

C0. Introduction

C0.1

**(C0.1) Give a general description and introduction to your organization.**

Mitsubishi Chemical Holdings Corporation (MCHC) was established in October 2005. (merged with Mitsubishi Plastics, Inc. and Mitsubishi Rayon Co., Ltd. in April 2017, which are other operating companies of MCHC), Mitsubishi Tanabe Pharma Corporation, Life Science Institute Corporation, which was established in April 2014 to provide cutting-edge, high-quality solutions that contribute broadly to people's health, and MCHC has five main businesses: Electronics Applications, Design Materials, Healthcare, Chemicals, and Polymers. KAITEKI Vision 30 (KV30), the next medium-term management plan for 2030, has been launched. KV30 is the MCHC Group's vision for 2030. KV30 is a new initiative to become a leading global company based on the three criteria of "Sustainability," "Health," and "Comfort," which were set forth in the previous plan. In April 2022, the MCHC Group shifted from a structure in which each holding company and operating company operated separately to one in which the entire Group operates as a single entity under the concept of "One Company, One Team. In line with this change, the company name was changed from MCHC to MCG on July 1, 2022.

C0.2

**(C0.2) State the start and end date of the year for which you are reporting data.**

|                | Start date   | End date      | Indicate if you are providing emissions data for past reporting years | Select the number of past reporting years you will be providing emissions data for |
|----------------|--------------|---------------|---|--|
| Reporting year | April 1 2021 | March 31 2022 | No  | <Not Applicable>   |

C0.3

**(C0.3) Select the countries/areas in which you operate.**

Japan

C0.4

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

JPY

C0.5

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Financial control

C-CH0.7

**(C-CH0.7) Which part of the chemicals value chain does your organization operate in?**

**Row 1**

**Bulk organic chemicals**

- Lower olefins (cracking)
- Aromatics
- Ethylene oxide & Ethylene glycol
- Ethanol
- Polymers

**Bulk inorganic chemicals**

- Carbon black
- Hydrogen
- Oxygen
- Other industrial gasses

**Other chemicals**

- Specialty chemicals
- Specialty organic chemicals

C-OG0.7

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(C-OG0.7) Which part of the oil and gas value chain and other areas does your organization operate in?

Row 1

Oil and gas value chain  
Chemicals

Other divisions

C0.8

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(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

| Indicate whether you are able to provide a unique identifier for your organization | Provide your unique identifier |
|--|--------------------------------|
| Yes, an ISIN code  | JP3897700005                   |

C1. Governance

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C1.1

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(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

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(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

| Position of individual(s)     | Please explain  |
|-------------------------------|---|
| Chief Executive Officer (CEO) | Managing and improving environmental indicators, including climate change, is an important component of environmental management. As a director on our board, the CEO is responsible for reporting on these matters to the Board of Directors, and regularly reports on strategy development, setting targets, and progress in environmental recovery activities. In 2020, the CEO began our KAITEKI Vision 30 (KV30), the framework of MCHC's next medium-term consolidated management plan for the year 2030. |

C1.1b

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**(C1.1b) Provide further details on the board's oversight of climate-related issues.**

| Frequency with which climate-related issues are a scheduled agenda item | Governance mechanisms into which climate-related issues are integrated   | Scope of board-level oversight | Please explain  |
|---|--|--------------------------------|---|
| Scheduled – all meetings  | <ul style="list-style-type: none"> <li>Reviewing and guiding strategy</li> <li>Reviewing and guiding major plans of action</li> <li>Reviewing and guiding risk management policies</li> <li>Reviewing and guiding annual budgets</li> <li>Reviewing and guiding business plans</li> <li>Monitoring implementation and performance of objectives</li> <li>Overseeing major capital expenditures, acquisitions and divestitures</li> <li>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul> | <Not Applicable>               | <p>In order to enhance the transparency and fairness of management, and strengthen the management supervisory function, the Company has adopted Nominating Committee System since FY2015. The role of the Board of Directors is positioned as the formulation of basic management policies and supervision of overall management, while decision-making and execution by executive officers, who are responsible for business execution, are separated from the Board of Directors. To strengthen the supervisory function of the Board of Directors, the majority of directors do not concurrently serve as executive officers and the CEO, who concurrently serves as both CEO and a member of the Board of Directors, is responsible for supervising the execution of issues closely related to climate change. The Board of Directors is the deliberative and decision-making body for the mid- to long-term management plan, which also determines all ESG-related KPIs and target setting, including climate change measures.</p> |

**C1.1d**

**(C1.1d) Does your organization have at least one board member with competence on climate-related issues?**

|       | Board member(s) have competence on climate-related issues | Criteria used to assess competence of board member(s) on climate-related issues   | Primary reason for no board-level competence on climate-related issues | Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future |
|-------|---|---|--|---|
| Row 1 | Yes   | One of our executive officers approves our CDP answers every year and fully understands its contents. Another executive officer has been appointed as the chairman of JCIA as of this year. We are in a period of change where Japan is working together to create a new era toward carbon neutrality, and the idea is to communicate the value of innovation and strive to enhance our presence so that the chemical industry can lead as a solution provider. For this reason, we recognize these two individuals as individuals who are well versed in climate-related issues. | <Not Applicable>   | <Not Applicable>  |

**C1.2**

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

| Name of the position(s) and/or committee(s) | Reporting line   | Responsibility  | Coverage of responsibility | Frequency of reporting to the board on climate-related issues |
|---|------------------|---|----------------------------|---|
| Chief Sustainability Officer (CSO)          | <Not Applicable> | Both assessing and managing climate-related risks and opportunities | <Not Applicable>           | More frequently than quarterly                                |

**C1.2a**

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

The Mitsubishi Chemical Holdings Group believes that in order to fulfill its corporate social responsibility, it is important to promote businesses that contribute to the sustainability of people, society and the Earth. To this end, the Mitsubishi Chemical Holdings Group has established the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior, which forms the basis for all corporate activities, and strives to act with high ethical standards in socially significant fields. In 2011, we established a Chief Sustainability Officer (CSO) as a system of promoting the realization of our group concept of "KAITEKI". Under the CSO, we have established a KAITEKI Promotion Committee consisting of members from major business divisions and common departments (Environment, Safety & Quality Assurance, Engineering, Human Resources, Public Relations, General Affairs, Internal Control Promotion, and Purchasing). The KAITEKI Promotion Council deliberates and decides on the direction of activities (KAITEKI promotion activities) to move toward the realization of the ultimate goal of KAITEKI in cooperation with the entire group.

The CSO (Chief SUSTAINABILITY Officer) is responsible for KAITEKI promotion activities and has ultimate executive responsibility for climate change-related matters. The CSO confirms and approves the contents deliberated by the KAITEKI Promotion Committee and then reports them to the Board of Directors. The executive officer in charge of corporate strategy is also appointed as CSO, enabling decision-making on a wide range of corporate activities, including business strategy, operations, supply chain, and research and development, as well as environmental matters. The CSO will monitor and report at least once a year on the status of achievement of greenhouse gas reduction targets, the progress of reduction activities, and the selection of products that contribute to emission reductions.

**C1.3**

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

|       | Provide incentives for the management of climate-related issues | Comment |
|-------|---|---------|
| Row 1 | Yes   |         |

**C1.3a**

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

| Entitled to incentive | Type of incentive   | Activity incentivized      | Comment  |
|-----------------------|---------------------|----------------------------|--|
| Board/Executive board | Monetary reward     | Emissions reduction target | GHG emissions reduction targets are part of each company's mission (one of the key performance indicators of Sustainability Management (MOS)), and performance and progress are evaluated annually. The results of the performance will affect the salary levels of the employees involved.                                  |
| Executive officer     | Monetary reward     | Emissions reduction target | Energy saving activities for GHG reduction is one of the missions of production departments, and its performance and progress is evaluated once a year by the executive officer. The outcome affects the salary level for the individual concerned as they are the project manager of energy saving activities.              |
| All employees         | Monetary reward     | Energy reduction project   | Energy saving activities for GHG reduction is one of the missions of production departments, and its performance and progress is evaluated once a year. Activities to reduce energy conservation are described in the employee's job description, and the salary level is determined according to the degree of achievement. |
| All employees         | Non-monetary reward | Efficiency project         | Each operating company of MCHC has a production technology award given to those who have achieved significant improvements in productivity or safety. Since energy saving and GHG reduction are important factors in contributing to productivity, they are awarded at least once a year as part of the award process.       |

**C2. Risks and opportunities**

**C2.1**

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

**C2.1a**

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

|             | From (years) | To (years) | Comment   |
|-------------|--------------|------------|---|
| Short-term  | 0            | 2          | This is a time line of urgent issues that require immediate action.   |
| Medium-term | 2            | 10         | This is the time frame for issues to be included in the mid-term management plan. Our medium-term management plan (updated every five years) fits this perspective.   |
| Long-term   | 10           | 30         | This is a time frame for issues that need to be addressed over a longer time span than the mid-term plan: starting with the mid-term plan developed in FY 2019, we adopted an approach of backcasting and planning for the ideal state of society and MCHC in 2050. For this reason, we have designated 2050 as a key base year for our long-term strategy. |

## C2.1b

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### (C2.1b) How does your organization define substantive financial or strategic impact on your business?

MCHC uses the process method described in C2.2 for risk management. In this context, a material financial impact is defined as 5% of operating income (approximately 10 billion yen). MCHC also defines significant items that are difficult to translate into monetary terms (e.g., involvement in long-term business strategy, damage to reputation, etc.) as strategically significant impacts.

## C2.2

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### (C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

#### Value chain stage(s) covered

Direct operations

#### Risk management process

Integrated into multi-disciplinary company-wide risk management process

#### Frequency of assessment

Annually

#### Time horizon(s) covered

Short-term

Medium-term

Long-term

#### Description of process

There is a risk management system chaired by the President of MCHC. This system is operated in accordance with the MCHC Group Risk Management Basic Policy. Once a year, each operating company and division identifies and assesses risks. The identified risks are mapped onto a risk matrix, and their content and countermeasures are discussed at MCHC's risk management meetings. Below is the process for identifying and assessing climate-related risks and opportunities.

(i) assessment of risks and opportunities at the corporate/asset level; (ii) evaluation of the potential extent and scope of identified risks; (iii) determination of the relative importance of climate-related risks in relation to other risks; and (iv) risk classification.

In order to comply with the TCFD, risks beyond 2030 have been included in the assessment since last year, and with increased frequency.

Case studies of physical opportunities.

[Situation].

As a result of the extreme weather impacts associated with climate change, the world's available water resources are becoming increasingly limited. Therefore, in regions of the world where freshwater is inadequate, the importance of efficient use of water resources through water reuse is also increasing. In addition, according to the RCP2.6 and RCP8.5 scenarios, the frequency of climate change-induced decreases in food harvest rates may increase by a factor of 1.6 from 2030 to 2040, and by a factor of 2.5 and 3.0 from 2080 to 2100, respectively.

[Issue]

These items apply to our growth business, "Food and Water," and we plan to aggressively pursue these businesses. Specifically, we aim to expand sales from the current 150 billion yen to 600 billion yen by 2030 by "developing decentralized food and water systems" and "developing products capable of long-term storage."

[Action]

As a chemical manufacturer, MCHC can offer a variety of products and services in the area of water-related solutions, including water treatment membrane components and ion exchange resins as a water purification chemical manufacturer (MCC).

[Result]

In the MOS index, the products are projected to provide a cumulative 1.7 billion metric tons of usable water over the five years through fiscal year 2020. In fiscal year 2019, a total of 780 million metric tons of water was produced. MCHC has invested approximately 10 billion in research and development in the area of water treatment solutions. Furthermore, in April 2015, MCHC established Mitsubishi Chemical Aqua Solutions (MCAS) to handle sales, engineering, and maintenance of water treatment equipment with an initial investment of 500 million yen, and in April 2016, MCHC's wastewater treatment business was integrated into MCAS. Furthermore, in April 2019, MCAS integrated Wellthy Corporation, a wholly owned subsidiary of Mitsubishi Chemical Corporation, to form Mitsubishi Chemical Aqua Solutions Corporation.

Case Study of Transition Opportunities.

[Status]

There is a growing demand to reduce the use of plastics against the backdrop of the 2018 Ocean Plastics Charter and other regulations, and the market for environmentally friendly plastics is expanding in line with the increased demand for such plastics, triggered by the plastic bag fee system that began last summer. We therefore see an opportunity to increase sales through the sale of such products.

[Issue]

Therefore, we have formulated "KAITEKI Vision 30 (KV30)" and set a goal to contribute to the promotion of the circular economy through the development of technologies and business models for material and chemical recycling and the provision of bioplastics as part of our sustainability management efforts. The goal is to contribute to the promotion of the circular economy through the development of material recycling and chemical recycling technologies, business models, and the provision of bioplastics.

[Actions]

As an example, we are adding new functions to BioPBS™, an originating biodegradable plastic developed by our company that is characterized by its low impact on the natural environment, in an effort to expand the range of applications for which it can be used.

[Result]

We will prioritize products that reduce GHG emissions throughout the value chain and products that reduce GHG emissions through carbon recycling as future "growth" businesses, with the goal of increasing the share of these priority businesses in total sales from 25% in 2018 to 70% by 2030. The goal is to increase the share of these priority businesses in total sales from 25% in 2018 to 70% by 2030.

