

## Environmental Activities



The Brother Group helps society achieve sustainable development, by positively and continuously considering the environmental impact of all aspects of our business operations.

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Scope of report: Brother Industries, Ltd. and its global group companies (including those in Japan)  
Covered period: April 1, 2016 to March 31, 2017  
Guideline used as a reference: GRI's "Sustainability Reporting Guidelines (G4)"

## Message from the Management (Environment)

### Achieving a Sustainable Society

#### Global trend toward achieving a sustainable society

In November 2016, the Paris Agreement went into effect. The agreement was reached by 197 countries and regions at the 21st meeting of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC).

The Paris Agreement aims to hold the increase in the global average temperature to well below 2°C above pre-industrial levels by 2050 and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

At the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10) in 2010, it was agreed to take urgent and effective action to prevent biodiversity loss by 2020. The Aichi Biodiversity Targets, which defined the targets that should be attained by the international community, were adopted.

In 2015, the 2030 Agenda for Sustainable Development was adopted at the United Nations summit. The agenda sets out the Sustainable Development Goals (SDGs) from 2016 to 2030. The 2030 Agenda requires actions to be taken to cope with worsening environmental issues such as global warming, pollution, and biodiversity loss.



#### Promising active and continuous efforts

The Brother Group Global Charter ("Global Charter") was established in 1999 to provide the foundation for all Brother Group activities in the global marketplace. In the Global Charter, the Brother Group promises to play its part to help society achieve sustainable development by actively and continuously considering the environmental impact of all aspects of its operations. In 2010, the Brother Group created the "Brother Earth" slogan, and has been accelerating its efforts, including biodiversity conservation with stakeholders, based on a unified message of "Working with you for a better environment."



Working with you for a better environment

## Message from the Management (Environment)

### Brother Group Environmental Action Plan 2018 (2016-2018)

The Brother Group Environmental Action Plan 2018 (2016-2018) serves as the environmental activity guidelines for the Mid-term Business Strategy "CS B2018" to achieve the Brother Group's mid- to long-term corporate vision, Global Vision 21.

The Brother Group will deliver more products and services to customers by promoting the three reforms through CS B2018 and achieving further business growth based on Global Vision 21 (beyond CS B2018). Further reductions in the environmental impact attributed to production, sales, logistics, use, and disposal will become increasingly important. In FY2016 (April 1, 2016-March 31, 2017), the Brother Group developed eco-conscious products which met rigorous standards of respective countries (including the Blue Angel of Germany) and attained the CO<sub>2</sub> emissions reduction targets in Scopes 1 and 2 two years ahead of schedule. The Brother Group also continued to contribute actively to reducing the environmental impact in collaboration with suppliers and promoting biodiversity conservation across business boundaries. Thus, steady progress has been made in collaboration with stakeholders.



Activities to plant seedlings at Brother Forests in Gujo which will mark the 10th anniversary in 2017  
\* The photo was taken in 2008.

### Ensuring a long and successful future

We have a responsibility to the next generation for ensuring environmental consciousness.

Biodiversity conservation is linked with all environmental activities including reforestation, protection of endangered wildlife, environmental consciousness throughout the product life cycle, reduction in CO<sub>2</sub> emissions, and non-use of hazardous substances in products. There are many things to be done on the global, national, and corporate levels.

The Brother Group remains committed to contributing to solving global environmental issues to help society achieve sustainable development.

Brother Industries, Ltd.  
Representative Director & President

**Toshikazu Koike**

August 2017

## FY2016 Highlights

### "Brother Earth" - Working with you for a better environment

Under the "Brother Earth" logo and slogan (formulated in 2010) which symbolize our environmental activities and promise to help society achieve sustainable development, by positively and continuously considering the environmental impact of all aspects of our business operations, each Brother Group employee is further committed to participating in various activities based on the unified message of "Working with you for a better environment" in cooperation with Brother's customers and other stakeholders.



### Brother Group Environmental Action Plan 2018 (2016-2018) and main achievements in FY2016

#### 1. Create eco-conscious products

To further enhance commitment to developing eco-conscious products, the Brother Group has been working on top-class eco-conscious designs in respective product categories by actively acquiring environmental labels in respective countries and meeting new standards, etc. Based on top-class eco-conscious designs, the Brother Group has been working to reduce the carbon footprints of products in order to reduce the environmental impact of products through their entire life cycle.

#### For the product portfolio in the communications and printing equipment field

##### 1. To attain the highest environmental performance

Ensured compliance with Blue Angel\*<sup>1</sup> for all new models released, and started registration for EPEAT\*<sup>2</sup>



##### 2. To reduce the carbon footprint of products

Ensured compliance with the International ENERGY STAR Program for all new models released, and continued information disclosure based on EcoLeaf\*<sup>3</sup>



\*1: A Type I eco-label in Germany which is considered to be the most rigorous in the world

\*2: An environmental rating in the U.S. based on the full product lifecycle

\*3: An eco-label to indicate the environmental impact of products with quantifiable data using life cycle assessment (LCA)

# FY2016 Highlights

## Brother Group Environmental Action Plan 2018 (2016-2018) and main achievements in FY2016

### 2. Cut CO2 emissions from the group as a three-year target toward achieving the mid-term targets by FY2020 (April 1, 2020-March 31, 2021)

Since FY2013 (April 1, 2013-March 31, 2014), the scope of activities to cut CO2 emissions has been expanded on a group basis. Furthermore, the Brother Group has taken on a challenge to calculate and reduce CO2 emissions from the entire product supply chain, in addition to CO2 emissions from its operations. To verify the calculation results, the Brother Group is subject to verification of compliance with the international standards (ISO14064-1 requirements) established by a third party organization, in an effort to acquire an assurance statement for the accuracy of data.

Compared with the target of 3% reduction from FY2015 levels by FY2018 in Scopes 1 and 2 for the entire Brother Group

Reduced CO2 emissions by 7.4% from FY2015 levels\*

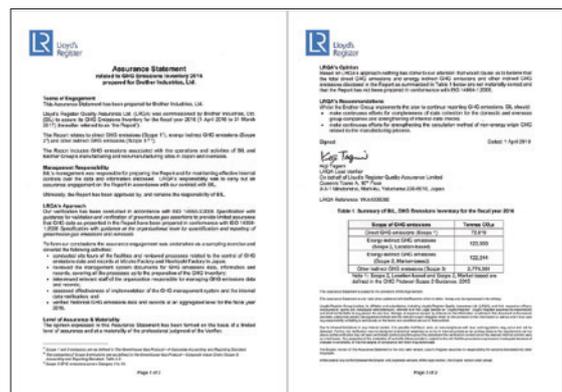
\*: Target and achievement per unit of sales

At eight business sites in Japan

Compared with the target of 28% reduction from FY1990 levels by FY2018

Reduced CO2 emissions by 28.4% from FY1990 levels\*

\*: Target and achievement in absolute values



LRQA assurance statement

▶ [View the PDF \[PDF/569KB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/2017/lrqa\\_assurance.pdf](http://download.brother.com/pub/com/en/eco/pdf/2017/lrqa_assurance.pdf)

### 3. Maintain regulatory compliance for all product categories

In addition to complying with laws and regulations in respective countries and regions, including the REACH Regulation and RoHS Directive, the Brother Group operates an environmental information system (an IT system for investigating and managing certain chemical substances contained in purchased parts) and audits suppliers from which parts and materials are purchased. Thus, Brother has a group-wide chemical substances assurance system.

## FY2016 Highlights

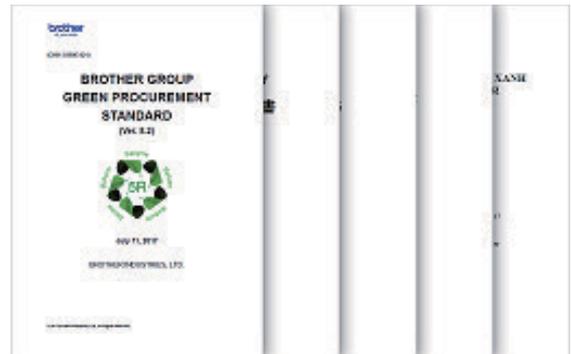
### Brother Group Environmental Action Plan 2018 (2016-2018) and main achievements in FY2016

In promoting activities to reduce the environmental impact in upstream operations

#### Defined measures to cope with phthalate esters\*

Reflected them in the Green Procurement Standards, established measurement methods, and formulated a plan to introduce measuring instruments at respective manufacturing facilities

\*: Newly added chemical substances to be banned under the EU RoHS Directive from July 2019



### 4. Support activities for continuous improvement under our philosophy of "Brother Earth"

The Brother Group helps raise awareness to consider its environmental impact under the "Brother Earth" slogan. Brother's special website on the environment (brotherearth.com) presents "Eco Technology" and "Eco-conscious Products" that explain employees' commitment to eco-conscious product development, as well as the Brother Group's environmental conservation activities, etc. The Brother Group actively works on environmental conservation and other activities to contribute to communities in collaboration and cooperation with many stakeholders through interactive communication including "Click for the Earth" in the special website and events with environmental themes.

#### On Brother's special website on the environment (brotherearth.com)

##### 1. Introduced the Brother Group's environmental activities and environmental conservation activities in collaboration with stakeholders



▶ We are expanding the possibilities of recycling for the future global environment.  
<http://www.brotherearth.com/en/story/toner-recycle.html>



THE ZOO OF EXTINCT ANIMALS x Brother Earth -  
The stories we don't know -

##### 2. Attracted more than 800,000 clicks (one yen donated by Brother for each click) in Click for the Earth

## FY2016 Highlights

### Brother Group Environmental Action Plan 2018 (2016-2018) and main achievements in FY2016

#### In environmental activities

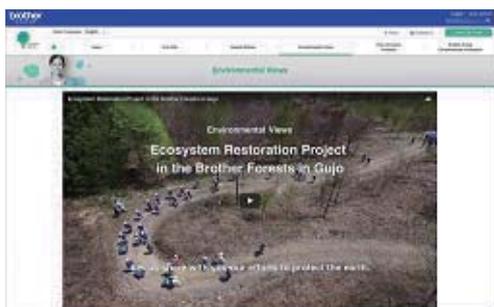
Won the Good Performance Prize in the Environmental Report Section of the 20th Environmental Communication Awards

#### 5. Support biodiversity conservation in total Brother group under the COP10 Aichi Biodiversity Targets

As a global company headquartered in the venue of COP10, the Brother Group considers the Aichi Biodiversity Targets (by 2020) as high-priority targets. Respective facilities have been working on biodiversity conservation activities with regional characteristics taken into consideration. The Brother Group endeavors to provide employees with education about biodiversity conservation to help prevent destruction of habitats and recover ecosystem services that are essential for the survival of humankind. Activities will be further promoted to exterminate and prevent the invasion of invasive alien species and conserve the habitats of rare species, etc.

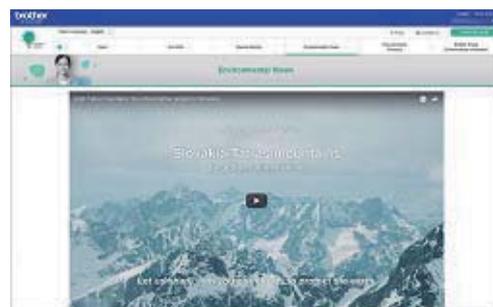
#### To meet the Aichi Biodiversity Targets

Continuously promoted biodiversity conservation efforts which are closely related to the electrical and electronic industries (e.g., promote dissemination and raise awareness, conserve protected areas) and are expected to make significant contributions through our commitment



► **Ecosystem Restoration Project in the Brother Forests in Gujo**

<http://www.brotherearth.com/en/environmental-views/gujo.html>



► **High Tatra mountains: the reforestation project - Activities to plant seedlings and maintain the beautiful forests into the future -**

<http://www.brotherearth.com/en/environmental-views/slovakia.html>

► **Mid-term Environmental Action Plan (Targets and Achievements)**

[http://www.brother.com/en/eco/management/action\\_plan/index.htm](http://www.brother.com/en/eco/management/action_plan/index.htm)

# Corporate Environmental Strategy and Management

## Brother Group's Environmental Strategy

### Environmental policy

The Brother Group's mission is to place our customers first everywhere, every time, and provide them with superior value, by quickly creating and delivering high-quality products and services. To fulfill the mission, it is essential to help society achieve sustainable development, by positively and continuously considering the environmental impact of all aspects of our business operations. This is the basic principle of the Brother Group Environmental Policy, and is set out in the Brother Group Global Charter, originally published in 1999, that provides the foundation for all Brother Group activities in the global marketplace. The Charter has been translated into 27 languages and been shared with all our employees in order to create a system that is appropriate for a global company transcending differences in culture and customs.

### Brother Group's environmental policy

#### Basic philosophy

The Brother Group shall positively and continuously act to decrease the environmental impact of all aspects of our business operations so that society can achieve sustainable development.

#### Basic environmental policy

Concern for the environment shall be the cornerstone of all operations. Safety and environmental impact shall be prime considerations at every stage of a product's life cycle, from design, development, manufacturing, customer usage, and disposal, to reuse and recycling.

### Action Guidelines and specific environmental activities

Action guidelines	Specific environmental activities
1. We will set environmental targets in all areas (manufacturing, production, and service) and continuously improve their environmental aspects.	Both manufacturing and sales facilities work to acquire ISO 14001 certification, and strive to reduce environmental impact by conserving energy and reducing CO2 emissions.
2. We will not limit our activities to the observation of laws and regulations in all countries where we conduct business, but will also act with a strong moral responsibility to prevent pollution and reduce environmental impact.	A rigorous management framework ensures compliance with environmental laws and regulations in respective countries, prevents oversight and omissions, and enables a quick response.
3. We will always consider waste reduction by more efficient use of resources and recycling of products, and will also avoid creating contamination by hazardous substances when designing and developing both technologies and products.	In developing products, eco-consciousness is considered in various aspects (e.g. energy conservation performance, use of hazardous chemical substances, and ease of recycling).

# Corporate Environmental Strategy and Management

## Brother Group's Environmental Strategy

### Action Guidelines and specific environmental activities

Action guidelines	Specific environmental activities
4. While respecting voluntary activities by each company of the Brother Group, we will also exercise our environmental duties as a united group.	Activities are promoted based on the Brother Group Mid-term Environmental Action Plan, which is the plan for the entire group.
5. We will enhance the environmental understanding and awareness of all employees through activities such as environmental education and PR.	Various educational opportunities are offered to enhance eco-consciousness (including training programs for new employees, technical training programs for engineers, and e-learning programs for all employees).
6. We will actively disclose our environmental efforts to our customers, local communities, and other interested parties to further foster understanding.	Proactive efforts are made to publicize Brother's activities, such as touring facilities with environmental features, participating in exhibitions, offering lessons at elementary schools and other educational institutions, and planting seedlings.
7. We will endeavor to reduce our impact on the ecosystem and to conserve biodiversity in all our operations.	Biodiversity conservation activities include the procurement of biodiversity-conscious raw materials and the use of FSC-certified paper. Projects for the restoration/conservation of forests or other natural habitats are promoted.

Regarding biodiversity conservation, the Brother Group established a biodiversity conservation policy based on the Brother Group Environmental Policy in FY2012 (April 1, 2012-March 31, 2013), and the scope has been expanded to cover activities in all business operations.

### Environmental Action Plan

The Brother Group started to formulate its Mid-term Environmental Action Plan in 1993. The Brother Group Environmental Action Plan 2018 (2016-2018), which is the eighth plan, has five basic policies as the environmental targets of the Mid-term Business Strategy "CS B2018," which was formulated as a roadmap to achieve the mid-to long-term corporate vision, Global Vision 21.

In 2009, the Brother Group set the mid-term targets by FY2020 to reduce emissions of CO<sub>2</sub>, which is considered to be the major contributor to climate change, and has implemented energy conservation measures on an ongoing basis.

Regarding biodiversity conservation, the Brother Group incorporated it into the action guidelines of the Brother Group Environmental Policy in FY2011 (April 1, 2011-March 31, 2012), and established the Brother Group's biodiversity conservation policy in 2012. The Brother Group remains committed to the Aichi Biodiversity Targets to help attain the vision by 2050.

# Corporate Environmental Strategy and Management

## Brother Group's Environmental Strategy

### Brother Group Environmental Action Plan 2018 (2016-2018) Basic policy

#### Create eco-conscious products

To further enhance commitment to developing eco-conscious products, the Brother Group has been working on top-class eco-conscious designs in respective product categories by actively acquiring environmental labels in respective countries and meeting new standards, etc. Based on top-class eco-conscious designs, the Brother Group has been working to reduce the carbon footprints of products in order to reduce the environmental impact of products through their entire life cycle.

#### Cut CO<sub>2</sub> emissions from the group as a three-year target toward achieving the mid-term targets by FY2020 (April 1, 2020-March 31, 2021)

Since FY2013 (April 1, 2013-March 31, 2014), the scope of activities to cut CO<sub>2</sub> emissions has been expanded on a group basis. Furthermore, the Brother Group has taken on a challenge to calculate and reduce CO<sub>2</sub> emissions from the entire product supply chain, in addition to CO<sub>2</sub> emissions from its operations. To verify the calculation results, the Brother Group is subject to verification of compliance with the international standards (ISO14064-1 requirements) established by a third party organization, in an effort to acquire an assurance statement for the accuracy of data.

#### Maintain regulatory compliance for all product categories

In addition to complying with laws and regulations in respective countries and regions, including the REACH Regulation and RoHS Directive, the Brother Group operates an environmental information system (an IT system for investigating and managing certain chemical substances contained in purchased parts) and audits suppliers from which parts and materials are purchased. Thus, Brother has a group-wide chemical substances assurance system.

#### Support activities for continuous improvement under our philosophy of "Brother Earth"

The Brother Group helps raise awareness to consider its environmental impact under the "Brother Earth" slogan. Brother's special website on the environment (brotherearth.com), presents "Eco Technology" and "Eco-conscious Products" that explain employees' commitment to eco-conscious product development, as well as the Brother Group's environmental conservation activities, etc. The Brother Group actively works on environmental conservation and other activities to contribute to communities in collaboration and cooperation with many stakeholders through interactive communication including "Click for the Earth" in the special website and events with environmental themes.

#### Support biodiversity conservation in total Brother Group under the COP10 Aichi Biodiversity Targets

As a global company headquartered in the venue of COP10, the Brother Group considers the Aichi Biodiversity Targets (by 2020) as high-priority targets. Respective facilities have been working on biodiversity conservation activities with regional characteristics taken into consideration. The Brother Group endeavors to provide employees with education about biodiversity conservation to help prevent destruction of habitats and recover ecosystem services that are essential for the survival of humankind. Activities will be further promoted to exterminate and prevent the invasion of invasive alien species and conserve the habitats of rare species, etc.

▶ **Mid-term Environmental Action Plan (Targets and Achievements)** [http://www.brother.com/en/eco/management/action\\_plan/index.htm](http://www.brother.com/en/eco/management/action_plan/index.htm)

# Corporate Environmental Strategy and Management

## Brother Group's Environmental Strategy

### Brother Earth environmental slogan

To boost our environmental activities, the Brother Group created the "Brother Earth" logo and slogan in 2010 to symbolize our efforts. Under Brother Earth, each Brother Group employee has been further committed to various activities based on a unified message of "Working with you for a better environment."



In 2012, the Brother Group Principles of Social Responsibility were established to define the responsibilities that group companies are expected to assume and the fundamental concept of action for environmental conservation.



\*: This video is from YouTube.

To appeal to society at large, Brother Earth, Brother's special website on the environment, was launched to simply present Brother's wish and the activities it does to protect the earth.

### "5R" concept – the key to reducing environmental impact

From 1999, the Brother Group has been conducting environmental activities based on the "5Rs," which adds "Refuse" and "Reform" to the "Reduce," "Reuse" and "Recycle" 3Rs as the basis for establishing a sound material-cycle society. "Reform" in particular is an original idea from Brother for creating value by introducing novel approaches and ideas for changing the state of a waste material.

	<p><b>Refuse</b> Avoid purchase of environmentally burdensome materials whenever possible</p>
	<p><b>Reduce</b> Reduce waste material</p>
	<p><b>Reuse</b> Reuse waste material without processing</p>
	<p><b>Reform</b> Reuse materials in a different form</p>
	<p><b>Recycle</b> Reuse materials as resources</p>

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### Brother Group Environmental Action Plan 2018 (2016-2018)

The Brother Group aims to improve the value of the Brother brand which is trusted by customers and to build a strong sense of pride among employees of the group. To this end, the Brother Group will continuously strengthen the foundation established through the previous Environmental Action Plan and implement and fulfill the Brother Group Environmental Action Plan 2018 (2016-2018).

#### Basic policy

1. Create eco-conscious products
2. Cut CO<sub>2</sub> emissions from the group as a three-year target toward achieving the mid-term targets by FY2020 (April 1, 2020-March 31, 2021)
3. Maintain regulatory compliance for all product categories
4. Support activities for continuous improvement under our philosophy of "Brother Earth"
5. Support biodiversity conservation in total Brother group under the COP10 Aichi Biodiversity Targets

### Mid-term targets by FY2020 to reduce the CO<sub>2</sub> emissions

As a global company developing its business in different countries and regions across the world, the Brother Group recognizes its commitment to prevent global warming as a top priority to be addressed. In June 2009, CO<sub>2</sub> reduction targets to be achieved by FY2020 were added to the Brother Group Mid-term Environmental Action Plan, and active efforts have been made to achieve those targets.

