

C0. Introduction

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C0.1

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

Brother Industries, Ltd. is the headquarters of the Brother group and is located in Japan. The Brother group delivers products and services to customers all over the world with manufacturing facilities and sales facilities in over 40 countries and regions of the world. The consolidated number of employees is 38,628 / and the non-consolidated number is 3,937 (as of March 31, 2017). Demonstrating our motto, "At your side" by quickly and consistently providing superior value we shall place the customer first, everywhere, every time. We offer products and services with Brother expertise in a wide range of fields such as "communications and printing equipment," "home sewing machines," "industrial sewing machines/machine tools/industrial parts," and "online karaoke/content-delivery systems." Brother Industries created and published an Environmental Action Plan covering a 5- year period. This plan outlines and provides the foundation for the Brother global sites that consists but is not limited to the following: We set environmental targets in BVCM (Brother Value Chain Management) and continuously improve their environmental aspects. We do not limit our activities to the observation of laws and regulations in all countries where we conduct business, and shall act with a strong moral responsibility to prevent pollution and reduce environmental impacts. We shall always consider waste reduction through more efficient use of resources and recycling of products, and strive to eliminate usage of hazardous substances when designing and developing both technologies and products. While respecting voluntary activities by each company of the Brother Group, we also exercise our environmental duties as a united group. We expand the environmental understanding and awareness for all employees and stakeholders by conducting activities such as environmental education and the building of community relationships. We actively disclose our environmental efforts to our customers, local communities, and other interested parties to further foster understanding. As part of our commitment to continuous environmental improvement Brother Group has achieved certification of ISO14001 in 56 facilities worldwide and are still continuing to pursue certification for other facilities. In addition, we have one facility along with oversea factories already accredited to ISO14064-1 and are working to accredit additional facilities.

C0.2

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**(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
Row 1	April 1 2017	March 31 2018	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

C0.3

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**(C0.3) Select the countries/regions for which you will be supplying data.**

Argentina  
Australia  
Austria  
Belgium  
Brazil  
Bulgaria  
Canada  
Chile  
China  
Denmark  
Finland  
France  
Germany  
Hungary  
India  
Indonesia  
Ireland  
Italy  
Japan  
Malaysia  
Mexico  
Netherlands  
New Zealand  
Norway  
Peru  
Philippines  
Poland  
Portugal  
Republic of Korea  
Romania  
Russian Federation  
Singapore  
Slovakia  
South Africa  
Spain  
Sweden  
Switzerland  
Taiwan (Province of China)  
Thailand  
Turkey  
United Arab Emirates  
United States of America  
Viet Nam

**C0.4**

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

JPY

**C0.5**

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**(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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

## C1. Governance

### C1.1

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

Yes

### C1.1a

#### (C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Operating Officer (COO)	The COO is a Managing Executive Officer overseeing the environmental programs at Brother. This position is the chief executive of the "Law, Environment & General Affairs Department" and responsible as chairman of the environmental committee.

### C1.1b

#### (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	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>Setting performance objectives</li> <li>Monitoring implementation and performance of objectives</li> <li>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul>	The risk management committee as chaired by the president, manages the activities of the environmental committee. This committee develops the strategy, annual plan (Brother Medium Term Environmental Action Plan), and tracks the performance of the climate change programs as well as evaluates risks associated with the programs.

### C1.2

#### (C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Operating Officer (COO)	Both assessing and managing climate-related risks and opportunities	Half-yearly

## C1.2a

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**(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.**

The COO is a Managing Executive Officer overseeing the environmental programs at Brother. This position is the chief executive of the "Law, Environment and General Affairs Department" and responsible as chairman of the environmental committee. This position provides advice and requests the data from all facilities necessary to evaluate climate change in Brother. The COO makes the final decisions regarding operational changes that can affect the performance of facilities in achieving the groups Environmental Target 2030 objectives.

The environmental committee is top management organization in Brother group regarding environmental issues and responsibility for managing our environmental policy, plans and major environmental issues including climate change.

Law, Environment & General Affairs Department is collecting all environmental risks and opportunities from group-wide and reports the information to Environmental committee half-yearly.

## C1.3

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

Yes

## C1.3a

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**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.**

**Who is entitled to benefit from these incentives?**

Executive officer

**Types of incentives**

Recognition (non-monetary)

**Activity incentivized**

Emissions reduction target

**Comment**

A President Award will be presented from the President. CO2 emissions reduction is one of the evaluation indexes. This year it was based on the following Meeting CO2 Emission reduction targets of the Environmental Action Plan: The targets for manufacturing sites administered by executive officers include reducing CO2 emissions by 1% per annum (per unit of sales).

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Monetary reward

**Activity incentivized**

Energy reduction target

**Comment**

Bonus on the achievement of targets will be presented. This year it was based on the following yearly review of environmental performance against specific objectives in the Environmental Action Plan: Reducing CO2 emissions by 1% per annum (per unit of sales)

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Recognition (non-monetary)

**Activity incentivized**

Emissions reduction target

**Comment**

Annually, all Brother offices globally have the opportunity to complete an application for the internal Brother Group award for environmental performance called the 5R Award. The 5R Award recognizes efforts by group companies and departments in five different categories. This includes activities at business sites (such as manufacturing facilities and offices), eco-consciousness specs in products, environmental activities conducted in and outside the company (such as employee awareness programs or biodiversity activities conducted for ecosystems, natural communities and habitats among their local communities).

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Monetary reward

**Activity incentivized**

Behavior change related indicator

**Comment**

Brother Group promotes and provides Employees with the Brother Eco Point Program. This program awards points to employees for eco-conscious actions by employees such as reuse of cloth bags instead of plastic shopping bags, saving electricity and water, using sustainable alternative travel by to destinations such as walking, bicycle or public transportation, and participating in local clean-up activities. Monetary rewards throughout the year are provided to boost the program, and annual recognition to highest point participants and locations are commended and rewarded.

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**C2. Risks and opportunities**

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## C2.1

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**(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

	From (years)	To (years)	Comment
Short-term	0	3	Brother Group Short-term Environmental Action Plan
Medium-term	3	12	Brother Group Mid-term Environmental Action Plan
Long-term	12	32	Brother Group Environmental Vision 2050

## C2.2

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**(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

## C2.2a

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**(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Brother formulates a short term environmental plan (3 year goals), a mid-term environmental plan 2030, and a long-term environmental vision through 2050. These plans are developed by the environmental committee and approved by top management.

## C2.2b

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**(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.**

In order to identify risks related to climate, the Brother group calculates the CO2 emissions of Scope 1, 2, 3, which is the greenhouse gas emissions of the entire value chain every year. Based on the result of the calculation, we identify the process with high CO2 emissions that is considered to be a business risk. We considered the CO2 emissions as risks related to our climate change and set the CO2 reduction targets for fiscal 2030 consistent with the level aimed at the Paris agreement which is a global agreement. This goal is certified as Science Based Targets by SBTi. Aiming at achieving this goal, short-term reduction targets are formulated in the environmental action plan of 3-5 years, and progress management is carried out at the environmental committee which board members participate. We are currently studying how to assess the financial impact to our company due to the risk of climate change.

## C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	In Japan, Vietnam and China where main factories producing our products are located, there are regulations that oblige to reduce energy consumption, so penalties will be given by the government if we can not comply. Therefore, current legal regulations must always be considered in assessing the risk of the current climate change.
Emerging regulation	Relevant, always included	In the Asian region where our products are located, the environmental regulations including the emission of greenhouse gases are strengthened. Furthermore, when regulations are strengthened and there is an influence on the operation of the production factory, since financial influence is significant, we always gaze at the latest laws and regulations trends according to our environmental management system trends.
Technology	Relevant, always included	In order to achieve the goal of reducing the CO2 emissions of Scope 1, 2 and Scope 3 set by the Brother group in FY 2030, we must always incorporate new technologies and do not use it for energy saving and resource conservation of facilities and products I believe it will not. Delay in the introduction of new technologies has the risk of relative environmental performance deterioration in the market and the risk of not reaching the CO2 reduction goal, so we must always consider the trend of new technology.
Legal	Relevant, always included	In the Asian region where our products are located, the environmental regulations including the emission of greenhouse gases are strengthened. Furthermore, when regulations are strengthened and there is an influence on the operation of the production factory, since financial influence is significant, we always gaze at the latest laws and regulations trends according to our environmental management system trends.
Market	Relevant, always included	We believe that demand for low-carbon products will increase in the market due to the worldwide interest in climate change. Therefore, we constantly monitor the level of low-carbon products required by the market. In order to create low-carbon products, the Brother group is committed to the following objectives. Reduce absolute Scope 3 GHG emissions from purchased goods and services, use of sold products and end-of-life treatment of sold products 30% by FY 2030 from a FY 2015 base-year.
Reputation	Relevant, always included	Based on the agreement of the Paris Agreement, it is expected that demand for low carbonization to companies will increase worldwide. For that reason, not to tackle low carbonity leads to a decline in reputation from stakeholders, and we believe there is a risk that the Brother Group's brand will decrease. As one of the purpose of avoiding this reputation risk, the Brother group has set CO2 reduction targets for FY 2030 and clarifies the attitude to tackle low carbon.
Acute physical	Relevant, always included	In order to minimize the impact on operations due to intense weather such as typhoons and guerrilla torrential rains and the intensification of floods, we have bases in countries and regions with low risk in our production, procurement from the supply chain, transportation of parts and products.
Chronic physical	Relevant, always included	We are based in countries and regions with low risk of survival due to long-term changes in climate and rainfall patterns that cause sea level rise, drought and heat waves.
Upstream	Relevant, always included	Scope 3 GHG emissions from purchased goods and services, which is the GHG emissions upstream of the value chain, accounts for 43% of the Brother Group's total emissions, and it is subject to the reduction by the Brother Group's CO2 reduction target in FY 2030. Since this contribution rate of GHG emissions to reduction targets is high, there is a risk that this delayed reduction will result in failure to reach the target. Therefore, this GHG emissions are an important component of climate change related risk.
Downstream	Relevant, always included	The Scope 3 GHG emissions from use of sold products, which is the GHG emissions downstream of the value chain, accounts for 40% of the Brother Group's total emissions, which is the target of the Brother Group's CO2 reduction target in FY 2030. Since this contribution rate of GHG emissions to reduction targets is high, there is a risk that this delayed reduction will result in failure to reach the target. Therefore, this GHG emissions are an important component of climate change related risk.