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## C2.2a

**(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

|                     | Relevance & Inclusion        | Please explain   |
|---------------------|------------------------------|--|
| Current regulation  | Relevant, always included    | We are examining the risk of increased costs due to current emission regulations in major countries. Current regulations are limited to a carbon tax in Japan, which accounts for 70% of our GHG emissions, and the level of regulation does not have a strong impact on our business or finances. However, in China, Singapore, and the EU, there are concerns about the impact of emissions trading schemes on our business. Therefore, our risk assessment process covers the financial impact of the schemes in these countries. Specifically, we quantitatively compare our sales and operating income in each region to the increased regulatory costs associated with energy usage, identify areas where the impact cannot be ignored, and consider countermeasures.  |
| Emerging regulation | Relevant, always included    | We collect information on regulatory trends in various countries (including future projections) to assess the risk of higher product prices due to carbon pricing and emission controls. With the implementation of the Paris Agreement, it is expected that greenhouse gas emission regulations will be further tightened worldwide. For us (whose main products are petrochemicals and industrial gases, which have a large carbon load during production), the introduction of carbon pricing and emission regulations is expected to not only significantly increase production costs, but also decrease demand due to higher product prices. Furthermore, the Roadmap to Zero GHG Emissions by 2050 calls for zero GHG emissions throughout the product lifecycle, from raw material production to disposal. We are beginning to address this challenge through innovation in our products and their manufacturing processes.   |
| Technology          | Relevant, always included    | We use life cycle assessment to quantitatively evaluate the economic benefits of reducing greenhouse gas emissions from research and development. Chemicals that emit large amounts of GHGs during production may be at a disadvantage compared to other materials with comparable functions in terms of global warming mitigation. If we are unable to reduce the lifecycle GHG emissions of our products through innovation, or if reductions in lifecycle carbon load increase the competitiveness of competing non-chemical materials, we believe this poses a significant risk to our company. In particular, many of our products are made from petroleum and coal, which unavoidably have a large life cycle carbon load, which is a challenge for us. On the other hand, if we can develop products with low greenhouse gas emissions, we will have the opportunity to differentiate ourselves from our competitors and be chosen by more customers. Therefore, our risk assessment also evaluates the financial impact of the progress of such R&D activities. Through life cycle analysis of carbon emissions, we also qualitatively assess the risk of loss of existing products and the potential for new product expansion, which is an important reference for prioritizing investments in technology and product development. We focus on the development of new materials such as plastics that utilize non-fossil resources, energy conversion and storage devices that promote the efficient use of renewable energy, and lightweight mobility that takes advantage of the properties of functional materials. |
| Legal               | Relevant, sometimes included | In our risk assessment, we consider the potential financial impact of failing to reduce large greenhouse gas emissions. Failure to reduce mass emissions of greenhouse gases could be considered a crime of over-emission and risk new litigation. This has already been the case in the past for other environmentally hazardous substances, which can lead to litigation if not addressed responsibly. It is appropriate to recognize that our petrochemical business has three sites in Japan that emit more than 1 million tons of greenhouse gases, and that such risk exists. Therefore, our risk assessment process includes the potential financial impact of such litigation. At this time, there is little potential for litigation in Japan due to high greenhouse gas emissions, but we have investigated litigation trends overseas and have found this to be a relevant risk. In addition, studies that assess the history of litigation due to past pollution problems are also part of our risk assessment as being relevant.  |
| Market              | Relevant, always included    | We are assessing the economic impact of the risk of scaling down or shutting down our operations in high carbon-impact chemicals. The increase in the carbon tax will inevitably increase the price of our main chemical products, such as naphtha cracker derivatives, which have a high carbon load, and their market competitiveness as products is inferior to competing materials with a low carbon load, such as paper, natural fibers, and wood, raising the risk of business downsizing or shutting down. Therefore, during the risk assessment process, we evaluate the financial impact of these market changes. To this end, we conduct carbon life cycle analysis for most of our products, evaluating not only production costs, but also the cost of purchased raw materials and disposal costs after use in terms of carbon pricing.  |
| Reputation          | Relevant, sometimes included | The Company considers risks such as product boycotts and underinvestment in its risk assessment. Among manufacturing industries, the chemical industry is the second largest GHG emitter after steel, and our company, with its large scale of operations, is also a notable emitter. (We are the largest emitter in the chemical industry in Japan and one of the largest GHG emitters globally.) As climate change is increasingly recognized as a serious global environmental issue, product boycotts and investment cuts against companies with high emissions may become more frequent in the near future, as companies with high emissions are seen as having a negative impact on the climate. In addition, bad publicity has a non-negligible negative impact on employment and employee morale. Therefore, our risk assessment process evaluates the financial impact of statement risk in the chemical industry. Specifically, we research and analyze the strategies of other companies in the chemical industry and leading companies in other industries with regard to global warming countermeasures to gather knowledge about their impact and expertise.   |
| Acute physical      | Relevant, always included    | We consider the risk of adverse economic impact on our facilities and operations due to wind and flood damage in our risk assessments. Many of our chemical plants use large amounts of water and are located near oceans and rivers. Facilities near small and medium-sized rivers in Japan are particularly vulnerable to flood damage caused by sudden rises in water levels due to torrential rains. Therefore, if the frequency of wind and flood damage increases due to an increase in extreme weather events caused by climate change, there is an increased risk of serious damage to facilities and operations, resulting in adverse financial impacts. Therefore, in our risk assessment process, we evaluate the financial impact of acute physical risks from extreme weather events. This acute physical risk from extreme weather events, whether or not climate change is involved, has been thoroughly reviewed in the past for our major locations.  |
| Chronic physical    | Relevant, sometimes included | We consider risks such as reduced operating rates due to global warming in our risk assessment process. As average temperatures rise due to global warming, chemical plants, which generate large amounts of heat from reactions, will become harsh working environments for workers. In addition, rising water temperatures will increase risks such as insufficient cooling water capacity and reduced operating rates. Based on these considerations, our risk assessment evaluates the financial impact of worsening working conditions and increased operational constraints associated with rising average temperatures. This is a serious issue for our company, which has many manufacturing sites in Japan with high summer temperatures.   |

**C2.3**

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

**C2.3a**

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Risk 1

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

|                    |                           |
|--------------------|---------------------------|
| Current regulation | Carbon pricing mechanisms |
|--------------------|---------------------------|

**Primary potential financial impact**

Increased indirect (operating) costs

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

In Japan, a carbon tax was introduced in 2012 with the goal of mitigating global warming. As a result of the COP21 agreement in 2016, the possibility of future tax rate increases has increased. If the carbon tax burden increases as a result of stricter regulations, it could have a negative impact on corporate earnings. We have conducted a risk assessment using the WEO2020 SDS scenario (1.65°C increase). According to this scenario, carbon prices would rise to about double the 2019 level in 2025 and 3-4 times the 2019 level in 2040. The overall tax burden related to global warming in 2019 is over 1 billion yen for all domestic operations. Add to this the cost of fuel, which is

expected to increase in the future, and we can assume that the burden will increase by at least 8 billion yen in 2040. In that case, the burden would amount to at least 17% of MCHC's operating income of 47.5 billion yen in 2020.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

10000000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

The overall tax burden related to global warming in 2019 is over 1 billion yen for all Japanese operations. In the future, the tax rate could be raised to the equivalent of the lowest rate in EU countries. In that case, the current Japanese tax rate would be 10 times higher than the current tax rate, and we have estimated the potential economic impact based on this assumption.

[2019 tax burden 1 billion yen x 10x = 10 billion yen].

**Cost of response to risk**

8800000000

**Description of response and explanation of cost calculation**

[Situation]

In Japan, a carbon tax was introduced in 2012 for the purpose of mitigating global warming. As a result of the COP21 agreement in 2016, future increases in the tax rate are increasingly likely. The increased carbon tax burden will increase the cost of fuel and purchased energy, which may negatively impact corporate profits.

[Issue]

More than 80% of the MCHC Group's energy consumption occurs at our plants in Japan, and our overall global warming-related tax burden for 2019 has already exceeded 1 billion yen across our domestic operations. Therefore, the introduction of policies that lead to higher energy costs in Japan could generate significant financial implications for our business. Therefore, we recognize that reducing GHG emissions in our business is important to avoid [risk]

[Action]

In light of this, we are targeting a 29% reduction in global emissions by 2030, and have set medium-term energy savings and GHG emission reduction targets for our operating sites to achieve this goal. Examples of major savings include replacing naphtha crackers (equivalent to 1,500 tons of CO2 emission reductions per year) and changing operating methods (equivalent to 1,500 tons of CO2 emission reductions per year). At present, the company plans to strengthen its efforts to reduce GHG emissions in its production activities by switching fuels for in-house power generation facilities, using renewable energy, and streamlining processes, as well as preparing for the introduction of in-house carbon pricing.

[Results]

In 2020, we implemented several GHG emission reduction projects, resulting in a total of approximately 35,000 tons of avoided GHG emissions. The associated tax savings were approximately 12 million yen. The amount of investment required for energy conservation efforts in 2020 as a risk response expense is 8.8 billion yen, broken down into the cost of replacing machinery and switching to high-efficiency equipment and the cost of updating facilities.

**Comment**

There are also several projects where re-assessment of operating conditions led to improved efficiency and optimization of energy use and reduction of GHG emissions without incurring costs.

**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

|                |  |
|----------------|--|
| Acute physical | Flood (coastal, fluvial, pluvial, groundwater) |
|----------------|--|

**Primary potential financial impact**

Decreased revenues due to reduced production capacity

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

MCHC conducts risk assessments based on the IPCC RCP2.6 scenario (2°C increase) and RCP8.5 scenario (4°C increase). However, it may increase by a factor of 1.5 and 1.8 in the period 2080-2100, respectively. Therefore, there is a risk of increased plant shutdowns due to flooding and other extreme weather events that may occur as a result of climate change. Because the majority of raw materials and products are transported by sea, all of MCHC's large petrochemical plants, including its Ibaraki and Okayama operations, are located in coastal areas. Those large petrochemical complexes manufacture many products that operate continuously 24 hours a day, and the plants' annual shipments exceed several hundred billion yen. Large petrochemical complexes such as Kashima, Mizushima Okayama, and Ibaraki have annual plant shipments in excess of 100 billion yen. Therefore, even if a disaster causes a shutdown of operations for a few weeks or months, the losses will be enormous. Assuming a one-month shutdown due to a disaster, this would result in a loss of 8 billion yen, or 16.8% of MCHC's 47.5 billion yen in operating income in 2020. Therefore, there is a risk that the effects of flooding and marine transportation stoppages caused by a major typhoon could have a significant impact on our operations and sales.

**Time horizon**

Short-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

8000000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Large petrochemical complexes such as Okayama and Ibaraki manufacture large volumes of products in continuous 24-hour, 365-day operation, with annual plant shipments exceeding 100 billion yen. The financial impact is 8 billion yen that would be incurred if operations were suspended for one month due to the disaster.

**Cost of response to risk**

1000000000

**Description of response and explanation of cost calculation**

[Situation]

As a result of flooding due to climate change, there is a risk of distribution stoppages due to submerged trunk roads and plant stoppages due to submerged large equipment. There is also an increased risk of plant shutdowns due to submerged raw materials and products or electrical system problems.

Issues to be addressed

In order to avoid the impact on business caused by the shutdown of operations in the event of flooding near a plant, it is necessary to develop BCPs that respond to extreme weather conditions at each site according to local conditions.

[Action]

Prioritized disaster preparedness measures based on the Plant Risk Matrix in accordance with the Natural Disaster Risk Management Framework for MCHC and each operating company for the period 2020-2021. Regarding extreme weather events caused by climate change, we are strengthening preventive measures against floods and droughts. Specifically, we are increasing the acceptable volume of rainwater and wastewater after taking measures against flooding, oil-water separation, dust removal, and other treatments, with a total investment of approximately 1 billion yen. The breakdown includes the cost of reinforcing drainage facilities, installing levees, and filling in the ground.

[Results]

Liquefaction and tsunami countermeasures have been completed at more than 80% of major plants in Japan. We will continue to invest in flood prevention to ensure safe and stable supply on a daily basis. The total investment for risk response costs is approximately 1 billion yen. This includes the cost of reinforcing drainage facilities, levees, and fill.

**Comment**

There are many types of other countermeasures available for consideration, from no-cost measures such as maintenance of situational manuals, to large-scale measures such as the construction of seawalls or the ground relocation of underground facilities.

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**Identifier**

Risk 3

**Where in the value chain does the risk driver occur?**

Downstream

**Risk type & Primary climate-related risk driver**

|                     |  |
|---------------------|--|
| Emerging regulation | Mandates on and regulation of existing products and services |
|---------------------|--|

**Primary potential financial impact**

Decreased revenues due to reduced demand for products and services

**Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

**Company-specific description**

We have conducted our risk assessment using the WEO2020 SDS scenario (1.65°C increase). This scenario states that despite a temporary setback in plastics recycling policy in the wake of Covid-19, SDS plastic recovery rates will increase from 17% in 2019 to 27% in 2030. An increase in the plastics recycling rate means that an increasing percentage of the raw materials used in the manufacture of plastic products will be recycled raw materials. This will lead to a decrease in demand for our basic materials and a simple 10-20% drop in sales and cracker utilization. Since our sales of new resin production from basic materials were approximately 700 billion yen in FY2020, a 20% decrease in sales would result in a 140 billion yen decrease in revenue.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

140000000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>



**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

Since sales of the products expected to be affected were approximately 700 billion yen in FY2020, we assumed a 20% decrease in sales, resulting in a financial impact of 140 billion yen.

**Cost of response to risk**

10000000000

**Description of response and explanation of cost calculation**

[Status]

According to the SDS scenario (1.65°C increase) of WEO2020, the plastic recovery rate in SDS will increase from 17% in 2019 to 27% in 2030, despite a temporary setback in plastic recycling policies in the wake of Covid-19. An increase in the plastics recycling rate means that an increasing percentage of the raw materials used in the manufacture of plastic products will be recycled raw materials. This will lead to a decrease in demand for our basic materials, which will simply result in a 10-20% drop in sales and cracker utilization. Since our sales of basic materials are several hundred billion yen, we estimate that our sales will drop by several tens of billions of yen. Therefore, although we are promoting measures to address global warming, we have a risk of losing market share if the current situation continues.

[Issue]

Therefore, we will secure the market by participating in the resource recycling business (plastic recycling), which is expected to grow in the future.

[Action]

Specifically, in FY2021, we will establish recycling systems such as chemical recycling and material recycling that enable waste to be used repeatedly by returning it to its pre-use state, and expand into the resource recycling area through the stable supply of bio-based plastics that do not depend on oil and biodegradable plastics that have a small environmental impact when disposed of. We are also working to expand into the area of resource recycling. We are also strengthening our product design and development technologies, including the use of Materials Informatics, a development method that uses AI to efficiently design new materials and search for alternative materials, and the recycling of PET bottles through chemical recycling.

