

Climate-Related Financial Disclosure

~ TCFD Report ~

August 2021

MS & AD Insurance Group

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Climate-Related Financial Disclosure

Climate change is a material global issue. Countries around the world have signed onto the Paris Agreement with the aim of realizing a decarbonized society, and are promoting measures against climate change with the goal of well below the 2 °C compared to pre-industrial revolution.

The MS & AD Insurance Group addresses various measures recognizing that climate change has a significant impact on society and us.

For example, we are promoting the provision of products and services that contribute to disaster prevention and mitigation to support the improvement of society's resilience to damage from natural catastrophe and its adaptability to climate change. In addition, through the provision of insurance and investments and loans, we are supporting the research and development and dissemination of new technologies to reduce the risk of climate change and contributing to the transition to a decarbonized society.

The Task Force on Climate-related Financial Disclosures, hereinafter "TCFD", recommends that responses to climate change issues be disclosed in accordance with the four frameworks of Governance, Strategy, Risk Management, and Metrics and Targets. Our group supports this and promotes climate-related disclosures.

1. Governance

Our climate-related governance structure consists of the Board of Directors, the Group Management Committee, and Task-Specific Committees.

The Board of Directors discusses and makes decisions on important climate-related matters, in addition to matters stipulated by laws and regulations and the Articles of Incorporation, in the Group's management strategy, including the Group's management policies, management strategies and capital policies, as well as important climate-related matters in corporate management, and supervises the execution of duties by directors and executive officers. The Board of Directors allocates management resources based on risk preferences in order to control risk, return, and capital, including climate-related risks, in a balanced manner, 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. The Board of Directors appoints executive officers and clarifies their authority to perform their duties, and strives to separate the "Management decision-making and supervisory functions" of the Board of Directors from the "business execution function" of executive officers. The executive officers are responsible for the areas of business entrusted by the Board of Directors. They report the status of business execution to the Board of Directors and seek approval.

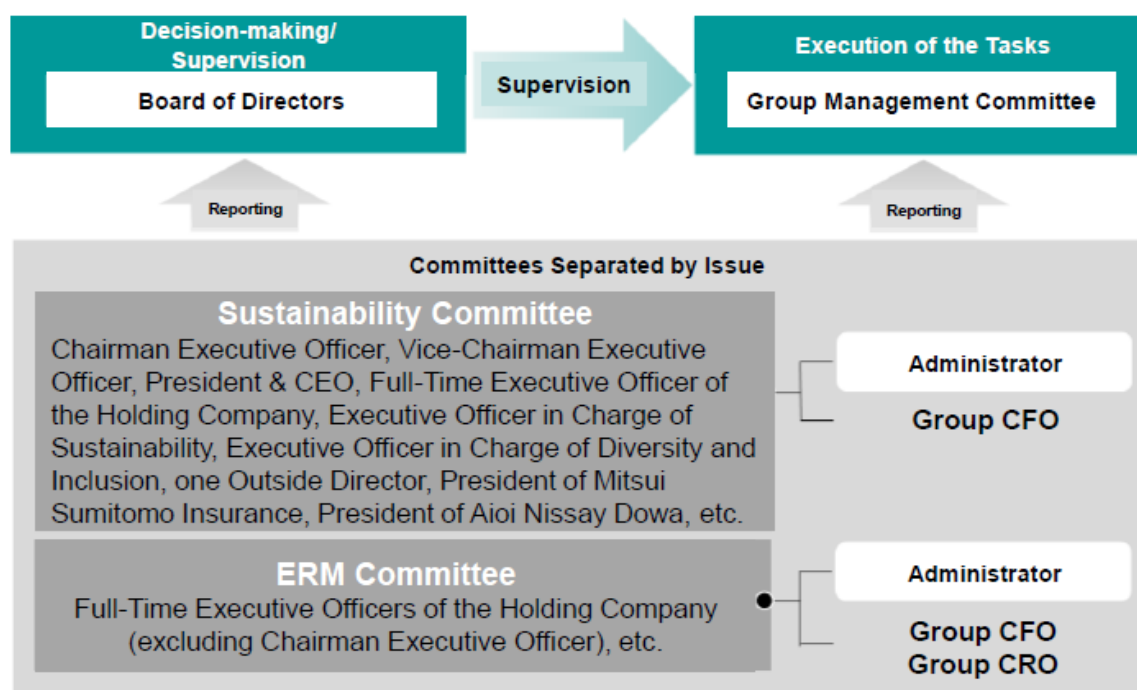
The Group Management Committee discusses important matters related to the Group's management, such as management policies and strategies, and monitors the execution of specific operations by receiving reports on certain matters to be approved by the officers in charge.