**C2.2d**

**(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

(Company level) In Brother, the Environment Committee (Environmental Management Promotion Committee), which is the decision-making body for environmental problems, decides appropriate measures and measures that can be taken with respect to important aspects related to global climate change and environmental laws and regulations. The Environment Committee is also responsible to collect data and report against the targets outlined in the Environmental Action Plan. We will identify key issues at that committee and set ambitious ambitious targets for climate change, environmental laws and regulations. In addition, though the Environmental Issues Review Committee, we draw up and review specific policies and measures for solving environmental issues related to products on monthly basis. The Environment Committee then presents the final report to the president and board members of the Risk Management Committee. (Asset level) The Risk Management Committee will cooperate with the environmental management personnel (EMR) in each country / region at the global level. The committee reports risks and opportunities in tackling environmental activities in accordance with the Brother Group's environmental action plan. Prior to the committee, from the management planning department every year, risk assessment sheets are sent to the bases of each country / region. This assessment sheet contains concerns about climate change, environmental law concerns and problems at present, presence of accidents and incidents, compliance with environmental law, and so on. The environmental department reviews this assessment sheet, extracts risks and opportunities, and reports it to the committee. In addition, the environmental department will conduct hearings directly to the sites as necessary.

## C2.3

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### (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

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### (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?

Supply chain

#### Risk type

Transition risk

#### Primary climate-related risk driver

Policy and legal: Mandates on and regulation of existing products and services

#### Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

#### Company- specific description

Brother has formed a regulation team within the department responsible for the environment and is watching product environmental regulations globally. Employees can view the information they grasp on the company intranet. Depending on the degree of urgency, we will use instructions and environmental committees to give instructions.

#### Time horizon

Short-term

#### Likelihood

Very likely

#### Magnitude of impact

High

#### Potential financial impact

70000000000

#### Explanation of financial impact

Products must comply with global environmental regulations. Otherwise our products cannot be put on the market (100% of sales). If non-compliant products are placed on the market we could face fines and product recall. The estimated financial impact of this would be 10% reduction of our sales revenue.

#### Management method

Environmental management systems are designed to meet current regulations and respond quickly to new regulations/legislation through Green Procurement and Product Life Cycle Assessments to ensure compliance. We lobby through JBMIA and other industry associations. We have dedicated people at major sales companies and work with consultants for lobbying.

#### Cost of management

338000000

#### Comment

The costs of our daily management are included ISO activity to meet regulations in environmental accounting.

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#### Identifier

Risk 2

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

Supply chain

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**Risk type**

Transition risk

**Primary climate-related risk driver**

Technology: Substitution of existing products and services with lower emissions options

**Type of financial impact driver**

Technology: Research and development (R&D) expenditures in new and alternative technologies

**Company- specific description**

Compliance with new regulations and standards requires a budget for re-designing or re-engineering. Potential to lose sale opportunities for products.

**Time horizon**

Short-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Potential financial impact**

30000000000

**Explanation of financial impact**

Compliance with product labelling (Energy Star, Blue Angel, etc.) expresses our products strong advantage in the market. Labelled products make up about 70% of our sales and our profit. The loss of these labelled products would significantly impact on sales.

**Management method**

The Brother Group monitors stake holder demands, actively participates through Brother subject matter experts and designs products to environmental label requirements. In addition, Brother has set specific targets in the Environmental Action Plan to acquire specific environmental labels in respective countries including Blue Angel, Eco Mark, Nordic Swan, EPEAT, and China's Ten Circle Mark, and efforts have been accelerated to fulfil the targets.

**Cost of management**

141000000

**Comment**

The costs for the development of eco conscious products and technologies are included in the R&D costs of environmental accounting.

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**Identifier**

Risk 3

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

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

**Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

**Company- specific description**

If the Japanese government sets targets based on the framework of the Paris Agreement and allocates these to each industry as well as individual companies, it may impact Brother's targets for CO2 emissions in domestic locations and the energy efficiency indicator in products.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

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**Potential financial impact**

150000000

**Explanation of financial impact**

Brother has been promoting improvements in both energy efficiency in each location and in products. However, if industry and individual companies are pressured to raise our targets, our cost for investment, operations management and developing may increase. We estimate that if Brother's head office reduces CO2 emissions domestically by 1% compared to the previous year, it will be covered by capital investment related to energy conservation.

**Management method**

Brother continues to establish new systems in new locations along with development plans in products. We have started Scope 3 CO2 emissions analysis in addition to existing Scope1 & 2 emissions and can see and now focus on Category 11 - emissions from use of sold products as one of the major emissions in Scope3. Towards this, in order to reduce CO2 emissions, we are considering the necessity to create products that can contribute to CO2 emission reduction through things such as making the product enable offset emissions during the use of product.

**Cost of management**

3000000

**Comment**

As a representative numerical value, the cost of Brother 's head office receiving verification of the calculated amount of Scope 1, 2, 3 by an external organization and expenses related to the construction of the aggregation system used for the calculation are described.

**Identifier**

Risk 4

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

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Chronic: Rising mean temperatures

**Type of financial impact driver**

Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism)

**Company- specific description**

The predicted impact of an increase in the mean average temperature will affect our facilities located in regions where higher temperatures are experienced as the norm. This will result in increased demand in cooling systems and electrical usage. An increase in electrical usage costs for buildings in those regions and countries where weather changes resulting in higher or lower than average temperatures for an extended period will cause higher energy usage (Air Conditioning).

**Time horizon**

Medium-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

50000000

**Explanation of financial impact**

This is the maximum estimated value of the electricity usage of the air conditioner due to domestic Brother's base, which is 1 degree higher in the summer and 1 degree in the winter than in the normal year.

**Management method**

Monitoring energy consumption at each facility on a monthly basis. We are setting goals for each facility to reduce energy consumption to offset the predicted impact of climate change. Some of the methods to accomplish energy reduction include the study of LED installation, hours of operations, HVAC (heat ventilation air conditioning), and applying insulation to equipment with high heat output and shut down of non-essential equipment during peak hours.

**Cost of management**

199000000

**Comment**

This is the amount of investment related to energy conservation measures including the establishment and renewal of air conditioners in environmental accounting.

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**Identifier**

Risk 5

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

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Acute: Increased severity of extreme weather events such as cyclones and floods

**Type of financial impact driver**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

**Company- specific description**

Risk drivers can cause temporary closures, loss of personnel, complete or partial loss of facilities resulting in disruption to Brother's supply chain. Operational cost will increase.

**Time horizon**

Medium-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Potential financial impact**

70000000000

**Explanation of financial impact**

The financial risks are decreased revenue through lost sales and an increase in distribution costs combined with capital cost increases to rebuild facilities that have the highest potential to be destroyed. The estimated financial impact of this would be 10% reduction of our sales revenue.

**Management method**

We are reducing our exposure through expansion of product manufacturing for the same product category to multiple factory sites which includes construction of new facilities.

**Cost of management**

0

**Comment**

Last year, there was no relocation or establishment of the factory.

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**Identifier**

Risk 6

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

Customer

**Risk type**

Transition risk

**Primary climate-related risk driver**

Reputation: Shifts in consumer preferences

**Type of financial impact driver**

Reputation: Reduced revenue from decreased demand for goods/services

**Company- specific description**

Risk of customers increase that cannot be satisfied with the current energy-saving performance.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

**Explanation of financial impact**

Customer-oriented product designing will lead to an increase in operation costs. However, it is difficult to calculate the potential financial impact.