[Result]

We expect sales in the resource recycling area to reach 500 billion yen by 2030. We expect to invest 100 billion yen/year in the recycling of resources as a risk management expense. This includes investment in chemical recycling of PET, etc. and material recycling of carbon fiber, high-performance films, etc.

**Comment**

According to the IEA's SDS scenario (1.65°C rise), despite a temporary setback in plastics recycling policies in the wake of Covid-19, plastics collection rates are predicted to increase in the SDS from 17% in 2019 to 27% in 2030. Since a large increase in the total demand for plastics cannot be expected in Japan in the future, an improvement in the recycling rate will reduce the demand for our basic materials business unit's products, which are used for new plastics, and its sales leads to a 10-20% drop. Since the sales of new resins and their raw materials manufactured by our basic materials business unit are hundreds of billions of yen, it is estimated that sales will drop by tens of billions of yen. Therefore, even if climate change measures are promoted to reduce GHG emissions during manufacturing, there is a risk of losing the current share of plastics. Therefore, we will secure the market by participating in the resource recycling business (plastic recycling) and other chemical products with low environmental impact, which is expected to grow in the future. Specifically, we have established a recycling system that allows waste to be returned to the state before use so that it can be used repeatedly such as chemical and material recycling, and we will produce plastics that are made from sustainable resources, and other chemical products that have a low environmental impact during disposal. Investment in the resource recycling area is expected to be 100 billion yen / year. The breakdown of investment costs is chemical recycling such as PET, and material recycling such as carbon fiber and High functionality films. We are planning to raise sales in the resource recycling area to reach 500 billion yen in 2030.

C2.4

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

C2.4a

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

Tighter environmental laws and regulations will increase carbon-related energy costs, which will likely lead to greater demand for products with lower GHG emissions. We plan our investments using the WEO2020 SDS scenario (1.65°C increase). According to this scenario, investments in batteries, power grids, and energy efficiency are expected to increase by about 1.5 times the current level by 2030. To the MCHC Group, these are products that fall into the category of "GHG reduction," our growth business. Examples include lithium battery components for EV and hybrid vehicles, and carbon fiber, which is essential for optimizing weight reduction in wind farm rotor blades and hydrogen fuel storage tanks. We believe that developing appropriate business models targeting low-carbon products has the potential to address the needs of a decarbonized society and create important business opportunities. Therefore, our goal is to increase sales of these products from 70 billion in FY2020 to 350 billion by FY2030.

**Time horizon**

Short-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

350000000000

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

&lt;Not Applicable&gt;

**Explanation of financial impact figure**

The goal is to expand sales of "new energy" products from the 70 billion yen level in FY2020 to the 350 billion yen level in FY2030, which corresponds to about 5% of the overall sales target. We have set this as the financial impact amount. The items are lithium battery materials, electronics materials, and organic solar cells.

**Cost to realize opportunity**

29700000000

**Strategy to realize opportunity and explanation of cost calculation**

[Situation]

In recent years, tighter environmental laws and regulations have been considered. Regulations such as carbon taxes will increase carbon-related energy costs, leading to higher prices for products. Therefore, demand for products with low GHG emissions is expected to increase; according to the WEO2020 SDS scenario (1.65°C rise), investments in batteries, power grids, and energy efficiency are expected to increase by about 1.5 times the current level by 2030.

[Issue]

These items fall within our growth business of "GHG reduction" and we plan to aggressively pursue this business. Our goal is to expand our investment from the current 200 billion yen to 600 billion yen by 2030. Specific items to be covered include the development of "mobility lightening," "electrification solutions," "distributed energy management," "low environmental impact chemical processes," etc.

[Actions]

It was decided that "New Energy" products (lithium battery materials, optoelectronic materials, organic photovoltaic cells) as products with low GHG emissions will be managed independently from other electronic application products starting in 2017. Products in this category will be assessed for their contribution to avoided emissions using a carbon life cycle analysis. The company also plans to build a system and infrastructure to use Life Cycle Assessment as a management tool by FY2025 in its own company, and to enhance its low-carbon products and services.

[Result]

Due to the delay in bringing products to market, the reductions achieved were less than expected. We will improve this situation by 2030, our next mid-term target. Continued investment in R&D is essential for market expansion, as it is essential to continuously improve features such as higher battery density, improved charge-discharge cycle characteristics, and lower charge rates. The cost of realizing this opportunity is calculated based on our investment in R&D for low-carbon products. The majority of our R&D investments in FY 2018, 29.7 billion yen, were in the area of functional products. The breakdown is 14 billion yen for high-performance films and 16 billion yen for others.

Cost to realize opportunities: 14 billion yen invested in high-performance films + 16 billion yen invested in others = 29.7 billion yen invested in R&D in the area of functional products.

**Comment****Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of climate adaptation, resilience and insurance risk solutions

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

As a result of the extreme weather effects associated with climate change, the world's available water resources are becoming increasingly limited. As a chemical manufacturer, MCHC believes that it can offer a variety of products and services in the area of food and water related solutions, and has positioned the "food and water" sector as a growth business. As an example, we offer hollow fiber membrane Sterapore for various filtration applications in separation, purification, and concentration, including wastewater, sewage, and water treatment, such as the Sterapore-7000 series (PE membrane) module specification. Compared to other membrane treatment methods, this product allows for a more compact equipment design, reducing the membrane footprint and energy consumption through reduced aeration. More than 5,000 installations have been completed worldwide. Currently, sales are expected to expand in overseas markets, particularly in Asia and Africa.

**Time horizon**

Short-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

330000000000

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

In FY2030, we aim to increase sales in the "Environment and Lifestyle Solutions" segment, which includes the water membrane separation business (including agribusiness, construction materials, etc.), from 165 billion yen in FY2020 to 330 billion yen, which is equivalent to about 5% of our overall sales target. This is the amount of financial impact. Items include water treatment equipment, hollow fiber membrane products, etc.

**Cost to realize opportunity**

10500000000

**Strategy to realize opportunity and explanation of cost calculation**

[Situation]

As a result of the effects of extreme weather events associated with climate change, the world's available water resources are becoming increasingly limited. Therefore, in regions of the world where there is insufficient freshwater, the importance of effective use of water resources through water reuse is also increasing. In addition, according to the RCP2.6 and RCP8.5 scenarios, the frequency of climate change-induced decreases in food harvest rates may increase by a factor of 1.6 from 2030 to 2040, and by a factor of 2.5 and 3.0 from 2080 to 2100, respectively.

[Task]

These items apply to our growth business, "Food and Water," and we plan to aggressively pursue these businesses. Specifically, we aim to expand sales from the current 150 billion yen to 600 billion yen by 2030 through "development of decentralized food and water systems" and "development of products capable of long-term storage."

[Action]

As a chemical manufacturer, MCHC can offer a variety of products and services in the field of water-related solutions, including water treatment membrane components and ion exchange resins as a water purification chemical manufacturer (MCC). MCHC is also focusing on strengthening its decentralized water supply and water treatment related services by utilizing its total water treatment technologies from drinking water to wastewater through separation materials such as filtration membranes and ion exchange resins.

[Results]

In the MOS index, this product is projected to provide a cumulative 1.7 billion metric tons of usable water over the five years through fiscal year 2020. MCHC has invested approximately 10 billion in research and development in the area of water treatment solutions. Furthermore, in April 2019, we integrated Welthy Corporation, a wholly owned subsidiary of Mitsubishi Chemical Corporation, to establish Mitsubishi Chemical Aqua Solutions Corporation. By integrating our businesses, we have established a one-stop system to provide a variety of water treatment-related proposals, from drinking water to wastewater. To realize the opportunity, we are investing approximately 10 billion yen in research and development in the field of water treatment solutions. In addition, we have made an initial investment of 500 million yen in Mitsubishi Chemical Aqua Solutions (MCAS), making 10.5 billion yen as an expense for opportunity realization.

**Comment****Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

**Company-specific description**

The market for environmentally friendly plastic products is expanding, triggered by the introduction of a plastic bag fee starting last summer, along with growing calls for reduced use of plastics against the backdrop of the 2018 Ocean Plastics Charter and other initiatives. Therefore, we believe that the development and sale of bio-based plastics that do not depend on petroleum and biodegradable plastics that have a small environmental impact at the time of disposal will lead to increased sales. We have developed BioPBS™, a plant-derived biodegradable plastic, and hold a basic patent for it. Therefore, we aim to contribute to environmental friendliness and increase our market share by significantly expanding our business in the future, which is currently expanding its market to the food and agricultural sectors. Our current goal is to achieve sales of 30 billion yen in FY2030.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

30000000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

We are aiming for sales of approximately 30 billion yen, or about 6% of the 500 billion yen target we have set for the entire resource recycling area in 2030. The items are BioPBS and other biodegradable plastics.

**Cost to realize opportunity**

10000000000

**Strategy to realize opportunity and explanation of cost calculation**

[Situation]

Society expects the chemical industry to contribute significantly to GHG emission reductions. Consumer preference for more environmentally friendly products is expected to strengthen significantly in the coming years. In particular, the market for environmentally friendly plastic products is growing, driven by the introduction of plastic bag fees last summer, along with growing demand for reduced use of plastics.

[Task]

In order to increase sales, we recognize the importance of gaining an advantage over our competitors in this market. To this end, we are targeting the expansion of bio-based plastics, which have a low environmental impact when disposed of. Although sales of biodegradable plastics are not large at present, we plan to further expand production and sales by making better use of raw materials in the future.

[Action]

We have been developing technology to use sugarcane as a biomass raw material, and we are now developing technology to produce chemicals from squeezed lees, which used to be disposed of. If realized, biodegradable plastics can be made at a significantly reduced cost.

As an example, we have developed and hold a basic patent for BioPBS™, a biodegradable plastic derived from plants that is degraded into water and carbon dioxide by microorganisms in the natural world, thereby reducing the burden on the natural environment.

[Results]

Since demand for BioPBS™, a biodegradable plastic, is expected to grow in the future, we are considering further investment to meet this need.

We expect to invest 100 billion yen/year in the entire resource circulation area (bio, chemical, etc.). This includes investment in chemical recycling of PET, etc. and material recycling of carbon fiber, high-performance films, etc. About 10% (10 billion yen) of this amount will be used for BioPBS and biodegradable plastics. We will continue to promote market expansion by addressing needs such as marine biodegradable plastic bags. Specifically, by 2030, production capacity is expected to increase to 10,000 Ton/year of biodegradable plastics, tens of thousands of Ton/year of biomass-derived engineering plastics, and hundreds of thousands of Ton/year of biomass-derived and biodegradable plastics. Investment in overall resource recycling (bio, chemical, etc.) as a cost to realize the opportunity is assumed to be 100 billion yen/year.

**Comment**

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### C3. Business Strategy

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#### C3.1

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**(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?**

**Row 1**

**Transition plan**

Yes, we have a transition plan which aligns with a 1.5°C world

**Publicly available transition plan**

Yes

**Mechanism by which feedback is collected from shareholders on your transition plan**

We do not have a feedback mechanism in place, but we plan to introduce one within the next two years

**Description of feedback mechanism**

<Not Applicable>

**Frequency of feedback collection**

<Not Applicable>

**Attach any relevant documents which detail your transition plan (optional)**

2021.10.20CN.pdf

2021.10.20CN.pdf

**Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future**

<Not Applicable>

**Explain why climate-related risks and opportunities have not influenced your strategy**

<Not Applicable>

#### C3.2

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**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

|       | Use of climate-related scenario analysis to inform strategy | Primary reason why your organization does not use climate-related scenario analysis to inform its strategy | Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future |
|-------|---|--|---|
| Row 1 | Yes, qualitative and quantitative                           | <Not Applicable>   | <Not Applicable>  |

#### C3.2a

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**(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.**

| Climate-related scenario              | Scenario analysis coverage | Temperature alignment of scenario | Parameters, assumptions, analytical choices  |
|---------------------------------------|----------------------------|-----------------------------------|--|
| Physical climate scenarios<br>RCP 2.6 | Company-wide               | <Not Applicable>                  | <p>What we have positioned as [parameters] are carbon price, manufacturing cost, demand, and growth potential of new business areas toward 2030. Assuming that existing products continue to be manufactured until 2040 while emitting large amounts of GHG, the SDS scenario analysis revealed that an increase in the carbon price (estimated at \$140 / tCO2 by SDS) would increase the manufacturing cost burden by approximately 130 billion yen.</p> <p>We have a unique concept of "KAITEKI (Happiness)", which proposes not only solutions to environmental and social problems but also sustainable development of society and the Earth. We believe that our company's raison d'être is to solve human, social, and global problems and achieve a sustainable future. As an [analytical choice], we have formulated "KAITEKI Vision 30 (KV-30)" by backcasting from our social vision and corporate stance for 2050, based on social and technological trends, to clarify our group vision and goals for 2030. In developing this vision, it was an extremely important activity to create a vision of the future in 2050 based on scenarios in our analysis of the future of the global environment, including climate change. We selected these scenarios because we assumed that various events resulting from climate change would affect our existing and new operations as major risks and opportunities, and we evaluated the IPCC physical risk scenarios, and therefore evaluated two scenarios, RCP2.6 and RCP8.5, according to TCFD recommendations, to make a more multifaceted This is to allow for a more multifaceted evaluation.</p>   |
| Physical climate scenarios<br>RCP 8.5 | Company-wide               | <Not Applicable>                  | <p>What we have positioned as [parameters] are disasters and increased operating costs due to increased energy use, and we believe that it is necessary to provide solutions that contribute to ensuring business continuity and disaster prevention and mitigation due to the severity of extreme weather events, not to strengthen regulations and policies due to the effects of climate change.</p> <p>We are committed to our group's unique concept of "KAITEKI (Happiness)," which proposes not only solutions to environmental and social problems, but also sustainable development of society and the Earth. under the vision of realizing KAITEKI, we aim to solve human, social, and global issues and achieve a sustainable future. We believe that our company's raison d'être is to solve human, social, and global problems and achieve a sustainable future. As an [analytical choice], we have formulated "KAITEKI Vision 30 (KV-30)" by backcasting from our social vision and corporate stance for 2050, based on social and technological trends, to clarify our group vision and goals for 2030. In developing this vision, it was an extremely important activity to create a vision of the future in 2050 based on scenarios in our analysis of the future of the global environment, including climate change. We selected this scenario because we assumed that various events resulting from climate change would affect our existing and new operations as major risks and opportunities, and we evaluated the IPCC physical risk scenarios, and therefore evaluated two scenarios, RCP2.6 and RCP8.5, according to TCFD recommendations, to make a more multifaceted This is to allow for a more multifaceted evaluation.</p>     |
| Transition scenarios<br>IEA SDS       | Company-wide               | <Not Applicable>                  | <p>What we have positioned as [parameters] are carbon price, manufacturing cost, demand, and growth potential of new business areas toward 2030. Assuming that existing products continue to be manufactured until 2040 while emitting large amounts of GHG, the SDS scenario analysis revealed that an increase in the carbon price (estimated at \$140 / tCO2 by SDS) would increase the manufacturing cost burden by approximately 130 billion yen.</p> <p>We have a unique concept of "KAITEKI (Happiness)," which proposes not only solutions to environmental and social problems, but also sustainable development of society and the Earth. We believe that our raison d'être is to solve human, social, and global problems and to work toward a sustainable future. As an [analytical choice], we have formulated "KAITEKI Vision 30 (KV-30)" by backcasting from our social vision and corporate stance for 2050, based on social and technological trends, to clarify our group vision and goals for 2030. In considering this vision, it was an extremely important activity to develop a vision of the future in 2050 based on scenarios in the future analysis of the global environment, including climate change. As a company with many energy-intensive products, we have many migration risks to consider. Therefore, at the time of the 2019 study, we selected the IEA SDS. Based on this scenario, we evaluated the potential for higher production costs and lower demand associated with the decarbonization of existing products, as well as the growth potential of new business areas for the year 2030. For our analysis, we selected all of our current businesses and all of the regions of the world to which they relate.</p> |