#### Mid-term targets by FY2020

- (1) Cut total CO<sub>2</sub> emissions by 30% from FY1990 levels at eight business sites\*<sup>1</sup> in Japan by FY2020 (absolute value)
- (2) Cut CO<sub>2</sub> emissions by 20% (per unit of sales) from FY2006 levels at manufacturing facilities outside Japan (except the USA)\*<sup>2</sup> by FY2020

\*1: The eight business sites in Japan are the head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center.

\*2: USA (a manufacturing facility outside Japan) constitutes part of a sales facility. Thus, the CO<sub>2</sub> emissions are included in the results of the sales facility.

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### Environmental targets based on the basic policy (2016-2018) and achievements in FY2016

#### 1. Creation of eco-conscious products

1-1 Continue research and development of products that achieve the best environmental performance in each applicable market

1-2 Reduce the carbon footprint of products

1-3 Promote the use of recycled materials in products

\*: The numbers in "Environmental targets" in the chart below correspond to the numbers in the text above.

Environmental targets*	Achievements in FY2016	Self-evaluation
1-1	All new models of products in the communication and printing equipment field released in FY2016 complied with the Blue Angel requirements of Germany (which are considered to be the most rigorous in the world) Started registration for EPEAT (Electronic Product Environmental Assessment Tool in the U.S.)	Achieved
1-2	All models of products in the communication and printing equipment field released in FY2016 complied with the International ENERGY STAR Program to encourage energy-efficient products Disclosed information in accordance with the EcoLeaf standards in Japan to visualize the overall environmental impact of products	Achieved
1-3	Expanded the use of post-consumer material, and designed three models in FY2016 in the communication and printing equipment field to use more post-consumer material than those of the previous generation	Achieved

▶ **Environmental Considerations within Product Life Cycles**

<http://www.brother.com/en/eco/product/index.htm>

▶ **Environmental Labels Acquired**

<http://www.brother.com/en/eco/product/label/index.htm>

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### 2. Reduction of environmental impacts of business sites

- 2-1 Reduce CO<sub>2</sub> emissions of Scopes 1 and 2 of the entire Brother Group by 3% from FY2015 levels by FY2018 (per unit of sales)
- 2-2 Calculate CO<sub>2</sub> emissions of Scope 3 of the entire Brother Group (in addition to Scopes 1 and 2), identifying effective measures to reduce CO<sub>2</sub> emissions throughout the supply chain, and continuously working on reduction
- 2-3 Reduce CO<sub>2</sub> emissions of business sites in Japan by 28% from FY1990 levels by FY2018 (absolute value)
- 2-4 Reduce water consumption of manufacturing facilities by 30% from FY2010 levels by FY2018 (per unit of sales)
- 2-5 Manage continuous improvement through monitoring and administration of the environmental management system with focus on the utilization of clean energy to achieve CO<sub>2</sub> emissions reduction targets
- 2-6 Continue to maintain (and obtain for new locations) the ISO 14001 certification for each Brother Group location

\*: The numbers in "Environmental targets" in the chart below correspond to the numbers in the text above.

Environmental targets*	Achievements in FY2016	Self-evaluation
2-1	Achieved 7.4% reduction from FY2015	Significantly achieved
2-2	Expanded the scope of aggregation in FY2015 and calculated Scope 3 of the Brother Group	Achieved
2-3	Achieved 28.4% reduction from FY1990	Achieved
2-4	Achieved 16.7% reduction from FY2010 (Increased 8.0% from FY2015)	Not achieved
2-5	Introduced an additional integrated monitoring system for the building air-conditioning equipment at the Mizuho Manufacturing Facility (seven in total) Installed an additional electricity monitoring system in the power receiving and transforming room at the Momozono Manufacturing Facility (six manufacturing facilities and business sites in total)	Achieved
2-6	Brother Commercial (Thailand) Ltd. acquired certification (a sales facility)	Achieved

#### ▶CO<sub>2</sub> Emission Reduction Activities

<http://www.brother.com/en/eco/facility/index.htm>

#### ▶Activities to Reduce Water Consumption

<http://www.brother.com/en/eco/facility/water/index.htm>

#### ▶Material Balance

[http://www.brother.com/en/eco/facility/material\\_balance/index.htm](http://www.brother.com/en/eco/facility/material_balance/index.htm)

#### ▶List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

[http://www.brother.com/en/eco/facility/iso\\_14001/index.htm](http://www.brother.com/en/eco/facility/iso_14001/index.htm)

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### 3. Regulatory compliance for all product categories

3-1 Maintain regulatory compliance

3-2 Contribute to society/community through participation and contribution to environmental CSR activities

3-3 Develop and implement a green procurement program for the Brother Group manufacturing locations

3-4 Encourage the reduction of our environmental impact in the upstream processes by working with our suppliers

\*: The numbers in "Environmental targets" in the chart below correspond to the numbers in the text above.

Environmental targets*	Achievements in FY2016	Self-evaluation
3-1	Ensured compliance with regulations regarding chemical substances contained in products, WEEE/directive on packaging materials, and energy-saving regulations on products	Achieved
3-2	Actively participated in and contributed to public relations activities regarding environmental laws, regulations and standards	Achieved
3-3, 3-4	Defined measures to cope with phthalate esters (which will be banned under the EU RoHS Directive in July 2019) and reflected them in the Green Procurement Standards Established measurement methods of phthalate esters, and formulated a plan to introduce measuring instruments at respective manufacturing facilities	Significantly achieved

► **Compliance with Environmental Laws and Regulations on Products**

<http://www.brother.com/en/eco/regulation/index.htm>

► **Green Procurement**

[http://www.brother.com/en/eco/regulation/green\\_procurement/index.htm](http://www.brother.com/en/eco/regulation/green_procurement/index.htm)

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### 4. Communication and marketing of the Brother Group environmental activities

4-1 Strengthen and expand the reach of our environmental website (brotherearth.com) to all stakeholders

4-2 Strengthen reporting of our Environmental Activities under our brother.com website

4-3 Promote effective environmental in-house branding activities

4-4 Promote awareness of the logo and slogan "Brother Earth"

\*: The numbers in "Environmental targets" in the chart below correspond to the numbers in the text above.

Environmental targets*	Achievements in FY2016	Self-evaluation
4-1	Posted two videos on the website: "High Tatras mountains: the reforestation project in Slovakia," by Brother Industries (Slovakia) s.r.o. in collaboration with a local NPO, and "Toner Cartridges Recycle," which introduces the toner cartridges recycle program in Europe Also posted "THE ZOO OF EXTINCT ANIMALS x Brother Earth" content, which introduces the "ZOO OF EXTINCT ANIMALS" project promoted by Higashiyama Zoo and Botanical Gardens in Nagoya City, Aichi Prefecture Added reforestation activity in Slovakia to Click for the Earth, and attracted more than 800,000 clicks (one yen donated by Brother for each click)	Achieved
4-2	Endeavored to improve the quality of information disclosure, and won the Good Performance Prize in the Environmental Report Section of the 20th Environmental Communication Awards	Significantly achieved
4-3	Continued to promote the Brother eco point program within the Brother Group Continuously implemented measures to improve the environmental awareness of employees through the internal commendation program and information dissemination via the intranet	Achieved
4-4	Continuously publicized environmental messages through environmental events (e.g., exhibitions and environmental learning programs) and websites (e.g., social media)	Achieved

#### ▶ Environmental Communication Activities

<http://www.brother.com/en/eco/communication/index.htm>

#### ▶ Environmental Commendation and Awards

<http://www.brother.com/en/eco/management/award/index.htm>

#### ▶ Environmental Activities - Editing Policy

[http://www.brother.com/en/eco/sitemap\\_profile/index.htm#editingpolicy](http://www.brother.com/en/eco/sitemap_profile/index.htm#editingpolicy)

#### ▶ Brother Eco Point Program

[http://www.brother.com/en/eco/communication/eco\\_point/index.htm](http://www.brother.com/en/eco/communication/eco_point/index.htm)

#### ▶ Special website on the environment (brotherearth.com)

<http://www.brotherearth.com/en/>

# Corporate Environmental Strategy and Management

## Mid-term Environmental Action Plan (Targets and Achievements)

### 5. Support for biodiversity conservation

5-1 Select priority themes by taking into account the characteristics of respective facilities and their regions and work on activities to contribute to biodiversity conservation based on the Aichi Biodiversity Targets (by 2020) adopted at COP10 (high-priority targets) across the Brother Group

\*: The numbers in "Environmental targets" in the chart below correspond to the numbers in the text above.

Environmental targets*	Achievements in FY2016	Self-evaluation
5-1	Continuously promoted efforts to attain eight of the Aichi Biodiversity Targets (Target 1: Awareness increased, Target 4: Sustainable consumption and production, Target 5: Habitat loss halved or reduced, Target 8: Pollution reduced, Target 9: Invasive alien species prevented and controlled, Target 11: Protected areas increased and improved, Target 14: Ecosystems and essential services safeguarded, Target 19: Knowledge improved, shared and applied) which are closely related to the electrical and electronic industries and are expected to make significant contributions through our commitment	Achieved

#### ► Biodiversity

<http://www.brother.com/en/eco/biodiversity/index.htm>

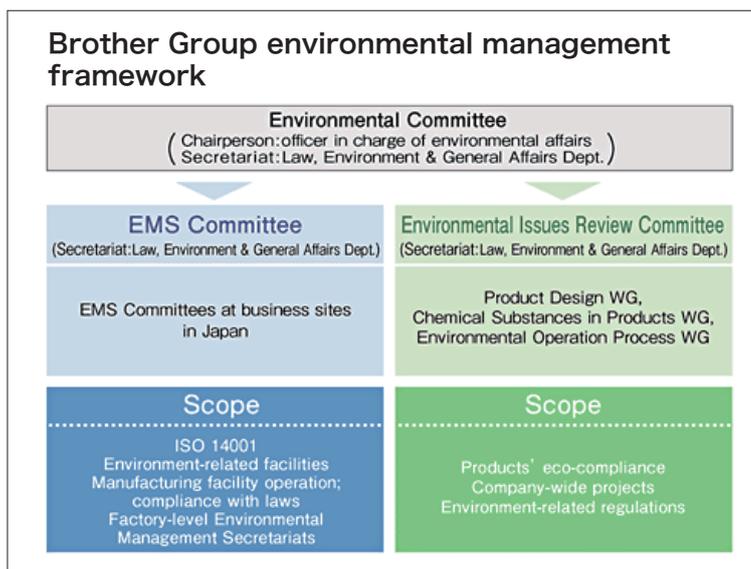
# Corporate Environmental Strategy and Management

## Internal Environmental Management Structure

### Environmental management framework

#### Globally managing environmental issues throughout the group, led by the Environmental Committee

The Brother Group promotes global environmental management according to the Brother Group Environmental Policy. Specifically, the officer in charge of environmental affairs instructs respective departments at head office as well as divisions and function centers through the Environmental Committee (the supreme committee responsible for promoting environmental management) to determine policies and implement measures.



### Environmental Committee

The Environmental Committee is the decision-making body for environmental affairs. It is chaired by the officer in charge of environmental affairs and other executive officers responsible for function centers, new business, IT, and general affairs. Committee meetings are held four times a year.

#### ►Brother Industries, Ltd. Governance Structure

[http://www.brother.com/en/corporate/governance/structure/index.htm#org\\_chart](http://www.brother.com/en/corporate/governance/structure/index.htm#org_chart)

### EMS (environmental management system) Committee (secretariat: Law, Environment & General Affairs Dept.)

This committee has control over the EMS subcommittees set up in head office and manufacturing facilities in Japan. The committee monitors ISO 14001 operations at these facilities and compliance with laws and regulations in Japan, while constantly following up improvement activities.

#### Respective business sites and major group companies

These entities have dedicated staff responsible for environmental management activities. The staff identify and report (i) progress in fulfilling specific policies and targets set by the Environmental Committee and (ii) compliance with rules for environmental management.

# Corporate Environmental Strategy and Management

## Internal Environmental Management Structure

### Environmental Issues Review Committee (secretariat: Law, Environment & General Affairs Dept.)

This committee draws up and reviews specific policies and measures relating to products' eco-compliance, companywide projects, and environment-related regulations.

#### Working Groups (WGs)

The following working groups in Japan serve as task forces responsible for their respective themes.

- Product Design WG: Reviews and determines various standards for eco-friendly product design.
- Chemical Substances in Products WG: Ensures compliance with regulations on chemical substances contained in products, primarily the RoHS Directive.
- Environmental Operation Process WG: Addresses the establishment of environmental eco-compliance operation and environmental information systems for the entire group.

## Environmental communication promotion framework

The Brother Group established "working on activities to enhance the environmental brand image under the environmental slogan 'Brother Earth'" as the basic policy for environmental communication in the Brother Group Environmental Action Plan 2018 (2016-2018). The CSR & Corporate Communication Dept. takes the initiative to promote environmental activities at facilities around the world.

## Environmental management system

### Practicing the PDCA (Plan - Do - Check - Act) cycle in line with ISO 14001

Under our mid-term management plan, the Brother Group creates the Brother Group Mid-term Environmental Action Plan every three to five years, based on which Brother Industries, Ltd. (BIL) and manufacturing and sales facilities in respective countries set annual plans and carry out environmental activities as part of their business operations. The progress and performance (results) of plans are checked based on reports and internal audits from each facility, and the findings are then reflected when planning for the following year.

In operating the environmental management system for environmental protection activities, compliance with laws, regulations, and standards is ensured, and the ISO 14001-based PDCA (Plan - Do - Check - Act) cycle is practiced.

ISO 14001 certification has been obtained by all group manufacturing facilities\*, with Brother Industries (U.K.) Ltd. being the first to be certified in 1996. Brother U.K. Ltd., a sales facility in U.K., obtained certification in 2005, followed by other many sales facilities.

\*: When a new business site is established, activities are implemented in compliance with ISO 14001 upon commencement of operations, and ISO 14001 certification is immediately obtained.

#### ►List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

[http://www.brother.com/en/eco/facility/iso\\_14001/index.htm](http://www.brother.com/en/eco/facility/iso_14001/index.htm)

# Corporate Environmental Strategy and Management

## Internal Environmental Management Structure

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### Internal audit and external review

The Brother Group annually conducts internal audits to confirm that manufacturing facilities in and outside Japan effectively follow the environmental management system in conformance with ISO 14001. The Brother Group is also subject to external review for ISO 14001 (environmental management system) certification.

For facilities in Japan, internal audits are conducted by the Law, Environment & General Affairs Dept. of BIL. For overseas facilities, internal audits are conducted by departments in charge of environmental affairs at the respective facilities to check compliance with relevant laws and regulations, the progress of annual plans, the effectiveness of the environmental management system, and consistency with ISO standards. Corrective measures are implemented immediately when any nonconformance is found, and the effectiveness of such corrective measures is checked by follow-up audits.

Audit results in Japan, together with the status of legal compliance and performance (results), are presented to the Environmental Committee.

In the annual internal audit and external review, it is confirmed that the PDCA cycle is properly practiced and there are no serious accidents or problems to report.

### Environmental training for employees

The Brother Group's ISO 14001-certified facilities offer environmental training programs for all employees as well as job specific training related to specific tasks and functions.

Essential environmental training is provided every year to raise eco-awareness and facilitate operations. Examples include environmental training programs for all new recruits joining Brother; e-learning -based training programs for all employees; training programs for production and procurement staff at manufacturing facilities in and outside of Japan, for example, the management of chemical substances contained in products, process control guidance and auditing at suppliers.

# Corporate Environmental Strategy and Management

## Environmental Commendation and Awards

### External environmental commendation system in FY2016

#### Head office of Brother Sales wins "Outstanding eco office award"

On February 1, 2017, Brother Sales, Ltd. ("Brother Sales") won the "Outstanding eco office award" under the eco office certification system established by Nagoya City.\*

This award is given to excellent eco offices, among those certified by Nagoya City, which produced outstanding results and set an example to other companies.

Under the Brother Group's environmental slogan "Brother Earth," approximately 90% of Brother Sales employees passed the eco test. Employees work together to promote activities such as eco-drives, energy conservation, and cleanups around the business site. The eco points earned in accordance with the number of used consumables for Brother products collected are used to plant seedlings. These activities were highly evaluated.

Brother Sales was also recognized as a business site which met the activity criteria in the FY2016 Eco-Drive Activity Contest organized by the Foundation for Promoting Personal Mobility and Ecological Transportation, and was awarded an excellent eco-drive activity certificate.

\*: The eco office certification system established by Nagoya City covers business sites operating in the city. Thus, the Brother Sales head office won the award.



"Outstanding eco office award" certificate



Winning the "Outstanding eco office award"

# Corporate Environmental Strategy and Management

## Environmental Commendation and Awards

### Won the Good Performance Prize in the Environmental Report Section of the 20th Environmental Communication Awards

On February 13, 2017, Brother Industries, Ltd. (BIL) won the Good Performance Prize\* in the Environmental Report Section of the 20th Environmental Communication Awards organized by the Japanese Ministry of the Environment and the Global Environmental Forum.

The aim of the Environmental Communication Awards is to encourage business operators, etc. to work on green management and environmental communication through commendations and improve the quality of environmental information disclosure.

BIL won the award for its "Environmental Activities" webpage that delivers annual reports about the Brother Group's environmental activities; and for "brotherearth.com", Brother's special website on the environment, which uses responsive web design to disseminate information about both up-to-date and unique activities.

This is the third consecutive year that BIL has won the award. The following comment was given during the evaluation:

"BIL's website details, in table format, the Brother Group's specific commitment to each of eight items in the Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries that are expected to make significant contributions to fulfilling the 20 items identified in the Aichi Biodiversity Targets. This represents BIL's high level of awareness about the Aichi Biodiversity Targets. There are detailed and easy-to-understand descriptions about environmental accounting to continuously increase the efficiency of environmental management."

\*: The Good Performance Prize is awarded to reports that set an example in information disclosure (e.g. those prepared by companies that actively work on environmentally conscious management or those that disclose information in an easy-to-understand manner).



Good Performance Prize certificate

# Corporate Environmental Strategy and Management

## Environmental Commendation and Awards

### Internal environmental commendation system in FY2016

#### "5R Award"

The Brother Group has a system to commend group companies for their environmental activities in the previous year (the "5R Award") to motivate and improve the level of environmental activities of the entire group.

In FY2016 (April 1, 2016-March 31, 2017), 23 applications were received in total for different categories. The winners were four business sites and one department which achieved significant results tackling problems that all corporations have to face based on the environmental action plan.

In December 2016, personnel from the award-winning entries gave presentations about their activities and received commendations from the BIL president at presentation meetings\*, which were attended by employees from group companies in and outside Japan (including Asia, Europe and the Americas).

#### Business sites/departments that won a "5R Award" in FY2016

Award title		Business sites/departments
CO <sub>2</sub> Emission Reduction 5R Award	Production Category	Brother Industries (Philippines), Inc.
	Office Category	Brother International Taiwan Ltd.
Product 5R Award		Machinery Business Div. Development Dept. of Brother Industries, Ltd.
Environmental Contribution 5R Award	In the company	Taiwan Brother Industries, Ltd.
	Outside the company	
Judge Selection 5R Award (Environmental Contributions)		Brother Commercial (Thailand) Ltd.

\*: The meetings are of the largest scale in the Brother Group, in which best practices and skills are selected from various fields, sites and companies in and outside Japan and excellent persons/cases are praised.

#### President's Award

In 1998, the Brother Group started the President's Award, a commendation system for all group companies. The award is intended to boost employees' motivation and challenging spirit by recognizing their efforts and accomplishments made throughout the year. The evaluation indices include reduction in CO<sub>2</sub> emissions and activities to improve the environment.

#### Commendation under the Brother eco point program

In April 2008, the Brother Group launched the "Brother eco point program" in Japan to help raise the environmental awareness of employees, and extended the program to facilities outside Japan from FY2009 (April 1, 2009-March 31, 2010).

Facilities in Japan and the U.S. as well as Brother Industries (U.K.) Ltd., etc. created their own commendation systems to encourage such activities. As of March 31, 2017, the Brother eco point program is in place in more than 40 countries and regions, involving 31,663 employees.

#### ►Timeline for Environmental Milestone Achievement

<http://www.brother.com/en/eco/management/history/index.htm>

# Corporate Environmental Strategy and Management

## Timeline for Environmental Milestone Achievement

Year	Month	Main Environmental activities
1991	September	·Company-wide environmental organization is established for each product division.
1993	May	·Brother's First Environmental Action Plan (Voluntary Plan) is formulated. ·Use of CFC 113 and trichloroethane in the production processes of Brother Industries, Ltd. (BIL) facilities and wholly-owned subsidiaries' facilities are completely banned (including total abolishment of all chlorinated solvents).
1994	February	·Brother's first white paper on the environment is issued (issued annually until 1999).
1995	February	·A new environmental management organization is started at BIL with the Facility Manager and Secretariat of the Environmental Management Committee of Facility spearheading the initiative.
1996	July	·Brother's Second Environmental Action Plan (Voluntary Plan) is formulated.
	December	·Brother Industries (U.K.) Ltd. becomes the first Brother Group company to obtain ISO 14001 certification.
1997	August	·The Green Procurement Guidelines are formulated for purchasing office supplies and equipment (e.g., lighting, air conditioning).
1998	–	·The Green Purchase Guidelines* specifying criteria for selecting products and recommended products are formulated.
1999	September	·Environmental Report is issued for the first time. (It has since been issued annually.)
	December	·Brother's Third Environmental Action Plan (Voluntary Plan) is formulated.
2001	September	·Laser Printer HL-2460/2460N is awarded the Blue Angel Label of Germany.
	December	·Participates as an exhibitor in Eco-Products 2001. (Participated as an exhibitor each year until 2013.)
2002	April	·Zero emission is achieved at major facilities in Japan.
	September	·Laser Printer HL-7050 becomes the world's first printer awarded the TCO '99, an international environmental label.
	December	·Brother Group Fourth Environmental Action Plan is formulated and announced at the Brother Global Conference.