**Management method**

Research and understand customers demand and trend and reflect the result in our product planning and designing.

**Cost of management**

**Comment**

It costs money to manage, but its specific calculation is difficult.

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C2.4

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**(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

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**(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?**

Direct operations

**Opportunity type**

Resource efficiency

**Primary climate-related opportunity driver**

Other

**Type of financial impact driver**

Reduced operating costs (e.g., through efficiency gains and cost reductions)

**Company- specific description**

In fiscal 2017, the Brother Group aims to reduce Scope 1 and 2 CO2 emissions by 1% (unit of sales) compared with the previous fiscal year, reducing the amount of materials for solvents containing greenhouse gases in the production process, I worked on it. As a result, we achieved a 10.9% reduction compared to the previous fiscal year. The energy cost reduction effect of energy saving activities is about 30 million yen annually for the entire group.

**Time horizon**

Current

**Likelihood**

Virtually certain

**Magnitude of impact**

High

**Potential financial impact**

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30000000

**Explanation of financial impact**

The energy cost reduction effect of energy saving activities is about 30 million yen annually for the entire group.

**Strategy to realize opportunity**

**Cost to realize opportunity**

**Comment**

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**Identifier**

Opp2

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

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Type of financial impact driver**

Increased revenue through demand for lower emissions products and services

**Company- specific description**

Brother produce energy reducing products and meeting substance legislation.

**Time horizon**

Current

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

**Explanation of financial impact**

The potential financial implications of the opportunity in this area we believe is gaining a larger market share of like products over our competitors.

**Strategy to realize opportunity**

We quickly respond to new laws and regulations by utilizing the environmental management system. Our activities range from the procurement of parts and materials, development, design and product use to produce eco-conscious products that comply with regulations.

**Cost to realize opportunity**

**Comment**

The cost to realize opportunities can not be calculated.

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**Identifier**

Opp3

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

Customer

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

**Type of financial impact driver**

Increased revenue through demand for lower emissions products and services

**Company- specific description**

Brother gains business opportunities by creating products that conform to the following environmental labels and regulations. - Blue

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Angel Mark and Nordic Swan, Eco Mark (Japan) EU ECO Flower, EPEAT - EU ErP Lot4 VA, France VA collection of consumables, Action Plan of the Industries of Electrical and Electronics on a Low Carbon Society.

**Time horizon**

Current

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

7000000000

**Explanation of financial impact**

Our products meet the criteria for environmental labels. This provides a strong opportunity to gain market share and provide our consumers a greater choice of eco conscious products over our competitors who are not meeting the criteria. The development and update of environmental label criteria required investment and development for the products and consumables. Mitigation of implementation costs if regulations were enacted. We estimate that we can expect an increase of about 1% of total sales.

**Strategy to realize opportunity**

We actively promote acquisition of environmental labels around the world, communicate through our website and provide customers helpful information. Brother also participates in the development process of new criteria through industry organizations. Brother through participation in the Industries of Electrical and Electronics on a Low Carbon Society and various industry organizations collectively negotiates the development of requirements and targets specified in voluntary agreements.

**Cost to realize opportunity**

141000000

**Comment**

Costs vary globally and are difficult to quantify. If we estimate risks and opportunities as being coincident, the costs for the development of eco conscious products and technologies are included in the R&D costs of environmental accounting.

**Identifier**

Opp4

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

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Type of financial impact driver**

Reduced operational costs (e.g., through use of lowest cost abatement)

**Company- specific description**

Ensuring the continuous flow of goods through our supply chain and the opportunity to implement the latest technologies for energy efficiency within a new facility in Asia.

**Time horizon**

Current

**Likelihood**

More likely than not

**Magnitude of impact**

Medium

**Potential financial impact**

**Explanation of financial impact**

The operation cost has been reduced by utilizing the latest technologies in energy efficiencies and CO2 emission reduction in a new Vietnam factory.

**Strategy to realize opportunity**

Field studies were conducted within various Asian countries that took into consideration climate change risks, the ability to procure

parts from regional suppliers, cost factors, as well as local conditions that would support our manufacturing and supply chain requirements and new technologies in energy efficiencies.

### **Cost to realize opportunity**

#### **Comment**

We have not announced the cost concerning the establishment of the factory.

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#### **Identifier**

Opp5

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

Customer

#### **Opportunity type**

Products and services

#### **Primary climate-related opportunity driver**

Shift in consumer preferences

#### **Type of financial impact driver**

Increased revenue through demand for lower emissions products and services

#### **Company- specific description**

Customers who cannot be satisfied with the current energy-saving performance increase in future.

#### **Time horizon**

Medium-term

#### **Likelihood**

Likely

#### **Magnitude of impact**

Medium-high

#### **Potential financial impact**

#### **Explanation of financial impact**

By preceding the customer-oriented products can lead to the development of new customers.

#### **Strategy to realize opportunity**

Research and understand customers demand and trend and reflect the result in our product planning and designing.

#### **Cost to realize opportunity**

#### **Comment**

The cost to realize opportunities is difficult to calculate specifically.

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## C2.5

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**(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

	Impact	Description
Products and services	Impacted	We incorporate low-carbon product creation and lineup into annual environmental targets and mid- and long-term plans, and the environmental committee manages the progress situation.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	When initiating transactions with the supply chain, or periodically, we are requesting the setting and reporting of voluntary targets for GHG reduction.
Adaptation and mitigation activities	Not evaluated	When establishing a factory in the past, Brother takes into consideration the factory location conditions for climate change, logistics with suppliers, and so forth.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	In 2016, Brother succeeded in developing a fuel cell system by making use of miniaturization technology accumulated through the development of printers and multifunction machines, and power control technology cultivated in machine tools and others. We believe that we can contribute to the development of a low carbon society and a decarbonized society.
Operations	Impacted	We have incorporated the latest energy-saving facilities in establishing a new factory and building a new building. Also in existing buildings, we have budgeted and introduced devices that compatible with functions and energy saving, such as updating to devices with fewer GHGs. In the office, operational standards are set for air conditioner, lighting and office equipment operation, contributing to energy conservation. At the factory, we reviewed the unnecessary power, updated the equipment, improved the process, contributing to the reduction of GHG.
Other, please specify	Not impacted	Except for products and services, supply chain and/or value chain, investment in R&D, operations, it seems that we are not impacted.

**C2.6**

**(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.**

	Relevance	Description
Revenues	Impacted	Changes in factory production volumes and changes in consumer trends caused by the effects of climate change will have an impact on Brother's financial plan for revenue.
Operating costs	Impacted	Due to the effects of climate change, financial planning concerning Brother's business expenditure, such as product quality control, employee safety and health, and introduction of low GHG emissions equipment, may be affected.
Capital expenditures / capital allocation	Not impacted	Regarding capital expenditures/capital allocation, we do not think our financial process will be affected.
Acquisitions and divestments	Not impacted	Regarding acquisitions and divestments, we do not think our financial process will be affected.
Access to capital	Not impacted	Regarding access to capital, we do not think our financial process will be affected.
Assets	Not impacted	Regarding assets, we do not think our financial process will be affected.
Liabilities	Not impacted	Regarding liabilities, we do not think our financial process will be affected.
Other	Not impacted	Except for revenues, operating costs, it seems that we are not impacted.

**C3. Business Strategy**

**C3.1**

### **(C3.1) Are climate-related issues integrated into your business strategy?**

Yes

#### **C3.1a**

---

##### **(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?**

Yes, qualitative and quantitative

#### **C3.1c**

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##### **(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.**

i) We formulate the Brother Group Environmental Action Plan based on the Global Charter. The Environmental Promotion Division continuously researches regulatory information and global trends related to climate change from the stage of draft documents. We identify the important issues, set ambitious environmental targets in our Environmental Action Plan and publish it to entire departments in the Head Office and facilities around the world. Based on the tasks under Environmental Action Plan, the Environmental Committee as the decision-making body for environmental affairs, acts to check the progress and performance and utilizes the results in making a new action plan every three to five years.

ii) In order to contribute to solving global environmental problems, Brother creates the "Brother Group Environmental Vision 2050" as an environmental goal of the Brother group, as well as its milestone we have set the "Medium-Term Fiscal 2030 target" as our target. We are aware that this medium-term target for reducing CO2 emissions is appropriate as a reduction target based on the scientific basis for achieving the "2 ° C target" of the Paris Agreement, or "Science Based Targets Initiative "And applied for certification.