**C3.2b**

**(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.**

**Row 1**

**Focal questions**

We assumed about what future events may occur and identified most likely businesses to shape the future business performance of our group based on our group expectation. In accordance to KAITEKI Vision (KV30), we have identified risks if we fail to address social issues, including those related to climate change. Under the influence of climate change, our significant risks have been concluded into three categories, numbering Risk 1, 2, and 3. Risk 1 is "loss of corporate value and brand value," Risk 2 is "loss or shrinkage of existing business," and Risk 3 is "loss of new growth opportunities. We define these 3 risks as our focal issue.

**Results of the climate-related scenario analysis with respect to the focal questions**

Based on the analysis of the issues listed on the left, using RCP2.6 and IEA SDS which were answered in C3.2a, Risk 1 is expected to result in a 230 billion yen decrease in equity value and a 20 billion yen decrease in operating income; Risk 2 is expected to result in a 410 billion yen decrease in operating income and a 160 billion yen deterioration in the balance sheet; and Risk 3 is expected to have a reduction of operating income by 220 billion yen.

We have identified and evaluated the expansion of growth business, identifying "GHG reduction" business in FY2030 as an opportunity, and seeking to work through it to empower next medium-term management through analysis and evaluation of business scale expansion and profitability enhancement through the implementation of the plan. In addition, solutions such as distributed energy management, CO2 utilization, and chemical material recycling, which contribute to solving climate change issues, have been identified as growth businesses for the MCHC Group. We will incorporate KV30 into our next medium-term management plan to realize our vision for 2030.

**C3.3**

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

|                                 | Have climate-related risks and opportunities influenced your strategy in this area? | Description of influence   |
|---------------------------------|---|--|
| Products and services           | Yes   | <p>[Situation]<br/>The market for environmentally friendly plastics is expanding due to increasing demand for environmentally friendly plastics as a result of the growing demand to reduce their use against the backdrop of the 2018 Ocean Plastics Charter and other initiatives, and the increase in demand for environmentally friendly plastics following the introduction of a plastic bag fee that began last summer. Therefore, we believe there is an opportunity to increase sales through the sale of such products.</p> <p>[Issue]<br/>Therefore, we have formulated "KAITEKI Vision 30 (KV30)" and set a goal to contribute to the promotion of the circular economy through the development of technologies and business models for material and chemical recycling and the provision of bioplastics as part of our sustainability management efforts. The goal is to contribute to the promotion of the circular economy through the development of material recycling and chemical recycling technologies, business models, and the provision of bioplastics.</p> <p>[Actions]<br/>As an example, we are working to add new functions to BioPBS™, an originating biodegradable plastic developed by our company that is characterized by its low impact on the natural environment, and to expand the applications for which it can be deployed. We also aim to expand our business by replacing products with low environmental impact, such as products made from sustainable materials or recycled existing plastics, with products that have a greater environmental impact.</p> <p>[Result]<br/>By prioritizing products that reduce GHG emissions throughout the value chain and products that reduce GHG emissions through carbon recycling as future "growth" businesses, we are targeting sales of 500 billion yen in the carbon recycling field in 2030, which is 9% of our sales target of 6 trillion yen. This represents 9% of our sales target of 6 trillion yen. We will continue to invest in this area as we expect this sales to grow substantially after 2030.</p> |
| Supply chain and/or value chain | Yes   | <p>[Situation]<br/>In recent years, tighter environmental laws and regulations have been considered. While carbon taxes and other regulations risk increasing carbon-related energy costs, opportunities exist for increased demand for products with lower GHG emissions IEA's market forecast for the SDS scenario (1.6°C increase) is for global industrial sectors, with batteries, power networks, and energy efficiency We expect our investments to be 1.5 times larger than they will be in 2019, and based on that we will invest in.</p> <p>[Issue]<br/>To expand our business with products that reduce GHG emissions across the value chain and transform our business into one that provides solutions to societal challenges, including solving environmental problems, we need to build new relationships with our suppliers and customers. Recognizing the importance of this, we conducted a 2DS analysis to embody the strengths of the opportunity. We focused on Life Cycle Assessment (LCA) as an important communication tool to strengthen this relationship. To this end, we formulated "KAITEKI Vision 30 (KV30)" and set the goal of evolving our sustainability management efforts from conventional LCA, which assesses the environmental impact of products, to a higher level of LCA, which assesses the entire value chain, including its impact on society. Sustainability Management</p> <p>[Action]<br/>In the Mitsubishi Chemical Holdings Group Product Stewardship Policy, we are committed to managing our products throughout their life cycle (development, procurement, production, distribution, sales, use, and disposal/recycling) in order to minimize the impact of our products on the natural environment. To promote communication with our business partners, we distribute CSR procurement guidelines and monitor their implementation.</p> <p>[Results]<br/>By continuing these efforts, we expect to realize the establishment of a model to solve environmental problems together with other stakeholders in the value chain by 2025.</p>        |
| Investment in R&D               | Evaluation in progress  | <p>With the ongoing transformation of business portfolios and the shift to solution businesses that enhance social value, it is necessary to create evaluation indicators that include these perspectives in judging the importance of R&amp;D and in making investment decisions. The importance of this has been recognized even through scenario analysis in order to fully realize the strengths of the opportunity, but until now we have not set such indicators. Currently, in order to achieve carbon neutrality with virtually zero GHG emissions by 2050, we are considering subsidies for R&amp;D and capital investment toward carbon neutrality (we expect to invest approximately 100 billion yen by 2030 to achieve the above carbon neutrality goal).</p>  |
| Operations                      | Yes   | <p>[Situation]<br/>According to the SDS scenario, carbon prices will double in 2025 from 2019 levels and increase 3-4 times in 2040 from 2019 levels.</p> <p>[Issue]<br/>Existing processes that emit a large amount of GHGs for manufacturing are identified by the scenario analysis as having significant financial risks associated with increased overhead costs, and the challenge is to reduce the carbon tax burden through GHG reductions. Therefore, we formulated "KAITEKI Vision 30 (KV30)" and set a goal to reduce our environmental impact by working on GHG reduction and effective utilization throughout the entire value chain as part of our sustainability management efforts.</p> <p>[Action]<br/>Specifically, we are promoting the improvement of logistics efficiency, including the optimization of product shape and packaging, such as increasing transportation lot size and modal shift to rail transportation, to reduce GHG emissions from logistics. In addition, to reduce GHG emissions from sales activities, we are actively introducing hybrid vehicles to our sales fleet.</p> <p>[Result]<br/>Through ongoing efforts to reduce GHG global emissions in our business activities, we expect to achieve a 29% reduction in GHG emissions in fiscal 2030 (compared to fiscal 2019),</p>   |

**C3.4**

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

|       | Financial planning elements that have been influenced | Description of influence  |
|-------|---|---|
| Row 1 | Revenues  | <p>[Status]<br/>Caused by regulation of charge for plastic shopping bags that began in the summer of 2020, the bioplastic market is expanding due to the growing demand to reduce the use of plastics against the backdrop of the 2018 Ocean Plastics Charter and other initiatives, as well as the increasing demand for environmental friendly plastics. We therefore see an opportunity to increase sales of through the sale of environmental friendly plastic products.</p> <p>[Issue]<br/>Based on the IEA 2DS, we reviewed various economic forecasts from the IEA and other sources for the year 2030 and analyzed risks based on current operations around the world (actual results for 2017). Based on the results of analysis, we formulated "KAITEKI Vision 30 (KV30)" and set a goal to contribute to the promotion of the circular economy through the development of technologies and business models for material and chemical recycling as a sustainability management initiative and the provision of bioplastics. So that our goal is to contribute to the promotion of the circular economy through the development of material recycling and chemical recycling technologies, business models, and the provision of bioplastics.</p> <p>[Actions]<br/>As an example, we are adding new functions to BioPBS™, an originating biodegradable plastic developed by our company that is characterized by its low impact on the natural environment, and we seek for expansion of its development.</p> <p>[Result]<br/>We will prioritize products that reduce GHG emissions throughout the value chain and products that reduce GHG emissions through carbon recycling as future "growth" businesses, with the goal of increasing share of these priority businesses in total sales from 25% in 2018 to 70% by 2030.</p> |

**C3.5**

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

Yes

### C3.5a

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(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.

**Financial Metric**

Revenue

**Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)**

12

**Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)**

**Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)**

**Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world**

Five materialities have been addressed in our new "APTSIS 25", known as mid-term management plan: reduced environmental impact, circular economy, life cycle assessment, community contribution, and biodiversity conservation. To specify issues of the target, we have set the goals of a 12% of revenue from sales of products that contribute to the circular economy and climate change. For our target in FY2025, a 15% reduction in GHG emissions is included compared to GHG emissions of FY 2013, a maintenance of the current level of COD emissions (approximately 1,600 tons) is also required, following a 100% progress in LCA activities, and a 50% reduction in final waste disposal compared to FY 2019.

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### C4. Targets and performance

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#### C4.1

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(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

#### C4.1a

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**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

**Target reference number**

Abs 1

**Year target was set**

2020

**Target coverage**

Company-wide

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Market-based

**Scope 3 category(ies)**

<Not Applicable>

**Base year**

2019

**Base year Scope 1 emissions covered by target (metric tons CO2e)**

8455000

**Base year Scope 2 emissions covered by target (metric tons CO2e)**

8174000

**Base year Scope 3 emissions covered by target (metric tons CO2e)**

<Not Applicable>

**Total base year emissions covered by target in all selected Scopes (metric tons CO2e)**

16629000

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

100

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

100

**Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

<Not Applicable>

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

100

**Target year**

2030

**Targeted reduction from base year (%)**

29

**Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]**

11806590

**Scope 1 emissions in reporting year covered by target (metric tons CO2e)**

7825000

**Scope 2 emissions in reporting year covered by target (metric tons CO2e)**

8110000

**Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

<Not Applicable>

**Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)**

15935000

**% of target achieved relative to base year [auto-calculated]**

14.3911446766243

**Target status in reporting year**

Underway

**Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

**Target ambition**

<Not Applicable>

**Please explain target coverage and identify any exclusions**

Target is Scope 1 + 2 emissions for all assessable MCHC operations within Japan. Unit: tCO2e/million yen.

**Plan for achieving target, and progress made to the end of the reporting year**

Based on the assumption of a decreasing CO2 emission coefficient resulting from the power source composition in each country and region (external factors) in FY2030, we will reduce global GHG emissions by 29% (compared to FY2019) by FY2030 through streamlining manufacturing processes and converting fuels for in-house power generation.

**List the emissions reduction initiatives which contributed most to achieving this target**

<Not Applicable>



## C4.2

---

### (C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)

## C4.2c

---

### (C4.2c) Provide details of your net-zero target(s).

#### Target reference number

NZ1

#### Target coverage

Company-wide

#### Absolute/intensity emission target(s) linked to this net-zero target

Abs1

#### Target year for achieving net zero

2050

#### Is this a science-based target?

No, but we anticipate setting one in the next 2 years

#### Please explain target coverage and identify any exclusions

Targets of continued rationalization of manufacturing processes, implementation of innovations such as the use of biomass fuel and CO<sub>2</sub> as feedstock, along with actions of carbon offsets through afforestation, a substantial zero GHG emissions are to be achieved by 2050. Conditions (external factors) through the initiatives of governments, institutions, and companies in each country including 1. CO<sub>2</sub>-free electricity supply 2. Establishment of a supply chain for hydrogen, ammonia, etc. and lower prices 3. Subsidies for R&D and capital investment for carbon neutrality, etc.

#### Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

#### Planned milestones and/or near-term investments for neutralization at target year

carbon offset

#### Planned actions to mitigate emissions beyond your value chain (optional)

Mitsubishi Chemical Corporation (Head Office: Chiyoda-ku, Tokyo; President: Masayuki Waga; hereinafter "MCC"), the main operating company of the MCC Group, has set the following goals and is working on its business and R&D activities with the aim of achieving carbon neutrality by 2050.

##### 1. reduction target of GHG emissions

MCC will set the following GHG emission reduction targets (Scope 1 and Scope 2) for the MCC Group by FY2030.