The Task-Specific Committees are to discuss important management issues related to the execution of business and to mutually coordinate opinions of related departments. Climate-related issues and initiatives are reported to and approved by both the Board of Directors and the Group Management Committee after discussions at Task-Specific Committees, primarily the Sustainability Committee and the ERM Committee (respectively held approximately four times a year in principle).

The Sustainability Committee, headed by the Group CFO, consists of the presidents of each Group company, the Group CFO (Director in charge of Sustainability), the Group CRO, and the Director in charge of Diversity and Inclusion. It discusses policies, plans, and strategies for addressing sustainability issues, including climate ones. In fiscal 2020, three meetings were held, and in September 2020, our Business Activities with Consideration for Sustainability, which describes our initiatives for climate change mitigation and adaptation and our contribution to the realization of a decarbonized society was discussed.

In May 2021, the committee discussed our Initiatives for Realizing Net Zero Emissions by 2050, which set forth new targets for reduction of CO2 emission from business activities, as well as enhancement of our measures. Each discussion was reported to the Board of Directors for decision.

The ERM Committee is a reorganized task-specific committee from the Risk Management Committee in fiscal 2021. Comprised of our full-time directors excluding the chairman executive officer and headed by the Group CFO and the Group CRO, it is to discuss and coordinate important matters concerning ERM, as well as monitoring the status of risk, return, and capital and risk management including climate-related ones. The predecessor Risk Management Committee met 9 times in fiscal 2020. The meeting held in February 2021 discussed that climate change is a risk event that has a wide-ranging impact on our business and it should be classified as Group Material Risk, which is managed by management with strengthened management from fiscal year 2021. The discussion was reported to the Board of Directors, where then decided. In addition, the ERM Committee, as its predecessor, the Risk Management Committee did, is discussing ways to improve the management of natural catastrophe, including climate change, and report their discussions to the Board of Directors.



climate-related governance structure

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

2. Strategy

Climate change brings about the intensification of natural catastrophe, physical changes in weather conditions, and rapid social and economic changes in the course of transition to a decarbonized society.

Our group will contribute to the realization of a resilient and sustainable society by initiatives for supporting development of new technologies and transition to a decarbonized society that will mitigate climate change risks, by reducing the environmental impact of the Group's business activities, and by paying insurance claims of natural catastrophe such as typhoons and floods while ensuring financial soundness and earnings stability.

(1) Climate-Related Risks and Opportunities

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

In addition to annual business plans, our group has formulated medium-term strategies and plans based on various risks and opportunities, including climate-related ones. In addition, we have set "Resilient and Sustainable Society" as our vision for society in 2030, and are working to achieve net zero CO2 emission by 2050.

[Climate-Related Risks]

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 sub-categories by how they manifest. One category 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 sub-categories 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 evaluation and reputation for responding to climate change".

Risks according to this classification are as follows.

Classification		Example	Risk Examples in our Business Activities
Physical risks	Acute	Typhoons, floods, storm surges, heavy rains and wildfires	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	Policy and Legal	<ul style="list-style-type: none"> 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 our 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: Resource Efficiency, Energy Source, Products and Services, Markets, and Resilience.

"Resource Efficiency" is opportunity related to efficient use of energy and resources.

"Energy Source" is that related to the production and utilization of low-emission energy.

"Products and Services" is that related to the development and innovation of new low-emission products and services.

"Markets " is that related to development of new markets.

"Resilience" is that related to climate-related adaptation.