Prior to this target setting, we have expanded Scope 1, 2, 3 boundary in order to set tasks, which drive forward the efficient CO2 reduction program to disclose the effect of producing more energy-saving products.

iii) Energy saving activities at each facility, energy efficient performance in our products to meet regulatory requirements and customers' preference change have been influenced on our product development plans and our decisions to develop new technologies.

iv) By identifying global trends and regulatory requirements, we developed the Brother Group midterm environmental action plan 2016 – 2018 and set the following ambitious targets in respect to the following fields: 1. Create eco-conscious products 2. Reduce group CO2 emissions For example, we develop low carbon products and switch to energy-efficient equipment at each facility.

v) We developed new Fuel cells. This product does not emit CO2 emissions in its usage and is very useful from CO2 reduction view point.

vi) We have started a working group and now are considering the future vision.

vii) We conduct product environmental assessments at key stages of development and ensure eco-conscious design by addressing the product life cycle from material procurement, production, products use through to the collection and recycling at the end of life. We conduct an LCA that quantitatively provides numerical data for the "degree of impact on the environment" at each stage of its life cycle. Environmental load characteristics and improvement points are identified and the improvement effects are confirmed for each product. We conduct an LCA for our core products categories in our business operations and acquire the EcoLeaf environmental label on almost all core products. We make our Brother products towards achievement of the top level energy efficiency in the market.

viii) We will perform forward-looking scenario analyses, including a 2 degrees scenario and aim to utilize the results in setting our long-term business plan and strategies.

#### **C3.1d**

---

**(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.**

Climate-related scenarios	Details
2DS	<p>Our inventory follows the GHP Protocol Corporate Standard and the consolidation approach used to calculate is operational control. We commit to reduce absolute Scope 1 and 2 GHG emissions 30 % by FY 2030 from a FY 2015 base-year. The primary operations and activities that account for emissions in scopes 1 and 2 is –, Scope 1: GHG emissions from liquid solvent for manufacturing and fossil fuel consumption Scope 2: GHG emissions from purchased electricity consumption. We also commit to reduce absolute Scope 3 GHG emissions from purchased goods and services, use of sold products and end-of-life treatment of sold products 30 % by FY 2030 from a FY 2015 base-year. We believe that the target value of 30% reduction by 2030 compared with the fiscal 2015 level is a consistent with the ambitious target level of Paris Agreement. The reason is the same setting as the target values of Scope 1 and 2 set based on the SDA tool. As we are aggressively pursuing greenhouse gas reduction efforts aiming at achieving the 2 ° C target of the Paris Agreement globally, it is imperative for the Brother Group to carry out business activities in line with that trend, It is supposed to be kept low, and I think that it will be blessed with business opportunities. Based on this scenario, we analyzed the amount of greenhouse gas to be reduced in the business sectors of the Brother group, because we recognize that the scenario with a high possibility to achieve the 2 ° C target is IEA 2DS. We specifically calculated the CO2 equivalent reduction of Scope 1, 2 that should be reduced by FY 2030 using the SDA tool provided by SBTi. As a result, we realized that it is the level required by society to achieve 30% of the fiscal 2015 level. In addition, the Brother group's Scope 3 emissions account for more than 90% of the total GHG emissions from purchased goods and services, end of life treatment of sold products. Because these emissions are greatly related to the low carbon performance of products and demand for low-carbon products is expected in future markets, we set the reduction target of Scope 3 at the same level as Scope 1 and 2, We believe that addressing creation will lead to business risk reduction. Based on the above concepts, we decided to set the goal of reducing the Scope 1, 2 and Scope 3 by 30% from FY 2015 in FY 2030 as the goal of the entire group with the Environmental Committee and Strategy Committee, which the directors participate in. The whole group mentioned here covers areas in more than 40 countries such as Japan, the United States, Europe and Asia where branch offices are located.</p>

**C4. Targets and performance**

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**C4.1**

---

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

Absolute target

**C4.1a**

---

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

**Target reference number**

Abs 1

**Scope**

Scope 1 +2 (market-based)

**% emissions in Scope**

100

**% reduction from base year**

30

**Base year**

2015

**Start year**

2018

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

200425.85

**Target year**

2030

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

Yes, this target has been approved as science-based by the Science-Based Targets initiative

**% achieved (emissions)**

2.7

**Target status**

Underway

**Please explain**

In July 2018, Brother Industries, Ltd. announces that its mid-term targets for CO2 emissions reduction set out in the "Brother Group Environmental Vision 2050" have been approved by the international environmental initiative "Science Based Targets initiative" as the science-based reduction targets for achieving the Paris Agreement's goal of limiting global warming to well below "2 degrees Celsius." The Brother Group identifies CO2 emissions reduction as one of the priorities in the "Brother Group Environmental Vision 2050," a long-term environmental vision towards 2050. The mid-term targets for CO2 emissions reduction, which were recognized as science-based targets this time, were set based on the view that worsening worldwide climate change is a serious social challenge and a business risk for the Brother Group that need to be addressed continuously for years. The Group's reduction targets have been expanded to include CO2 emissions from its value chain that account for more than 90% of its total CO2 emissions (Scope 3) in addition to CO2 emissions from office activities (Scope 1 and 2), which the Group has already been addressing. Focusing on these scopes, the Brother Group contributes to preventing climate change. Since it is published as a news release on our website, please refer to it. <http://www.brother.com/en/news/2018/sbt/index.htm>

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**Target reference number**

Abs 2

**Scope**

Scope 3 (upstream &amp; downstream)

**% emissions in Scope**

100

**% reduction from base year**

30

**Base year**

2015

**Start year**

2018

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

2659340.34

**Target year**

2030

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

Yes, this target has been approved as science-based by the Science-Based Targets initiative

**% achieved (emissions)**

4.9

**Target status**

Underway

**Please explain**

In July 2018, Brother Industries, Ltd. announces that its mid-term targets for CO2 emissions reduction set out in the "Brother Group Environmental Vision 2050" have been approved by the international environmental initiative "Science Based Targets initiative" as the science-based reduction targets for achieving the Paris Agreement's goal of limiting global warming to well below "2 degrees Celsius." The Brother Group identifies CO2 emissions reduction as one of the priorities in the "Brother Group Environmental Vision 2050," a long-term environmental vision towards 2050. The mid-term targets for CO2 emissions reduction, which were recognized as science-based targets this time, were set based on the view that worsening worldwide climate change is a serious social challenge and a business risk for the Brother Group that need to be addressed continuously for years. The Group's reduction targets have been expanded to include CO2 emissions from its value chain that account for more than 90% of its total CO2 emissions (Scope 3) in addition to CO2 emissions from office activities (Scope 1 and 2), which the Group has already been addressing. Focusing on these scopes, the Brother Group contributes to preventing climate change.

---

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(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

### 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 projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	57	1673.53
Implementation commenced*	0	0
Implemented*	43	1309.15
Not to be implemented	0	0

#### C4.3b

---

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

**Activity type**

Energy efficiency: Processes

**Description of activity**

Process optimization

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

138.95

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

3482274

**Investment required (unit currency – as specified in CC0.4)**

167168

**Payback period**

<1 year

**Estimated lifetime of the initiative**

<1 year

**Comment**

Reduction of energy consumption at production plants by reducing lighting at locations where lighting is unnecessary and by reducing air conditioning equipment in areas with fewer workers. This activity was completed in FY 2017.

---

**Activity type**

Energy efficiency: Building fabric

**Description of activity**

Maintenance program

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

179.7

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

5599835

**Investment required (unit currency – as specified in CC0.4)**

19154232

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

<1 year

**Comment**

Control of ventilation fans and lighting with timers and reduction of energy consumption by installing air curtains at production plants. This activity was completed in FY 2017.

---

**Activity type**

Energy efficiency: Processes

**Description of activity**

Machine replacement

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

37.52

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

789058

**Investment required (unit currency – as specified in CC0.4)**

9960328

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

<1 year

**Comment**

Reduce energy consumption by updating fluorescent lights and updating elevators at production plants. This activity was completed in FY 2017.

---

**Activity type**

Energy efficiency: Building services

**Description of activity**

Lighting

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

---

242.76

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

6560969

**Investment required (unit currency – as specified in CC0.4)**

26143829

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

<1 year

**Comment**

Power consumption was reduced by replacing fluorescent lamps with LEDs that has less power consumption. This activity was completed in FY 2017.

---

**Activity type**

Process emissions reductions

**Description of activity**

Changes in operations

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

710.23

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

16038489

**Investment required (unit currency – as specified in CC0.4)**

82026

**Payback period**

<1 year

**Estimated lifetime of the initiative**

<1 year

**Comment**

At production factories, we will turn off lights during employee's break time and factory holidays, and reduce energy by stopping the machine in process waiting time. This activity was completed in FY 2017.

---

**Activity type**

Energy efficiency: Building fabric

**Description of activity**

Maintenance program

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

386.12

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

---

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

11606531

**Investment required (unit currency – as specified in CC0.4)**

105383550

**Payback period**

4 - 10 years

**Estimated lifetime of the initiative**

&lt;1 year

**Comment**

Several new styles devices were added to the equipments to save energy such as injecting water to the air conditioner to achieve cooling efficiency in the summer season and wrapping insulation jackets around the molding machine to prevent heat dissipation. This activity is ongoing in 2018.