Global: 32% or more compared to FY 2019

Global: Reduction of 32% or more compared to FY 2019; Japan: Reduction of 43% or more compared to FY 2013

##### 2. reinforcement of efforts to achieve targets

###### (1) Implement energy conversion

Aim to shift away from coal-fired power generation by promoting the use of renewable energy, LNG, and other power generation sources with lower environmental impact at domestic offices and plants by FY2030.

###### 2) Introduce an internal carbon price system\*.

In order to achieve both GHG emission reductions and business growth, an internal carbon price system will be introduced in the first half of FY2022, which will evaluate not only Scope 1 and Scope 2 emissions, but also the contribution to reductions, and will be used as one of the indicators for capital investment decisions. In the future, the system will be expanded to include R&D investment decisions, and will also be used as an indicator for business portfolio strategy.

The system motivates emission reductions by setting a carbon price within the company and converting GHG emissions into a monetary value.

###### (3) Reinforcement of Life Cycle Assessment Implementation System

Establish a system to promptly calculate carbon footprint\* for all products produced at MCC's domestic offices and factories during the first half of FY2022. Accelerate efforts to reduce GHG emissions throughout the entire product chain by promoting digitization and education for employees and speedy calculation.

\*GHG emissions from raw materials to product manufacturing.

## C-OG4.2d

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(C-OG4.2d) Indicate which targets reported in C4.1a/b incorporate methane emissions, or if you do not have a methane-specific emissions reduction target for your oil and gas activities, please explain why not and forecast how your methane emissions will change over the next five years.

## C4.3

---

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

## C4.3a

---

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

|                           | Number of initiatives | Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *) |
|---------------------------|-----------------------|--|
| Under investigation       | 138                   |  |
| To be implemented*        | 140                   | 47000  |
| Implementation commenced* | 55                    | 51000  |
| Implemented*              | 74                    | 15000  |
| Not to be implemented     | 34                    |  |

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

**Initiative category & Initiative type**

|   |                               |
|---|-------------------------------|
| Energy efficiency in production processes | Machine/equipment replacement |
|---|-------------------------------|

**Estimated annual CO2e savings (metric tonnes CO2e)**

4800

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

120000000

**Investment required (unit currency – as specified in C0.4)**

4000000000

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

>30 years

**Comment**

Renewal of the power equipment such as air separator unit, pumps and blowers to high efficiency type, and reduced power purchased from outside (Scope 2). It is the cumulative total of 33 activities carried out on FY 2021.

**Initiative category & Initiative type**

|   |                      |
|---|----------------------|
| Energy efficiency in production processes | Process optimization |
|---|----------------------|

**Estimated annual CO2e savings (metric tonnes CO2e)**

4500

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

100000000

**Investment required (unit currency – as specified in C0.4)**

1800000000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Discover equipment bottlenecks and energy efficiency losses through process analysis and optimize operating conditions. Energy consumption per production volume required and GHG emissions can be minimized.

**Initiative category & Initiative type**

|   |                     |
|---|---------------------|
| Energy efficiency in production processes | Waste heat recovery |
|---|---------------------|

**Estimated annual CO2e savings (metric tonnes CO2e)**

5500

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

130000000

**Investment required (unit currency – as specified in C0.4)**

4500000000

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Improve heat transfer efficiency and strengthen heat recovery by remodeling equipment. Reduction of purchased steam (Scope 2) by that.

**Initiative category & Initiative type**

|                                |          |
|--------------------------------|----------|
| Energy efficiency in buildings | Lighting |
|--------------------------------|----------|

**Estimated annual CO2e savings (metric tonnes CO2e)**

200

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

15000000

**Investment required (unit currency – as specified in C0.4)**

70000000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Update factory lighting to LED lighting.

C4.3c

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

| Method                                      | Comment   |
|---|---|
| Dedicated budget for energy efficiency      | We considered various energy-saving projects for manufacturing plants, and determined which to invest in from business environment and cost-effectiveness points of view.                                       |
| Dedicated budget for low-carbon product R&D | We spent about 27.6 billion yen in FY2012 on R and D for Performance Products division including the development of low-GHG emission-related technologies such as LEDs, organic-PV, Li battery for HEV/EV, etc. |

C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?**

Yes

C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.**

**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

Other, please specify (Addressing the Avoided Emissions Challenge- Chemicals sector)

**Type of product(s) or service(s)**

|          |                  |
|----------|------------------|
| Lighting | Conventional LED |
|----------|------------------|

**Description of product(s) or service(s)**

LED substrates and phosphors for solid-state lighting are recognized as our low-carbon products. Reducing power consumption by replacing incandescent lamps commonly used in homes and offices could lead to a reduction in Scope2 emissions.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

Yes

**Methodology used to calculate avoided emissions**

Addressing the Avoided Emissions Challenge- Chemicals sector

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

Use stage

**Functional unit used**

Long life because of semiconductor, brightness equivalent to incandescent bulbs, and high efficiency lighting fixtures because they light up brighter with less power.

**Reference product/service or baseline scenario used**

It is based on incandescent lamps, which were most commonly produced before the promotion of LED substrates and phosphors.

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

Use stage

**Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario**

75

**Explain your calculation of avoided emissions, including any assumptions**

We compared the energy consumption of an incandescent bulb of equivalent brightness with that of an LED bulb, assuming that 100 bulbs were turned on for 8 hours a day, every day, for one year (365 days).

$0.036[\text{kWh}] \times 100 \text{ bulbs} \times 8 \text{ hours} \times 365 \text{ days} = 10512[\text{kWh}]$  for an incandescent bulb with 36W power consumption (Panasonic LW100V36W 40W type)

In the case of an LED bulb (Panasonic LDA6L-H-E17/BH/S\_3) with 6.4W power consumption,  $0.0064[\text{kWh}] \times 100 \text{ pieces} \times 8 \text{ hours} \times 365 \text{ days} = 18688[\text{kWh}]$ .

Taking these differences,  $10512[\text{kWh}] - 18688[\text{kWh}] = -8176[\text{kWh}]$

If all this electricity was generated by coal-fired power generation,  $\text{CO}_2 \text{ emissions would be } 0.867[\text{kg-CO}_2/\text{kWh}] \times 8176[\text{kWh}] = 7.088592 \text{ [tons-CO}_2\text{]}.$

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

1

C-OG4.6

**(C-OG4.6) Describe your organization's efforts to reduce methane emissions from your activities.**

C-OG4.7

**(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?**

C-OG4.8

**(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.**

C5. Emissions methodology

C5.1

**(C5.1) Is this your first year of reporting emissions data to CDP?**

No

C5.1a

**(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?**

**Row 1**

**Has there been a structural change?**

No

**Name of organization(s) acquired, divested from, or merged with**

<Not Applicable>

**Details of structural change(s), including completion dates**

<Not Applicable>

**C5.1b**

**(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?**

|       | Change(s) in methodology, boundary, and/or reporting year definition? | Details of methodology, boundary, and/or reporting year definition change(s) |
|-------|---|--|
| Row 1 | No  | <Not Applicable>   |

**C5.2**

**(C5.2) Provide your base year and base year emissions.**

**Scope 1**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

8455000

**Comment**

**Scope 2 (location-based)**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

8174000

**Comment**

**Scope 2 (market-based)**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

8174000

**Comment**

**Scope 3 category 1: Purchased goods and services**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

16440000

**Comment**

**Scope 3 category 2: Capital goods**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

660000

**Comment**

**Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

1900000

**Comment**

**Scope 3 category 4: Upstream transportation and distribution**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

880000

**Comment**

**Scope 3 category 5: Waste generated in operations**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

100000

**Comment**

**Scope 3 category 6: Business travel**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

80000

**Comment**

**Scope 3 category 7: Employee commuting**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

120000

**Comment**

**Scope 3 category 8: Upstream leased assets**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 9: Downstream transportation and distribution**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 10: Processing of sold products**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 11: Use of sold products**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

21630000

**Comment**

**Scope 3 category 12: End of life treatment of sold products**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

8570000

**Comment**

**Scope 3 category 13: Downstream leased assets**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 14: Franchises**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3 category 15: Investments**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

1440000

**Comment**

**Scope 3: Other (upstream)**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

**Scope 3: Other (downstream)**

**Base year start**

April 1 2019

**Base year end**

March 31 2020

**Base year emissions (metric tons CO2e)**

0

**Comment**

C5.3

---

**(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

Other, please specify (WBCSD :Guidance for Chemical sector)

C6. Emissions data

---

C6.1

---

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?**

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO2e)**

7825000

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

C6.2

---

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

C6.3

---



**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Reporting year**

**Scope 2, location-based**

8110000

**Scope 2, market-based (if applicable)**

8110000

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

This report covers globally. At present, the coverage rate is 97%, which is a limitation, but the effect is considered to be slight because it is largely restricted.

**C6.4**

---

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

**C6.4a**

---

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

**Source**

Several companies out of Japan.

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

The report covers the globe, and the coverage ratio is 97% at present. The effect is considered to be little, because it is almost covered.

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

**Explain how you estimated the percentage of emissions this excluded source represents**

**C6.5**

---

**(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

19750000

**Emissions calculation methodology**

Spend-based method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

The methodology used is based on "Corporate Value Chain (Scope 3) Accounting and Reporting Standard"(by GHG Protocol) and "Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain"(by WBCSD) (1)PURCHASE DATA: purchase data was collected in detail from MCC, monetary purchase data from MTPC and TNSC. MCC, MTPC and TNSC are our core operating companies. (2)EMISION FACTORS(EFs): For the quantity purchase data, EFs were chosen either from Database for CFP program in Japan or IDEA . For the monetary purchase data, EFs were taken from GLIO(global link input output model) EF database (3) CALCULATION: GHG emissions were calculated by multiplying appropriate EFs to each purchased amounts of good or service (volume or monetary).

## Capital goods

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

700000

### Emissions calculation methodology

Spend-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Total capital investment by MCHC Gr in FY 2016 was obtained from in-house financial data. GHG emission was calculated by multiplying the EF for capital investment of chemical industry sector (#06-0000). The EF was chosen from GLIO(global link input output model) EF database.

## Fuel-and-energy-related activities (not included in Scope 1 or 2)

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

2530000

### Emissions calculation methodology

Fuel-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

The methodology used is based on "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" (by GHG Protocol). We calculated emissions resulting from (A) upstream emissions of purchased fuels, (B) upstream emissions of purchased electricity and steam. Transmission and distribution (T&D) losses (C) were not included for energy purchased in Japan, because they have been included in the calculation in Scope 2. The upstream EFs of fuel, electricity and steam were those which built for the CFP program in Japan, except the electricity purchased at the facilities outside Japan. For the electricity purchased at the other facilities outside Japan, the EFs (Fuel composition and T&D losses) were calculated using the EFs for T&D losses in Technical Paper : Electricity-specific emission factors for grid electricity (Brander A. et.al., Ecometrica (2011)).

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

290000

### Emissions calculation methodology

Spend-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Most of our downstream transportation inside Japan were paid by our group companies, therefore we report it in Category 4. The methodology used is based on "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" (by GHG Protocol). We calculated emissions listed below, because their contribution was dominant; 1) import of huge amounts (>50000 ton/y) such as coal, olefines to Japan. In case EFs of the goods include transportation such as naphtha, we did not counted it. 2) export of coke and the petrochemical products from Japan (products sold) 3) distribution of both the materials purchased and the products sold by MCHC inside Japan. The emission was calculated according to the procedure below; 1) The trade of listed above was grasped in terms of their quantities and where they were imported from or exported to. 2) The data for the transport distances and the emission factors of marine transportation were those that were collected for the CFP program in Japan. 3) The emission caused by the distribution inside Japan was calculated by following 'Act on Promotion of Global Warming Counter measures'.

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

80000

### Emissions calculation methodology

Waste-type-specific method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

The methodology used is based on "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" (by GHG Protocol). We calculated emissions from the whole in-house waste generated from Mitsubishi Chemical Holdings group (MCHCGr), the amount of which is monitored in Environmental Performance Database. The upstream EFs for inclination ,landfill and recycle of waste were the database built for the CFP program in Japan.

## Business travel

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO2e)

20000

### Emissions calculation methodology

Spend-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

Because we did not collect the accurate cost data, we assumed 1% of FY2016 total revenue for this cost. (This is thought to be rather over-estimation) The EF was that for 'rail passenger service' in EF database, Embedded Energy and Emission Intensity Data for Japan Using Input-Output Tables (3EID).

## Employee commuting

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO2e)

120000

### Emissions calculation methodology

Spend-based method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

The domestic residential areas of the employees working for 17 major facilities (coverage 32% of Japanese workers) were prefectural segmented. Their average transportation means and distance were estimated from the commuting practice survey result in the Japanese national census. For GHG calculation emitted from commuting by public transportations, EFs from the database for CFP program were adopted. For GHG emissions from driving commuters, both gasoline mileage data and drive distance data supplied by Ministry of Land, Infrastructure, Transport and Tourism were multiplied by gasoline EF from the database for CFP program. The working days were 240 days per year. The whole GHG emission from commuting was estimated by extrapolating that result. While foreign areas, we took 100% car commuting, average distance 30km/trip, 440 trips/employee/Y, and EF 230g-CO2e/km according to "Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, Category 7 :Employee Commuting". The number of domestic / foreign employees were from MCHC's annual report of FY2016. The composition of employee was about 2/3 in Japan and 1/3 outside of Japan.

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO2e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

The expense to leased asset is less than 0.1% of our sales and it is not relevant for us. For this reason, we did not evaluate this category.

## Downstream transportation and distribution

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO2e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

Most of our downstream transportation inside Japan are performed by our group companies and reported in Category 4. We do not calculate our emissions from downstream transportation from our overseas business but since their share of our overseas sales is around 40% and our upstream transportation emissions (category 4) constitute less than 2% of our total scope 3 emissions, we have assessed this category as not relevant.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

As stated in the guidance for the chemical sector issued by WBCSD (Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain), chemical companies are not required to report scope 3, category 10 emissions, since reliable figures are difficult to obtain due to the diverse application and customer structure.

## Use of sold products

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

18640000

### Emissions calculation methodology

Methodology for direct use phase emissions, please specify (Multiplied through different emission factors in accordance to energy type)

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

We counted fuels sale such as cokes, COG gas, and propane for the first category. Emission factors of those fuels were multiplied. We also estimated the electricity consumption of air separation units (ASU) and dry ice (both TNSC, our core operating company) for the second category. For ASUs, their lifetime was assumed as 15 years and the total electricity consumption was counted for GHG emission.

