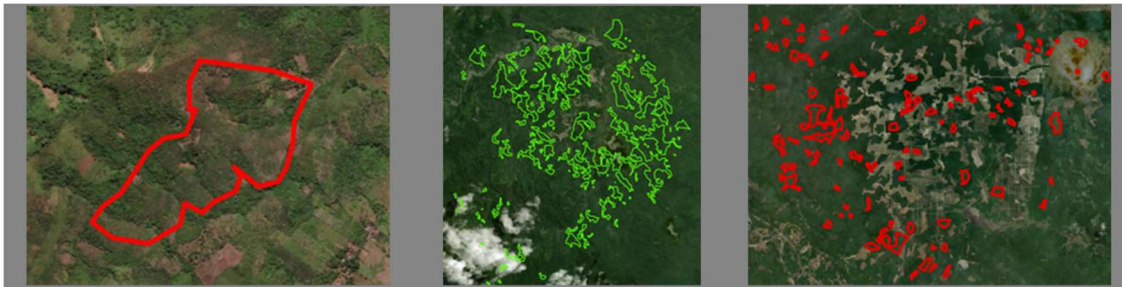
*2 "Species Threat Reduction and Recovery Indicators" developed by the UNEP World Conservation Monitoring Center (UNEP WCMC), which shows the extinction risk scores for species in each region of the world, based on the IUCN Red List

● LEAP approach

Locate Identify natural rubber production areas within Indonesia

- We identified natural rubber production areas with high precision by using a distribution prediction model, utilizing satellite imagery and AI.
 - We have been determining whether a rubber plantation is a monoculture* area or a small-scale plantation in the jungle (“`jungle rubber”).
- *Industry that intensively cultivates only one crop

<Rubber plantation distribution digitized using GIS>

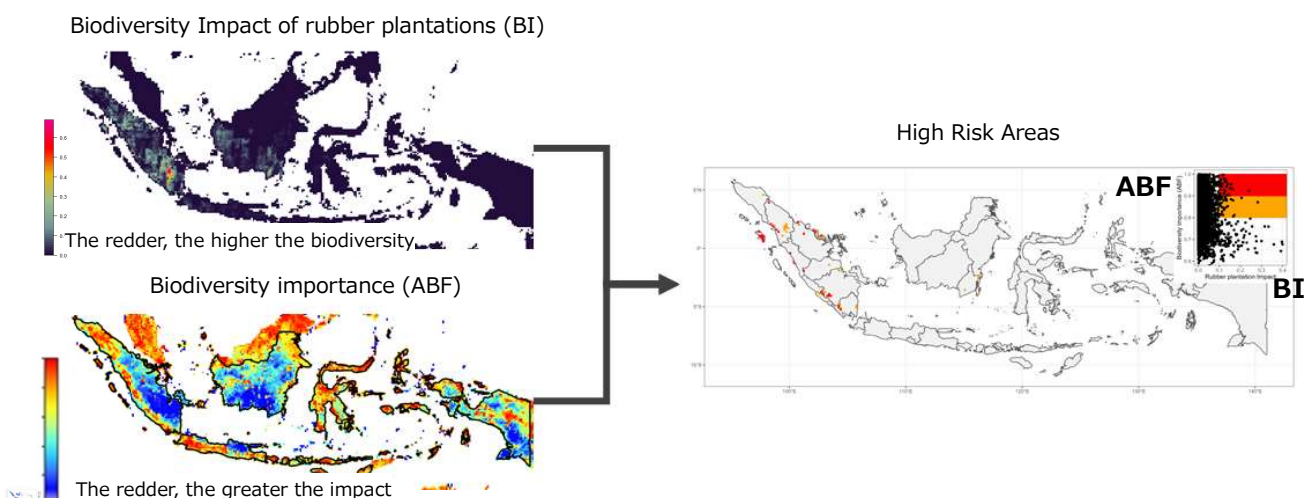


©Think Nature Inc.