HL-2460/2460N



HL-7050

\*: The Green Purchase Guidelines have been reviewed and maintained as appropriate to reflect the market trends. This activity was found to be performed in-house almost 100% in FY2011 (April 1, 2011-March 31, 2012), therefore, it is currently out of the scope of the report.

# Corporate Environmental Strategy and Management

## Timeline for Environmental Milestone Achievement

Year	Month	Main Environmental activities
2003	April	<ul style="list-style-type: none"> <li>Personal Facsimile FAX-1100CL becomes first in the home-use facsimile industry to be awarded the EcoLeaf label managed by JEMAI.</li> </ul>  <p>FAX-1100CL</p>
2004	April	<ul style="list-style-type: none"> <li>Brother Green Procurement Management System starts operation.</li> <li>BIL starts company-wide environmental education by e-learning.</li> </ul>
	May	<ul style="list-style-type: none"> <li>BIL becomes the first in the facsimile business to obtain the System Certification of the EcoLeaf.</li> </ul>
	November	<ul style="list-style-type: none"> <li>Brother issues its first self-certification of the EcoLeaf label to the MFC-620CLN.</li> </ul>  <p>MFC-620CLN</p>
2005	July	<ul style="list-style-type: none"> <li>Registers in Team Minus 6% membership*1.</li> <li>Takes part in EPOC "ECO talk session" at citizen's pavilion of 2005 World Exposition Aichi, Japan*2.</li> </ul>  <p>*1</p>  <p>*2</p>
2006	April	<ul style="list-style-type: none"> <li>Brother Group Fifth Environmental Action Plan is formulated.</li> </ul>
2007	December	<ul style="list-style-type: none"> <li>Receives System Certification in the printer and facsimile business under the EcoLeaf eco-label</li> </ul>
2008	April	<ul style="list-style-type: none"> <li>Brother Group Environmental Action Plan 2010 (2008-2010) is formulated.</li> </ul>
	June	<ul style="list-style-type: none"> <li>Participates as exhibitor in Integrated Exhibition of the Environment in Celebration of the Hokkaido Toyako Summit in 2008.</li> </ul>
2009	March	<ul style="list-style-type: none"> <li>A solar power generation system (100 kWh) is introduced at the Kariya Manufacturing Facility.</li> </ul>
	June	<ul style="list-style-type: none"> <li>The CO2 reduction target for FY2020 is added to the Brother Group Environmental Action Plan 2010 (2008-2010), and activities are launched.</li> </ul>
	December	<ul style="list-style-type: none"> <li>Five models of printers (including HL-5350DN) and seven models of All-in-Ones (including MFC-8380DN) obtain Nordic Swan eco label certification.</li> </ul>
2010	January	<ul style="list-style-type: none"> <li>Registers as a member of the Challenge 25 Campaign (switching from "Team Minus 6%").</li> </ul>
	May	<ul style="list-style-type: none"> <li>"Brother Earth," a logo and slogan symbolizing the Brother Group's environmental activities, is created.</li> </ul> 
	July	<ul style="list-style-type: none"> <li>HL-5340D, HL-5350DN, HL-5380DN, MFC-8880DN, and MFC-8890DW become the first Brother products to obtain Environmental Choice New Zealand certification.</li> </ul>
	October	<ul style="list-style-type: none"> <li>MFC-J6510DW, MFC-J6710DW, and MFC-J6910DW become the world's first inkjet printers to obtain Nordic Swan eco label certification.</li> <li>Brother exhibits its products at the tenth meeting of the Conference of the Parties (COP 10) as a company taking part in the Ink Cartridge Return Project.</li> </ul>

# Corporate Environmental Strategy and Management

## Timeline for Environmental Milestone Achievement

Year	Month	Main Environmental activities
2011	April	<ul style="list-style-type: none"> <li>•Brother Group Environmental Action Plan 2015 (2011-2015) is formulated.</li> <li>•Brother U.K. Ltd. wins the Queen's Award.</li> </ul>
	May	<ul style="list-style-type: none"> <li>•Brother Industries, Ltd. wins the FY2010 Environmental goo Award in the category of Environmental and Social Reports.</li> </ul>
2012	February	<ul style="list-style-type: none"> <li>•Brother Sales, Ltd. wins the Certification Test for Environmental Specialists (Eco Test) Promotion Award 2011.</li> </ul>
	May	<ul style="list-style-type: none"> <li>•Brother (China) Ltd. wins the Eco Label Contribution Award from the China Environmental United Certification Center Co., Ltd. under the jurisdiction of the State Environmental Protection Administration.</li> <li>•The Brother Group is recognized as the first Eco First company in the printer industry under the auspices of the Ministry of the Environment, Government of Japan.</li> </ul>
2013	March	<ul style="list-style-type: none"> <li>•Brother International (NZ) Ltd. becomes the first Brother Group company to be audited for ISO 14064 certification (Scopes 1, 2, and 3).</li> </ul>
	June	<ul style="list-style-type: none"> <li>•Brother International Corporation (U.S.A.) wins the Excellence Award in the Energy and Renewable Resources category of the Governor's Environmental Stewardship Awards program.</li> </ul>
	July	<ul style="list-style-type: none"> <li>•Brother International Corporation (U.S.A.) wins the RideWise Award (Silver Prize).</li> </ul>
2014	January	<ul style="list-style-type: none"> <li>•Brother Industries, Ltd. wins the 2014 Aichi Environmental Award (Gold Prize)</li> </ul>
	May	<ul style="list-style-type: none"> <li>•FAX-2840 becomes the first desktop black-and-white All-in-One to be certified under the Carbon Footprint of Products (CFP) program in Japan.</li> </ul>
	June	<ul style="list-style-type: none"> <li>•Brother Industries (U.K.) Ltd. wins BIG TICK under the BITC (Business in the Community) Sustainable Products and Services Award.</li> <li>•Brother Industries (U.K.) Ltd. wins BIG TICK under the BITC (Business in the Community) Wales Responsible Business Services Award.</li> <li>•Brother Technology (Shenzhen) Ltd. is commended by the City of Shenzhen as an advanced company under the Pengcheng*1 Waste Reduction Activities.</li> <li>•Brother Industries (Shenzhen), Ltd.*2 is commended by the City of Shenzhen as an advanced company under the Pengcheng Waste Reduction Activities.</li> </ul>
	September	<ul style="list-style-type: none"> <li>•Brother Industries (U.K.) Ltd. wins the Category Winner under the Manufacturing Excellence (MX) Award for Sustainable Manufacturing.</li> </ul>
	October	<ul style="list-style-type: none"> <li>•Brother International Corporation (U.S.A.) wins the Platinum Award under New Jersey Smart Workplaces.</li> </ul>
	December	<ul style="list-style-type: none"> <li>•Brother Machinery Xian Co., Ltd. is commended by the High Technology Industry Development Zone Branch Office, Xian Environmental Protection Bureau as an advanced organization in environmental statistics in FY2013.</li> </ul>

\*1: Pengcheng is another name for Shenzhen.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

# Corporate Environmental Strategy and Management

## Timeline for Environmental Milestone Achievement

Year	Month	Main Environmental activities
2015	February	<ul style="list-style-type: none"> <li>•Brother Industries, Ltd. (BIL) wins the Good Performance Prize in the Environmental Report Section of the 18th Environmental Communication Awards.</li> <li>•Brother International Corporation (U.S.A.) is commended in Business Recycler of the Year organized by the Tennessee Recycling Coalition.</li> </ul>
	June	<ul style="list-style-type: none"> <li>•Brother Industries (U.K.) Ltd. wins the Sustainable Products and Services Award under the Business in the Community Wales Responsible Businesses Awards 2015.</li> </ul>
2016	January	<ul style="list-style-type: none"> <li>•Environmental Management Dept., Brother Industries, Ltd. wins the Life Cycle Assessment Society of Japan (JLCA) Incentive Award at the 12th JLCA Commendation Ceremony.</li> <li>•Taiwan Brother Industries, Ltd. wins the Excellence Prize in the Corporate Section of the Carbon Reduction Action Awards for FY2015.</li> </ul>
	February	<ul style="list-style-type: none"> <li>•Brother Industries, Ltd. (BIL) wins the Good Performance Prize in the Environmental Report Section of the 19th Environmental Communication Awards.</li> </ul>
	April	<ul style="list-style-type: none"> <li>•Brother Group Environmental Action Plan 2018 (2016-2018) is formulated.</li> </ul>
2017	February	<ul style="list-style-type: none"> <li>•Brother Sales, Ltd. (head office) wins "Outstanding eco office award" established by Nagoya City</li> <li>•Brother Industries, Ltd. (BIL) wins the Good Performance Prize in the Environmental Report Section of the 20th Environmental Communication Awards.</li> </ul>

► **Environmental Commendation and Awards**

<http://www.brother.com/en/eco/management/award/index.htm>

► **List of ISO 14001-certified Facilities and History of Auditing for ISO 14064**

[http://www.brother.com/en/eco/facility/iso\\_14001/index.htm](http://www.brother.com/en/eco/facility/iso_14001/index.htm)

## Creating Eco-conscious Products

### Environmental Considerations within Product Life Cycles

#### Setting ever higher targets for reducing environmental impact at each stage

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.



Since each of the stages are closely interlinked in terms of environmental impact, continuous efforts are required to make incremental improvements and to achieve technological innovation. The Brother Group aims to make such efforts throughout its operations in order to continuously deliver eco-conscious products to customers.

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 CO<sub>2</sub> emissions and water consumption), reduction in CO<sub>2</sub> 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.

# Creating Eco-conscious Products

## Environmental Considerations within Product Life Cycles

### 1. Development and design

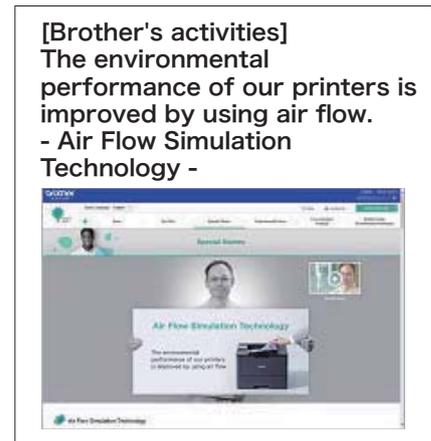
#### Basic policy

Brother products are developed and designed to:

- comply with laws and regulations of the various countries and regions where sold;
- be compact and lightweight to conserve resources;
- achieve the top levels of energy conservation performance in the industry;
- manage hazardous chemical substances, as defined in the Brother Green Procurement Standards;
- be easily recycled at the end of life; and
- meet emission standards.

It is essential to apply at the design stage, environmental

considerations for the entire life cycle of a product. For certain key criteria in the product environmental assessments, target values are set at the initial stage of development and design. Improvements must be achieved when compared with previously released products.



#### Measures

Brother Industries, Ltd. (BIL) conducts product environmental assessments at key stages of development and ensures eco-conscious design by addressing the product life cycle from material procurement, production, products use and through to the collection and recycling at the end of life. Also, BIL actively acquires environmental labels in respective countries. For customers in Europe and the U.S. in particular, BIL discloses product information in accordance with The Eco Declaration (ECMA-370).

#### Product environmental impact assessments and Life Cycle Assessment (LCA)

BIL conducts product environmental impact assessments in order to evaluate the impact that products have on the environment. There are 51 assessment items. For key criteria, improvement must be achieved at the product development stage.

#### Key Criteria for environmental impact assessment

- Size and weight
- Parts reuse/recyclability, disassembly/dismantling, avoidance of difficult-to-disassemble structures, integration of resin materials
- Hazards during production or use
- Size, weight and recyclability of packaging materials
- Material labeling, compliance with related laws and environmental labels



Product environmental impact assessment flow

## Creating Eco-conscious Products

### Environmental Considerations within Product Life Cycles

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 effect is confirmed for each product. Evaluation results are released on the BIL website showing the products which have acquired various environmental labels and on the website managed and operated by the Japan Environmental Management Association for Industry under the name of the EcoLeaf environmental label. BIL also discloses its carbon footprint.

From January 25, 2007, the LCA information has been shared internally on the intranet of BIL. March 2017 saw detailed LCA information published in-house for 96 products (seven products were newly released in FY2016 [April 1, 2016-March 31, 2017]). These are used by the responsible departments and business partners to encourage the development of eco-conscious products. The Brother Group will continue to reduce the environmental impact of products by using LCA techniques.carbon footprint.

▶ **Eco Technology "Air Flow Simulation Technology"**

<http://www.brotherearth.com/en/story/air-flow.html>

## 2. Procurement

### Basic policy

We check parts and materials that are used to make products, to ensure:

- they do not contain hazardous materials, and
- they are made via an eco-friendly process.

In this way, we give priority to purchasing parts and materials.

### Measures

Brother works with suppliers and uses the IT-based Brother Green Procurement Management System to manage data on chemicals and promote the use of alternative parts/substances. This is regularly updated in response to the candidate list substances of very high concern defined within the REACH Regulation.

▶ **Compliance with Environmental Laws and Regulations on Products**

<http://www.brother.com/en/eco/regulation/index.htm>

# Creating Eco-conscious Products

## Environmental Considerations within Product Life Cycles

### 3. Production

#### Basic policy

All manufacturing facilities of the Brother Group have ISO 14001 environmental management systems. Products are manufactured within that global system with due consideration being given to:

- ensuring efficient use of materials, energy, and water resources, etc.;
- reducing pollutants released into the atmosphere and wastewater;
- preventing the generation of waste; and
- recycling waste generated.

#### Measures

Electrical power consumption and CO<sub>2</sub> emissions are reduced by ensuring all manufacturing facilities efficiently run equipment. The factories are also focusing on reducing the volumes of process waste and any waste generated is treated within the scope of zero landfill.

#### ▶Environmental Management System

<http://www.brother.com/en/eco/management/organization/index.htm#01>

#### ▶CO<sub>2</sub> Emission Reduction Activities

<http://www.brother.com/en/eco/facility/index.htm>

#### ▶Zero Waste Emission Activities

<http://www.brother.com/en/eco/facility/waste/index.htm>

#### ▶Activities to Reduce Water Consumption

<http://www.brother.com/en/eco/facility/water/index.htm>

#### ▶Preventing Pollution

<http://www.brother.com/en/eco/facility/pollution/index.htm>

#### ▶Eco Technology "Eco Factory"

<http://www.brotherearth.com/en/story/ecofactory.html>

#### ▶Eco Technology "Coatless Surface"

<http://www.brotherearth.com/en/story/coatless.html>

**[Brother's activities]**  
We create next-generation factories underpinned by production efficiency and environmental performance.  
- Eco Factory -



**[Brother's activities]**  
We sought a coatless and smooth body surface with minimal environmental impact.  
- Coatless Surface -



### 4. Packaging and logistics

#### Basic Policy

Brother is committed to:

- reducing product packaging and waste where possible; and
- reducing CO<sub>2</sub> emissions in distribution and transport.

#### Measures

- We are applying simpler and smaller packaging.
- We are combining product categories when arranging shipments to maximize loads.
- We continue to review distribution routes.

#### ▶CO<sub>2</sub> Emission Reduction Activities

<http://www.brother.com/en/eco/facility/index.htm>

#### ▶Eco Technology "Package Design Optimization"

<http://www.brotherearth.com/en/story/package-desing-optimization.html>

**[Brother's activities]**  
Brother's Joint Project among Three Countries  
- Package Design Optimization -



# Creating Eco-conscious Products

## Environmental Considerations within Product Life Cycles

### 5. Use

#### Basic policy

Consideration for our customers' use of our products:

- they do not consume excessive energy; and
- our products can be used safely, conveniently and comfortably.

We also endeavor to disclose overall environmental information about products.



Environmental labels and energy-saving standard compliance marks awarded to environmentally friendly products

#### Measures

We are strengthening development of eco-friendly products focusing on energy conservation.

<p><b>[Brother's activities]</b> We took on the challenge of eliminating standby power and established a new norm of power-saving technology. - Low Energy Standby -</p> 	<p><b>[Brother's activities]</b> We developed a sleek machine tool energized by recycled electricity, much like an eco-friendly compact car, by maximizing its environmental performance. - Power Regeneration System -</p> 	<p><b>[Brother's activities]</b> A faster rotation rate while saving energy takes Brother sewing machines to a higher level. - Low-noise Belt Drive -</p> 
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- ▶ **Environmental Labels Acquired**  
<http://www.brother.com/en/eco/product/label/index.htm>
- ▶ **Eco Technology "Low Energy Standby"**  
<http://www.brotherearth.com/en/story/standby.html>
- ▶ **Eco Technology "Power Regeneration System"**  
<http://www.brotherearth.com/en/story/power-supply-regenerative.html>
- ▶ **Eco Technology "Low-noise Belt Drive"**  
[http://www.brotherearth.com/en/story/hsm\\_belt-driving.html](http://www.brotherearth.com/en/story/hsm_belt-driving.html)

# Creating Eco-conscious Products

## Environmental Considerations within Product Life Cycles

### 6. Collection and recycling

#### Basic policy

As considerations for the end of life of a product, we make efforts to:

- collect and recycle products and consumables at end of life; and
- design products so that they can be easily recycled.

#### Measures

- Ink cartridges consumed in Japan: The "Ink Cartridge Return Project" is under way in collaboration with printing product manufacturers.
- Toner cartridges, drum units, and label writer tape cassettes consumed in Japan: Brother's own collection and recycling system is in place.
- Toner and ink cartridges consumed outside Japan: Collection and recycling systems have been introduced in many countries and regions.
- In Europe, products are collected and recycled in accordance with the WEEE Directive. In Australia and New Zealand, products are collected and recycled on a voluntary basis. Regarding corporate customers in Japan, used Brother products (fax machines, printers, and All-in-Ones) are collected and recycled in collaboration with business partners.

**[Brother's activities]**  
We open up the possibility of recycling for the future of the global environment.  
- Toner Cartridges Recycle -



#### **[Brother's activities]** Conducting eco activities through the Bellmark campaign (Japan)

Brother Sales, Ltd. joined the Bellmark campaign in April 2011 in order to (i) actively participate in social contribution activities via support for education and (ii) improve the collection rate of used cartridges and promote recycling.



Examples of products in the Bellmark campaign



#### Collection and Recycling

<http://www.brother.com/en/eco/product/recycling/index.htm>

#### Eco Technology "Toner Cartridges Recycle"

<http://www.brotherearth.com/en/story/toner-recycle.html>

## Creating Eco-conscious Products

### Environmental Labels Acquired

#### Actively acquiring environmental labels from around the world

##### A yardstick for use when selecting products, and helping reduce their overall environmental impact of society

Environmental labels indicate that the selected product shows consideration for the environment, and provide customers helpful information when selecting eco-conscious products. Environmental labels come in three types (Type I, II and III) standardized by the International Organization for Standardization (ISO) or a compliance label that indicates that the product complies with specific performance criteria.

There are various environmental labels in the countries and regions around the world in which the Brother Group operates. The respective labels (which are based on different eco-conscious requirements and standards) are considered to meet stakeholders' environmental requirements and the Brother Group actively acquires the labels in the countries and regions where its products are sold.

Under this policy, targets were set in the Brother Group Environmental Action Plan 2018 (2016-2018) to acquire specific environmental labels including Blue Angel, Eco Mark, Nordic Swan, EPEAT, and China's Ten Circle Mark, and significant efforts were made to fulfill the targets.

Below are the main environmental labels acquired by Brother products.

#### Type I labels

Awarded based on specific criteria judged by third party organizations



##### The Blue Angel (Germany)

This eco-label is issued by the Federal Environmental Agency, the German Institute for Quality Assurance and Labeling, etc. In July 2008, the MFC-6490CW and DCP-6690CW were the first inkjet All-in-Ones in the world to be certified in the ink-jet category at that time. In January 2013, the standard was revised and upgraded (including addition of the UFP standards). Brother worked to comply with the new standard for both new and current products. Brother acquired the label for 17 product models in FY2016 (April 1, 2016-March 31, 2017).

► [List of products that acquired Blue Angel \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/blue\\_angel.pdf](http://download.brother.com/pub/com/en/eco/pdf/blue_angel.pdf)



##### Nordic Swan (five Scandinavian countries)

This eco-label is administered primarily by the Nordic Ecolabelling Board, and is used in five Scandinavian countries (Norway, Sweden, Denmark, Finland, and Iceland). Twelve Brother models, mainly black-and-white laser printers and All-in-Ones, were first awarded the label in 2009. Brother managed to acquire the label for 17 product models in FY2016.

► [List of products that acquired Nordic Swan \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/nordic\\_swan.pdf](http://download.brother.com/pub/com/en/eco/pdf/nordic_swan.pdf)

## Creating Eco-conscious Products

### Environmental Labels Acquired



#### China Environmental Labeling plan (China)

This government-run eco-label (the Ten Circle Mark) is issued by the China Environmental United Certification Center under the jurisdiction of the State Environmental Protection Administration. Brother acquired the label for color laser printers/All-in-Ones and black-and-white laser printers/All-in-Ones. In FY2016, Brother acquired the label for seven product models.