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

10240000

### Emissions calculation methodology

Waste-type-specific method

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

### Please explain

The methodology used is based on "Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain" by WBCSD. (1) PRODUCTS: Calculations were based on the total carbon content of petrochemical products sold either domestically or to overseas. (2) SCENARIO: As for end-of-life treatment, we made two scenarios: 1. End-of-life scenario in Japan: Polymers; 22% recycle, 10% landfill, 68% incineration based on the data provided by Plastic waste Management Institute. Other Chemicals; it was estimated that 40% of them was emitted as VOC and 60% was incinerated. 2. End-of-life scenario except Japan: 80% landfill and 20% incinerated according to WBCSD guideline. (3) EF: we assume for landfill, that 50% of the contained carbon is converted into CO<sub>2</sub> (GWP=1) and 50% into methane (GWP=25), unless the sold product is a durable plastic, in which case the default factor is zero. Carbon contents was assumed to 80% when no data available.

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Emissions in reporting year (metric tons CO<sub>2</sub>e)

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

### Please explain

The attribution of leased asset in total asset of MCHC is less than 0.2% and it is not relevant for us.

**Franchises**

**Evaluation status**

Not relevant, explanation provided

**Emissions in reporting year (metric tons CO2e)**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

As MCHC has no franchises business, this category is not applicable.

**Investments**

**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

1470000

**Emissions calculation methodology**

Investment-specific method

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

98

**Please explain**

GHG emission data of each company that MCHC gr is investing was collected from the parent company. Total GHG emission from investment was calculated summing up all collected GHG emission data after multiplied by investment rates.

**Other (upstream)**

**Evaluation status**

**Emissions in reporting year (metric tons CO2e)**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

**Other (downstream)**

**Evaluation status**

**Emissions in reporting year (metric tons CO2e)**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

**Please explain**

C6.7

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**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

Yes

C6.7a

---

**(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.**

|       | CO2 emissions from biogenic carbon (metric tons CO2) | Comment |
|-------|--|---------|
| Row 1 | 60000  |         |

C6.10

---

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

0.000004

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

15936000

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

397700000000

**Scope 2 figure used**

Market-based

**% change from previous year**

15

**Direction of change**

Decreased

**Reason for change**

Although our GHG emissions in FY2021 increased due to expanded coverage from the acquisition of a European company by our core operating company, Sanso Holdings Japan Ltd, total emission were reduced by an initiative of promoting energy efficiency in the production process as our main emission reduction activity. Emissions intensity was reduced by 15% from a increased revenue due to the recovery of business performance from COVID-19.

**C-OG6.12**

**(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.**

**C-OG6.13**

**(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.**

**C7. Emissions breakdowns**

**C7.1**

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

**C7.1a**

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

| Greenhouse gas | Scope 1 emissions (metric tons of CO2e) | GWP Reference                                  |
|----------------|---|--|
| CO2            | 7700000                                 | IPCC Second Assessment Report (SAR - 100 year) |
| N2O            | 84400                                   | IPCC Second Assessment Report (SAR - 100 year) |
| CH4            | 19400                                   | IPCC Second Assessment Report (SAR - 100 year) |
| HFCs           | 22200                                   | IPCC Second Assessment Report (SAR - 100 year) |
| SF6            | 1600                                    | IPCC Second Assessment Report (SAR - 100 year) |
| PFCs           | 200                                     | IPCC Second Assessment Report (SAR - 100 year) |

**C-OG7.1b**

**(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.**

**C7.2**

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

| Country/Region                            | Scope 1 emissions (metric tons CO2e) |
|---|--------------------------------------|
| Japan                                     | 5796000                              |
| China                                     | 127000                               |
| North America                             | 1248000                              |
| Europe                                    | 267000                               |
| Asia, Australasia, Middle East and Africa | 388000                               |

**C7.3**

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By business division

**C7.3a**

**(C7.3a) Break down your total gross global Scope 1 emissions by business division.**

| Business division | Scope 1 emissions (metric ton CO2e) |
|-------------------|-------------------------------------|
| Chemicals         | 5705000                             |
| Industrial gas    | 975000                              |
| Health care       | 33000                               |
| Coke              | 1111000                             |

**C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4**

**(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

|  | Gross Scope 1 emissions, metric tons CO2e | Net Scope 1 emissions , metric tons CO2e | Comment          |
|--|---|--|------------------|
| Cement production activities                   | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Chemicals production activities                | 6680000                                   | <Not Applicable>                         |                  |
| Coal production activities                     | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Electric utility activities                    | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Metals and mining production activities        | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Oil and gas production activities (upstream)   | 0   | <Not Applicable>                         |                  |
| Oil and gas production activities (midstream)  | 0   | <Not Applicable>                         |                  |
| Oil and gas production activities (downstream) | 0   | <Not Applicable>                         |                  |
| Steel production activities                    | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Transport OEM activities                       | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |
| Transport services activities                  | <Not Applicable>                          | <Not Applicable>                         | <Not Applicable> |

**C7.5**

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

| Country/Region   | Scope 2, location-based (metric tons CO2e) | Scope 2, market-based (metric tons CO2e) |
|--|--|--|
| Japan  | 4587000                                    | 4587000                                  |
| China  | 279000                                     | 279000                                   |
| North America  | 1357000                                    | 1357000                                  |
| Europe   | 899000                                     | 899000                                   |
| Other, please specify (Asia, Australasia, Middle East and Afric) | 988000                                     | 988000                                   |

**C7.6**

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By business division

**C7.6a**

**(C7.6a) Break down your total gross global Scope 2 emissions by business division.**

| Business division | Scope 2, location-based (metric tons CO2e) | Scope 2, market-based (metric tons CO2e) |
|-------------------|--|--|
| Chemicals         | 2922000                                    | 2922000                                  |
| Industrial Gas    | 4780000                                    | 4780000                                  |
| Health Care       | 52000                                      | 52000                                    |
| Coke              | 355000                                     | 355000                                   |

**C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7**

**(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.**

|  | Scope 2, location-based, metric tons CO2e | Scope 2, market-based (if applicable), metric tons CO2e | Comment          |
|--|---|---|------------------|
| Cement production activities                   | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |
| Chemicals production activities                | 7702000                                   | 7702000   |                  |
| Coal production activities                     | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |
| Metals and mining production activities        | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |
| Oil and gas production activities (upstream)   | 0   | 0   |                  |
| Oil and gas production activities (midstream)  | 0   | 0   |                  |
| Oil and gas production activities (downstream) | 0   | 0   |                  |
| Steel production activities                    | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |
| Transport OEM activities                       | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |
| Transport services activities                  | <Not Applicable>                          | <Not Applicable>  | <Not Applicable> |

**C-CH7.8**

**(C-CH7.8) Disclose the percentage of your organization’s Scope 3, Category 1 emissions by purchased chemical feedstock.**

| Purchased feedstock                          | Percentage of Scope 3, Category 1 tCO2e from purchased feedstock | Explain calculation methodology  |
|--|--|--|
| High Value Chemicals (Steam cracking)        | 5.2  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Aromatics extraction                         | 6.6  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Butadiene (C4 sep.)                          | 3.3  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Other (please specify) (Acetone)             | 4.1  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Naphtha                                      | 7.2  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Methanol                                     | 2.2  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Other (please specify) (Terephthalic Acid)   | 1.2  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Other (please specify) (Butyl Alcohol)       | 0.8  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Other (please specify) (Hydrogen Cyanide)    | 1.6  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Other (please specify) (Polycarbonate resin) | 1.8  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |
| Coal   | 6.4  | Emission Factor is chosen either from Database for CFP program in Japan or IDEA. |

**C-CH7.8a**

**(C-CH7.8a) Disclose sales of products that are greenhouse gases.**

|                            | Sales, metric tons | Comment |
|----------------------------|--------------------|---------|
| Carbon dioxide (CO2)       | 446000             |         |
| Methane (CH4)              | 0                  |         |
| Nitrous oxide (N2O)        | 0                  |         |
| Hydrofluorocarbons (HFC)   | 0                  |         |
| Perfluorocarbons (PFC)     | 0                  |         |
| Sulphur hexafluoride (SF6) | 0                  |         |
| Nitrogen trifluoride (NF3) | 0                  |         |

**C7.9**

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**  
Increased



C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

|   | Change in emissions (metric tons CO2e) | Direction of change | Emissions value (percentage) | Please explain calculation  |
|---|--|---------------------|------------------------------|---|
| Change in renewable energy consumption  | 0                                      | No change           | 0                            | There was no significant increase or decrease in the use of renewable energy compared to the previous year. $0/15325 \times 100 = 0\%$  |
| Other emissions reduction activities    | 15000                                  | Decreased           | 0.1                          | GHG emissions reductions through our emissions reduction activities totalled 15,000t (details are shown in CC4.3a & b). Scope 1 and 2 emissions in FY2020 totalled 15.33 million tonnes. Reduction ratio is calculated as $15,000/15,325,000 = 0.1\%$ . The main reductions activities includes; -Discovering equipment bottlenecks and energy efficiency losses through process analysis and optimize operating conditions. - Replacing power equipment such as air separator unit, pumps and blowers to high efficiency type, and reducing purchased electricity. |
| Divestment                              |  | <Not Applicable >   |                              |   |
| Acquisitions                            |  | <Not Applicable >   |                              |   |
| Mergers                                 |  | <Not Applicable >   |                              |   |
| Change in output                        |  | <Not Applicable >   |                              |   |
| Change in methodology                   |  | <Not Applicable >   |                              |   |
| Change in boundary                      |  | <Not Applicable >   |                              |   |
| Change in physical operating conditions |  | <Not Applicable >   |                              |   |
| Unidentified                            |  | <Not Applicable >   |                              |   |
| Other                                   |  | <Not Applicable >   |                              |   |

C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based

C8. Energy

C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 5% but less than or equal to 10%

C8.2

**(C8.2) Select which energy-related activities your organization has undertaken.**

|  | Indicate whether your organization undertook this energy-related activity in the reporting year |
|--|---|
| Consumption of fuel (excluding feedstocks)         | Yes   |
| Consumption of purchased or acquired electricity   | Yes   |
| Consumption of purchased or acquired heat          | Yes   |
| Consumption of purchased or acquired steam         | Yes   |
| Consumption of purchased or acquired cooling       | Yes   |
| Generation of electricity, heat, steam, or cooling | Yes   |

C8.2a

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

|   | Heating value              | MWh from renewable sources | MWh from non-renewable sources | Total (renewable and non-renewable) MWh |
|---|----------------------------|----------------------------|--------------------------------|---|
| Consumption of fuel (excluding feedstock)               | HHV (higher heating value) | 351000                     | 28735000                       | 29086000                                |
| Consumption of purchased or acquired electricity        | <Not Applicable>           | 0                          | 14685000                       | 14685000                                |
| Consumption of purchased or acquired heat               | <Not Applicable>           | 0                          | 1700                           | 1700                                    |
| Consumption of purchased or acquired steam              | <Not Applicable>           | 0                          | 4903000                        | 4903000                                 |
| Consumption of purchased or acquired cooling            | <Not Applicable>           | 0                          | 95000                          | 95000                                   |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable>           | 65000                      | <Not Applicable>               | 65000                                   |
| Total energy consumption                                | <Not Applicable>           | 416000                     | 48419700                       | 48835700                                |

C-CH8.2a

**(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.**

**Consumption of fuel (excluding feedstocks)**

**Heating value**

HHV (higher heating value)

**MWh consumed from renewable sources inside chemical sector boundary**

280000

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

13302000

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

9700000

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

23282000

**Consumption of purchased or acquired electricity**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

0

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

14070000

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

0

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

14070000

**Consumption of purchased or acquired heat**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

0

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

1700

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

0

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

1700

**Consumption of purchased or acquired steam**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

0

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

4321000

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

0

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

4321000

**Consumption of purchased or acquired cooling**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

0

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

95000

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

0

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

95000

**Consumption of self-generated non-fuel renewable energy**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

65000

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

65000

**Total energy consumption**

**Heating value**

<Not Applicable>

**MWh consumed from renewable sources inside chemical sector boundary**

345000

**MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)**

31789700

**MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary**

9700000

**Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary**

41834700

**C8.2b**

**(C8.2b) Select the applications of your organization's consumption of fuel.**

|   | Indicate whether your organization undertakes this fuel application |
|---|---|
| Consumption of fuel for the generation of electricity   | No  |
| Consumption of fuel for the generation of heat          | Yes   |
| Consumption of fuel for the generation of steam         | Yes   |
| Consumption of fuel for the generation of cooling       | Yes   |
| Consumption of fuel for co-generation or tri-generation | Yes   |

**C8.2c**

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

**Sustainable biomass**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

0

**Comment**

**Other biomass**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

0

**Comment**

**Other renewable fuels (e.g. renewable hydrogen)**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

0

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

0

**Comment**

**Coal**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

3591000

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

3591000

**Comment**

**Oil**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

3264000

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

104000

**MWh fuel consumed for self-generation of steam**

538000

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

2621000

**Comment**

**Gas**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

7423000

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

1567000

**MWh fuel consumed for self-generation of steam**

5856000

**MWh fuel consumed for self-generation of cooling**

0

**MWh fuel consumed for self- cogeneration or self-trigeneration**

0

**Comment**

**Other non-renewable fuels (e.g. non-renewable hydrogen)**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

14264000

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

12648000

**MWh fuel consumed for self-generation of steam**

761000

**MWh fuel consumed for self-generation of cooling**

141000

**MWh fuel consumed for self- cogeneration or self-trigeneration**

713000

**Comment**

**Total fuel**

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

28542000

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

14319000

**MWh fuel consumed for self-generation of steam**

7155000

**MWh fuel consumed for self-generation of cooling**

141000

**MWh fuel consumed for self- cogeneration or self-trigeneration**

6925000

**Comment**

**C8.2d**

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

|             | Total Gross generation (MWh) | Generation that is consumed by the organization (MWh) | Gross generation from renewable sources (MWh) | Generation from renewable sources that is consumed by the organization (MWh) |
|-------------|------------------------------|---|---|--|
| Electricity | 2041000                      | 1473000   | 65000   | 65000  |
| Heat        | 14034000                     | 14034000  | 0   | 0  |
| Steam       | 10419000                     | 9394000   | 171000  | 171000   |
| Cooling     | 107000                       | 107000  | 0   | 0  |