---

**Activity type**

Energy efficiency: Processes

**Description of activity**

Machine replacement

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

429.92

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

12587705

**Investment required (unit currency – as specified in CC0.4)**

432587749

**Payback period**

&gt;25 years

**Estimated lifetime of the initiative**

&lt;1 year

**Comment**

Reduce energy consumption by updating lighting, air conditioning, ventilation equipment, compressor. This activity is ongoing in 2018.

---

**Activity type**

Low-carbon energy installation

**Description of activity**

Solar PV

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

74.4

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

2403000

**Investment required (unit currency – as specified in CC0.4)**

40000000

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

<1 year

**Comment**

Install a 100 kW class solar power generation system on the roof of the factory. This activity is ongoing in 2018.

---

**Activity type**

Process emissions reductions

**Description of activity**

Changes in operations

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

279.15

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

9970590

**Investment required (unit currency – as specified in CC0.4)**

387166

**Payback period**

<1 year

**Estimated lifetime of the initiative**

<1 year

**Comment**

At production factories, we will turn off lights during employee's break time and factory holidays, and reduce energy by stopping the machine in process waiting time. This activity is ongoing in 2018.

---

**Activity type**

Energy efficiency: Building fabric

**Description of activity**

Maintenance program

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

113.58

**Scope**

Scope 1

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

2239648

**Investment required (unit currency – as specified in CC0.4)**

0

**Payback period**

---

<1 year

**Estimated lifetime of the initiative**

<1 year

**Comment**

Reduce energy consumption by patrolling leaks on air piping and maintaining proper condition by periodic cleaning of air conditioning equipment. This activity is ongoing in 2018.

---

**Activity type**

Energy efficiency: Processes

**Description of activity**

Process optimization

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

390.36

**Scope**

Scope 2 (location-based)

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

7567381

**Investment required (unit currency – as specified in CC0.4)**

837000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

<1 year

**Comment**

Energy saving by concentrating the production area in the factory. This activity is ongoing in 2018.

---

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	We invested in outside consultants for energy efficiencies to meet regulatory requirements.
Dedicated budget for energy efficiency	Implementation for energy reduction projects within facilities.
Internal incentives/recognition programs	Donations from the amount of Eco-point Brother Environmental Programs to external environmental charities.
Internal finance mechanisms	Additional investments as required/needed for potential reduction activities.
Dedicated budget for low-carbon product R&D	We set energy-saving performance targets in each business segment and decide investment in developing new products.
Employee engagement	First place finish in the Drive Less Somerset Employer Challenge Event for 2016 sponsored by RideWise in the USA. The challenge issued was to see which Somerset Employer could reduce traffic and decrease the most amount of carbon emissions through choosing sustainable transportation options.

## C4.5

---

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

### C4.5a

---

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Group of products

**Description of product/Group of products**

Period: Compliance rate of imaging equipment \* placed on the European market from Jan 2016 to Dec 2016 Equipment using inkjet technologies: 100% Equipment using laser technologies : 99.41% \*Copiers, printers, fax machines and multifunction devices using laser, inkjet and solid ink technologies

**Are these low-carbon product(s) or do they enable avoided emissions?**

Low-carbon product

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Evaluating the carbon-reducing impacts of ICT

**% revenue from low carbon product(s) in the reporting year**

57.81

**Comment**

The Brother group produced more energy efficient products compared with the previous equivalent models based on our own Product Environmental Assessment Check Sheet.

---

## C5. Emissions methodology

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### C5.1

---

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

**Scope 1**

**Base year start**

April 1 2015

**Base year end**

March 31 2016

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

75333.15

**Comment**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**Scope 2 (location-based)**

**Base year start**

April 1 2015

**Base year end**

March 31 2016

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

122766.05

**Comment**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**Scope 2 (market-based)**

**Base year start**

April 1 2015

**Base year end**

March 31 2016

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

125092.7

**Comment**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**C5.2**

---

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

ISO 14064-1

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)

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

**C6. Emissions data**

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**C6.1**

---

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

**Row 1**

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

67067.7

**End-year of reporting period**

<Not Applicable>

**Comment**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**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**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**C6.3**

---

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

**Row 1**

**Scope 2, location-based**

122219.92

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

118524.43

**End-year of reporting period**

<Not Applicable>

**Comment**

In order to apply to SBTi and to expand the boundary, we tried again to calculate the base year as 2015. This data has been revalidated by external verification agencies.

**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**

GHG emissions sources of tiny office and process that is less than 1% of the total measured emissions in CO2 equivalent

**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 the source is excluded**

We have exclusion provisions of "data to be collected" from the importance perspective. However, we perform monitoring and then determine whether or not to include if there are significant increase or decrease of emissions due to changes such as in business and/or process.

---

**C6.5**

---

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

**Purchased goods and services**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

1385262.96

**Emissions calculation methodology**

Regarding some products of each business area, LCA data will be used for determining emissions for goods and services purchased or acquired by the reporting company. CO2 emissions=  $\sum \{ ( \text{ Total sales by products} ) \times ( \text{ Emission factor} ) \}$

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

0

**Explanation**

**Capital goods**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

68871.79

**Emissions calculation methodology**

To calculate CO2 emissions by multiplying the purchased price and the emission factor based on asset types (buildings, vehicles, machinery, tools, dies, fixtures and equipment, intangible) in FY 2017. CO2 emissions=  $\sum \{ ( \text{ Acquisition cost of fixed assets} ) \times ( \text{ Emission factor} ) \}$

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

0

**Explanation**

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

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

11334.27

### Emissions calculation methodology

Fuels : The amounts of each fuels (Scope1 reported amounts) are multiplied by emissions unit values from the stage of resource extraction to the transportation stage. Electricity and Heat : The amounts of electricity and heat (Scope2 reported amounts) are multiplied by average emissions unit values for resource extraction, production, and transportation of fuel for all power sources.  
CO2 emissions=  $\sum \{ \text{Amount of energy consumption} \} \times \{ \text{Emission factor} \}$

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

100

### Explanation

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

70416.06

### Emissions calculation methodology

Ton-kilometer method will be used for determining emissions for Transportation and delivery. CO2 emissions =  $\sum$  (Ton-kilometers transported x Emissions factor by mode such as Truck, Railroads, Ships and aircraft) BIL will use the data of transport emissions report which are provided by domestic / overseas offices and the factories. CO2 emissions =  $\sum$ (Transport distance x Transport weight x Emission factor)

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

0

### Explanation

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

3452.13

### Emissions calculation methodology

Emissions are estimated by multiplying amounts consigned to waste disposal/recycling companies by emissions unit values "tCO2e/t" based on standard scenarios for each type of waste. Excluding general waste (general burnable waste). CO2 emissions =  $\sum \{ (\text{Acceptance amount of processed, recycled waste}) \times (\text{Emission factor}) \}$

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

0

### Explanation

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

4527.74

### Emissions calculation methodology

In the use of public transportation, the emission has been calculated in multiplying the expenses of each transport mode and the emission factor. If the transportation expense is unknown, the transport mode percentage will be set by the inspection of sampling.  $CO_2 \text{ emission} = (\text{Transport mode}) \sum \{ (\text{amount of travel expenses}) \times (\text{emission factor}) \}$  The way to calculate the amount of emission simply from the number of employees when a transportation cost allowance can't be grasped. This sheet is not necessary to input if you can calculate the data by the above calculation method.  $CO_2 \text{ emission} = (\text{Employee numbers}) \times (\text{Emission factor})$

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

0

### Explanation

## Employee commuting

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

15688.57

### Emissions calculation methodology

In the use of public transportation, the emission has been calculated in multiplying the expenses of each transport mode and the emission factor. If the transportation expense is unknown, the transport mode percentage will be set by the inspection of sampling.  $CO_2 \text{ emission} = (\text{Transport mode}) \sum \{ (\text{amount of travel expenses}) \times (\text{Emission factor}) \}$  Calculate based on fuel economy method:  $CO_2 \text{ emissions} = \sum \{ \text{moving distance} / \text{fuel consumption} \times \text{Emission factor} \}$  If we can't know the data such as transportation expenses payments, travel distance, fuel usage, use the way to calculate based on the numbers of employee and working days. This sheet is not necessary to input if you can calculate the data by the above calculation method.  $CO_2 \text{ emissions} = (\text{business type} \cdot \text{Urban class}) \sum \{ (\text{employee numbers}) \times (\text{working days}) \times (\text{Emission factor}) \}$

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

0

### Explanation

## Upstream leased assets

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

7211.09

### Emissions calculation methodology

The emission has been calculated in multiplying the energy consumption of leased assets which are not included in Scope 1,2 and the emission factor. If the company has rented a part of whole property, the energy consumption should be calculated using the ration of office area, etc.  $CO_2 \text{ emission} = \sum \{ (\text{leased asset energy consumption}) \times (\text{Emission factor}) \}$  If we can't know energy consumption of leased assets, only when leased asset is building, the emission has been calculated in multiplying total floor space of leased assets and the emission factor.  $CO_2 \text{ emissions} = \sum \{ (\text{Floor space of leased building}) \times (\text{Emission factor}) \}$

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

0

### Explanation

## Downstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

16016.85

### Emissions calculation methodology

Calculate based on ton-kilometer method. We define that transport distance is uniformly 100 km by PCRs ("Product Category Rule" s) of Ecoleaf. CO2 emissions =  $\Sigma(100\text{km} \times \text{Transport weight} \times \text{Emission factor})$

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

0

### Explanation

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

Get the Scope1,2 emissions data from the company which was sold the intermediate products. Then, divided proportionally by intermediate product sales amount and company's gross sales. CO2 emissions = (Intermediate sales company CO2 emissions (Scope1,2))  $\times$  (intermediate products sales / company gross sales) LCA data will be used for determining emissions for goods and services purchased or acquired by the reporting company.