▶ [List of products that acquired Ten Circle Mark \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/china\\_environmental.pdf](http://download.brother.com/pub/com/en/eco/pdf/china_environmental.pdf)



#### Eco Mark (Japan)

This eco-label is issued by the Japan Environment Association. It is awarded to products that minimize environmental load and aid environmental protection across their entire life cycle (from production to disposal). In FY2016, Brother acquired the label for 16 product models and 29 consumables.

List of products that acquired Eco Mark

▶ [Printers \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/eco\\_mark\\_printers.pdf](http://download.brother.com/pub/com/en/eco/pdf/eco_mark_printers.pdf)

▶ [Stationery/office supplies \(tape cassettes\) \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/eco\\_mark\\_cassettes.pdf](http://download.brother.com/pub/com/en/eco/pdf/eco_mark_cassettes.pdf)

▶ [Toner Cartridges \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/eco\\_mark\\_toner\\_cartridges.pdf](http://download.brother.com/pub/com/en/eco/pdf/eco_mark_toner_cartridges.pdf)

▶ [Ink Cartridges \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/eco\\_mark\\_ink\\_cartridges.pdf](http://download.brother.com/pub/com/en/eco/pdf/eco_mark_ink_cartridges.pdf)



#### Environmental Choice (New Zealand)

This eco-label was introduced by the national government of New Zealand, and is issued by New Zealand Ecolabelling Trust. Brother acquired the label for color laser printers/All-in-Ones, etc.

Copying machines, printers, fax machines and multifunctional devices. Licence No. 2410083

▶ [List of products that acquired Environmental Choice \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/environmental\\_choice.pdf](http://download.brother.com/pub/com/en/eco/pdf/environmental_choice.pdf)



#### Green Mark (Taiwan)

This eco-label was introduced in Taiwan by the Environmental Protection Administration, and is issued by the Environment and Development Foundation. Brother acquired the label for color laser printers/All-in-Ones, black-and-white laser printers/All-in-Ones, and consumables. In FY2016, Brother acquired the label for seven product models and four consumables.

▶ [List of products that acquired Green Mark \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/green\\_mark.pdf](http://download.brother.com/pub/com/en/eco/pdf/green_mark.pdf)

## Creating Eco-conscious Products

### Environmental Labels Acquired



#### Korea Eco-label (South Korea)

This eco-label is issued by the Korea Environment Industry & Technology Institute that was established in accordance with the Development of and Support for Environmental Technology Act. Brother acquired the label for black-and-white laser printers/All-in-Ones, etc. In FY2016, Brother acquired the label for four product models.

▶[List of products that acquired Korea Eco-label \[PDF/0.2MB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/korea\\_eco\\_label.pdf](http://download.brother.com/pub/com/en/eco/pdf/korea_eco_label.pdf)

### Type II labels

Self-declared labels by businesses



#### Brother Green Label (Japan)

In October 2001, Brother Industries, Ltd. (BIL) established voluntary environmental standards for products and created the Brother Green Label to recognize products that satisfied related certification standards. Four products were certified in FY2016.

### Type III labels

Awarded to products whose environmental load is shown quantitatively by LCA (Life Cycle Assessment)



#### EcoLeaf (Japan)

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.



#### Carbon Footprint (Japan)

Carbon Footprint\* is a mechanism to visualize the emissions of greenhouse gases (in CO<sub>2</sub> equivalent) from procurement of raw materials to disposal and recycling of products. It is issued by the Japan Environmental Management Association for Industry. In May 2014, FAX-2840, MFC-8520DN, and MFC-8950DW became the first desktop black-and-white laser All-in-Ones, and HL-5440D, HL-5450DN, and HL-6180DW became the first desktop black-and-white laser printers, to acquire the label.

\*: Short for "Carbon Footprint of Products." The environmental impact is calculated quantitatively by using the LCA technique. Businesses and consumers share awareness about actions to reduce CO<sub>2</sub> emissions. Consumers are motivated to pursue a low-carbon lifestyle by utilizing the visualized information.

## Creating Eco-conscious Products

### Environmental Labels Acquired

#### Conformance label



#### International ENERGY STAR Program (the U.S.A., Japan, EU, Canada, Australia, New Zealand, and Taiwan)

This is an international energy saving program for office equipment. Its logo is awarded to products that meet the energy-saving standards.

List of products that qualify the standards of International ENERGY STAR program

▶ **U.S.A. [PDF/0.2MB]** [http://download.brother.com/pub/com/en/eco/pdf/energy\\_star.pdf](http://download.brother.com/pub/com/en/eco/pdf/energy_star.pdf)

▶ **EU [PDF/0.2MB]** [http://download.brother.com/pub/com/en/eco/pdf/energy\\_star\\_eu.pdf](http://download.brother.com/pub/com/en/eco/pdf/energy_star_eu.pdf)



#### Energy Conservation Certification (Energy saving label) (China)

This eco-label is from China. It recognizes products for their energy-saving performance.

#### Environmental assessment system



#### EPEAT (in the U.S.A.)

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.

\*: Judgments are based on laws and regulations, etc. in respective countries and regions. Thus, the same product may have different ranks.

▶ **List of EPEAT-compliant products [PDF/0.2MB]** <http://download.brother.com/pub/com/en/eco/pdf/epeat.pdf>

#### Green purchasing laws



#### Products complying with the Law on Promoting Green Purchasing (Japan)

In April 2001, the Law on Promoting Green Purchasing came into effect. This law requires that national governmental organizations purchase green products and that regional governmental organizations and private business and individuals try to do the same. By affixing our own eco-label to Brother products that meet the standard, BIL is promoting environmental activities to customers.

#### RoHS Directive



#### Compliance with the RoHS Directive

The EU (European Union) enforced the RoHS (Restriction on the use of certain Hazardous Substances in electrical and electronic equipment) Directive in July 2006. All Brother products, excluding machine tools, for all markets in the world are compliant with the RoHS Directive. Products only for the Japanese market are labeled with our own eco-label to show they are compliant with the RoHS Directive.

# Creating Eco-conscious Products

## Collection and Recycling

### Efforts to Improve Recycling

With the "end of life" of products in mind, the Brother Group has been working to (i) increase reusability and recyclability of products and consumables and (ii) build recycling systems in accordance with laws and regulations in respective countries.

#### Brother Group's collection and recycling efforts

##### Brother International Europe Ltd.

In Europe, the portal site for recycling consumables and products provides information about how to return used toner cartridges, drum units, ink cartridges and products, and ask for collection boxes, etc. which are available in total 28 countries.

Regarding collection and recycling of products, Brother utilizes collection and recycling channels in place in respective countries in compliance with the Waste Electrical and Electronic Equipment (WEEE) Directive.

► [Portal site for recycling \(Europe\)](https://www.brother.eu/recycle) <https://www.brother.eu/recycle>



Portal site for recycling (Europe)

##### Brother Industries (U.K.) Ltd., Brother Industries (Slovakia) s.r.o.

Brother Industries (U.K.) Ltd.'s Recycling Technology Centre is the Brother Group's core facility that recycles toner cartridges and designs and develops recyclable toner cartridges in collaboration with facilities in the U.S. and Japan. A project is underway to build a system for automating the recycling process. With support from the Recycling Technology Centre, Brother Industries (Slovakia) s.r.o. (BISK) recycles Brother's toner cartridges that are sold primarily in Europe. BISK's accomplishments and development expertise are shared in Japan, the U.S., and other countries to help raise the technological standards of the Brother Group.

► [Toner Cartridges Recycle](http://www.brotherearth.com/en/story/toner-recycle.html) <http://www.brotherearth.com/en/story/toner-recycle.html>



Clean room at the Recycling Technology Centre

##### Brother International Corporation (U.S.A.)

In the U.S., the project is undertaken by collection and recycling contractors. The system is administered in accordance with state and federal laws.

The website of Brother International Corporation (U.S.A.) (BIC (USA)) explains how to return used toner cartridges, drum units, ink cartridges, and tape cassettes.

Used toner cartridges are collected in Canada via local sales facilities.



Website for collecting toner and ink cartridges (BIC (USA))

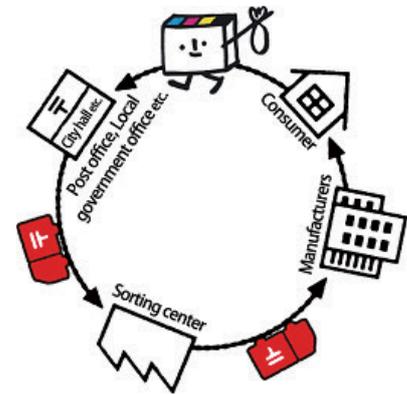
## Creating Eco-conscious Products

### Collection and Recycling

#### Brother Sales, Ltd.

In Japan, printing product manufacturers and sellers have collection boxes at retail outlets to collect used ink cartridges. In order to further improve the collection rate in January 2007, the Brother Group along with other printing product manufacturers and sellers launched an "Ink Cartridge Return Project" with post offices. Collection began at 3,638 posts offices across the country in April 2008.\*1 The project has been a success as ink cartridges can be recycled by depositing them in the collection boxes at post offices\*2 regardless of the manufacturer.

In collaboration with business partners, Brother Sales, Ltd. collects Brother products (fax machines, printers, and All-in-Ones for businesses), and Brother Industries, Ltd. recycles them.



Recycle process of "Ink Cartridge Return Project"

\*1: Since November 2008, Brother Sales, Ltd. has been collecting ink cartridges as a certified, wide-area waste disposal agent, as defined in the revised Waste Management and Public Cleansing Act, under the guidance of the Ministry of the Environment, Government of Japan.  
\*2: Not all post offices participate in this project.

#### Mie Brother Precision Industries, Ltd.

Mie Brother Precision Industries, Ltd. started to work on refurbishing toner cartridges for monochrome laser printers in FY2009 (April 1, 2009-March 31, 2010) based on recycling expertise gained in Europe.

Collected used toner cartridges undergo sorting, disassembly, cleaning, and parts replacement for reuse. To further reduce environmental impact, the company shares information with recycling facilities in Europe and the Americas and is continually improving the methods of refurbishing toner cartridges. Collected used color toner cartridges are delivered to Brother Industries (U.K.) Ltd. for recycling.



Monochrome toner cartridges

#### Brother International (Aust.) Pty. Ltd.

Brother International (Aust.) Pty. Ltd. is participating in the Cartridges 4 Planet Ark (C4PA) program to recycle toner cartridges.

The company also participates in the TechCollect program for recycling consumables as a member of ANZRP (Australia and New Zealand Recycling Platform).

#### Brother International (NZ) Ltd.

Brother International (NZ) Ltd. is working with an experienced recycling contractor to collect and recycle used consumables (e.g. ink and toner cartridges, drum units) and printers.

## Complying with Laws, Regulations and Social Trends

### Compliance with Environmental Laws and Regulations on Products

#### Complying with environmental laws and regulations in various countries with full collaboration of the supply chain

In recent years, various laws and regulations have been introduced at both the national and regional levels. Legal and regulatory restrictions have been rising year after year regarding chemical substances and product areas covered. Legislation covers such areas as reducing power consumption during product use, as well as environmental and health impacts.

As a global company with operations in more than 40 countries, the Brother Group believes that compliance with laws and regulations is the foundation of environmental risk management and product competitiveness. The Brother Group has developed activities in line with the Brother Group Environmental Action Plan 2018 (2016-2018), in order to ensure compliance with laws and regulations in all the countries and regions in which the Brother Group operates and to quickly prevent pollution and reduce environmental impacts with high ethical standards. In FY2016 (April 1, 2016-March 31, 2017), to fulfill the environmental targets of globally complying with regulations on chemical substances and energy-saving regulations on products, the Brother Group has been committed to continuously strengthening its framework for responding to developments of laws and regulations in respective regions and offering eco-conscious products before new regulations come into force. Ensuring compliance with laws and regulations across the group has made it possible to quickly cope with needs for products and enhance sales and services.

To deliver environmentally conscious products, environmentally conscious parts and materials must be used. When procuring parts and materials, suppliers are asked to deliver parts and materials in accordance with the Brother Group Green Procurement Standards. Also, the Brother Group conducts audits on suppliers every three years to check their management systems and operations. Suppliers are required to make necessary improvements and guarantee that the goods that they supply meet the standards.

#### ►Green procurement

[http://www.brother.com/en/eco/regulation/green\\_procurement/index.htm](http://www.brother.com/en/eco/regulation/green_procurement/index.htm)

#### Compliance with the RoHS Directive in different countries

RoHS, which is an EU directive introduced in July 2006, bans the use of hazardous substances in electrical and electronic equipment. In response to this directive, the Brother Group worked with suppliers to build Brother's unique environmental information system, which is used to investigate, avoid, and manage chemical substances contained in products. Later in 2007, China RoHS came into force, requiring the labeling with information on the contents of hazardous substances for electronic information products sold in China.

In 2008, the South Korea WEEE & RoHS came into force, requiring manufacturers to: restrict the use of hazardous substances contained in electrical and electronic products; set content standards for such substances; recycle products; and collect packaging materials. The Brother Group promptly complied with these new laws by utilizing the environmental information system.

## Complying with Laws, Regulations and Social Trends

### Compliance with Environmental Laws and Regulations on Products

FY2009 (April 1, 2009-March 31, 2010) saw new regulations come into force or conventional regulations tightened in different countries and regions, for example, enforcement of the Turkey RoHS, and the addition of restricted substances under the Canadian Environmental Protection Act (CEPA), which is intended to control hazardous substances. The Brother Group succeeded in promptly meeting all of these regulations.

In FY2010 (April 1, 2010-March 31, 2011), the Brother Group complied with the Serbian WEEE & RoHS and RoHS in the Ukraine.

In FY2011 (April 1, 2011-March 31, 2012), in emerging countries including China, Southeast Asia, and India, local sales facilities joined local manufacturers' associations and actively conducted information gathering and lobbying activities, thus strengthening communications with the authorities in respective countries. A framework is now in place in this region for the compliance with environmental laws and regulations.

In FY2012 (April 1, 2012-March 31, 2013), the Brother Group complied with the WEEE & RoHS in India and RoHS in Vietnam.

In the US, the Brother Group ensured compliance with the Toxic Substances Control Act (TSCA, which regulates commercially used chemicals), the California Proposition 65 (a law requiring warning labels for hazardous substances), and the Perchlorate Contamination Prevention Act.

### Compliance with the REACH Regulation (EU)

REACH is the EU Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It came into force in June 2007 for chemical substances that are manufactured or imported. Phased registration deadlines are set depending on the substance and its volume band. The Brother Group completed pre-registration of chemical substances covered by the regulation by FY2008 (April 1, 2008-March 31, 2009).

In EU countries, manufacturers are required to (i) report SVHC (Substances of Very High Concern) content in products, (ii) disclose information regarding SVHCs when selling products and (iii) respond to inquiries from consumers within 45 days. The Brother Group improved the environmental information system to facilitate the investigation of SVHC content. In FY2009, the Brother Group set up a system for collecting data from suppliers to improve disclosure of information on SVHC content.

In FY2010, the Brother Group developed a system for calculating the SVHC content in products and reporting it to the appropriate agency as necessary. Meanwhile, safety data sheets (SDSs) have been translated into EU languages and have been published on the website.

In FY2012, the SDSs were revised to comply with the revised REACH Regulation.

#### ▶ Safety Data Sheets (SDS)

<http://sds.brother.co.jp/sdsapp/index.html>

## Complying with Laws, Regulations and Social Trends

### Compliance with Environmental Laws and Regulations on Products

#### Compliance with energy-saving regulations in respective countries

The Ecodesign (ErP) Directive (formerly, the EuP Directive, which came into effect in 2005, and was revised in 2009) was set up as a framework that requires the eco-conscious design of energy-related products sold in the EU, to help prevent global warming. The Brother Group uses the data in the environmental information system to calculate life-cycle assessment (LCA) results and facilitate eco-conscious design, thereby ensuring quick compliance with the directive.

Energy-saving technologies for applicable products were developed, and relevant procedures for product environmental impact assessments were updated for "imaging equipment (Lot 4)," "standby and off-mode losses (Lot 6)," "external power supply (Lot 7)," and "networked standby losses of energy using products" (Lot 26) (these are categories into which Brother's products fall) to put in place a framework for compliance. A system is in place to ensure compliance.

Countries outside the EU have increasingly introduced laws and regulations requiring eco-conscious design and set energy conservation standards in respective product areas. The Brother Group has taken quick action to meet these laws and regulations.

In the U.S., energy conservation standards were established for each product area in accordance with the Energy Policy Act of 2005. The Brother Group met the standards for external power supply products. Meanwhile, the Brother Group ensured compliance with similar energy conservation standards in other countries including Australia and Canada. In South Korea, the Brother Group complied with energy conservation standards for printers, All-in-Ones, and AC adapters based on the Energy Use Rationalization Act.

#### Compliance with the WEEE Directive, etc.

The WEEE Directive requires the collection and 3Rs (Reduce, Reuse and Recycle) of used electrical and electronic equipment. Member countries, distributors, producers, and other entities are required to fulfill the requirements in the design, sorting, collection, and recycling phases. The Brother sales offices in Europe are members of a compliance organization or scheme in their country. Compliance organizations recover and recycle WEEE on behalf of companies to meet the requirements and targets set within the Directive. The Brother Group also works on collection and recycling on a voluntary basis in Australia and New Zealand.

In FY2009, the Brother Group ensured compliance with the Enforcement Ordinance of the Act on the Promotion of Saving and Recycling of Resources in South Korea. A collection and recycling system for Brother's products was developed in Japan in collaboration with partners, and commenced in FY2012. In the US, a collection and recycling system is operated by contractors in accordance with state and federal laws.

Recently, WEEE-based bills have been drafted and legislated in other countries, primarily in Southeast Asia. As in the case of the RoHS Directive, etc., the Brother Group continuously obtains the latest information through sales companies in respective countries, manufacturers' associations, information services, etc., to ensure legal compliance.

# Complying with Laws, Regulations and Social Trends

## Compliance with Environmental Laws and Regulations on Products

### Disclosure of product information in accordance with The Eco Declaration (ECMA-370) (Europe and the U.S.)

The Brother Group discloses the environmental characteristics (including legal requirements) of printers, All-in-Ones, label printers, scanners, etc. for Europe and the U.S. in accordance with The Eco Declaration (ECMA-370), which is a standardized format and system for disclosing environmental characteristics of ICT and CE products including printers and All-in-Ones in Europe.

#### ▶The Eco Declaration

<http://www.brother.com/en/eco/product/declaration/index.htm>

### Efforts to prevent illegal logging (EU and Australia)

The EU Timber Regulation and Australia's Illegal Logging Prohibition Act have entered into force, which prohibit placing timber products (including paper products) derived from illegally harvested timber on the market. The regulations also require investigations and assessments of suppliers to prevent mixing of illegally harvested timber. The Brother Group collected information from suppliers about inkjet and thermal paper as well as product package boxes, and confirmed the legality of timber used as a raw material.

# Complying with Laws, Regulations and Social Trends

## Green Procurement

### Green procurement policy

#### Procuring environmentally friendly parts and materials from suppliers who promote environmental conservation activities

At the Brother Group which operates its business globally, safety and environmental impacts are prime considerations at every stage of a product's life cycle, from design, development, manufacturing, customer usage, and disposal, to reuse and recycling, as set out in its basic environmental policy of the Brother Group Environmental Policy. Under the "Brother Group Global Charter", the Brother Group began implementing green procurement activities from February 2001 in which we prioritize procuring environmentally friendly parts and materials for all products that we sell.

In April 2002, the Brother Group issued the Brother Group Green Procurement Standards (Ver. 1.0) which includes the Brother Group Environmental Policy and specific requests to suppliers, and describes the flow of operations for the control of certain chemical substances to promote the manufacture of environmentally conscious products with suppliers. All suppliers are required to deliver parts and materials in accordance with the Brother Group Green Procurement Standards. Also, the Brother Group conducts audits on suppliers every three years to check their management systems and operations comply with laws and regulations. Suppliers are required to make any necessary improvements and guarantee that the goods that they supply meet the standards.

#### Policy of green procurement activities

- 1) Buy products from suppliers who promote environmental conservation activities
- 2) Buy goods (parts, materials, sub-materials, and products) that do not contain hazardous chemical substances specified by the Brother Group

#### Scope

The Green Procurement Standards apply to the Brother Group's procurement activities for all goods including:

- Parts, materials and sub-materials used for products designed, manufactured, and sold by the Brother Group;
- Parts, materials and sub-materials used for products designed and manufactured by the Brother Group for a third party;
- Products designed and manufactured by a third party for the Brother Group and sold under the Brother Group's trade mark;
- Products for sale that incorporate product(s) purchased from another company (or companies);
- Products purchased from another company to be sold "in their original state";
- Promotional goods.

# Complying with Laws, Regulations and Social Trends

## Green Procurement

### Brother Group Green Procurement Standards

#### Quick compliance with environmental laws and regulations in various countries

The Brother Group Green Procurement Standards have been updated to comply with various countries' environmental laws and regulations which are constantly being extended in scope. The standards are released in Japanese, English, Chinese (simplified and traditional), and Vietnamese.