Evaluate Identify dependencies upon and impacts on biodiversity

- Using biodiversity big data owned by Think Nature Inc., we identified high-risk production areas from two perspectives: the importance of biodiversity and the impact of land modification.
 - Production through monoculture resulted in a biodiversity index* of -50% compared to natural forests, while jungle rubber production gave a biodiversity index of -10% or less compared to natural forests, which revealed that jungle rubber production can significantly reduce damage to biodiversity.
- *An indication of the richness of biodiversity calculated from the overall number of species and the degree of evenness of each species.

<Visualization and risk assessment of biodiversity impact of rubber plantations>



©Think Nature Inc.

Assess Analyze risks and opportunities

- Analysis of land use transitions in some areas based on satellite images captured over the past 20 years revealed a pattern whereby natural forests first transitioned to jungle rubber, then to monoculture rubber plantations and, ultimately, further converted and transitioned to oil palm forests.
- We identified dependencies and impacts on biodiversity in the “Evaluate” process, and classified risks and opportunities based on production volume forecasts and other information related to future rubber business activities. In risks for the Group may be included a decline in investment yield and a decrease in insurance premium income due to deterioration in profits and losses at our business partners, and impairment of existing assets. On the other hand, opportunities are thought to include an increase in new coverage needs and investment and lending opportunities due to new businesses related to sustainable use of resources and dramatic improvements in resource efficiency.

Classification of Risks		Event Examples
Physical risks		<ul style="list-style-type: none"> • Decline in or destabilization of production volume due to natural disasters • Outbreak of insect pest infestation due to transition to monoculture
Transition risks	Policies and Regulations	• Decrease in production volume and increase in costs due to stricter regulations against deforestation
	Technology	• Establishment of recycling and technologies with less impact on nature
	Markets	<ul style="list-style-type: none"> • Increase in raw material prices due to change to other crops (e.g. oil palm planting) • Growing need for sustainable rubber in the market • Increase in prices of sustainable rubber (including agroforestry)
	Reputation	• Rumor damage related to deforestation, etc.

Classification of Opportunities	Event Examples
Sustainable use of natural resources	<ul style="list-style-type: none"> • Establishment of an advanced recycling system for used rubber products • Establishment of rubber cultivation and enclosure strategies by engineers and suppliers based on higher yield and/or sustainable technologies
Protection / restoration / regeneration of nature	<ul style="list-style-type: none"> • Realization of high-yield cultivation methods to avoid and reduce land use changes • Avoidance of significant impacts on ecosystem services through introducing due diligence to prevent deforestation • Mitigation of impacts of ecosystem services through promoting agroforestry

- In this pilot program, we were able to identify a certain level of dependencies and impacts on biodiversity in financial businesses and the risks and opportunities based thereon through the LEAP approach, utilizing existing data and analytical techniques, without collecting information from our investment/loan portfolio companies.
- However, regarding the likelihood of development of risks and opportunities in rubber-related business operations (including when they will develop) and the consequent financial impact on the Group, our analyses to date are insufficient, and obtaining further detailed information is an issue.