Opportunities according to this classification are as follows.

Classification	Example	Opportunity Example in our Business Activities
Resource Efficiency	Modal shift Efficient production and distribution Building efficiency improvement. Relocation to high-efficiency buildings Reduction of water usage and consumption Spread of recycling	<ul style="list-style-type: none"> • Increase in compensation needs due to electrification of mobility, AI of building equipment, etc.
Energy Source	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	
Products and Services	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.)
Markets	Expansion of new and emerging markets Occurrence of assets requiring new financial services	<ul style="list-style-type: none"> • Increasing needs for disaster prevention and mitigation
Resilience	Improving Capacity to Adapt to Climate Change	

(2) Approaches Based on Risks and Opportunities

According to the World Meteorological Organization (WMO), the global average temperature in 2020 was about 1.2 °C higher than the pre-industrial (1850 – 1900) average. As global warming progresses, natural catastrophe tends to become more severe. Even in Japan, the number of heavy rain and short time heavy rain which may cause floods and sediment disasters is increasing. The average temperature in 2100 could rise by more than 4 °C compared to the pre-industrial days if global warming progresses keeps at the current rate. In that case, there is a possibility that the insurance payment for natural catastrophe may increase significantly.

Therefore, it is essential to mitigate the further global warming and prepare for natural catastrophe. Our group provides insurance coverages for damages arising out of natural catastrophe while ensuring financial soundness to provide society with peace of mind and safety. We promote climate change adaptation by providing services to eliminate or reduce damage and loss arising from natural catastrophe.

[Climate Change Adaptation]

If natural catastrophe become 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, our 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 fiscal 2019, MSI and Aioi Nissay Dowa Insurance, our group companies, have secured 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 through expansion of our overseas and life insurance businesses that diversifies risks geographically and operationally.

Case studies (1)

Strategic partnership with Hippo, which has data analysis technology using AI

MSI, our group company has agreed to enter into a strategic partnership with Hippo, a U.S. based insurtech group. Using data analysis technologies, which utilizes AI, (geographical information, aerial photo images and satellite images, weather information, real estate information, etc.) we will provide sub-division of risks, set appropriate rates and advanced services for disaster prevention and mitigation. In particular, we will aim to expand our non-life insurance business by creating business models that can be deployed inside and outside of Japan, including Asia where we have a strong presence as well as by accumulating knowledge and know-how regarding the U.S. insurance market and promoting networking.

Case Studies (2)

Using drones and AI to investigate damage caused by floods

MSI and Aioi Nissay Dowa, our group companies, are promoting prompt payment of insurance claims in the event of a disaster. Drones and AI are used to investigate damage and expedite insurance claims. In collaboration with Aerosense, the company is introducing a new drone that can take long shots on a single flight.

[Climate Change Mitigation]

In May 2021, we set a new goal of reducing CO2 emissions from our business activities to "Net Zero by 2050," and declared its commitment to contributing to the transition to a decarbonized society in cooperation with stakeholders (For details, see "Metrics and Targets for Reduction of Our Environmental Burden" on page 12.).

● Reduction of CO2 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 (Energy conservation as follows) 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.

● Reduction of CO2 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 consumption which saves energy and resources.

As an institutional investor, we are also providing financing for projects and funds for the construction of renewable energy power plants, such as wind and biomass power. We will support companies that are striving to develop innovative technologies that will significantly reduce greenhouse gases and contribute to the transition to a decarbonized society.

● Reduction of CO2 Emissions utilizing natural capital

We have been promoting the Indonesian Tropical Forest Restoration Project since 2005 and tree-planting activities in Bihoro-cho since 2019. We will continue to work with our stakeholders to reduce CO2 emissions through the use of natural capital.

● Implementation of "Business Activities with Consideration for Sustainability"

In September 2020, we published the "Business Activities with Consideration for Sustainability" which summarizes our actions pertaining to sustainability considerations, and announced that, in principle, we would not underwrite insurance or invest in or finance any new coal-fired power stations. In June 2021, the Company reviewed the plan and decided to restrict insurance underwriting and investment and financing for any future coal-fired power plants.