Based on the Brother Group Green Procurement Standards, the Brother Group restricts the inclusion of certain chemical substances in all goods which are supplied to the Brother Group. Specifically, chemical substances/substance groups the use of which is restricted globally in accordance with laws and regulations, etc. are specified as "RoHS" and "Prohibited substances excluding RoHS," and are designated as "prohibited chemical substances (Level A)." Meanwhile, chemical substances/substance groups included in the Candidate List of "Substances of Very High Concern" (SVHC) according to EU REACH regulation (REGULATION (EC) No 1907/2006) are classified as "SVHC," while some chemical substances/substance groups published in the "Joint Industry Guide" (JIG-101) are categorized as "Controlled substances excluding SVHC." "SVHC" and "Controlled substances excluding SVHC" are designated as "controlled chemical substances (Level B)." When "controlled chemical substances (Level B)" are intentionally included, suppliers are required to identify and report the content (density) because these substances will be subject to restrictions in the future. To help build a sustainable society, suppliers are encouraged to actively work on the conservation of biological diversity and formulate plans to reduce greenhouse gas emissions.

#### Brother Group Green Procurement Standards

- ▶ [Green Procurement Standards Japanese \(version 8.2\) \[PDF/583KB\]](http://download.brother.com/pub/jp/eco/pdf/gpsj_ver8_2.pdf)  
[http://download.brother.com/pub/jp/eco/pdf/gpsj\\_ver8\\_2.pdf](http://download.brother.com/pub/jp/eco/pdf/gpsj_ver8_2.pdf)
- ▶ [Green Procurement Standards English \(version 8.2\) \[PDF/579KB\]](http://download.brother.com/pub/com/en/eco/pdf/gpse_ver8_2.pdf)  
[http://download.brother.com/pub/com/en/eco/pdf/gpse\\_ver8\\_2.pdf](http://download.brother.com/pub/com/en/eco/pdf/gpse_ver8_2.pdf)
- ▶ [Green Procurement Standards Chinese-simp \(version 8.2\) \[PDF/812KB\]](http://download.brother.com/pub/com/cn/eco/pdf/gpssc_ver8_2.pdf)  
[http://download.brother.com/pub/com/cn/eco/pdf/gpssc\\_ver8\\_2.pdf](http://download.brother.com/pub/com/cn/eco/pdf/gpssc_ver8_2.pdf)
- ▶ [Green Procurement Standards Chinese-trad \(version 8.2\) \[PDF/825KB\]](http://download.brother.com/pub/com/cn/eco/pdf/gpstc_ver8_2.pdf)  
[http://download.brother.com/pub/com/cn/eco/pdf/gpstc\\_ver8\\_2.pdf](http://download.brother.com/pub/com/cn/eco/pdf/gpstc_ver8_2.pdf)
- ▶ [Green Procurement Standards Vietnamese \(version 8.2\) \[PDF/782KB\]](http://download.brother.com/pub/com/vn/eco/pdf/gpsv_ver8_2.pdf)  
[http://download.brother.com/pub/com/vn/eco/pdf/gpsv\\_ver8\\_2.pdf](http://download.brother.com/pub/com/vn/eco/pdf/gpsv_ver8_2.pdf)

In FY2011 (April 1, 2011-March 31, 2012), the Brother Group expanded the scope of CSR procurement to cover human rights, labor, health and safety, fair trade and ethics, quality and safety, information security, contribution to society, etc.

- ▶ [Compliance with the RoHS Directive in different countries](http://www.brother.com/en/eco/regulation/index.htm#rohs)  
<http://www.brother.com/en/eco/regulation/index.htm#rohs>
- ▶ [Compliance with the REACH Regulation](http://www.brother.com/en/eco/regulation/index.htm#reach)  
<http://www.brother.com/en/eco/regulation/index.htm#reach>
- ▶ [Promoting CSR Procurement](http://www.brother.com/en/csr/stakeholder/partner/index.htm)  
<http://www.brother.com/en/csr/stakeholder/partner/index.htm>

# Complying with Laws, Regulations and Social Trends

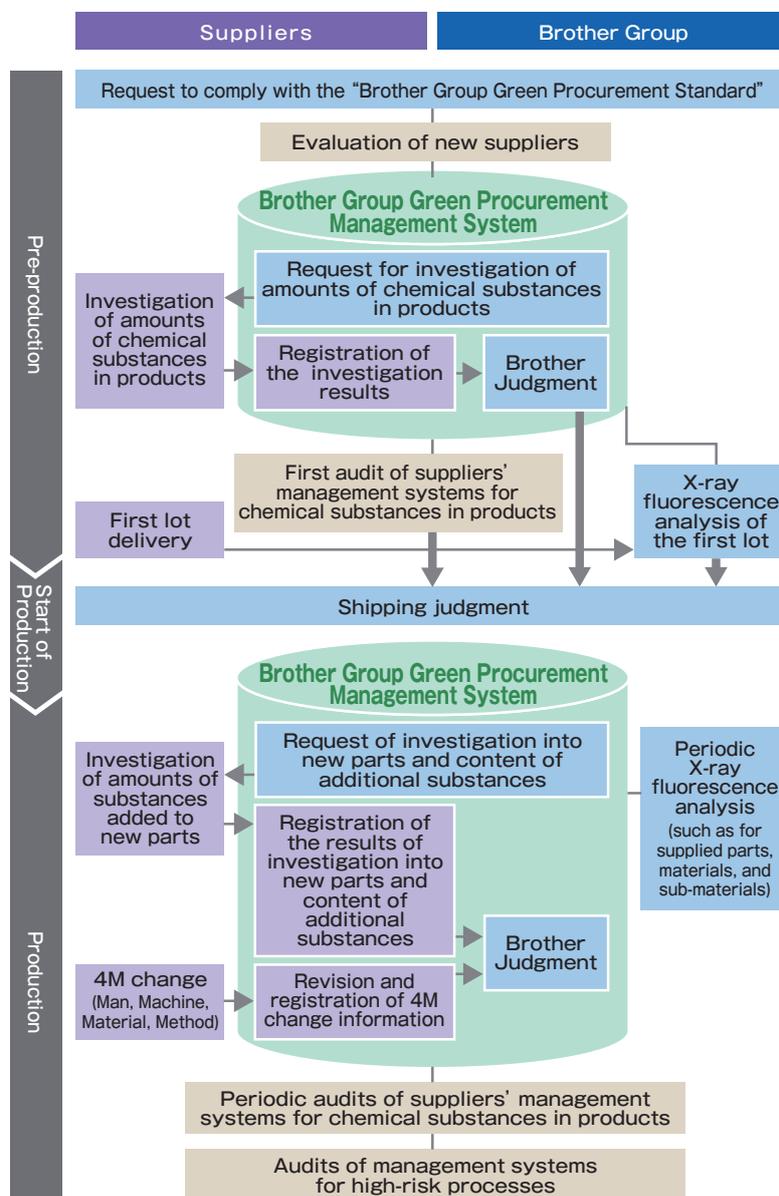
## Green Procurement

### Brother Group Green Procurement Management System

The Brother Group strictly controls chemical substances in products through a green procurement management system

The Brother Group requests all suppliers to cooperate in investigations into the content of chemical substances in products and pass the audits of their management systems for chemical substances in products.

Flow of operations for the control of chemical substances in products at the Brother Group



## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Continuously implementing energy conservation measures based on the mid-term targets by FY2020

As a global company developing its business in different countries and regions across the world, the Brother Group recognizes its commitment to prevent global warming as a top priority to be addressed. In June 2009, CO<sub>2</sub> reduction targets to be achieved by FY2020 were added to the Brother Group Mid-term Environmental Action Plan, and active efforts have been made to achieve those targets.

The Brother Group's CO<sub>2</sub> emissions in Japan come mainly from electricity used by offices, while the group's CO<sub>2</sub> emissions overseas 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 CO<sub>2</sub> 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.

#### Mid-term targets by FY2020 (April 1, 2020-March 31, 2021)

- (1) Cut total CO<sub>2</sub> emissions by 30% from FY1990 levels at eight business sites in Japan\*<sup>1</sup> by FY2020 (absolute value)
- (2) Cut CO<sub>2</sub> emissions by 20% (per unit of sales) from FY2006 levels at manufacturing facilities outside Japan (except the USA)\*<sup>2</sup> by FY2020

\*1: The eight business sites in Japan are the head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center.

\*2: USA (a manufacturing facility outside Japan) constitutes part of a sales facility. Thus, the CO<sub>2</sub> emissions are included in the results of the sales facility.

### Brother Group Environmental Action Plan 2018 (2016-2018) and achievements in FY2016

#### Eight business sites in Japan

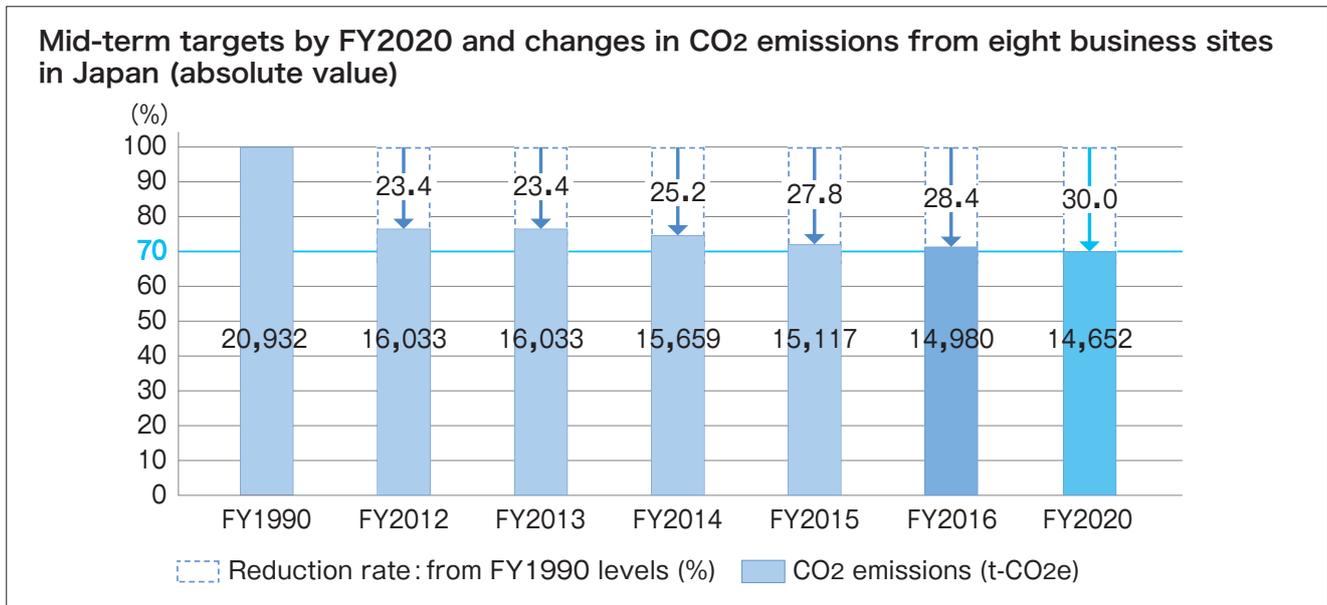
To achieve the mid-term targets by FY2020, the Brother Group Environmental Action Plan 2018 (2016-2018) set the target of reducing CO<sub>2</sub> emissions by 28% (1% per annum) (absolute value) by FY2018 (April 1, 2018-March 31, 2019) from FY1990 levels.

In FY2016 (April 1, 2016-March 31, 2017), various energy conservation measures were implemented, including extensive energy conservation (depending on the level of operation) at all the factories, replacement with state-of-the-art air-conditioning systems, and the use of LEDs for ceiling lights. As a result, emissions were reduced by 137 tons from FY2015 (April 1, 2015-March 31, 2016) levels in CO<sub>2</sub> equivalent, and by 28.4% from FY1990 (November 21, 1989-November 20, 1990) levels (absolute value), though electricity and city gas consumption increased due to the completion and commencement of operation of a new building at the Kariya Manufacturing Facility. Thus, the Brother Group successfully achieved the target.

Regarding CO<sub>2</sub> emissions, the emissions coefficient as defined in the Act on Promotion of Global Warming Countermeasures (Japanese Ministry of the Environment) is used to calculate the emissions.

## Reducing Environmental Impact

### CO2 Emission Reduction Activities



#### Manufacturing facilities outside Japan (except the USA)

The mid-term targets by FY2020 were attained in FY2013 (April 1, 2013-March 31, 2014). Thus, the targets for the entire group have been applied.

#### Entire Brother Group

The mid-term targets by FY2020 for manufacturing facilities outside Japan (except the USA) were attained. Thus, target facilities and new reduction targets (covering more gases than before) have been specified in the Brother Group Environmental Action Plan 2018 (2016-2018).

The target has been expanded to all the facilities of the group, and target gases subject to reduction have been increased to seven greenhouse gases including CO<sub>2</sub>.

The greenhouse gas emissions are converted to CO<sub>2</sub> equivalent, and the reduction target is 1% per annum per unit of sales.

In FY2016, the conventional energy conservation activities were deployed globally to reduce the CO<sub>2</sub> emissions from energy use. Meanwhile, a survey was conducted to determine the greenhouse gas emissions from the entire group. It was found that some solvents used at manufacturing facilities outside Japan emitted greenhouse gases. These solvents have been replaced in stages with those that do not emit greenhouse gases. These two measures achieved a reduction of 7.4% per annum, far exceeding the target value. To calculate the CO<sub>2</sub> emissions, emission factors of respective countries published by the International Energy Agency (IEA) and the GHG Protocol are used for electricity and fuel, respectively.

# Reducing Environmental Impact

## CO2 Emission Reduction Activities

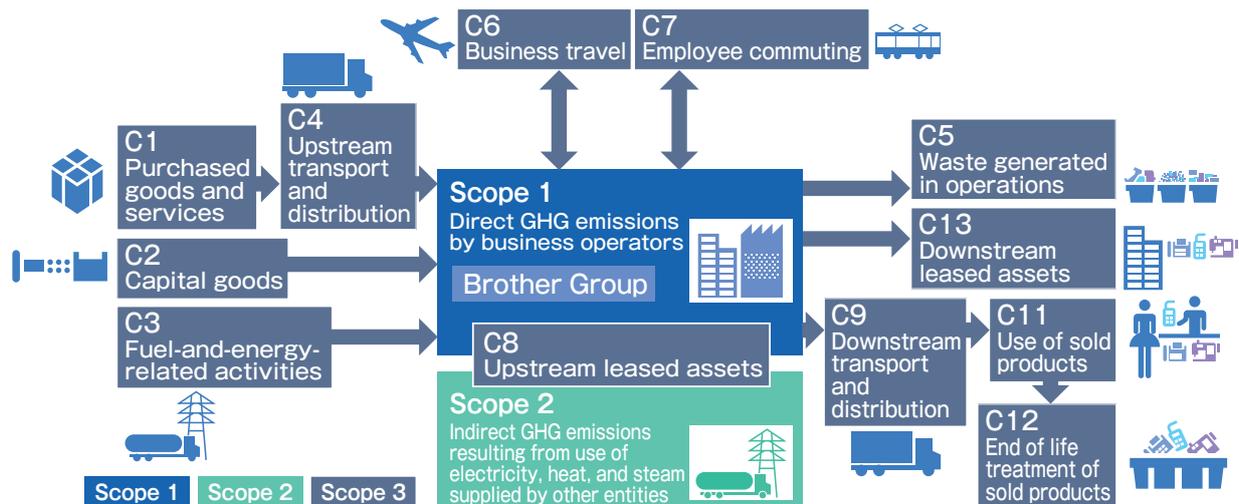
### Entire value chain

In FY2013, the Brother Group started calculations for Scopes 1 and 2 based on the GHG Protocol (a globally used standard). In FY2014 (April 1, 2014-March 31, 2015), the Brother Group started to calculate Scope 3 to determine the CO<sub>2</sub> emissions from the entire value chain. The calculations are in accordance with the provisions of ISO 14064-1.

To verify the calculation results, the Brother Industries, Ltd. is subject to verification by a third-party organization, starting with the calculation results for Scopes 1, 2, and 3 in FY2014. In FY2016, calculations were performed using two methods (location-based method\*1 and market-based method\*2) in accordance with the GHG Protocol Scope 2 Guidance released in January 2015.

\*1: The location-based method aims to perform calculations based on the grid-average emission factors in a certain area such as a country or region. The choice of low-carbon electricity is not reflected.

\*2: The market-based method aims to perform calculations based on the emission factors of electricity purchased by companies in accordance with contracts. The choice of low-carbon electricity is reflected.



# Reducing Environmental Impact

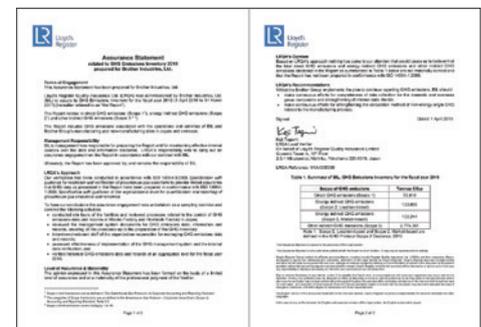
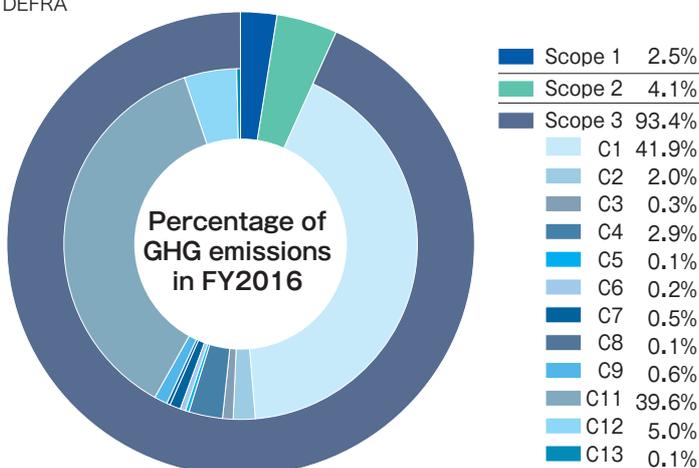
## CO2 Emission Reduction Activities

### Greenhouse gas (GHG) emissions based on ISO 14064 (Scopes 1, 2, and 3)

Category		CO2 emissions in t-CO2 equivalent			Remarks	
		FY2015	FY2016	Increase/ decrease value		
Scope 1 (t-CO2): direct emissions		75,333	72,819	-2,514		
Scope 2 (t-CO2): indirect emissions from energy use	Location-based	122,766	123,093	327		
	Market-based	125,093	122,244	-2,849		
Scope 3 (t-CO2): other indirect emissions		2,930,271	2,774,361	-155,910		
C1	Purchased goods and services	1,296,640	1,245,408	-51,232		
C2	Capital goods	96,858	59,849	-37,009		
C3	Fuel- and energy-related activities	9,523	10,305	783		
C4	Upstream transport and distribution	77,535	86,629	9,094		
C5	Waste generated in operations	3,012	3,357	345		
C6	Business travel	5,670	4,895	-775		
C7	Employee commuting	13,299	14,326	1,027		
C8	Upstream leased assets	5,942	4,312	-1,630		
C9	Downstream transport and distribution	15,552	18,238	2,686		
C10	Processing of sold products	—	—	—	No calculation target	
C11	Use of sold products	1,245,508	1,175,761	-69,747		
C12	End-of-life treatment of sold products	159,003	149,551	-9,452		
C13	Downstream leased assets	1,729	1,729	0		
C14	Franchises	—	—	—	No calculation target	
C15	Investments	—	—	—	No calculation target	
Total of Scopes 1, 2, and 3		Location-based	3,128,370	2,970,274	-158,096	
		Market-based	3,130,697	2,969,425	-161,272	

\*: The sources of emission factors for the location-based method are as follows:

- IEA - CO2 EMISSIONS FROM FUEL COMBUSTION 2015 edition
- GHG Protocol - Calculation tools
- DEFRA



The Brother Group obtained an LRQA assurance statement for calculation and disclosure of GHG emissions.

▶ [View the PDF \[PDF/569KB\]](#)

[http://download.brother.com/pub/com/en/eco/pdf/2017/lrqa\\_assurance.pdf](http://download.brother.com/pub/com/en/eco/pdf/2017/lrqa_assurance.pdf)

For the scope of aggregation for Scopes 1, 2, and 3, refer to the history of audit in compliance with ISO 14064-1. [http://www.brother.com/en/eco/facility/iso\\_14001/index.htm](http://www.brother.com/en/eco/facility/iso_14001/index.htm)

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### CO2 reduction activities by the Brother Group's manufacturing facilities

##### Brother Industries, Ltd. (Japan)

At Brother Industries, Ltd. (BIL), divisions that own equipment, the general affairs division, and the environmental division reviewed management standards for power-intensive equipment including: lighting and air-conditioning equipment, humidifiers, clean rooms, compressors, and constant temperature/humidity chambers. They identified locations that required improvements through energy conservation patrols and other means, to enhance electricity/energy conservation activities.

Since 2011 when the Great East Japan Earthquake struck, business sites of BIL have been working on the following electricity/energy conservation activities, by taking supply-demand measures in cooperation with the electric supply companies and cutting peak electricity demand in summer.