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

0

### Explanation

Not relevant, as we do not sell any intermediate product.

## Use of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

1302511.14

### Emissions calculation methodology

LCA data will be used for determining emissions for goods and services purchased or acquired by the reporting company.

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

0

### Explanation

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

167299.11

### Emissions calculation methodology

LCA data will be used for determining emissions for goods and services purchased or acquired by the reporting company.

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

0

### Explanation

## Downstream leased assets

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

1729.15

### Emissions calculation methodology

The emission has been calculated in multiplying the energy consumption of leased assets which are not included in Scope 1,2 and the emission factor. If the company has rented a part of whole property, the energy consumption should be calculated using the ration of office area, etc.  $CO_2 \text{ emission} = \sum \{ (\text{leased asset energy consumption}) \times (\text{Emission factor}) \}$  If we can't know energy consumption of leased assets, only when leased asset is building, the emission has been calculated in multiplying total floor space of leased assets and the emission factor.  $CO_2 \text{ emissions} = \sum \{ (\text{Floor space of leased building}) \times (\text{Emission factor}) \}$

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

0

### Explanation

## Franchises

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

97.25

### Emissions calculation methodology

Collect Scope 1 and 2 of the franchises and the calculation method in the Accounting and Reporting System. (for example: GHG protocol CO2 conversion factor may be used for the calculation).  $CO_2 \text{ emissions} = \sum \{ (\text{Energy consumption of Franchises}) \times (\text{Emission factor}) \}$

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

0

### Explanation

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

0

### Emissions calculation methodology

The calculation will be based on the Scope1,2 emission from investment and the investment equity stake ratio.  $CO_2 \text{ emission} = \sum \{ ((\text{Emissions of each equity investment}) \times (\text{equity stake})) + \sum \{ (\text{Emissions of each debt investment}) \times (\text{total capital investment ratio}) \} \times \text{Emissions of Scope1 and Scope2}$

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

0

### Explanation

Not relevant, as business investment is not our major business operations.

## Other (upstream)

### Evaluation status

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

Other (downstream)

Evaluation status

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation

## C6.7

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

Yes

## C6.7a

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

2.69

## 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**

0.2879

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

185592.13

**Metric denominator**

Other, please specify (unit total revenue (million yen unit))

**Metric denominator: Unit total**

644607000000

**Scope 2 figure used**

Market-based

**% change from previous year**

14.12

**Direction of change**

Decreased

**Reason for change**

The metric denominator is unit of revenue, but excludes the sales of group of Domino Printing Science which is outside the scope of environmental management. Our sales revenue increased by 10.79% in FY2017 compared to the previous year while our CO2 emissions amount in Scope1, 2(market-based) decreased 4.86%. In major factories of the Brother group, reduction of Scope 1 and 2 emissions was implemented by measures such as replacing fluorescent lamps with LEDs, updating air conditioning equipment, and improving production processes. As an example, at the Philippine factory, we shut down the chiller on holidays and reduced the energy by 290 MWh annually.

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## C7. Emissions breakdowns

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## C7.1

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**(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

Yes

### C7.1a

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**(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 CO <sub>2</sub> e)	GWP Reference
CO <sub>2</sub>	18532.38	IPCC Fourth Assessment Report (AR4 - 100 year)
CH <sub>4</sub>	54.02	IPCC Fourth Assessment Report (AR4 - 100 year)
N <sub>2</sub> O	62.15	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	7096.74	IPCC Fourth Assessment Report (AR4 - 100 year)
PFCs	41322.41	IPCC Fourth Assessment Report (AR4 - 100 year)

## C7.2

---

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

Country/Region	Scope 1 emissions (metric tons CO <sub>2</sub> e)
Japan	10850.57
China	14825.96
United States of America	1324.44
United Kingdom of Great Britain and Northern Ireland	703.11
Taiwan (Province of China)	13.46
Philippines	171.75
Viet Nam	34725.74
Other, please specify (Rest of world)	4452.67

## C7.3

---

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

By facility

### C7.3b

---

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
BROTHER INDUSTRIES, LTD.	2481.76	35.118372	136.921982
NISSEI CORPORATION	4291.44	34.920154	137.049682
BROTHER TECHNOLOGY (SHENZHEN) LTD.	13691.41	22.6058	114.141051
BROTHER INDUSTRIES (VIETNAM) LTD.	34268.75	20.90872	106.393478
ZHUHAI BROTHER INDUSTRIES, CO., LTD.	291.56	22.232624	113.529373
TAIWAN BROTHER INDUSTRIES, LTD.	13.46	23.010871	120.666004
BROTHER MACHINERY XIAN CO., LTD.	774.12	34.341568	108.940175
BROTHER INDUSTRIES SAIGON, LTD.	2.49	10.957413	106.842687
BROTHER INDUSTRIES (PHILIPPINES), INC.	134.74	14.13857	121.112322
BROTHER MACHINERY VIETNAM CO, LTD.	454.5	20.947949	106.22868
Rest of world	10663.47		

**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)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Japan	58337.76	50921.06	105264.78	340.75
China	27359.23	27335.63	40175.08	0
United States of America	8093.35	5088.31	10018.09	0
United Kingdom of Great Britain and Northern Ireland	961.42	909.11	2327.89	0
Taiwan (Province of China)	1022.32	929.06	1759.58	0
Philippines	12960.9	19842.62	21458.44	0
Viet Nam	11425.76	11425.76	32185.25	0
Other, please specify (Rest of world)	2059.18	2072.88	6720.78	1137.72

**C7.6**

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

By facility

**C7.6b**

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

Facility	Scope 2 location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
BROTHER INDUSTRIES, LTD.	21846.38	19056.92
NISSEI CORPORATION	17932.4	15642.47
BROTHER TECHNOLOGY (SHENZHEN) LTD.	16884.9	16884.9
BROTHER INDUSTRIES (VIETNAM) LTD.	8952.67	8952.67
ZHUHAI BROTHER INDUSTRIES, CO., LTD.	2327.67	2327.67
TAIWAN BROTHER INDUSTRIES, LTD.	992.41	901.88
BROTHER MACHINERY XIAN CO., LTD.	7299.05	7299.05
BROTHER INDUSTRIES SAIGON, LTD.	1392.88	1392.88
BROTHER INDUSTRIES (PHILIPPINES), INC.	12876.78	19713.84
BROTHER MACHINERY VIETNAM CO, LTD.	1065.84	1065.84
Rest of world	30648.94	25286.31

**C7.9**

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**(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?**

Decreased

**C7.9a**

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**(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	
Other emissions reduction activities	9471.24	Decreased	4.86	The Brother Group's CO2 emissions are attributed mainly to the use of electricity and fuel at factories and offices. The Brother Group establishes targets for each fiscal year as milestones to reduce CO2 emissions, and has been continuously implementing energy conservation measures to increase the efficiency of air conditioning and lighting, and ensure the efficient operation of production equipment at factories. Scope 1 and 2 emissions in the previous fiscal year were 185,592 t-CO2, a reduction of 4.86% compared to the previous year. The formula is $(185,592-195,063)/195,063=-4.86\%$ .
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	0	No change	0	
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	0	No change	0	

### 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 0% but less than or equal to 5%

#### C8.2

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

	Indicate whether your organization undertakes this energy-related activity
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	No
Consumption of purchased or acquired cooling	No
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 MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	83060.32	83060.32
Consumption of purchased or acquired electricity	<Not Applicable>	671.42	218897.73	219569.15
Consumption of purchased or acquired heat	<Not Applicable>	0	466.3	466.3
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	340.75	<Not Applicable>	340.75
Total energy consumption	<Not Applicable>	1012.17	302424.35	303436.52