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

We are building business processes that take ESG factors into account.

As for investments and loans, we are making ESG themed investments based on profitability. As a response to climate change, we use ESG assessments provided by external evaluation organizations as a reference, and conduct screening on the themes of CO2 emissions, etc., and incorporate it into investment decisions. We will also promote the transition to a decarbonized society by investing in and financing renewable energy such as solar and wind power.

In engagement with our investee companies, we support ESG management by focusing on climate change and measures for a decarbonized society. When selecting external asset management companies, ESG initiatives, including climate-related ones, are considered. In insurance underwriting, we provide products and services that take into account issues and risks that have a negative impact on society and the global environment.

Case studies (3)

Service provision and research on climate change risk assessment and analysis

Our group is working to assess and analyze climate change risks. In addition to the physical risks such as floods and droughts caused by climate change, the scope of risks to be identified by companies includes the risk of socio-economic transition to a decarbonized society (transition risk), such as the conversion of energy structures. Based on the assessment and analysis of these risks and in line with the TCFD 's final recommendations, we provide services to support the establishment of a climate governance system, scenario analysis, and strategy formulation. In July 2020, we partnered with Jupiter Intelligence, a venture company that analyzes climate change risks, to provide a service that quantitatively evaluates the impact of natural disaster risks caused by climate change on a global scale with an accuracy of 90 meters square.

(3) Scenario Analysis

The physical and transition risks of climate change could have a variety of impacts on our group's business in the future. Our group has developed scenario analyses. One is to analyze impact on insurance underwriting arising from physical risk, natural catastrophe and the other is on investment from transition risk, rise of carbon cost.

For the analysis of physical risks, we analyzed changes in insurance loss arising from typhoons of which are impacted by further warming of the planet, 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 measures 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 keep updating and polishing our 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 might increase severity of extreme weather event (e.g., typhoons, cyclones, droughts, floods, and fires). Therefore, as a scenario analysis of physical risk, we analyzed the impact of changes in typhoons on insurance loss.

The forward-looking scenario analysis that look into the effects of climate change on insurance underwriting is a new challenge for the insurance industry, and the United Nations Environment Programme Finance Initiative (UNEP FI) has established a project to consider analytical methods. Over 20 insurance companies that signed to the Principles for Sustainable Insurance (PSI), including our group, participated in the project, and worked on developing scenario analysis methods (analytical evaluation tools) in some groups of climate change impacts.

The group in which our company participated analyzed typhoons and hurricanes that have a significant impact on insurance underwriting studied the impact of future global warming on the risk amount arising from typhoons and hurricanes. Focusing on changes in the "intensity" and "frequency" of typhoons due to climate change, Knutson et al.(2020). Based on the research results, we developed an analysis and evaluation tool for 2050 in the 4 °C scenario (RCP 8.5).

Regarding storm surge changes caused by typhoons, this group 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.

The results of the group's analysis using the two analytical evaluation tools developed are as follows. This analysis covers 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.

The group analyzes natural catastrophe risks through taking into account various factors (e.g., size, frequency of occurrence and wind speed). We will continue to study methods to assess the impact of climate change such as typhoons and floods, while referring to the analysis methods based on UNEP FI projects.

[Investment Scenario Analysis (Transition Risk Analysis)]

"Carbon pricing," which assesses the costs associated with greenhouse gas emission volumes, is being introduced around the world as a policy for reducing greenhouse gas emissions, and this policy could indicate the risk of increased carbon cost burdens to companies. We focused it and analyzed the impact of the increased carbon cost allocated to investee companies in our 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 analysed 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) *).

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

TCFD recommends taking into consideration different climate-related scenarios, including 2°C or lower scenarios, to analyze the impact on investments. Based on the recommendation, our group used three scenarios: "high 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" 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" in which each nation voluntarily implements their own targets and global temperature increase reaches around 3°C.

Our analysis covers stocks (covers approximately 99% of domestic listed stocks managed by the company on a market value basis) and bonds (also covers approximately 56% of domestic and foreign bonds managed by the company (including portions with outsourced management) for our group in our investment portfolio as of the end of March 2020. 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. As for greenhouse gas emission volumes, Scope 1 and Scope 2 are examined.