- Cool Biz (no tie or jacket worn in summer)
- Switching off the lights of advertising towers at business sites (activity continuing at the head office building and the Mizuho Manufacturing Facility)
- Ensuring to observe air-conditioning temperature settings (summer: 28°C, winter: 20°C)
- Introducing the most efficient LED fluorescent lamps
- Removing ceiling lights where possible and installing individual canopy (string) switches
- Switching off lights where unnecessary
- Setting the illuminance levels for lighting in common spaces to the necessary minimum (e.g., corridors, passages, elevator halls, stairwells) and adjusting the occupancy sensor timer settings to reduce the duration in which lights are on
- Eliminating the use of air conditioning in common spaces (e.g., corridors, passages, elevator halls, stairwells)
- Unplugging or switching off the main power of power strips for office equipment (e.g., PCs, LED monitors) when employees go home
- Requiring employees to submit special air-conditioning area applications to use rooms with temperature settings different from the standard setting, and reflecting such requirements in the ISO 14001 work instruction sheets as necessary
- Switching off toilet seat heaters (in summer)
- Reducing the number of hours in which tea dispensers are available and reducing the number of hot water dispensers
- Adjusting the hot water temperatures of electric water heaters (in winter) (switching off in summer)



LED fluorescent lamps and canopy switches



Double-pane glass window sashes (interior side of windows)

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

In FY2014 (April 1, 2014-March 31, 2015), at some offices, double-pane glass window sashes (retrofitted units) were installed on the interior side of existing windows, and proved to be highly effective for thermal insulation in summer and winter. These sashes were introduced extensively from FY2015 (April 1, 2015-March 31, 2016) to FY2016 to help create a comfortable office environment by reducing air-conditioning load, decreasing workplace discomfort (e.g. too hot or too cold), and reducing noise from outside. The measure has been well-received by employees.

In June 2014, the photovoltaic power generation system was expanded at the Mizuho Manufacturing Facility. At present, two photovoltaic power generation systems are in place at the Mizuho Manufacturing Facility and one at the Kariya Manufacturing Facility (a generation capacity of about 100 kW each). The total annual power generation of these three systems was 339 MWh in FY2016. The total power generation after installation of these systems added up to 2,950 MWh.

In FY2016, at the Kariya Manufacturing Facility, compressors for generating compressed air for the production process were rearranged, a unit controller was introduced to consolidate the compressors, the piping was reconfigured into a loop to minimize the pressure drop at the terminal, and the number of compressors in operation was reduced from 13 to 7. As a result, the CO<sub>2</sub> emissions were reduced by about 230 tons in FY2016 compared to FY2015. The consolidation of compressors and rearrangement of piping into a loop will also be implemented at other manufacturing facilities in FY2017 (April 1, 2017-March 31, 2018).

At the Mizuho Manufacturing Facility, a batch control and monitoring system was introduced for air conditioners, total heat exchangers, and humidifiers to help achieve the CO<sub>2</sub> emissions reduction target. In FY2016, the seventh monitoring station was installed, making it possible to monitor the operation status of all the air conditioners (except for part of the manufacturing facility).

At the Momozono Manufacturing Facility, an electricity monitoring system was installed in the power receiving and transforming room. The monitoring has been enabled at six business sites in total (head office building, Research & Development Center, Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Kariya Manufacturing Facility, and Momozono Manufacturing Facility).



Photovoltaic power generation system expanded at the Mizuho Manufacturing Facility

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Nissei Corporation (Japan)

When adding air compressors, Nissei Corporation introduces inverter-driven air compressors (that automatically reduce the motor speed when the demand for compressed air is low) to save energy, because ordinary air compressors consume a large amount of electricity. To reduce unnecessary operation due to air leakage while compressed air is used, the air piping is inspected and repaired periodically. For equipment that is likely to cause an air leakage, operation rules have been changed to remove the couplers for air piping whenever it is not used. To reduce the electricity consumed by lighting, LED lamps were installed, and lighting fixtures were removed where unnecessary, among other initiatives.

In FY2016, the overall die cast process was reviewed by eliminating the aluminum melting furnace and replacing it with a melting and holding furnace. Energy conservation measures were implemented by introducing inverter compressors. As a result, CO2 emissions were reduced by 325 tons.



Melting and holding furnace



Newly-introduced inverter compressor

#### Brother Machinery Xian Co., Ltd. (Asia)

Brother Machinery Xian Co., Ltd. built a new manufacturing facility, and transferred production from the old manufacturing facility in FY2013. The new facility was designed to give priority to energy conservation to minimize CO2 emissions from the outset. Extensive energy conservation activities have been continuously implemented.

Energy conservation feature	Details
Natural lighting	Roof windows are provided, and lighting is controlled by sensors depending on the indoor illuminance.
Thermal insulation	The walls and roofs are thermally insulated to reduce (i) heat transmitted to the interior (solar radiation heat and outdoor heat) and (ii) heat radiated from the interior to the exterior, thus reducing unnecessary electricity consumed by air conditioning.
Total heat exchanger	In the production areas that require temperature control, the outdoor air is taken in via a total heat exchanger to reduce the air-conditioning load and hence electricity consumption.
Dirivent fan	The fan produces a strong air stream to spread the hot air from the heater in the manufacturing facility, achieving a uniform temperature in the working area.
Highly efficient lighting equipment	The most efficient fluorescent lamps at the time of construction were installed.
Automatic lighting using occupancy sensors	In areas used by many people for short periods of time (e.g. bathrooms, stairways, break rooms, and changing rooms), occupancy sensors automatically switch the lights on and off, avoiding forgetting to turn off the lights.
Integrated management system	An integrated management system automatically turns off the air conditioning and lighting when and where unnecessary (e.g. during breaks and after work).

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Brother Technology (Shenzhen) Ltd. (Asia)

In FY2015, Brother Technology (Shenzhen) Ltd. started to implement the energy conservation measures given below to reduce the electricity consumption.

- Reviewed the layout of the manufacturing area and office, reduced space and the number of equipment, and cut power consumption
- Reduced the number of compressors in operation by one by connecting the compressed air piping for two separate buildings
- Reduced the number of air compressors in operation during the nighttime when the production load is small
- Installed power switches at readily accessible positions, so that electrical equipment in the production line is turned off at the end of production
- Halved the number of test runs for maintenance inspections of generators (from twice every two weeks to once every two weeks)

#### Brother Industries (Vietnam) Ltd. (Asia)

Brother Industries (Vietnam) Ltd. implemented the following energy conservation measures and reduced electricity consumption.

- Installed lamps for illuminating the table for the product appearance quality inspection, and reduced the fluorescent lamps for ceiling lighting where unnecessary
- Lowered the air pressure of air compressors and reduced the electricity consumption
- Applied thermal insulation coating on the roof of the electric room to eliminate the air conditioner for temperature control
- Replaced about 2,500 energy-efficient fluorescent lamps with LEDs and reduced electricity consumption

#### Brother Industries (Philippines), Inc. (Asia)

Brother Industries (Philippines), Inc. implemented the following energy conservation measures for air conditioning and reduced electricity consumption.

- Modified the air-conditioning chiller pump to attain inverter control, and reduced the pump speed without affecting the air-conditioning function (about 30 t-CO<sub>2</sub> reduced per annum)
- Reduced the number of air-conditioning chillers in the specific area (which operated on holidays) from two to one (about 100 t-CO<sub>2</sub> reduced per annum)
- Reviewed the areas air-conditioned at night
- Identified the air-conditioning overcapacity areas based on the temperature control standard and reduced the number of air conditioners operated
- Rigorously applied the standard for managing the air-conditioning temperature



Chiller pump



Inverter control console

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### CO2 reduction activities by the Brother Group's sales facilities

##### Ongoing energy conservation activities at sales facilities

Energy conservation activities below are underway at offices and service centers of the Brother Group sales companies.

- Conventional lamps are being replaced with energy-efficient LED lamps
- Lights are being switched off and removed whenever and wherever unnecessary, and lighting fixtures fitted with sensors are being introduced
- Temperature settings and timers of air-conditioning equipment are being reviewed
- Power is being switched off when it is unnecessary
- PCs are being set to standby mode and equipment is being switched off.



LED lamps used in the showroom, service center, and office



Independent switches were added to reduce power consumption.  
The temperature settings of air-conditioning equipment were reviewed.  
Lights were switched off and removed whenever and wherever unnecessary.

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Brother International Corporation (U.S.A.) (North America)

In 2012, the logistics center of Brother International Corporation (U.S.A.) (BIC (USA)) in Tennessee was certified under the International ENERGY STAR program\* for the following energy/electricity conservation activities in particular.

- Introducing an automatic lighting control system
- Introducing an air-conditioning control system (closed loop control type)
- Introducing thermal insulation measures for roofs and windows
- Introducing two photovoltaic power generation systems (power generation capacity of each: about 60 kW)

The electricity generated by two photovoltaic power generation systems added up to 163 MWh in FY2016 (about 2.0% of the total electricity consumption at this site).



Photovoltaic power generation systems set up at two locations

In the warehouse area, extra-large fans and ceiling fans were fixed to the ceiling to keep employees cooler in summer. In winter, warm air is circulated on the floor surface to increase the heating efficiency and reduce fuel consumed by the boiler.



Ceiling equipment in the warehouse area  
Ceiling fan (left) and extra-large fan (right)



\*: In the U.S., a building program (covering all types of corporate buildings) is in place for certification under the International ENERGY STAR program.

#### ► Material Balance

[http://www.brother.com/en/eco/facility/material\\_balance/index.htm](http://www.brother.com/en/eco/facility/material_balance/index.htm)

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Efforts in logistics

##### Efforts in Japan

In Japan, the New Comprehensive Program of Logistics Policies (2009-2013) was approved at a government cabinet meeting in July 2009. This program takes into consideration the trend of measures against global warming and includes targets to achieve logistics with less environmental impact. Systematic and comprehensive efforts have been made to develop logistics measures.

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, CO<sub>2</sub> emissions were cut by about 38% per shipped weight. The Brother Group has successfully kept CO<sub>2</sub> 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, CO<sub>2</sub> 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 CO<sub>2</sub> emissions (e.g., use of small hybrid delivery trucks).

##### Efforts at facilities outside Japan

Brother's manufacturing facilities in China and Southeast Asia produce nearly all Brother products. Many of these manufacturing facilities are located in industrial parks near ports that are served by container ships, thus the products can be shipped to overseas markets. The manufacturing facilities also employ containers with higher loading capacity to increase the loading efficiency and reduce the number of containers required.

Sales facilities in respective regions have been stepping up efforts to track logistics-related CO<sub>2</sub> emissions, from unloading at ports to delivery warehouse and retailers, and analyze the data, so that future CO<sub>2</sub> emissions reduction measures can appropriately reflect local conditions.

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

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Regarding transportation of products to sales facilities in the U.S., the U.S. arrival port for unloading was changed for some products, thereby reducing distances traveled by sea, facilitating transshipping from sea to land, and enabling Brother to transport more by railway. The ratio carried by rail was increased, almost eliminating the use of trucks for urgent shipments. Since FY2011 (April 1, 2011-March 31, 2012), efforts have been made to improve respective operations by optimizing order placement cycles and transporting orders by pallet.

At the same time, a transport management system was introduced to load different products (orders received from various customers) with optimal combinations and to increase the cargo loading efficiency per truck. As a result, the transport frequency was reduced by 25% from the results of FY2009 (April 1, 2009-March 31, 2010).

Products manufactured in Southeast Asia had been transported to sales facilities via Brother International Singapore Pte. Ltd. In 2011, this system was replaced by direct delivery from manufacturing facilities to reduce marine transportation distances, etc.

At various facilities (mainly manufacturing facilities) in China and other regions in Asia, delivery trucks of less than three tons were replaced with larger ones of three tons or more (whose CO2 emissions coefficient is small) to reduce CO2 emissions.

### Brother Group's CO2 reduction activities in logistics

#### Brother Logitec Ltd. (Japan)

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Brother Logitec Ltd., a group company in charge of logistics operations for Brother products in Japan, considers reduction in environmental impact attributed to logistics as an important management challenge. Thus, the company has been promoting various efforts to ensure green logistics. Measures include improving the cargo loading efficiency, optimizing transportation routes by using digital tachographs (device to continuously record the operations of trucks) to meet varying transportation quantities, and improving fuel efficiency by requiring drivers to drive economically and turn off their engines when stopped. As a result, fuel economy was improved by 5% in FY2010 (April 1, 2010-March 31, 2011) from FY2009, and has been maintained at this level.

Biofuel refined from 100% used edible oil from cafeterias has been in use since 2012, and one truck owned by Brother is exclusively run on such biofuel. To reduce CO2 emissions into the atmosphere, the number of vehicles fueled solely by biofuel will be increased to cut CO2 emissions further.

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Brother International Corporation (Canada) Ltd. (North America)

Brother International Corporation (Canada) Ltd. (BIC Canada) switched the transport route for most cargo to Montreal from the route via Prince Rupert to a shorter Vancouver route, thereby reducing the transport distance.



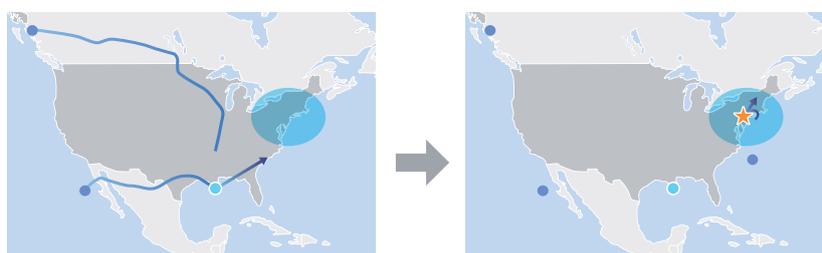
Reducing transport distances by switching the transport route

#### Brother International Corporation (U.S.A.) (North America)

In April 2014, Brother International Corporation (U.S.A.) (BIC (USA)) established the New Jersey Logistics Center (Cranbury), a new facility on the east coast of the U.S. This logistics center has reduced the distance that products are transported from the manufacturing facility primarily to the northeastern part of the U.S.



New Jersey Logistics Center (Cranbury)



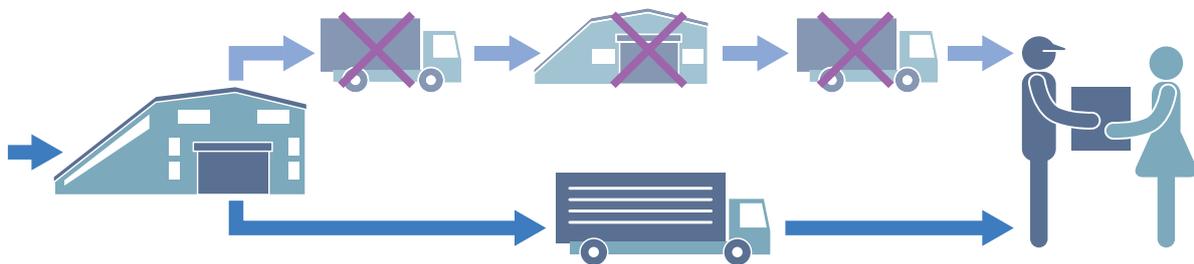
Reducing transport distances by establishing a new facility

## Reducing Environmental Impact

### CO2 Emission Reduction Activities

#### Brother Industries (U.K.) Ltd. (Europe)

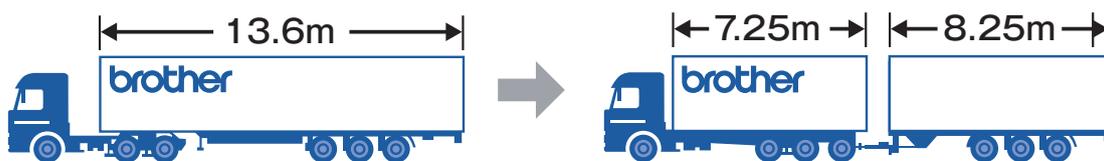
Brother Industries (U.K.) Ltd. (BIUK) improved transport efficiency by increasing the container loading rate and replacing delivery trucks of less than three tons with larger ones of three tons or more. Regarding the transport for the OEM business, products had been delivered via the OEM warehouse. The transport distance was reduced by switching to direct delivery from manufacturing facilities to customers.



Reducing transport distances by switching the transport route

#### Brother Industries (Slovakia) s.r.o. (Europe)

Brother Industries (Slovakia) s.r.o. (BISK) reduced CO2 emissions by increasing the container loading rate and replacing delivery trucks of less than three tons with larger ones of three tons or more. BISK also replaced the 13.6-meter trailers (which account for 60% of the means of transport) with 15.5-meter trailers using tandems, to further increase the transport efficiency.



Increasing the transport efficiency by replacing the trailers

## Reducing Environmental Impact

### Zero Waste Emission Activities

#### Building a recycling framework

##### Ensuring activities to curb waste generation and emissions

To help use resources effectively and prevent resource depletion, the Brother Group ensures activities are carried out to curb waste generation, reduce emissions, and achieve "zero landfill waste" (meaning that less than 1% of waste generated at factories is sent to landfill). In our operations, respective business sites follow the ISO 14001 framework (under which they are certified) and the waste management manual, thereby systematically and continuously working to reduce waste.

In FY2003 (April 1, 2003-March 31, 2004 for business sites in Japan; and January 1, 2003-December 31, 2003 for facilities outside Japan), manufacturing facilities outside Japan and business sites in Japan started to share waste data using a common format and began to monitor the overall status. Efforts have been made to maintain and promote zero landfill waste at respective manufacturing facilities.

##### Results of the Brother Group's activities in FY2016

All the manufacturing facilities (except for Brother Industries (Philippines), Inc. which started production in 2013 and Brother Machinery Vietnam Co., Ltd. (BMV) which started production in 2014) and business sites in Japan maintained zero landfill waste.

#### Details of the Brother Group's activities in FY2016

##### Main activities at business sites in Japan

In FY2001 (April 1, 2001-March 31, 2002), the Brother Group's business sites in Japan achieved zero landfill waste, and work is continuing to prevent the generation of landfill waste at business sites.

##### Main zero waste activities at business sites in Japan

- Promoting the recycling of polyethylene (PE) and polypropylene (PP) used as packaging materials and resin parts that are waste from the repair process. These materials are reused again as raw materials
- Using garbage bags derived from recycled PE pellets (manufactured by recycling operators) within the group
- Using paper derived from confidential documents (recycled by a specialized collection contractor through shredding and liquefying processes) within the group
- Turning food waste from the cafeterias of the Mizuho Manufacturing Facility and Hoshizaki Manufacturing Facility, which have large kitchen equipment, into compost through a specialized collection contractor; recycling waste edible oil as biofuel and using it in the logistics division within the group
- Changing the disposal method of products returned by customers as industrial waste processing to processing as valuable commodities for material recycling
- Processing corrugated fiberboard used as a cushioning material and reusing it as packing material for shipping service parts

## Reducing Environmental Impact

### Zero Waste Emission Activities

#### Main activities at business sites outside Japan

Focusing on waste generation, all the manufacturing facilities worked to reduce and recycle waste and achieve zero landfill waste. Major sales facilities also worked toward obtaining/maintaining ISO 14001 certification and promoting waste reduction activities.

#### Main zero waste activities at manufacturing facilities outside Japan

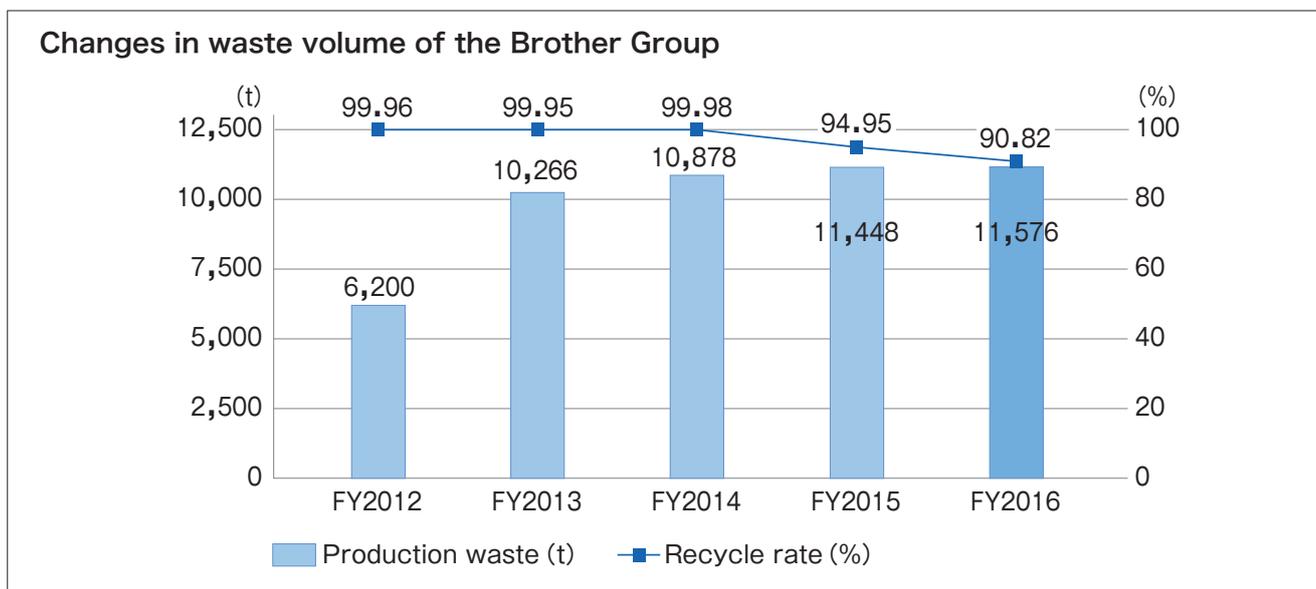
- Separating chips contaminated with water-soluble cutting fluid (emulsified liquid) which was disposed of as industrial waste into water-soluble cutting fluid and chips, in order to reuse the water-soluble cutting fluid and sell the chips (compressed into solids) to recyclers as valuable commodities
- Significantly reducing waste paper by replacing application documents with electronic files at manufacturing facilities, reducing paper consumption in printing tests for printers, etc.
- Significantly reducing packaging-related waste by replacing packaging boxes for parts with returnable containers and increasing the density of parts packaged in innovative packaging styles, etc.
- Improving collection boxes for used printer cartridges and upgrading skills to repair scratches on the resin case surfaces, to improve the refurbishment rate for toner cartridges and to address waste generation
- Promoting reuse of production equipment to reduce waste
- Reducing the consumption of the degreasing agent for coating and cleaning parts and thereby reduce waste fluid

#### Main zero waste activities at sales facilities outside Japan

- Acquiring ISO 14001 certification at main sales facilities, and promoting waste reduction activities
- Ensuring separation of waste by type, and raising awareness about zero waste activities
- Having separated waste appropriately recycled by a specialized contractor to effectively utilize resources

## Reducing Environmental Impact

### Zero Waste Emission Activities



\*: It was found that the recycled amount for the past fiscal years included incineration of waste without energy recovery when aggregating the results for FY2016. The amount cannot be determined retrospectively. Thus, the amount is reported from FY2015 and FY2016.