Appendix 2: Terms in Heat Maps

<Dependency Heat Map: ecosystem services>

Term	Explanation
Animal energy	Labor provided by domesticated animals such as cattle, horses, donkeys, goats, and elephants, used in agriculture, etc.
Bioremediation	Natural processes whereby organisms such as microorganisms, plants, algae, and some animals decompose, reduce, and detoxify pollutants.
Mass flow rate mitigation	Sediment transport and storage functions in rivers, lakes, oceans, etc. through buffering and attenuating mass flows
Climate adjustment	Function of nature to moderate the climate. Global climate adjustment is achieved through long-term storage of carbon dioxide in soil, plant biomass, and oceans. At the regional level, ocean currents and winds adjust climate. At the regional and micro levels, vegetation adjusts temperature, humidity, and wind speed.
Dilution by the atmosphere and ecosystem	The function of nature, such as fresh and ocean water and the atmosphere, to dilute gaseous, liquid, and solid wastes produced by human activities.
Suppression of infectious diseases	Disease control functions in plants, animals, and humans
Textiles and other materials	Fibers, etc. collected from plants, algae, and animals that are used directly or processed for various purposes. In addition to wood and further unprocessed fibers, this includes production materials such as cellulose, cotton, and dyes, as well as plant, animal, and algae materials for use in production of feed and fertilizers.
Filtration	Filtration, sequestration, storage, and accumulation of pollutants by various organisms, including algae, animals, microorganisms, vascular plants, and non-vascular plants.
Prevention of floods/storms	Flood and storm suppression functions provided by the sheltering, buffering, and damping effects of natural and planted vegetation.
Genetic materials	DNA derived from all living organisms, including plants, animals, and algae.
Underground water	Water stored underground in aquifers composed of permeable rock, soil, and sand. Water contributing to groundwater sources is derived from rainfall, snowmelt, and water flow from natural freshwater sources.
Habitat maintenance	Function to maintain habitats that contribute significantly to reproduction of individual members of a particular species. These include places where larvae occur in high numbers, where they are protected from predators, and where they grow faster than in other places.
Stabilization/Erosion prevention	Large-scale stabilization and erosion control functions performed by vegetation that protect and stabilize terrestrial, coastal, and marine ecosystems, coastal wetlands, and sand dunes. Slope vegetation helps prevent avalanches and landslides, while mangroves, seagrasses, and macroalgae help prevent beach and sediment erosion.
Mitigation of sensory impacts	Functions that reduce impacts on human health and the environment, such as noise and light pollution reduction provided by plants.
Pest control	Pest control and invasive alien species management functions provided by the introduction and maintenance of predators against insect pests and invasive alien species, landscaping to reduce pest invasion, and natural toxins against pests.
Pollinators	Pollinator functions provided primarily by three elements: animals, water, and wind. The majority of plants self-propagate, depending on pollinators such as insects, and the pollen-carrying functions of water flow and wind.

Soil quality	Soil quality, such as fertility and soil structure, maintained by processes such as weathering, nitrogen fixation, nitrification, and mineralization
Surface water	Water flowing over the surface of the ground, such as river water
Ventilation	Ventilation function of nature and planting, which is essential for improving indoor air quality. Without this, accumulation of volatile organic compounds (VOCs), airborne bacteria, and mold could pose the risk of long-term health damage to building occupants.
Water cycle	Circulation of water that flows through the Earth's atmosphere, land, and oceans. The hydrologic cycle is involved in [replenishment][recharging] of groundwater sources (aquifers) and maintenance of surface water flow.
Water quality	Quality of water provided by maintaining the chemical states of fresh and salt water, such as rivers, streams, lakes, and groundwater sources, and ensuring a favorable living environment for biota.

<Impact Heat Map: Impact drivers>

Term	Explanation
Utilization of terrestrial ecosystems	Modification of terrestrial ecosystems associated with development of agricultural land, commercial forests, and mines
Utilization of freshwater ecosystem	Impacts on freshwater ecosystems such as wetlands, ponds, lakes, streams, rivers, and peatlands through modifications associated with the construction of bridges, dams, seawalls, etc.
Utilization of marine ecosystem	Modification of marine ecosystems associated with aquaculture and mining development
Use of water	Impacts from groundwater and surface water use
Utilization of other resources	Mining minerals and capturing wild fish, wild mammals, etc.
GHG emissions	Emissions of greenhouse gases such as carbon dioxide (CO ₂) and methane (CH ₄)
Air pollution	Air pollution due to substances other than GHG
Water pollution	Impacts of discharging of pollutants into bodies of water
Soil contamination	Contamination of soil by wastes, etc.
Wastes	Impacts of various types of waste emissions
Disturbance	Effects of high-intensity or prolonged noise or light pollution
Introduction of alien species	Biological changes and interference due to introduction of alien species.