The results of the analysis are shown in the table below. The carbon cost and transition risk increases in the high and middle scenarios. In our group's investment portfolio as of the end of March 2020, it is estimated that in 2050, carbon earnings at risk may increase by approximately 9% in the low scenario and 35% in the high and medium scenario for stocks, 16% in the low scenario and 57% in the high and medium risk scenario for corporate bonds.

●Carbon Earning at Risk (EBIT at Risk)

< Stocks (as of March 31, 2020) >

	Low Scenario * 1	Medium Scenario * 2	High Scenario * 3
2030	4.66%	9.23%	20.29%
2040	7.54%	14.66%	30.54%
2050	8.81%	34.68%	34.68%

< Corporate bonds (as of March 31, 2020) >

	Low Scenario * 1	Medium Scenario * 2	High Scenario * 3
2030	9.33%	16.89%	34.96%
2040	14.28%	25.28%	51.03%
2050	16.28%	57.44%	57.44%

- *1 Scenario in which the temperature rise is about 3 °C by 2100
- *2 Scenario in which a policy to limit the increase in temperature to 2 °C by 2100 is taken in the long term, but policy actions around climate change are delayed in the short term
- *3 Scenario consistent with the Paris Agreement to limit warming to less than 2 °C by 2100

This analysis is based on current level of greenhouse gas emissions of investees. 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.

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 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.

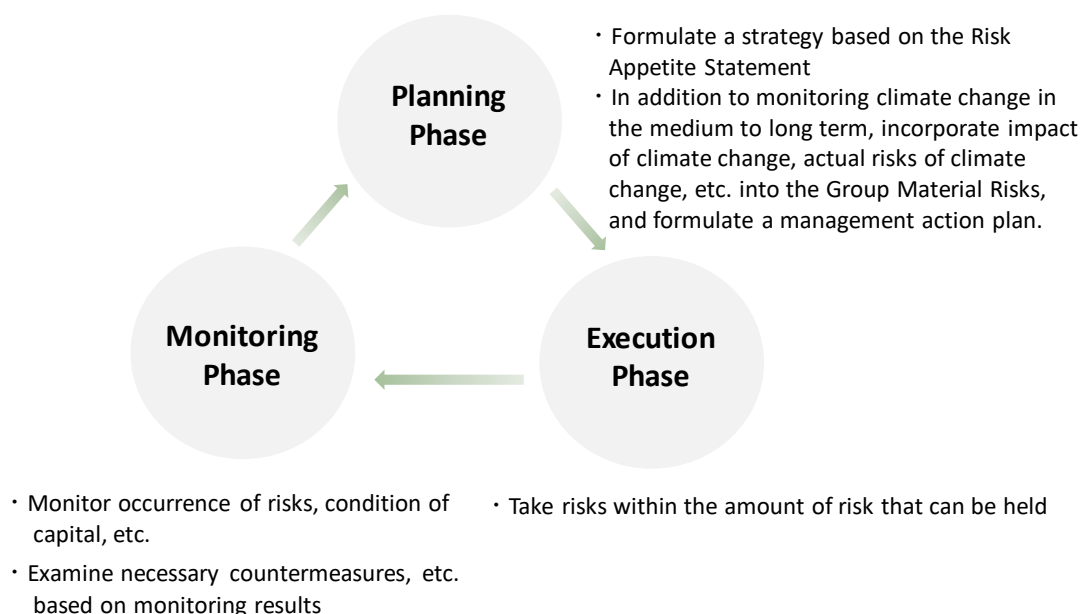
As for underwriting risk, we are working to advance growth strategies and assertively take on risks, while also striving to set appropriate insurance conditions, appropriately control natural catastrophe risks, and expand our returns

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 our 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. In fiscal 2020, climate-related risks were discussed by the Risk Management Committee and reported to the Group Management Committee and the Board of Directors.