**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 steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

**C8.2c**

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

**Fuels (excluding feedstocks)**

Motor Gasoline

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

18281.41

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Kerosene

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

163.36

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

12370.43

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Distillate Oil

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

117.42

---

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

4158.08

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

47969.62

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

---

C8.2d

**(C8.2d) List the average emission factors of the fuels reported in C8.2c.**

## Diesel

### Emission factor

2.69198

### Unit

kg CO2e per liter

### Emission factor source

GHG Protocol - Calculation tools ✓ Emission Factors from Cross-Sector Tools ✓ Stationary combustion

### Comment

## Distillate Oil

### Emission factor

2.95563

### Unit

kg CO2e per liter

### Emission factor source

GHG Protocol - Calculation tools ✓ Emission Factors from Cross-Sector Tools ✓ Stationary combustion

### Comment

## Kerosene

### Emission factor

2.5344

### Unit

kg CO2e per liter

### Emission factor source

GHG Protocol - Calculation tools ✓ Emission Factors from Cross-Sector Tools ✓ Stationary combustion

### Comment

## Liquefied Petroleum Gas (LPG)

### Emission factor

2.99195

### Unit

metric tons CO2e per metric ton

### Emission factor source

GHG Protocol - Calculation tools ✓ Emission Factors from Cross-Sector Tools ✓ Stationary combustion

### Comment

## Motor Gasoline

### Emission factor

2.28585

### Unit

kg CO2e per liter

### Emission factor source

GHG Protocol - Calculation tools ✓ Emission Factors from Cross-Sector Tools ✓ Stationary combustion

### Comment

## Natural Gas

### Emission factor

0.00189

### Unit

metric tons CO2e per m3

### Emission factor source

GHG Protocol - Calculation tools ✎ Emission Factors from Cross-Sector Tools ✎ Stationary combustion

### Comment

## C8.2e

---

**(C8.2e) 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	533.64	340.75	533.64	340.75
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

## C8.2f

---

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

### Basis for applying a low-carbon emission factor

Contract with suppliers or utilities ( e.g. green tariff), supported by energy attribute certificates

### Low-carbon technology type

Solar PV

Wind

Hydropower

Biomass (including biogas)

Other low-carbon technology, please specify (geothermal)

### MWh consumed associated with low-carbon electricity, heat, steam or cooling

671.42

### Emission factor (in units of metric tons CO2e per MWh)

0

### Comment

BROTHER CENTRAL AND EASTERN EUROPE GmbH's Austrian headquarter purchases 100% hydroelectric power and has received the certificate. BROTHER INDUSTRIES (SLOVAKIA) s.r.o. purchases 100% renewable sources (water, wind, solar, geothermal, biomass, biogas, etc.) and has received the certificate.

---

## C9. Additional metrics

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### C9.1

---

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

**Description**

Please select

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

<Not Applicable>

**Please explain**

---

**C10. Verification**

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**C10.1**

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**(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 and/or Scope 2 emissions and attach the relevant statements.**

**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

AS\_BIL2017\_EN\_20180627.pdf

**Page/ section reference**

page 2

**Relevant standard**

ISO14064-3

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

100

---

**Scope**

---

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

AS\_BIL2017\_EN\_20180627.pdf

**Page/ section reference**

page 2

**Relevant standard**

ISO14064-3

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

100

---

**Scope**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Limited assurance

**Attach the statement**

AS\_BIL2017\_EN\_20180627.pdf

**Page/ section reference**

page 2

**Relevant standard**

ISO14064-3

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

100

---

**C10.1b**

---

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

**Scope**

Scope 3- all relevant categories

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Attach the statement**

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**Page/section reference**

page 2

**Relevant standard**

ISO14064-3

**C10.2**

**(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
C6. Emissions data	Product footprint verification	EcoLeaf, ISO type3 environmental label awarded to products whose environmental load is shown quantitatively by LCA (Life Cycle Assessment)	This eco-label is awarded to products that disclose quantifiable information about their environmental characteristics. It is managed and issued by the Japan Environmental Management Association for Industry. BIL has received "System Certification"* in the Printer and Facsimile Business (registered name) and is working on acquiring the EcoLeaf label for main products. Brother's 22 product models were certified in FY2016. Approval system for product environmental data collection systems. The Japan Environmental Management Association for Industry verifies and certifies that businesses that make EcoLeaf labels have the system needed to make them, and that the system is functioning properly and effectively.
C6. Emissions data	Product footprint verification	The Carbon Footprint of Products (CFP) is operated as a CFP communication program by JEMAI (Japan Environmental Management Association). Rules and specification are enacted by JEMAI. CFP is one of type 3 environmental labels.	In May 2014, Brother received the first certification as desktop type monochrome laser multifunction machine and desktop type monochrome laser printer. In FY 2017, we received approval for nine laser products.
Please select	Please select		

**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

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

Shenzhen pilot ETS

### C11.1b

---

**(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

**Shenzhen pilot ETS**

**% of Scope 1 emissions covered by the ETS**

100

**Period start date**

April 1 2017

**Period end date**

March 31 2018

**Allowances allocated**

25582

**Allowances purchased**

0

**Verified emissions in metric tons CO2e**

24602

**Details of ownership**

Facilities we own and operate

**Comment**

We can sell 980 tons of emission credits for FY 2017.

### C11.1d

---

**(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

Brother's Shenzhen plant utilizes Shenzhen emissions trading rights trading. The Shenzhen plant receives the carbon strength target of the year from the Shenzhen government. If the factory's CO2 emissions for this year exceed the target (upper limit), we purchase emissions credits from the Shenzhen carbon emissions trading market exceeding the factory, and if the current year's CO2 emissions are the target (upper limit) If less, we will sell the surplus.

### C11.2

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

Yes

### C11.2a

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**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

**Credit origination or credit purchase**

Credit purchase

**Project type**

Forests

**Project identification**

Gifu Forest Public Corporation Thinning Promotion Project (J-VER) called "Gifu land of clear waters project", Gifu Pref, Japan. We applied it at Brother Industry headquarters in Japan.

**Verified to which standard**

VCS (Verified Carbon Standard)

**Number of credits (metric tonnes CO2e)**

18

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

0

**Credits cancelled**

Yes

**Purpose, e.g. compliance**

Voluntary Offsetting

---

**Credit origination or credit purchase**

Credit purchase

**Project type**

Energy efficiency: industry

**Project identification**

This credit is aimed at reducing CO2 by renewing boiler facilities in chemical manufacturing plants to highly efficient facilities and converting energy from A heavy oil to low-carbon fuel city gas. We applied it at Brother Industry headquarters in Japan.

**Verified to which standard**

VCS (Verified Carbon Standard)

**Number of credits (metric tonnes CO2e)**

1482

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

0

**Credits cancelled**

Yes

**Purpose, e.g. compliance**

Voluntary Offsetting

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**Credit origination or credit purchase**

Credit purchase

**Project type**

Landfill gas

**Project identification**

903 credits comprising 901 Loma Los Colorados Landfill Gas Project credits have been cancelled on the carboNZero register and will be cancelled (or equivalent) on the relevant external registry within one month of certification. It was applied at sales base in New Zealand.

**Verified to which standard**

VCS (Verified Carbon Standard)

**Number of credits (metric tonnes CO2e)**

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901

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

0

**Credits cancelled**

Yes

**Purpose, e.g. compliance**

Voluntary Offsetting

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**Credit origination or credit purchase**

Credit purchase

**Project type**

Wind

**Project identification**

903 credits comprising 2 Akbuk Wind Farm Project credits have been cancelled on the carboNZero register and will be cancelled (or equivalent) on the relevant external registry within one month of certification. It was applied at sales base in New Zealand.

**Verified to which standard**

VCS (Verified Carbon Standard)

**Number of credits (metric tonnes CO2e)**

2

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

0

**Credits cancelled**

Yes

**Purpose, e.g. compliance**

Voluntary Offsetting

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### C11.3

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

Yes

### C11.3a

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**(C11.3a) Provide details of how your organization uses an internal price on carbon.**

**Objective for implementing an internal carbon price**

Drive energy efficiency  
Drive low-carbon investment

**GHG Scope**

Scope 1  
Scope 2

**Application**

It is an index for the GHG reduction policy for a single year or multiple years at Brother's headquarters in Japan. It can be a criterion for GHG reduction through process improvement, building accessories such as air conditioners and introduction of new energy.

**Actual price(s) used (Currency /metric ton)**

1000000

**Variance of price(s) used**

When utilizing carbon offsets, 1,000 yen per 1 ton-CO<sub>2</sub> or more, when investing in purchasing equipment for energy conservation, 1,000,000 yen per 1 ton-CO<sub>2</sub> is a standard.