**C-CH8.2d**

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

#### Electricity

Total gross generation inside chemicals sector boundary (MWh)

2041000

Generation that is consumed inside chemicals sector boundary (MWh)

1473000

Generation from renewable sources inside chemical sector boundary (MWh)

65000

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

#### Heat

Total gross generation inside chemicals sector boundary (MWh)

8420000

Generation that is consumed inside chemicals sector boundary (MWh)

8420000

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

7437000

#### Steam

Total gross generation inside chemicals sector boundary (MWh)

10315000

Generation that is consumed inside chemicals sector boundary (MWh)

9290000

Generation from renewable sources inside chemical sector boundary (MWh)

170000

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

988000

#### Cooling

Total gross generation inside chemicals sector boundary (MWh)

107000

Generation that is consumed inside chemicals sector boundary (MWh)

107000

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

### C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

#### Sourcing method

Purchase from an on-site installation owned by a third party

#### Energy carrier

Electricity

#### Low-carbon technology type

Wind

#### Country/area of low-carbon energy consumption

Netherlands

#### Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

116000

Country/area of origin (generation) of the low-carbon energy or energy attribute

France

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2008

#### Comment

C8.2g

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(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

**Country/area**

Japan

**Consumption of electricity (MWh)**

6702000

**Consumption of heat, steam, and cooling (MWh)**

3523000

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

10225000

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

**Country/area**

China

**Consumption of electricity (MWh)**

317000

**Consumption of heat, steam, and cooling (MWh)**

191000

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

508000

**Is this consumption excluded from your RE100 commitment?**

<Not Applicable>

---

C-CH8.3

---

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

Yes

C-CH8.3a

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**(C-CH8.3a) Disclose details on your organization’s consumption of fuels as feedstocks for chemical production activities.**

**Fuels used as feedstocks**

Coal

**Total consumption**

6330

**Total consumption unit**

thousand metric tons

**Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit**

2330

**Heating value of feedstock, MWh per consumption unit**

7139

**Heating value**

HHV

**Comment**

**Fuels used as feedstocks**

Naphtha

**Total consumption**

4150

**Total consumption unit**

million liters

**Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit**

2240

**Heating value of feedstock, MWh per consumption unit**

9333

**Heating value**

HHV

**Comment**

**Fuels used as feedstocks**

Natural gas

**Total consumption**

34

**Total consumption unit**

thousand metric tons

**Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit**

2700

**Heating value of feedstock, MWh per consumption unit**

15167

**Heating value**

HHV

**Comment**

**C-CH8.3b**

**(C-CH8.3b) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.**

|  | Percentage of total chemical feedstock (%) |
|--|--|
| Oil  | 39.5                                       |
| Natural Gas  | 0.3  |
| Coal   | 60.2                                       |
| Biomass  | 0  |
| Waste (non-biomass)  | 0  |
| Fossil fuel (where coal, gas, oil cannot be distinguished) | 0  |
| Unknown source or unable to disaggregate                   | 0  |

**C9. Additional metrics**

**C9.1**

---

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

**Description**

Energy usage

**Metric value**

2075000

**Metric numerator**

Energy consumption (crude oil equivalent)

**Metric denominator (intensity metric only)**

Production volume index corrected for energy load

**% change from previous year**

2.9

**Direction of change**

Decreased

**Please explain**

The boundary of this target is manufacturing sites of chemical and functional chemical segments in Japan, and this covers about 65% of our total energy consumption. We aim to improve energy efficiency by 1% annually. In FY2021, energy use did not change significantly, but production exceeded projections due to increased production as a result of the recovery from COVID-19.

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C-CH9.3a

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**(C-CH9.3a) Provide details on your organization's chemical products.**

**Output product**

Other, please specify (nitrogen gas)

**Production (metric tons)**

3579741000

**Capacity (metric tons)**

3579741000

**Direct emissions intensity (metric tons CO2e per metric ton of product)**

0

**Electricity intensity (MWh per metric ton of product)**

0.31

**Steam intensity (MWh per metric ton of product)**

0

**Steam/ heat recovered (MWh per metric ton of product)**

0

**Comment**

"Production volume: (Nm3), production capacity: (Nm3/h), electricity intensity: relative evaluation with LN intensity as 1 N2 (including gas, domestic and some non-affiliated subsidiaries); CO2 emission intensity is answered as "0" because it cannot be disclosed for strategic reasons. Products Produced."

---

**Output product**

Other, please specify (liquid nitrogen)

**Production (metric tons)**

479377000

**Capacity (metric tons)**

479377000

**Direct emissions intensity (metric tons CO2e per metric ton of product)**

0

**Electricity intensity (MWh per metric ton of product)**

1

**Steam intensity (MWh per metric ton of product)**

0

**Steam/ heat recovered (MWh per metric ton of product)**

0

**Comment**

"Production volume: (Nm3), production capacity: (Nm3/h), electricity intensity: relative to LN intensity as 1 N2 (including liquid, domestic, and some non-affiliated subsidiaries); CO2 emissions intensity is answered as ""0"" because it cannot be disclosed for strategic reasons."

---

**Output product**

Other, please specify (oxygen gas)

**Production (metric tons)**

3264445000

---

**Capacity (metric tons)**

3264445000

**Direct emissions intensity (metric tons CO2e per metric ton of product)**

0

**Electricity intensity (MWh per metric ton of product)**

0.34

**Steam intensity (MWh per metric ton of product)**

0

**Steam/ heat recovered (MWh per metric ton of product)**

0

**Comment**

Production volume: (Nm3), production capacity: (Nm3/h), electricity intensity: relative to LN intensity as 1  
 O2 (gas, domestic, including some non-affiliated subsidiaries); CO2 emissions intensity is answered as "0" because it cannot be disclosed for strategic reasons.

**Output product**

Other, please specify (liquid nitrogen)

**Production (metric tons)**

144172000

**Capacity (metric tons)**

144172000

**Direct emissions intensity (metric tons CO2e per metric ton of product)**

0

**Electricity intensity (MWh per metric ton of product)**

1.1

**Steam intensity (MWh per metric ton of product)**

0

**Steam/ heat recovered (MWh per metric ton of product)**

0

**Comment**

"Production volume: (Nm3), production capacity: (Nm3/h), electricity intensity: relative to LN intensity as 1

O2 (including liquid, domestic, and some non-affiliated subsidiaries); CO2 emissions intensity is answered as ""0"" because it cannot be disclosed for strategic reasons."

**Output product**

Other, please specify (Gas argon + liquefied argon)

**Production (metric tons)**

90522000

**Capacity (metric tons)**

90522000

**Direct emissions intensity (metric tons CO2e per metric ton of product)**

0

**Electricity intensity (MWh per metric ton of product)**

1.98

**Steam intensity (MWh per metric ton of product)**

0

**Steam/ heat recovered (MWh per metric ton of product)**

0

**Comment**

"Production volume: (Nm3), production capacity: (Nm3/h), electricity intensity: relative to LN intensity as 1

Ar (including liquids and gases, domestic and some non-affiliated subsidiaries); CO2 emissions intensity is answered as ""0"" because it cannot be disclosed for strategic reasons."

## C-OG9.3e

(C-OG9.3e) Please disclose your chemicals production in the reporting year in thousand metric tons.

| Product | Production, Thousand metric tons | Capacity, Thousand metric tons |
|---------|----------------------------------|--------------------------------|
|---------|----------------------------------|--------------------------------|

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

|       | Investment in low-carbon R&D | Comment  |
|-------|------------------------------|--|
| Row 1 | Yes                          | We are studying the technology of making chemicals from water and carbon dioxide by utilizing artificially created photosynthesis (artificial photosynthesis), and we plan to commercialize it around 2030. We are researching and developing technologies that can produce plastics and rubber without relying on fossil resources and reduce carbon dioxide. |

### C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

| Technology area     | Stage of development in the reporting year | Average % of total R&D investment over the last 3 years | R&D investment figure in the reporting year (optional) | Comment   |
|---------------------|--|---|--|---|
| Waste heat recovery | Large scale commercial deployment          | ≤20%  | 280000000  | Energy-saving investment mainly for waste heat recovery is recognized as low-carbon in our company, and is managed separately from other capital investments. However, the payback period and return on capital are not too different from other capital investments. As for R&D investment, at this point there is no clear category for developing products and processes to promote low carbon, but by 2020 we are considering setting up an R&D framework for low carbon promotion. |

### C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

| Technology area | Stage of development in the reporting year | Average % of total R&D investment over the last 3 years | R&D investment figure in the reporting year (optional) | Comment |
|-----------------|--|---|--|---------|
|-----------------|--|---|--|---------|

### C10. Verification

#### C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

|  | Verification/assurance status                          |
|--|--|
| Scope 1                                  | Third-party verification or assurance process in place |
| Scope 2 (location-based or market-based) | Third-party verification or assurance process in place |
| Scope 3                                  | Third-party verification or assurance process in place |

#### C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/ section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

## C10.1b

---

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

**Scope 2 approach**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/ section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

## C10.1c

---

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

**Scope 3 category**

Scope 3: Purchased goods and services

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Capital goods

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

---

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Upstream transportation and distribution

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Waste generated in operations

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**

p.6 Third Party Guarantees

**Relevant standard**

ISAE 3410

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Business travel

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

data2020.pdf

data2020.pdf

**Page/section reference**  
p.6 Third Party Guarantees

**Relevant standard**  
ISAE 3410

**Proportion of reported emissions verified (%)**  
100

---

**Scope 3 category**  
Scope 3: Employee commuting

**Verification or assurance cycle in place**  
Annual process

**Status in the current reporting year**  
Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**  
Limited assurance

**Attach the statement**  
data2020.pdf  
data2020.pdf

**Page/section reference**  
p.6 Third Party Guarantees

**Relevant standard**  
ISAE 3410

**Proportion of reported emissions verified (%)**  
100

---

**Scope 3 category**  
Scope 3: Downstream transportation and distribution

**Verification or assurance cycle in place**  
Annual process

**Status in the current reporting year**  
Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**  
Limited assurance

**Attach the statement**  
data2020.pdf  
data2020.pdf

**Page/section reference**  
p.6 Third Party Guarantees

**Relevant standard**  
ISAE 3410

**Proportion of reported emissions verified (%)**  
100

---

**Scope 3 category**  
Scope 3: End-of-life treatment of sold products

**Verification or assurance cycle in place**  
Annual process

**Status in the current reporting year**  
Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**  
Limited assurance

**Attach the statement**  
data2020.pdf  
data2020.pdf

**Page/section reference**  
p.6 Third Party Guarantees

**Relevant standard**  
ISAE 3410

**Proportion of reported emissions verified (%)**  
100

---

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

## C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

| Disclosure module verification relates to | Data verified                                    | Verification standard | Please explain                                      |
|---|--|-----------------------|---|
| C5. Emissions performance                 | Year on year change in emissions (Scope 1 and 2) | ISAE3000/ISAE3410     | page.1 Environmental Data data2020.pdf data2020.pdf |
| C5. Emissions performance                 | Year on year change in emissions (Scope 3)       | ISAE3000/ISAE3410     | page.1 Environmental Data data2020.pdf data2020.pdf |

## C11. Carbon pricing

### C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

### C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Japan carbon tax

### C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

#### Japan carbon tax

**Period start date**

April 1 2021

**Period end date**

March 31 2022

**% of total Scope 1 emissions covered by tax**

40

**Total cost of tax paid**

10000000

**Comment**

### C11.1d



**(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

[Status]

MCHC is currently regulated by a global warming tax (carbon tax), but because the carbon tax rate is not very high, the financial impact of the carbon tax in Japan is limited. However, as regulations regarding global warming become stricter in the future, the tax rate is expected to increase and the scope of taxation is expected to expand. Under the scenario of stricter regulations based on the 2DS of the Paris Agreement, the carbon price will rise to about double the 2019 level in 2025 and 3 to 4 times the 2019 level in 2040. Based on this, we analyzed Japan's energy-intensive businesses (petrochemicals and industrial gases) to identify potential business and financial risks.

[Issue]

As a result, we recognized that existing processes that currently emit large amounts of GHGs for manufacturing have significant financial risks associated with increased overhead costs through scenario analysis, and that the challenge is to reduce the carbon tax burden through GHG reductions. Therefore, we formulated "KAITEKI Vision 30 (KV30)" and set a goal to reduce our environmental impact by working on GHG reduction and effective utilization throughout the entire value chain as part of our sustainability management efforts.

[Action]

Specifically, we are promoting the improvement of logistics efficiency, including the optimization of product shape and packaging, such as increasing transportation lot size and modal shift to rail transportation, to reduce GHG emissions associated with logistics. In addition, to reduce GHG emissions from sales activities, we are actively introducing hybrid vehicles as our company car.

<Reduction of Greenhouse Gas Emissions | Coexistence with the Environment | Sustainability | Mitsubishi Chemical Holdings Corporation (mitsubishichem-hd.co.jp)>

[Results]

Through continued efforts to reduce GHG emissions in our business activities, we expect to achieve a 26% reduction in GHG emissions in Japan in fiscal 2030 (compared to fiscal 2013). We also intend to reduce our financial impact by continuing to examine strategies to address global warming.

**C11.2**

---

**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

**C11.3**

---

**(C11.3) Does your organization use an internal price on carbon?**

No, but we anticipate doing so in the next two years

**C12. Engagement**

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**C12.1**

---

**(C12.1) Do you engage with your value chain on climate-related issues?**

- Yes, our suppliers
- Yes, our customers/clients
- Yes, other partners in the value chain

**C12.1a**

---

**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

100

**% total procurement spend (direct and indirect)**

100

**% of supplier-related Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

[Rationale for Coverage] Within our procurement and purchasing process, our group works out issue of social responsibilities including environmental issues such as climate change, by taking the entire supply chain into consideration. All suppliers is required to engage in CSR procurement, therefore all suppliers are covered in this engagement.