### Scope of aggregation

FY2012	FY2013	FY2014	FY2015	FY2016
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center), Brother Industries (U.K.) Ltd., Taiwan Brother Industries, Ltd., Zhuhai Brother Industries, Co., Ltd., Brother Machinery Xian Co., Ltd.,*1 Brother Industries (Shenzhen), Ltd.,*2 Brother Technology (Shenzhen) Ltd., Brother Industries Technology (M) Sdn. Bhd., Brother Industries (Vietnam) Ltd., Mie Brother Precision Industries, Ltd., and Brother Industries (Slovakia) s.r.o.	Brother Industries Saigon, Ltd., Brother Industries (Philippines), Inc., and Nissei Corporation were added to the scope of aggregation on the left.	Brother Machinery Vietnam Co., Ltd. was added to the scope of aggregation on the left.	Same as on the left	Same as on the left

\*1: Brother Machinery Xian Co., Ltd. is a business site established through the merger of Xian Brother Industries, Co., Ltd. (formerly Xian Typical Brother Industries, Co., Ltd.) with Brother Sewing Machine Xian Co., Ltd. in 2010. In the same year, Brother Sewing Machine (Shanghai) Co., Ltd. transferred its business to Brother Machinery Xian Co., Ltd.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

### ►Material Balance

[http://www.brother.com/en/eco/facility/material\\_balance/index.htm](http://www.brother.com/en/eco/facility/material_balance/index.htm)

## Reducing Environmental Impact

### Activities to Reduce Water Consumption

#### Brother Activities to reduce water consumption in different regions around the world

##### Enhancing efforts by setting new reduction targets

Securing safe water resources is an important environmental challenge for the global community. The Brother Group has been working to reduce water consumption to fulfill its responsibilities as an operator of manufacturing facilities in many countries and regions. In the Brother Group Environmental Action Plan 2018 (2016-2018), a target of reducing water consumption by 30% from FY2010 (April 1, 2010-March 31, 2011) levels by FY2018 (April 1, 2018-March 31, 2019) (per unit of sales) has been set, and various efforts were made to meet this target.

##### Brother Group's results of activities in FY2016

In FY2016 (April 1, 2016-March 31, 2017), water consumption was reduced at manufacturing facilities except for Brother Technology (Shenzhen) Ltd., and Brother Industries (Vietnam) Ltd. Total water consumption (business sites in Japan and manufacturing facilities outside Japan combined) decreased by 7,537 m<sup>3</sup> from FY2015 (April 1, 2015-March 31, 2016). However, sales decreased due partly to the negative impact of the strong yen. In per unit sales, water consumption increased by 8.0% from FY2015, but decreased by 16.7% from FY2010.

The Brother Group remains committed to further implementing measures to save water in FY2017 (April 1, 2017-March 31, 2018) to attain new reduction targets set out in the Brother Group Environmental Action Plan 2018 (2016-2018).

#### Details of the Brother Group's activities in FY2016

##### Main activities at business sites in Japan

At business sites in Japan, efforts have been made to reduce consumption of clean water by replacing equipment and apparatuses with new ones. During the past few years, Japanese-style toilets have been replaced with Western-style toilets. It should be noted that water-saving toilets have been actively introduced. At the Kariya Manufacturing Facility, the fuel for the odor prevention system (catalyst combustion type) was changed from LPG to city gas in order to reduce the CO<sub>2</sub> emissions in FY2013 (April 1, 2013-March 31, 2014). This eliminated the need to sprinkle water to cool the five large LPG tanks (500 kg each) on the ground, resulting in a reduction of clean water consumption.

## Reducing Environmental Impact

### Activities to Reduce Water Consumption

#### Main activities at facilities outside Japan

Activities to reduce water consumption at manufacturing facilities outside Japan started in FY2009 (April 1, 2009-March 31, 2010). Replacement of water-cooled air conditioners with air-cooled air conditioners, advancement of activities through QC circle activities and an extensive review combined with the optimization of water for sinks and toilets, in particular, produced substantial results. The main measures to reduce water consumption taken by respective manufacturing facilities are described below.

- Replacing the faucet valves with lever-type faucet valves that allow the water flow to be easily adjusted. Combined with the introduction of shower-type water-saving devices in faucets to reduce the water flow, this leads to reduced consumption
- Replacing water-cooled air-conditioning equipment with air-cooled inverter air conditioning equipment in line with energy conservation activities, and preventing the dispersion and evaporation of water in cooling towers to eliminate waste
- Collecting wastewater drained from central air conditioning and using this wastewater for flushing the factory toilets; Daily water consumption was reduced by 6 m<sup>3</sup> (1,440 m<sup>3</sup> annually)
- Improving water injection control and reducing water consumption in the coating process for sewing machine parts
- Posting the monthly water consumption results on the factory bulletin board to encourage employees to reduce water consumption (This was combined with posters for raising awareness)
- Reducing the time of the roof leak inspection on container cars (water spraying using a shower) to one minute (with a timer set up); conducting only visual inspections in the case of short-distance transport
- Collecting rainwater in a storage tank for use in cleaning up drains etc. and thereby reducing water consumption by about 20 L/month



Faucet before taking water-saving measures



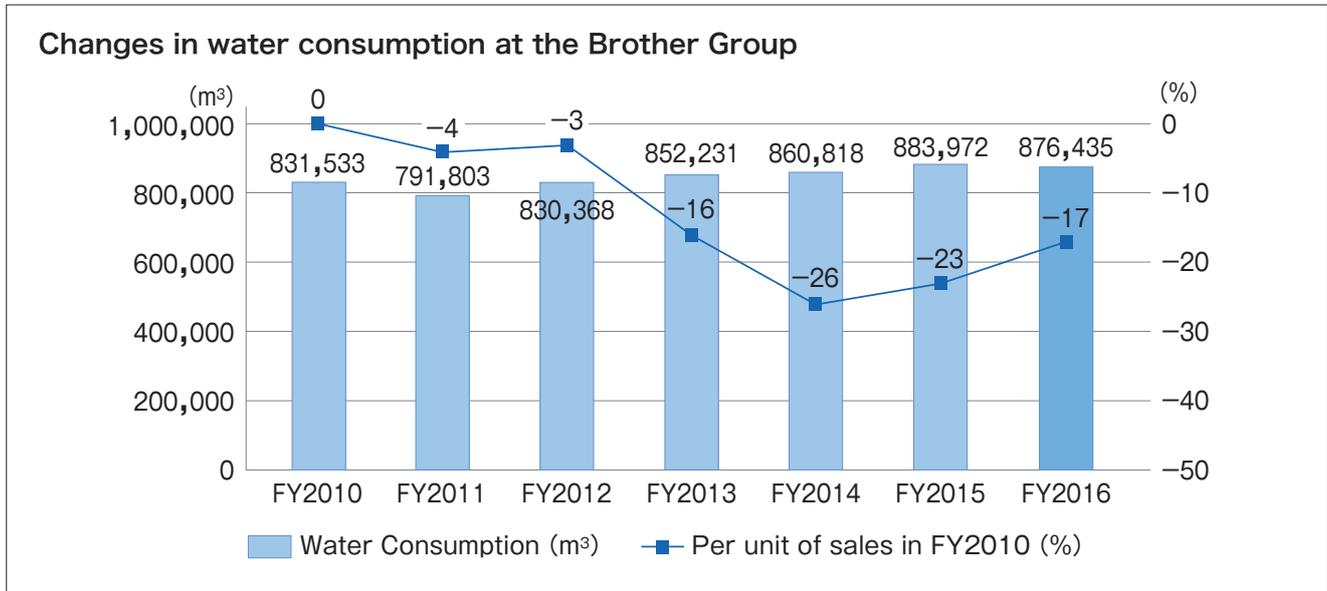
Faucet after taking water-saving measures



Rainwater storage tank (Brother Industries Technology (M) Sdn. Bhd.)

## Reducing Environmental Impact

### Activities to Reduce Water Consumption



#### Scope of aggregation

FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, and Logistics Center), Brother Industries (U.K.) Ltd., Taiwan Brother Industries, Ltd., Zhuhai Brother Industries, Co., Ltd., Brother Machinery Xian Co., Ltd.,*1 Brother Industries (Shenzhen), Ltd.,*2 Brother Technology (Shenzhen) Ltd., Brother Industries Technology (M) Sdn. Bhd., Brother Industries (Vietnam) Ltd., Nissei Corporation, Mie Brother Precision Industries, Ltd., and Brother Industries (Slovakia) s.r.o.			Brother Industries Saigon, Ltd. and Brother Industries (Philippines), Inc. were added to the scope of aggregation on the left.	Brother Machinery Vietnam Co., Ltd. was added to the scope of aggregation on the left.	Same as on the left	Same as on the left

\*1: Brother Machinery Xian Co., Ltd. is a business site established through the merger of Xian Brother Industries, Co., Ltd. (formerly Xian Typical Brother Industries, Co., Ltd.) with Brother Sewing Machine Xian Co., Ltd. in 2010. In the same year, Brother Sewing Machine (Shanghai) Co., Ltd. transferred its business to Brother Machinery Xian Co., Ltd.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

#### ►Material Balance

[http://www.brother.com/en/eco/facility/material\\_balance/index.htm](http://www.brother.com/en/eco/facility/material_balance/index.htm)

## Reducing Environmental Impact

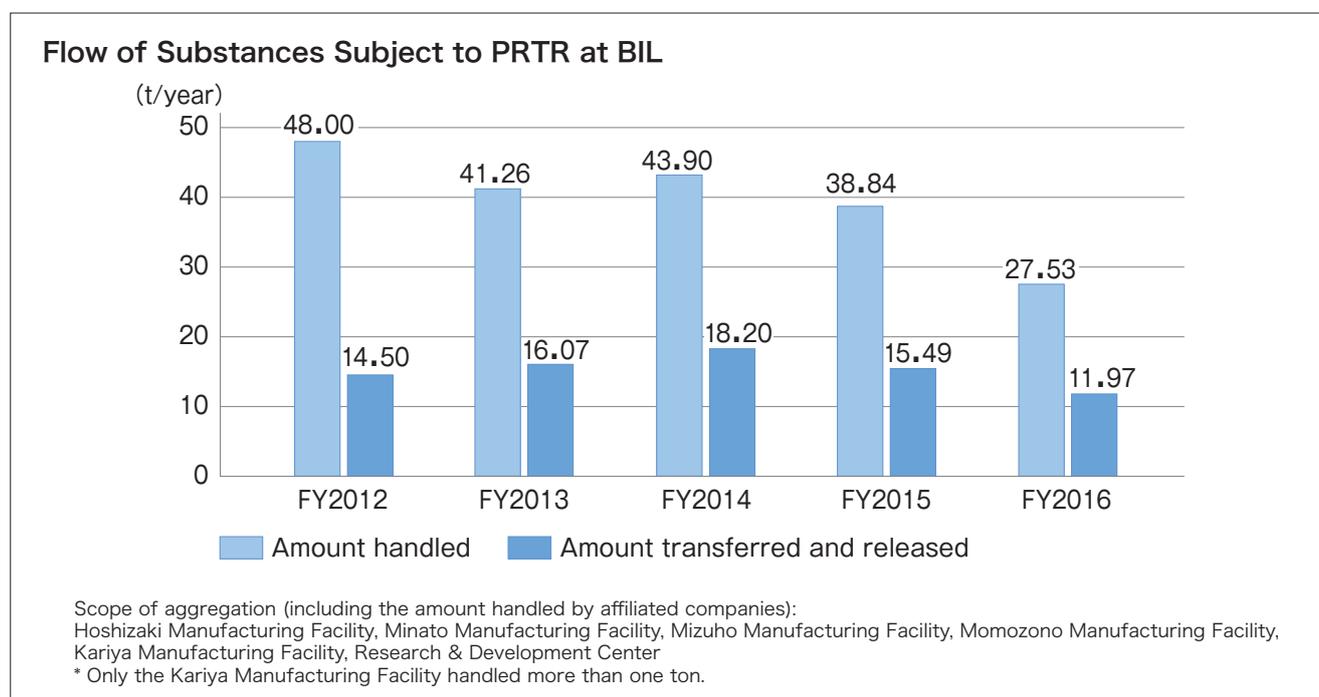
### Preventing Pollution

#### Preventing pollution associated with different sources

To become an environmentally advanced company, the Brother Group is committed to continually reducing environmental impact under the Brother Group Environmental Policy, throughout the life cycle of products (from procurement of parts and materials to development, design, use, collection, reuse, and recycling), placing priority on maintaining compliance with legal regulations and preventing environmental pollution in the respective countries/regions in which Brother operates.

#### Managing and reducing chemical substances

Brother Industries, Ltd. (BIL) participated in a priority review in line with the introduction of the PRTR system by KEIDANREN (Japan Business Federation) in 1998. BIL started to report the amount of chemical substances transferred and released, starting with those used at the business sites in FY1997 (April 1, 1997-March 31, 1998). Of substances subject to PRTR used in FY2016 (April 1, 2016-March 31, 2017), toluene and styrene had to be reported. Toluene (15.6 tons) was treated and rendered harmless using a catalytic combustion system. Thus, the total amount of these two substances handled was 27.53 tons, and the amount transferred and released was 11.97 tons.



#### Flow of Substances Subject to PRTR at BIL in FY2016

(t/year)

No.(PRTR Law)	Chemical Substances Name	Handled Amount	Transferred or Released Amount	Consumed Amount
240	Styrene	1.2	1.2	0.0
300	Toluene	26.3	10.8	0.0

## Reducing Environmental Impact

### Preventing Pollution

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Transformers and capacitors that contain PCBs are collected at one place, strictly controlled, and delivered to certified contractors for treatment. In line with the policy of the national government, BIL finished contracting the treatment of high-concentration PCB waste (that requires high priority treatment) from 2006 to 2009. Regarding PCB waste (e.g. ballasts for fluorescent lamps and low-concentration PCB waste) that is instructed to be stored properly until treatment method and equipment are in place, the City of Nagoya organized a seminar in October 2014, and BIL formulated a treatment plan in FY2015 (April 1, 2015-March 31, 2016) in response to the seminar. BIL earmarked a budget and started to contract the treatment in stages. The high-concentration PCB waste and low-concentration PCB-containing waste that could be newly treated at the contractor were treated in accordance with the acceptance plan of the treatment contractor.

Contaminated waste including ballasts for fluorescent lamps was registered for carry-in style of packing in FY2015 (i.e. registration for carrying in waste by concluding a treatment contract). Carry-in and treatment was scheduled to be completed in FY2017 (April 1, 2017-March 31, 2018). However, the waste is expected to be treated in FY2020 (April 1, 2020-March 31, 2021) because the treatment contractor rescheduled its treatment plan. Regarding PCB-containing apparatuses, investigation and treatment were performed at group companies, and the investigation was completed in FY2016. Treatment will be promoted in stages depending on the types of apparatuses.

Manufacturing facilities outside Japan have identified applicable laws and regulations in respective regions within ISO 14001 systems. Management frameworks have also been established to ensure local environmental management.

The Brother Green Procurement Management System is in operation with collaboration from suppliers to carefully select parts, materials and sub-materials used in production processes to prevent contamination with harmful chemical substances.

### Concept of pollution prevention

BIL gives high priority to preventing environmental accidents by reviewing target facilities and processes and switching to alternatives that are less likely to cause pollution. When managing existing facilities, activities to prevent pollution include setting and complying with voluntary management targets through ISO 14001.

## Reducing Environmental Impact

### Preventing Pollution

#### Preventing air pollution

Replacing fossil fuel-fired boilers and heaters with electric or city gas-fired boilers and heaters has reduced the impact of emissions to the environment. In fact, city gas has a low CO<sub>2</sub> emission coefficient. Thus, efforts are underway to prevent air pollution.

The risks of global warming due to CO<sub>2</sub> emissions, as well as soil and underground water contamination have been reduced due to the abolishment of heavy oil-fired boilers at all business sites of BIL including employees' dormitories.

Solar water heaters and heat pump equipment have replaced the oil boilers used for employees' dormitories at manufacturing facilities outside Japan. The electricity supply for Brother Technology (Shenzhen) Ltd. (BTSL) in Huanan, China, had been private power generation systems (fueled by heavy oil). They were replaced by the city's public utility service, thus reducing the risk of air pollution, CO<sub>2</sub> emissions and underground water pollution.

A catalytic combustor was introduced in 1994 to the coating process at the Kariya Manufacturing Facility to reduce VOC (volatile organic compounds) emissions. Exhaust gases are burned to control VOC emissions and prevent odors. Ongoing measures also include switching to materials with low organic solvent content and reducing consumption. In FY2015, BTSL set up VOC treatment facilities and implemented measures for reducing emissions.



VOC treatment facility (BTSL)

#### Preventing water pollution

Measures to prevent water pollution include wastewater treatment facilities introduced at manufacturing facilities, such as at the Kariya Manufacturing Facility (in Japan) to treat its wastewater with the latest membrane bioreactor (in FY2011 [April 1, 2011-March 31, 2012]), Brother Industries Saigon, Ltd. (in Vietnam) to treat wastewater from the parts cleaning process, Brother Machinery Xian Co., Ltd. (in China) to treat its pre-coating surface treatment wastewater, Taiwan Brother Industries, Ltd. to treat pre-coating surface treatment wastewater, and Brother Industries (Vietnam) Ltd. (which expanded its factory in 2012) to replace the conventional wastewater treatment facility with a biofilm type facility. The increased treatment capacity has significantly lowered the environmental impact values of wastewater. At Brother Machinery Vietnam Co., Ltd. (BMV), which was established in 2013, a wastewater purification plant was introduced. Waste heat generated in the manufacturing facility is utilized to remove the water content of the wastewater from the coating pretreatment process, reducing the volume to sludge. By eliminating the waste fluid, the solid waste is appropriately treated. Other business sites do not have specified activities that cause significant environmental impact. At sites without sewage infrastructure, facilities have been installed to clean sewage and treat the resulting wastewater. These facilities comply with regional standards in accordance with the ISO 14001 facility management procedure.



Wastewater treatment facility (BMV)

## Reducing Environmental Impact

### Preventing Pollution

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As part of Brother's preventative measures, we periodically conduct exercises to assess for potential incidents such as hazardous wastewater flowing into sewage or permeating into soil. Other specific preventative measures include equipping wastewater treatment facilities with systems which constantly monitor COD (chemical oxygen demand) and installing oil traps for wastewater from cafeterias, to cope with an oil outflow accident. BOD (biochemical oxygen demand) and n-hexane extracts (an index of the oil content in water, etc.) are regularly measured and monitored.

### Preventing soil contamination

In 1997, BIL launched surveys for contamination of soil and underground water by organochlorine compounds and hazardous heavy metals that the company used historically. Pollutant leakage prevention and remediation measures have been undertaken in zones that were found to have been contaminated. All contaminated zones, when found, have been reported to the local government that has jurisdiction over this issue.

When selling or modifying land owned by BIL, soil analyses have been conducted in accordance with legally prescribed standards.

When purchasing land outside Japan and planning the construction of manufacturing facilities from FY2010 (April 1, 2010-March 31, 2011), historic land use surveys and soil analyses have been conducted in order to identify and verify the pollution status.

At Nissei Corporation (Nissei), a manufacturer of reducers and high precision gears, etc., a survey conducted in FY2015 found that the soil and underground water at the main factory had been contaminated with lead and its compounds due to damage to the hazardous substance storage facility. At the parking lot of the site of the former headquarters, the soil was found to be contaminated with organochlorine compounds. Nissei reported the contaminations to the local government that has jurisdiction, and coped with the problems properly based on guidance offered by the local government.

In FY2016, the underground hazardous substance storage facility at the main factory was reestablished as a facility above ground. The status of the underground water is confirmed to be normal based on monitoring. At the site of the former headquarters, a purification project was launched based on microbiological methods to prevent the pollution from spreading. It has been confirmed that the purification project is progressing well.

## Reducing Environmental Impact

### Preventing Pollution

#### Preventing generation of noise, vibration, and offensive odors

BIL takes great care to prevent the generation of noise, vibration and offensive odors, so as not to cause inconvenience to local communities including homes, schools, and pedestrians. To prevent the generation of noise and vibration, facilities that cause noise or vibration such as chillers and exhaust outlets are installed or relocated as far away within the manufacturing facilities as possible. In FY2015, BTSL (a manufacturing facility outside Japan) implemented a new measure to prevent the generation of noise. Specifically, BTSL set up a noise prevention system at the water treatment facility. In FY2016, ongoing efforts were made to prevent noise by using noise-absorbing flexible ducts and replacing exhaust fans with inverter-driven types, in particular.