**Type of internal carbon price**

Internal fee

**Impact & implication**

In order to achieve GHG reduction targets for a single year and multiple years, investment to reduce energy used as self-help effort is indispensable. However, if the return on investment is not too rational, it is expected that the investment will be postponed and switched to another investment. Or, we need to achieve our goal by utilizing carbon credits. For that reason it will be the common judgment standard within the company.

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**C12. Engagement**

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**C12.1**

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

Yes, our suppliers  
Yes, our customers  
Yes, other partners in the value chain

**C12.1a**

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

**Type of engagement**

Engagement & incentivization (changing supplier behavior)

**Details of engagement**

Climate change performance is featured in supplier awards scheme

**% of suppliers by number**

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

**% Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

In 2015, Brother's three factories producing industrial sewing machines and other products for the Machinery business, including Kariya Factory, Brother Machinery Xian Co., Ltd., and Brother Machinery Vietnam Co., Ltd., launched an awards program to recognize excellent CSR activities with the aim of further promoting CSR activities among their suppliers. This awards program involves investigation over two years. In the first year, it conducts a questionnaire survey and an on-site inspection of suppliers on seven categories, such as compliance, environment-friendliness, and safety. In the second year, it invites these suppliers to present their CSR activities, and then recognizes excellent suppliers among them. This time, the program received entries from more than 30 companies. Among these entries, the most excellent CSR company and three excellent CSR companies were chosen after the evaluation by the representatives of the three Brother factories, from various perspectives, such as environment-friendliness, safety, and continuity. The awards ceremonies were held in March 2017, at Aiden Vietnam Ltd., the company that won the best CSR award, and at the social event for suppliers held in China for the companies which received CSR excellence awards. Brother also presented testimonials to all suppliers who joined this program. This CSR awards program helped Brother know its suppliers' stances toward CSR and their activities, receiving many reports on CSR activities addressed by respective suppliers, including the improvement of working environment, the reduction of waste, and the acquisition of the ISO 14001 certificate and efforts made based on it. The factories intend to continue this program, which reportedly contributed to increasing motivation among the employees of some suppliers by giving them recognition. The three Brother factories will promote expanding and enhancing its suppliers' CSR awareness and their activities through this awards program. The Brother Group will strive to foster relations of mutual trust with its business partners and grow together in order to speedily deliver superior value to customers.

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

The Brother Group puts its "Procurement Policy" and "CSR Procurement Standards" on the website to share its CSR procurement concept with parts and materials suppliers. In addition to green procurement practices which give priority to purchasing environmentally friendly parts and materials, these policy and standards also cover a wide range of fields, from human rights and labor, employees' safety and health, fair trade and ethics, product quality and safety, information security, to social contribution. The Brother Group remains committed to promoting CSR activities together with its suppliers. "Procurement policy" describes the commitment of "promoting green procurement considering the global environment and reducing the environmental impact through product life cycle" and "CSR procurement standards" includes transactions I'm asking you to work positively on "considering the global environment" first.

**Comment**

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**C12.1b**

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

**Type of engagement**

Education/information sharing

**Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

**Size of engagement**

**% Scope 3 emissions as reported in C6.5**

0

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

The Brother Group is committed to reducing environmental impact at all stages of the life cycle of its products. This is the guiding principle of the group's manufacturing activities. The Brother Group Environmental Action Plan 2018 (2016-2018) set ever-higher targets for each of these stages to accelerate efforts. Specific activities included enhancing eco-conscious design processes and green procurement, continuous reduction in environmental impact at manufacturing facilities (such as CO2 emissions and water consumption), reduction in CO2 emissions in logistics (for example, by optimizing packaging), further improvements in energy-saving performance during product use, and enhancement in the reusability, recyclability, and collection system for either products or consumables. We conduct various product lifecycle activities such as product design to improve environmental performance, disclosure of environmental label acquisition products, packaging downsizing, collection and recycling of used products and expendable items, along with video on our website It is open to the public.

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

EPEAT is an environmental rating for electronic products that is managed and administered by the Green Electronics Council (a non-profit organization). The environmental criteria underlying the EPEAT system are based on the full product lifecycle, from design and production to energy use and recycling. EPEAT criteria consist of required and optional ones; products are ranked Gold, Silver, or Bronze depending on the level of conformity with the optional criteria. In August 2016, the MFC-8950DW was registered as a Bronze product. As of April 2017, 53 models have been registered.

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**C12.1c**

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

The Brother Group has been reviewing delivery routes and adjusting the delivery service frequency, etc. as necessary to increase the efficiency of logistics in Japan. The logistics network was rearranged to unload products shipped from manufacturing facilities outside Japan (including those in China and ASEAN countries) at the Port of Tokyo and the Port of Osaka, which are closely located to large market areas, instead of the Port of Nagoya, which had been used before. In addition, some products are unloaded at the Port of Yokohama, which is close to customers and the group also delivers products from warehouses in Yokohama. Truck transportation was reduced and delivery distances were significantly reduced by increasing warehousing facilities. As a result of these measures, CO2 emissions were cut by about 38% per shipped weight. The Brother Group has successfully kept CO2 emissions low ever since. Since 2013, a modal shift has been introduced for some product shipments to large customers by switching from trucks to railroad. As a result, CO2 emissions in FY2016 were reduced by 22 tons. Meanwhile, six external warehouses that had been used to store service parts were integrated into one factory, and the logistics and reverse logistics facilities for some products were consolidated to eliminate the need for transport between warehouses. In total logistics, this measure reduced the volume of transport by about 10%. 3PL (third party logistics) is also used in the sales logistics of Brother products. It is noteworthy that sales logistics are undertaken by companies that are committed to reducing CO2 emissions (e.g., use of small hybrid delivery trucks).

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**C12.3**

**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Trade associations

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**C12.3b**

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

**C12.3c**

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**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

JBMA (Japan Business Machine and Information System Industries Association)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

We are engaged in activities such as collecting information on climate change policies and regulations, suggesting opinions, following up on industry activities such as "Low Carbon Society Implementation Plan", reviewing industry long-term efforts, and are participating as a member of the specialized technical committee.

**How have you, or are you attempting to, influence the position?**

We are participating as a committee member since the establishment of the 2002 Energy Conservation Council Liaison Committee, the predecessor of the current climate change response expert committee, and we strive to share information on social trends, release our own GHG reduction activities, etc.

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**Trade association**

EuroVAPrint

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

EuroVAPrint is a non-profit association grouping all major manufactures of imaging equipment that operate in Europe. The association promotes ErP Lot4 that is an industry voluntary agreement among EU Ecodesign Directive to improve the environmental performance by setting eco design requirements of imaging equipment. For example, promoting ecodesigns related to ENERGY STAR® such as duplex printing and energy consumption requirements, educating users on best practices for environmental printing such as using recycled paper and to secure better energy efficiency. These activities lead to develop and promote more eco-friendly products.

**How have you, or are you attempting to, influence the position?**

The Manager in Brother International Europe is a board member and plays a governance role actively. (<http://www.eurovaprint.eu/pages/our-mission/>) As a board member, he attends the Steering Committee and gave an overview presentation of how the VA has been delivering tangible energy savings. ([http://www.eurovaprint.eu/fileadmin/eurovaprint\\_files/pdfs/Infographic\\_2015.pdf](http://www.eurovaprint.eu/fileadmin/eurovaprint_files/pdfs/Infographic_2015.pdf)) He also participated to set further targets for Tier 3 of the VA and will start discussions on the future of the VA and its environmental improvements from 2019 onwards.

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**Trade association**

DIGITAL EUROPE

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

DIGITAL EUROPE is committed to reducing our industry's GHG emissions because it is good for the planet and it makes good business sense. As the voice of the digital industry in Europe, we work closely with EU policymakers to advocate for these views. DIGITALEUROPE is a recognised stakeholder in the Eco Design regulatory process. We also regularly meet with EU stakeholders to provide industry insight on the latest ICT products and services.

**How have you, or are you attempting to, influence the position?**

Brother International Europe is the member of this association and we actively participate in activities for chemical and environmental design of products.

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**C12.3f**

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**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

When the JBMIA (Japan Business Machine and Information System Industries Association) submits recommendations to the Nippon Keidanren, the policy committee of this industry requires the process of determining the institution as a process. The Board of Directors of the Company participates in this policy committee as a committee member. For important decisions, reports are made to the directors from within the company's subordinate committee members in advance, and the opinions as individual companies are unified. The Group's CO2 reduction activities are reported by the Environment Committee and its risk management committee, and decisions are made at each meeting body.

## 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

**Status**

Underway – previous year attached

**Attach the document**

eco\_2017\_all.pdf

**Content elements**

Governance

Strategy

Emissions figures

Emission targets

Other metrics

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**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

ISO 14064-1 AS\_BIL-2016\_EN\_final20180618.pdf

**Content elements**

Emissions figures

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## C14. Signoff

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### C-FI

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**(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.**

### C14.1

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(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Managing Executive Officer	Chief Operating Officer (COO)