The group identifies Group Material Risks to be controlled by management, formulates a Management Action Plan and regularly monitors the status. The Group monitors and controls climate change as one of Group Material Risks. Specifically, since climate change is a risk event that affects wide range of other Group Material Risks, such as the occurrence of a large-scale natural catastrophe, it is associated with other Group Material Risks as shown in the table below. The group establishes and monitors key scenarios arising from climate change, and conducts regular monitoring over the medium to long term.

●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	Changes in probability of occurrence, size, etc., affected by climate change
Sharp fluctuations in financial markets	Decline in the value of our group's assets due to the materialization of transition risks associated with corporate responses to climate change (Strengthen environment-related policies and regulations, advance decarbonization technologies, increase in lawsuits, etc.)
Increase in credit risk	
Occurrence of behavior that is detrimental to the corporate value of our group, loss of social credibility	Deterioration in reputation due to delays in responding to climate change and discrepancies between public announcements and activities
Frequent occurrence of IT system failures, the occurrence of critical IT system failures and large-scale IT system development plan-related progress delays, shortfalls, budget overruns and expected effects being unrealized	Stagnation of operations due to damage to system-related facilities caused by large-scale natural catastrophe
Pandemic of new influenza and other diseases	Spread of affected areas due to global warming and climate change
Changes in insurance market	Significant changes in the market size of specific industries due to technological innovation in response to climate change

(1) Management of Natural Catastrophe Risks

With respect to domestic wind and flood risk levels and US wind and flood risk levels, we are managing natural catastrophe risks by setting the maximum risk levels (risk limits) for the Group and for each company, using the levels of risks that occur once every 200 years as a basis. In addition to natural catastrophe risk measurement and large-scale natural catastrophe stress tests, we are working on incorporating the effects of climate change into stress tests, and advancing considerations of methods to quantify the effects of climate change.

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 identifies the need for and urgency of countermeasures by using scenarios that have been selected based on our group's portfolio and risk profile and taking into account significant changes in the external environment. We conduct tests based on the assumption of more severe stress, such as continuous typhoons and flooding of multiple rivers, and estimate the impact of long-term climate change on domestic typhoons, domestic flood disasters, and hurricanes in North America.

(2) Control of the Retained Amount of Natural Catastrophe

We use statistical methods to quantitatively assess risks by geography and disaster. Based on this assessment, we are working to underwrite insurance appropriately, procuring reinsurance, issuing cat bonds, and accumulating contingency reserves. These measures are designed to improve the financial soundness of the Group as a whole and to reduce the

risk of changes in periodic earnings.

We statistically evaluate the level of risk we take on both by geography and by disaster type. Based on this evaluation, we strive to conduct appropriate insurance underwriting, acquire reinsurance and issue catastrophe bonds, and accumulate catastrophe loss reserves. Through these measures, we are working to improve financial soundness and reduce the risk of fluctuations in profit and loss during a given period.

Group-wide Natural Catastrophe Risk Control

We are working to lower the amount of risks associated with wind and flood disasters in the United States and to strengthen our management of profitability of our reinsurance business.

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 in 2019 and 2020, and in 2021 we have secured reinsurance possessing a similar function, and are reducing risks of fluctuations in profit and loss.

(3) Other Risks of Insurance Underwriting Business such as litigation

As for insurance underwriting risks other than natural catastrophe, due to the frequent occurrence of climate-related lawsuits, claims for liability insurance may increase. For example, policyholders in group's insurance book may be sued for causing climate change, failing to take measures to prevent or reduce damage caused by climate change or insufficient disclosure of information on climate change, which may lead such as Directors and Officers liability insurance loss. The group manages these risks through monitoring medium to long term trends in climate change and "environmental disasters (human-induced pollution and accidents that cause enormous damage to the environment)" which is one of Group Emerging Risks.

(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, our group supports its intent.

In accordance with Japan's Stewardship Code, from the perspective of enhancing the corporate value of the investee and promoting sustainable growth over the medium to long term, our group has a policy of conducting constructive engagements with our portfolio companies, focusing on management issues, shareholder return policy, and other non-financial information such as ESG. Main query among E (environment) contained in the confirmation of investees' ESG Policy is their response for climate change and decarbonized society.