[details of engagement] Our group conducts sustainable purchasing and procurement activities, giving full consideration to resource protection, environmental conservation, safety, human rights, etc., by taking awareness in corporate social responsibility. Among these, in addition to providing products and services with positive environmental impact, we will focus on reducing environmental impact and protection of the environment including ecosystems in our operations. We set voluntary targets for resource and energy conservation, along with targets of greenhouse gas reduction activities, which requires us to set voluntary reduction targets, formulate our plans, and ensure that they are implemented. Through making effective use of these targets on an ongoing basis, thereby we are promoting the effective use of resources and energy throughout the supply chain and the reduction of waste.

**Impact of engagement, including measures of success**

[Description of impact, including sectoral, regional, and operational context] Based on the basic recognition that the foundation of our corporate activities is the trust of society, we are aware of our corporate social responsibility and aim to build better relationships among people, society, and the global environment through our respective businesses. We intend to gradually provide feedback on the survey to our suppliers, and for those suppliers who meet our criteria, we will visit them on site to further build a relationship of trust through dialogue. In order to regularly compile results on climate change issues, it is necessary to have an organization and a person responsible for environmental conservation activities, and to continuously record management indicators of environmental conservation activities, achievement of targets, and other important environment-related matters. Suppliers are requested to minimize environmental impacts by setting voluntary standards as necessary, in addition to complying with laws and regulations, and we will continue to encourage all suppliers in the supply chain to actively disclose information on the status and results of their environmental conservation activities.

[Criteria for evaluating success, including thresholds] For CSR procurement, we conduct surveys of our suppliers, and we have set a target of 100% collection rate for CSR surveys.

**Comment**

---

**Type of engagement**

Innovation & collaboration (changing markets)

**Details of engagement**

Run a campaign to encourage innovation to reduce climate impacts on products and services

**% of suppliers by number**

1

**% total procurement spend (direct and indirect)**

1

**% of supplier-related Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

[Rationale for Coverage] The scope of the engagement covers Toyota Tsusho Corporation. The rationale is that they are collaborating to commercialize bio-based feedstock products for a sustainable, recycling-oriented society. On March 14, 2022, Mitsubishi Chemical Corporation and Toyota Tsusho Corporation ("Toyota Tsusho") started discussions on the commercialization with the aim of starting production and sales of ethylene, propylene and their derivatives from bioethanol in fiscal 2025. The study is to produce 100% plant-derived ethylene ("bio-ethylene") and its derivatives from bioethanol, and to produce Japan's first plant-derived propylene ("bio-propylene") and its derivatives using bio-ethylene as feedstock. There is a growing need for the reuse and recycling of plastics in order to realize a sustainable, recycling-oriented society. In addition, there are strong expectations for the use of plant-derived raw materials to achieve sustainable life cycles.

**Impact of engagement, including measures of success**

[Description of impact, including sectoral, regional, and operational context] Mitsubishi Chemical and Toyota Tsusho will study the market needs for bio-ethylene, bio-propylene, and derivatives on the chemical sector in Japan as our main country of operation. A specific feasibility assessment is also conducted for commercialization in FY2025. We will also quantify the GHG reduction benefits over the entire life cycle and promote initiatives to reduce environmental impact. Through the promotion of bio-ethylene, bio-propylene and their derivatives and the establishment of supply chains, we will aim to contribute to the realization of a sustainable, recycling-oriented society.

[Criteria for evaluating success, including thresholds] We plan to use as our criterion for evaluating success whether sales of bio-based feedstock products reach 5% of operating income (approximately 10 billion yen), which is a significant financial or strategic impact as answered in C2.1b.

**Comment**

---

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

1

**% total procurement spend (direct and indirect)**

1

**% of supplier-related Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

"[Scope and Rationale] ENEOS Holdings is considered to be a target supplier of this engagement because the Ibaraki Plant, Mitsubishi Chemical's main petrochemical plant, is supplied naphtha and other raw materials from the adjacent Kashima Refinery operated by ENEOS Holdings' Kashima Sekiyu Co.. Both companies are subject to engagement because society demands reduction of waste and GHG emission of both companies.

We believe that increasing the amount of raw materials recycled will reduce waste and lead to a reduction in emissions. Our engagement activity is to have our own factory and the Kashima Refinery cooperate with each other to recycle. Monthly monitoring is conducted to confirm and manage how much has been recycled. In the future, the two companies will work to stably procure raw material waste plastics, add value to their products by acquiring certification\* related to the circular economy, and acquire further technical expertise as a next-generation business. Through this joint project, which will lead to the formation of a recycling-oriented society, we will continue to work toward the Sustainable Development Goals (SDGs).

We will continue to contribute to the achievement of Goal 12 "ensure sustainable consumption and production patterns" of the Sustainable Development Goals (SDGs) through this joint project that leads to the creation of a recycling-oriented society.

**Impact of engagement, including measures of success**

"[Description of impact, including sectoral, regional, and operational context] One of the challenges for the whole chemical sector, including our company, is the difficulty in closed-loop production of plastics. Therefore, as a measure to promote environmental themes, MCC has decided to conduct a plastic oil conversion joint venture with its supplier, ENEOS Corporation. Specifically, in July 2021, we decided to construct and operate a chemical recycling facility for waste plastic with an annual processing capacity of 20,000 tons, the largest in Japan, at the Ibaraki Plant of Mitsubishi Chemical Corporation. Through this operation, we will accumulate various technologies and operational know-how to expand chemical recycling.

[Criteria to be considered as evaluation of success, including thresholds] We will define as a success if we operate the above chemical recycling facility to the maximum

extent in FY2023 at an annual processing capacity close to 20,000 tons, which should be the largest one in Japan, along with a started and continuous conversion of waste plastic into oil.

**Comment**

---

**C12.1b**

---

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

**Type of engagement & Details of engagement**

|                            |   |
|----------------------------|---|
| Collaboration & innovation | Run a campaign to encourage innovation to reduce climate change impacts |
|----------------------------|---|

**% of customers by number**

10

**% of customer - related Scope 3 emissions as reported in C6.5**

8

**Please explain the rationale for selecting this group of customers and scope of engagement**

Companies of the mobility industry, including automobiles and aircraft manufactures, are considered as important customers for us, accounting for about 10% of our total sales, which is mainly achieved by lightweight materials for car bodies. Since the reduction of GHG emissions by reducing the weight of car bodies and airframes is an important issue in this industry, we expect to collaborate more effectively with them by making progress of the lightweight materials we provide. We reached a consensus with our customer on this point, which led this engagement.

**Impact of engagement, including measures of success**

[Impact of Engagement Activities] Carbon fiber reinforced plastic (CFRP), which combines lightweight and high strength, is used in automobile and aircraft parts to improve fuel efficiency and reduce CO2 emissions. This engagement is conducted in collaboration with automakers. As CFRP is difficult to mold and expensive to manufacture, so until now it has only been used in luxury vehicles. Therefore, we adopted a strategy that emphasizes manufacturing cost reduction rather than product functionality improvement, aiming to expand its use in popular vehicles, and this strategy has now led to an increase in the rate of use. The success of this increased adoption is measured by our management of sustainability indicators (products supplied to the market that contribute to the reduction of CO2 emissions equivalent to 150 million tons). CFRP is one of the products in this category, with the GHG reduction contribution (billion t-CO2e) as an evaluation item.

[Success Indicator] This applies to our growth business, "GHG reduction," which we aim to expand from the current 200 billion yen to 1 trillion yen by 2030. Therefore, we plan to consider it a success if annual sales in 2030 exceed 1 trillion yen. We will grow the business to contribute to sales growth of 100 billion yen, which is about 10% of this 1 trillion yen.

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**C12.1d**

---

**(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

Dai Nippon Printing Co., Ltd. ("DNP") and Refineverse Group Inc. ("Refineverse") will be other partners in the value chain

In collaboration with these companies, we will utilize the information management system of Circulize S.A. of the Netherlands ("Circulize") to manage and track biomass and recycled raw materials (traceability), including compliance with life cycle assessment (LCA) and other environmental impact assessment indicators, with a high level of transparency and reliability. The two companies have decided to jointly conduct a demonstration test ("the Demonstration") by the end of September to establish a transparent and reliable supply chain, including the management and tracking (traceability) of biomass and recycled raw materials and the assessment of environmental impacts such as life cycle assessment (LCA).

[our climate-related strategy with other partners in the value chain, indicating sectoral, regional, or operational context].

Companies and organizations of chemical sector, including our company, are required to utilize sustainable resources such as biomass and recycled raw materials as alternatives to petroleum-based plastics, and it is important to manage raw material usage and other evidence such as certified materials. In addition, visualization of GHG emissions such as CO2 emissions of each supplier and the degree of environmental friendliness of products to end consumers are also required. In response, Circulize has developed a supply chain traceability system that uses public blockchains to track raw materials to final products. This highly confidential proprietary encryption technology enables the management and sharing of confidential and public information of each company in the supply chain. Through this demonstration, MCC, DNP, and Refineverse, which encompass the value chain, will verify the usefulness of building a supply chain with high traceability accuracy in order to further add value to products using biomass and recycled raw materials and to contribute to more sophisticated raw material management through the mass balance method.

**C12.2**

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**(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?**

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

**C12.2a**

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**(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.**

**Climate-related requirement**

Measuring product-level emissions

**Description of this climate related requirement**

Ask suppliers about their CFP (carbon footprint value)

**% suppliers by procurement spend that have to comply with this climate-related requirement**

10

**% suppliers by procurement spend in compliance with this climate-related requirement**

0

**Mechanisms for monitoring compliance with this climate-related requirement**

Other, please specify (A system is being developed to interview suppliers whose CFP impact is significant at the purchasing stage. This is aimed at improving the rating of suppliers and the accuracy of calculation.)

**Response to supplier non-compliance with this climate-related requirement**

Retain and engage

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### C12.3

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**(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?**

**Row 1**

**Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate**

Yes, we engage indirectly through trade associations

**Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?**

Yes

**Attach commitment or position statement(s)**

2021.10.20CN.pdf

**Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy**

In our "Policy for Achieving Carbon Neutrality by 2050," developed in 2021, we incorporated a strategy to address climate change issues into our strategy and pledged in the document of "accelerate our efforts to reduce GHG emissions throughout our product chain"

**Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate**

<Not Applicable>

**Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate**

<Not Applicable>

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### C12.3b

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**(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.**

**Trade association**

Japan Chemical Industry Association/日本化学工業協会

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We have already influenced them to change their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Our representative director is the chairman and president of JCIA known the trade association, so that our company takes the same position with the trade association. The association promotes various climate change mitigation activities for its member companies. 2 activities of the association's primary initiatives are shown as follows: (1) Voluntary Action Plan on the Environment - Member companies' effort on improving energy consumption intensity in order to reduce CO2 emissions. (2) Promotion of carbon-Life Cycle Analysis (cLCA) - a standard for calculation of avoided emissions developed by JCIA.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

<Not Applicable>

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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### C12.4

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**(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In mainstream reports, in line with the CDSB framework (as amended to incorporate the TCFD recommendations)

**Status**

Underway – previous year attached

**Attach the document**

KAITEKI Report2021.pdf

**Page/Section reference**

p.25 Value Creation Story p.45-60 Opportunities p.23-26 Emissions Target p.42 Materiality p.57-69 Governance p.70-71 Risks p.91 Emissions figure (Trend Graph)

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures

**Comment**

**C15. Biodiversity**

**C15.1**

**(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?**

|       | Board-level oversight and/or executive management-level responsibility for biodiversity-related issues | Description of oversight and objectives relating to biodiversity | Scope of board-level oversight |
|-------|--|--|--------------------------------|
| Row 1 | No, but we plan to have both within the next two years   | <Not Applicable>   | <Not Applicable>               |

**C15.2**

**(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?**

|       | Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity | Biodiversity-related public commitments  | Initiatives endorsed |
|-------|---|--|----------------------|
| Row 1 | Yes, we have made public commitments only   | Commitment to Net Positive Gain<br>Other, please specify (In 2018, we endorsed the Keidanren Declaration on Biodiversity (revised version).) | <Not Applicable>     |

**C15.3**

**(C15.3) Does your organization assess the impact of its value chain on biodiversity?**

|       | Does your organization assess the impact of its value chain on biodiversity?           | Portfolio        |
|-------|--|------------------|
| Row 1 | Yes, we assess impacts on biodiversity in both our upstream and downstream value chain | <Not Applicable> |

**C15.4**

**(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?**

|       | Have you taken any actions in the reporting period to progress your biodiversity-related commitments? | Type of action taken to progress biodiversity-related commitments   |
|-------|---|---|
| Row 1 | Yes, we are taking actions to progress our biodiversity-related commitments                           | Land/water protection<br>Land/water management<br>Other, please specify (Development of GobiMat® (soil erosion prevention block mat) and Tensar® (embankment reinforced geogrid)) |

**C15.5**

**(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?**

|       | Does your organization use indicators to monitor biodiversity performance? | Indicators used to monitor biodiversity performance   |
|-------|--|---|
| Row 1 | Yes, we use indicators   | State and benefit indicators<br>Other, please specify (Products with a high level of contribution were selected based on an evaluation from a comprehensive perspective, including direct contribution to biodiversity, environmental impact over the lifecycle, and financial impact.) |

**C15.6**

**(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

| Report type  | Content elements   | Attach the document and indicate where in the document the relevant biodiversity information is located  |
|--|--|--|
| In voluntary sustainability report or other voluntary communications | Content of biodiversity-related policies or commitments<br>Impacts on biodiversity | 1."Biodiversity Conservation" in "Mitsubishi Chemical Sustainability Report 2021" p. 10,18. 2."Mitsubishi Chemical Holdings Group Biodiversity Conservation Policy"<br>sr_mcc_2021.pdf |

**C16. Signoff**

**C-FI**

**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

**C16.1**

**(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

|       | Job title                                   | Corresponding job category |
|-------|---|----------------------------|
| Row 1 | Senior Managing Corporate Executive Officer | Board/Executive board      |