In addition, our group has started to adopt WACI (Weighted Average Carbon Intensity) * of our portfolio and will continue monitoring the carbon intensity.

*Carbon intensity (See page 13 for details [Weighted Average Carbon Intensity of Investments (WACI)]), which is the weighted average of the ratio of CO2 emissions to sales of each company with the ownership ratio.

4. Metrics and Targets

(1) Metrics Pertaining to Risks and Opportunities

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

Product development and revisions that contribute to climate change mitigation and adaptation are set as monitoring

indicators. The results are reflected in performance-linked compensation for directors.

- Impact of CSV initiatives on society and our company (<https://www.ms-ad-hd.com/en/csr/quality/impact.html>)

● Metrics for natural catastrophe risk levels in insurance underwriting

Risk levels that occur once every 200 years.

(2) Environmental Burden of Our Business Activities

● CO2 emissions and energy consumption from our group's business activities

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

(3) Metrics and Targets for Reduction of Our Environmental Burden

● Targets

Our group set medium- to long-term CO2 emission reduction targets in fiscal 2010 and has been working to reduce CO2 emissions from its business activities. We reviewed our medium- and long-term targets having achieved our FY 2020 CO2 emissions reduction target (30% reduction from the FY 2009 level) and set new targets in May 2021 in line with the Paris Agreement.

< CO2 emissions reduction target (Scope 1 + Scope 2 ^{*1}) >

Base Year	Target Year	Reduction
FY 2019	FY 2030	▲50%
	FY 2050	Net zero

< CO2 emissions reduction target (Scope 3 ^{*2}) >

Base Year	Target Year	Reduction	Categories
FY 2019	FY 2030	▲50%	1, 3, 5, 7, 13 ^{*3}
	FY 2050	Net zero	All Categories

*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, heat or steam.

*2: Indirect emissions through our group's business activities other than Scope 2.

*3: 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 7 refers to employee commuting. Category 13 refers to leased assets

< Renewable Energy Usage >

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

● Metrics

We are working to reduce the environmental burden of our business activities while monitoring metrics of reduction rate of total energy consumption and CO2 emissions.

(4) Greenhouse Gas (GHG) Emissions in Investment Portfolio

The following table shows the carbon footprints (CO2 equivalent of greenhouse gas emissions from business activities) of investee companies. Scope 1 and Scope 2 GHG emissions are calculated through using Trucost's tool for calculating greenhouse gas (GHG) emissions through a proprietary modeling approach when there is not enough information

disclosed by investees or publicly available. Subject of the analysis is stocks(covering approx. 99% of domestic listed stocks managed by the company on a market value basis) and bonds(covering approx. 56% of domestic and foreign bonds managed by the company(including portions with outsourced management) for our Group in our investment portfolio as of the end of March 2020)

< Greenhouse Gas (GHG) Emissions >

(Unit: t-CO2e)

As of the end of March 2020	Stocks	Corporate bonds
Scope 1 + Scope 2	2,717,033	3,518,615

(5) Weighted Average Carbon Intensity (WACI)

Weighted average carbon intensity (WACI) is used as metrics of the carbon intensity of our investment portfolio. Scope 1 and Scope 2 are calculated through Trucost's tool. The subject of the analysis is same as that of "Greenhouse Gas (GHG) Emissions in Investment Portfolio".

< Weighted average carbon intensity (WACI) >

(Unit: t-CO2e/US \$1 million)

As of the end of March 2020	Stocks	Corporate bonds
Scope 1 + Scope 2	121.45	205.06

● Our other related disclosure

Strategy

- Impact of natural catastrophe on insurance underwriting profit: MS & AD Integrated Report 2021
(Englished version to be released soon. P139 in Japanese version.)
- Medium-to Long term Targets (<https://www.ms-ad-hd.com/en/csr/summary/kpi.html#vtable-item-7>)
- 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>)
- ISO26000 Core Subjects(Environment) (<https://www.ms-ad-hd.com/en/csr/data.html#012>)