To prevent the generation of offensive odors, filters and/or deodorizing equipment are provided at exhaust outlets at various facilities, including coating facilities. Measures in the coating process also include switching to paints with lower organic solvent content (which gives rise to offensive odor) and reducing the consumption of paints. For measures to prevent noise and offensive odors, facilities that cause noise and offensive odors are buried underground. For example, an underground type water tank has been employed at the new wastewater treatment facility that was built at the Kariya Manufacturing Facility in FY2011. In particular, noise and offensive odors are measured when facilities are built, and then constantly monitored after construction is complete.

In FY2016, Nissei reduced the noise affecting its neighborhood by relocating the die-cast machine within the factory (away from the direction of the housing lots) and stopping and scrapping the aluminum melting furnace (to reduce the noise generated when raw materials were charged). These measures helped reduce the noise level to below 50 dB, which met the values for the boundary of the site as set forth in the agreement with Anjo City (60 dB or less during the daytime, 55 dB or less during the nighttime).

## Reducing Environmental Impact

### Environmental Accounting

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#### For greater efficiency in our environmental activities

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##### Concept of environmental accounting

The Brother Group performs environmental accounting as an effective means to continuously improve the efficiency of environmental management, targeting eight business sites in Japan ("in Japan") and manufacturing facilities outside Japan ("outside Japan"). The Brother Group quantitatively assesses their effects, and then uses the results to plan environmental activities to be carried out the next fiscal year.

##### Calculation results for FY2016 (April 1, 2016-March 31, 2017)

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Presented below are the expenses, investments, and effectiveness of environmental activities in FY2016 based on the Brother Group Environmental Action Plan 2018 (2016-2018) (the increases and decreases are based on a comparison with the previous fiscal year).

##### Environmental conservation costs

The Brother Group spent JPY 445 million in Japan (an increase of JPY 261 million) and JPY 42 million outside Japan (a decrease of JPY 73 million). The total amount was JPY 487 million (an increase of JPY 188 million). The investments were made mainly to extensively modify IT-related equipment for environmental management in Japan, to add waste management equipment, and to replace conventional equipment with energy-efficient equipment, etc. outside Japan. Expenditures and labor costs for various environmental conservation activities were JPY 913 million (an increase of JPY 119 million) in Japan and JPY 158 million (a decrease of JPY 137 million) outside Japan.

## Reducing Environmental Impact

### Environmental Accounting

Classification of Environmental Conservation Costs		Details of main activities and their effects	Investment (unit: JPY million)		Expenses (unit: JPY million)	
			In Japan	Outside Japan	In Japan	Outside Japan
1. Business area cost	1) Pollution prevention cost	Pollution prevention measures (including air, water, vibration and noise)	2 (-22)	6 (-43)	25 (4)	66 (-20)
	2) Global environmental conservation cost	Global warming prevention (energy-saving) measures	329 (212)	36 (-30)	160 (77)	15 (-77)
	3) Resource circulation cost	Recycling and reduction in waste generation	1 (1)	0 (0)	157 (53)	38 (-21)
2. Upstream/downstream cost	Costs incurred to reduce environmental impact when procuring parts and materials and after selling products	Green procurement activities; collection and recycling of used products/consumables	0 (0)	0 (0)	60 (-29)	0 (-15)
3. Administration cost	Costs incurred by activities that contribute indirectly to reducing the environmental impact of business operations	Establishment, administration, and maintenance of the ISO 14001 system; environmental training for employees; disclosure of environmental information; greening and cleanup of manufacturing facilities and their surrounding areas	101 (68)	0 (0)	349 (20)	31 (-4)
4. R&D cost	R&D costs for reducing environmental impact	Development of eco-conscious products and technologies; implementation of product environmental assessments; design improvement	12 (2)	0 (0)	149 (-3)	5 (1)
5. Social activity cost	Costs of environmental conservation that is not directly linked with corporate activities	Support for environmental conservation groups and organizations; support for environmental activities by local citizens; information services	0 (0)	0 (0)	10 (-2)	3 (-1)
6. Cost to deal with environmental damage	Costs incurred to restore the natural environment (including soil remediation)	Soil contamination surveys; soil remediation	0 (0)	0 (0)	3 (-1)	0 (0)
Total			445 (261)	42 (-73)	913 (119)	158 (-137)

Figures in parentheses show increases/decreases in the amount from the previous fiscal year.

# Reducing Environmental Impact

## Environmental Accounting

### Environmental conservation effects

Energy input increased 1% in Japan, and increased 25% outside Japan due to the expanded in-house production of parts. Water consumption decreased 6.6% in Japan and increased 0.7% outside Japan, resulting in an overall decrease of 0.2%. In FY2016, the CO<sub>2</sub> emission factors were changed from those in accordance with the Act on Promotion of Global Warming Countermeasures in Japan (the Ministry of the Environment) to those of respective countries published by the International Energy Agency (IEA) for electricity and the Greenhouse Gas Protocol for fuel, resulting in an increase of 48% and 80% in Japan and outside Japan, respectively.

Content of environmental conservation effects		Classification of index to measure environmental conservation effects		In Japan	Outside Japan
Effects resulting from business area cost	Effects related to resource input into business operations	Total energy input	(kL: converted into crude oil quantity)	10,231 (115)	23,515 (4,695)
		Water input	m <sup>3</sup>	87,772 (-6,217)	703,515 (4,811)
	Effects related to environmental impact and waste released from business operations	Release into the atmosphere from energy use	CO <sub>2</sub> (t-CO <sub>2</sub> /year)*1 Based on the emission factors of the international standards	22,298 (7,181)	55,741 (24,748)
			CO <sub>2</sub> (t-CO <sub>2</sub> /year)*2 Based on the conventional emission factors	15,305 (188)	38,720 (7,727)
			NOX(kg/year)	2,155 (135)	5,276 (2,382)
			SOX(kg/year)	8 (0)	123 (51)
		Generation of waste	Amount of waste generation (t)	1,702 (-296)	6,105 (339)*2
			Landfill waste (t)	0 (0)	121 (120)

Figures in parentheses show increases/decreases in the amount from the previous fiscal year.

\*1: Since FY2016, the CO<sub>2</sub> emissions from energy use have been calculated based on the emission factors of the international standards. The values calculated using the conventional emission factors are also indicated for reference. The application of the international standards has increased the calculated values by more than 40%.

\*2: For Brother Industries (Philippines), Inc., some wastes were found to have been omitted from the scope of aggregation in FY2015 (April 1, 2015-March 31, 2016). Thus, the amount of waste generation in FY2015 was revised upward from 5,259 tons to 5,766 tons to calculate the increases and decreases.

## Reducing Environmental Impact

### Environmental Accounting

#### Economic effects derived from environmental conservation measures\*

The main economic effects were reduction in waste treatment costs due to resource saving and recycling in Japan and operating income from the recycling of waste outside Japan.

Content of economic effects		In Japan (unit: JPY million)	Outside Japan (unit: JPY million)
Income	Operating income from recycling of waste generated from main business operations	2.5 (-0.4)	46.6 (-34.7)
Cost reduction	Reduction in energy cost by energy saving	18.0 (9.8)	20.6 (7.8)
	Reduction in waste treatment cost due to resource saving and recycling	32.9 (5.3)	24.8 (-4.9)
Other	Publicity effects, such as newspaper reporting, calculated in terms of advertising expenses	1.4 (-1.7)	0.4 (-13.5)
Total		54.8 (13.0)	92.4 (-45.3)

Figures in parentheses show increases/decreases in the amount from the previous fiscal year.

\*: Economic effects derived from environmental conservation measures are those that can be calculated in monetary terms from among the effects derived from the environmental conservation activities. Effects that cannot be calculated based on solid grounds (i.e., assumed effects and accidental effects) are not calculated.

#### Scope of aggregation

FY2015	FY2016
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center*1), Brother Industries (U.K.) Ltd., Brother Industries (Slovakia) s.r.o., Taiwan Brother Industries, Ltd., Zhuhai Brother Industries, Co., Ltd., Brother Machinery Xian Co., Ltd., Brother Technology (Shenzhen) Ltd., Brother Industries (Shenzhen), Ltd.,*2 Brother Industries (Vietnam) Ltd., Brother Industries Saigon, Ltd., Brother Machinery Vietnam Co., Ltd., Brother Industries (Philippines), Inc., Brother Industries Technology (M) Sdn. Bhd.*1	

\*1: For Logistics Center and Brother Industries Technology (M) Sdn. Bhd. in FY2016, only "Environmental Conservation Effects" was aggregated.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

#### ►Environmental Accounting (Detailed Data: FY2012-FY2016) [PDF/128KB]

<http://download.brother.com/pub/com/en/eco/pdf/2017/accounting.pdf>

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### Making continuous improvements by administering the environment management system

All of the Brother Group's manufacturing facilities as well as the sales facilities listed in the table below have acquired ISO 14001 certification (an international standard for environmental management systems) in accordance with the Brother Group Environmental Policy. Environmental improvement activities have been designed in compliance with the requirements. When a new business site is established, activities are implemented in compliance with ISO 14001 concurrently with the commencement of operations, in principle. ISO 14001 certification is immediately obtained in order to maximize the effectiveness of environmental conservation activities. Work is underway to comply with the requirements of ISO 14001 that have been revised in 2015 as appropriate.

Meanwhile, the Brother Group is subject to audit based on ISO 14064 that provides guidelines for measuring and verifying emissions of greenhouse gases (GHGs).

#### List of ISO 14001-certified facilities

Name of site/facility		Month and year of certification
Brother Commercial (Thailand) Ltd.		April 2017
PT. Brother International Sales Indonesia		June 2016
Brother International S.A. (Pty) Ltd.		December 2015
Brother Sewing Machines Europe GmbH		
Brother International (Gulf) FZE (Turkey Branch)		September 2015
Brother International Korea Co., Ltd.		June 2015
Brother International (Malaysia) Sdn. Bhd.		
Brother Machinery Vietnam Co., Ltd.		February 2015
Brother Industries (Philippines), Inc.		April 2014
Brother International Corporation (U.S.A.) (Two facilities listed on the right additionally acquired integrated certification with Brother International Corporation (U.S.A.))	Brother Mobile Solutions, Inc.	December 2013
	Nefsis Corporation	
Brother Machinery Shanghai Ltd.		
XING Inc.		July 2013
Brother Central and Eastern Europe GmbH (Facility listed on the right additionally acquired integrated certification with Brother Central and Eastern Europe GmbH.)	Brother International CZ s.r.o.* (Currently: Brother Central and Eastern Europe GmbH (Czech Branch))	May 2013

\*: Brother International CZ s.r.o. and Brother Polska Sp. z o.o. were subject to an absorption-type merger in FY2016 (April 1, 2016-March 31, 2017), with Brother Central and Eastern Europe GmbH as the surviving company.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### List of ISO 14001-certified facilities

Name of site/facility		Month and year of certification
Brother LLC		April 2013
Brother Industries Saigon, Ltd.		August 2012
Brother Central and Eastern Europe GmbH(Two facilities listed on the right additionally acquired integrated certification with Brother Central and Eastern Europe GmbH.)	Brother International GmbH (Austrian Branch)	May 2012
	Brother Polska Sp. z o.o.* (Currently: Brother Central and Eastern Europe GmbH (Poland Branch))	
Brother Nordic A/S (Four facilities listed on the right acquired integrated certification with Brother Nordic A/S.)	Brother Nordic A/S	April 2011
	Brother Finland, Brother Nordic A/S Denmark, branch in Finland	
	Brother Norway, branch of Brother Nordic A/S	
	Brother Sweden, branch of Brother Nordic A/S, Denmark	
Brother International Corporation (U.S.A.) (Two facilities listed on the right additionally acquired integrated certification with Brother International Corporation (U.S.A.))	Brother Industries (U.S.A.) Inc.	March 2011
	Brother International del Peru S.A.C.	
Brother International (HK) Ltd.		February 2011
Brother International (Gulf) FZE		May 2010
Brother International Philippines Corporation		February 2010
Brother Internationale Industriemaschinen GmbH		April 2009
Brother International Austria GmbH (Currently: Brother Central and Eastern Europe GmbH)		
Brother International Corporation (U.S.A.) (Four facilities listed on the right acquired integrated certification with Brother International Corporation (U.S.A.))	Brother International de Mexico, S.A. de C.V.	
	Brother International Corporation do Brasil, Ltda.	
	Brother International de Chile, Ltda.	
Brother International Corporation de Argentina S.R.L.		
Brother Industries (Vietnam) Ltd.		March 2009
Brother International (Belgium) NV/SA		
Brother (China) Ltd.		December 2008

\*: Brother International CZ s.r.o. and Brother Polska Sp. z o.o. were subject to an absorption-type merger in FY2016 (April 1, 2016-March 31, 2017), with Brother Central and Eastern Europe GmbH as the surviving company.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### List of ISO 14001-certified facilities

Name of site/facility		Month and year of certification
Brother Industries, Ltd. (Two facilities listed on the right acquired integrated certification with Brother Industries, Ltd.)	Brother Sales, Ltd.	November 2008
	Brother International Corporation	
Brother Industries (Slovakia) s.r.o.		October 2008
Brother (Schweiz) AG		September 2008
Brother International Singapore Pte. Ltd.		August 2008
Brother International Corporation (Ireland) Ltd. (Currently: Brother Ireland DAC)		
Brother International (Danmark) A/S (Currently: Brother Nordic A/S)		
Brother Norge A.S. (Currently: Brother Norway, branch of Brother Nordic A/S)		July 2008
Brother International (Sweden) A.B. (Currently: Brother Sweden, branch of Brother Nordic A/S, Denmark)		
Brother France SAS		June 2008
Brother International (Aust.) Pty. Ltd.		May 2008
Brother Finland Oy (Currently: Brother Finland, Brother Nordic A/S Denmark, branch in Finland)		April 2008
Brother International GmbH		March 2008
Brother International Corporation (U.S.A.)	NJ office	
	MA office	
	CA office	
	MIM Industries, Inc.	
	IL office	
Brother Iberia, S.L.U.		
Brother Italia S.p.A.		January 2008
Brother International (NZ) Ltd.		July 2007
Brother International Europe Ltd.		March 2007
Brother Sewing Machine Xian Co., Ltd.* (Currently: Brother Machinery Xian Co., Ltd.)		June 2006
Brother Logitech Ltd.		May 2006

\*: Xian Typical Brother Industries, Co., Ltd. merged with Brother Sewing Machine Xian Co., Ltd. in 2010. The new company is named Brother Machinery Xian Co., Ltd.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### List of ISO 14001-certified facilities

Name of site/facility		Month and year of certification
Brother International (Nederland) B.V.		March 2006
Brother Sewing Machine (Shanghai) Co., Ltd.*1		December 2005
Brother U.K. Ltd.		February 2005
Brother Industries (Shenzhen), Ltd.*2 (Currently: Brother Technology (Shenzhen) Ltd.)		June 2004
Mie Brother Precision Industries, Ltd.		December 2003
Brother Tennessee* (Brother Industries (U.S.A.) Inc.) * Registered facility name when ISO 14001 certification was acquired		December 2002
Brother Industries, Ltd.	Acquired integrated certification for the headquarters and manufacturing facilities in Japan	November 2002
Zhuhai Brother Industries, Co., Ltd.		July 2001
Brother Industries, Ltd.	Headquarters / Research & Development Center	March 2001
Brother Industries, Ltd.	Momozono Manufacturing Facility	December 2000
Nissei Corporation*3		
Taiwan Brother Industries, Ltd.		October 2000
Brother Industries, Ltd.	Hoshizaki Manufacturing Facility	November 1999
Brother Industries, Ltd.	Minato Manufacturing Facility	
Xian Typical Brother Industries, Co., Ltd.*4 (Currently: Brother Machinery Xian Co., Ltd.)		
Buji Nanling Factory, Brother Corporation (Asia) Ltd. (Currently: Brother Technology (Shenzhen) Ltd.)		October 1999
Brother Industries, Ltd.	Mizuho Manufacturing Facility	August 1998
Brother Industries, Ltd.	Kariya Manufacturing Facility	February 1997
Brother Industries (U.K.) Ltd.		December 1996

\*1: Brother Sewing Machine (Shanghai) Co., Ltd. transferred its business to Brother Machinery Xian Co., Ltd. in 2010.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

\*3: Nissei Corporation became a consolidated subsidiary of Brother Industries, Ltd. on January 30, 2013.

\*4: Xian Typical Brother Industries, Co., Ltd. merged with Brother Sewing Machine Xian Co., Ltd. in 2010. The new company is named Brother Machinery Xian Co., Ltd.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Scopes 1, 2, and 3	2017, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother Industries, Ltd., (Headquarters, Mizuho, Hoshizaki, Minato, Momozono, and Kariya Manufacturing Facilities, Research & Development Center, Logistics Center, Tokyo Branch)	
Nissei Corporation* (Headquarters, two sales offices)	
Brother International Corporation	
Mie Brother Precision Industries, Ltd.	
Brother Sales, Ltd. (Headquarters, seven sales offices)	
XING Inc. (Headquarters, Tokyo head office, seven sales offices)	
XING Music Entertainment, Inc.	
BMB International Corp.	
Teichiku Entertainment, Inc.	
Teichiku Music, Inc.	
Brother Logitech Ltd.	
Brother Real Estate, Ltd.	
Brother Living Service Co., Ltd.	
Brother Enterprise, Ltd.	
Betop Staff, Ltd.	
Brother Industries (U.S.A.) Inc.	
Brother International Corporation (U.S.A.) (Headquarters, four offices)	
Brother International Corporation (Canada) Ltd.	
Brother International de Mexico, S.A. de C.V.	
Brother International Corporation do Brasil, Ltda.	
Brother International de Chile, Ltda.	
Brother International Corporation de Argentina S.R.L.	
Brother Mobile Solutions, Inc.	
Brother International del Peru S.A.C.	
Brother Industries (U.K.) Ltd.	
Brother Industries (Slovakia) s.r.o.	
Brother Internationale Industriemaschinen GmbH	

\*: Nissei Corporation became a consolidated subsidiary of Brother Industries, Ltd. on January 30, 2013.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Brother Internationale Industriemaschinen GmbH (Italian Branch)	2017, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother Sewing Machines Europe GmbH	
Brother Sewing Machines Europe GmbH (U.K. Branch)	
Brother System Technology Development (Hangzhou) Ltd.	
Taiwan Brother Industries, Ltd.	
Brother Industries Technology (M) Sdn. Bhd.	
Zhuhai Brother Industries, Co., Ltd.	
Brother Machinery Xian Co., Ltd.	
Brother Industries (Vietnam) Ltd.	
Brother Technology (Shenzhen) Ltd.*	
Brother Industries Saigon, Ltd.	
Brother Industries (Philippines), Inc.	
Brother Machinery Vietnam Co., Ltd.	
Nissei Trading (Shanghai) Co., Ltd. (Headquarters, one branch)	
Brother International S.A. (Pty) Ltd.	
Brother International (Aust.) Pty. Ltd.	
Brother International Singapore Pte. Ltd.	
Brother International (NZ) Ltd.	
Brother International (HK) Ltd.	
Brother International (Gulf) FZE	
Brother International (Gulf) FZE (Turkey Branch)	
Brother Commercial (Thailand) Ltd.	
Brother Machinery (Asia) Ltd.	
Brother International (Malaysia) Sdn. Bhd.	
Brother International Philippines Corporation	
Brother (China) Ltd. (Headquarters, two branches)	
BMB (Shanghai) International Corp.	
Brother International (India) Private Ltd.	

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
PT. Brother International Sales Indonesia	2017, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother International Taiwan Ltd.	
Brother International (Vietnam) Co., Ltd.	
Brother International Korea Co., Ltd.	
Brother Machinery Shanghai Ltd.	
Nissei Gear Motor Mfg. (Changzhou) Co., Ltd.	
Brother International Europe Ltd.	
Brother U.K. Ltd.	
Brother International GmbH	
Brother International GmbH (Austrian Branch)	
Brother France SAS	
Brother International (Nederland) B.V.	
Brother Nordic A/S	
Brother Norway, branch of Brother Nordic A/S	
Brother Sweden, branch of Brother Nordic A/S, Denmark	
Brother Finland, Brother Nordic A/S Denmark, branch in Finland	
Brother Central and Eastern Europe GmbH	
Brother Central and Eastern Europe GmbH (Czech Branch)	
Brother Central and Eastern Europe GmbH (Poland Branch)	
Brother International (Belgium) NV/SA	
Brother (Schweiz) AG	
Brother Ireland DAC	
Brother Italia S.p.A.	
Brother Iberia, S.L.U.	
Brother Iberia, S.L.U. (Lisbon Branch)	
Brother LLC	
Brother International Hungary Kft.*1	
Scopes 1 and 2	
Standard Corp.*2	

\*1: Brother International Hungary Kft. became the representative office of Brother Central and Eastern Europe GmbH on December 1, 2016.

\*2: Standard Corp. is a business site that was added for aggregation in April 2018.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Scopes 1, 2, and 3	2016, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother Industries, Ltd., (Headquarters, Mizuho, Hoshizaki, Minato, Momozono, and Kariya Manufacturing Facilities, Research & Development Center, Logistics Center, Tokyo Branch)	
Nissei Corporation* (Headquarters, two sales offices)	
Brother International Corporation	
Mie Brother Precision Industries, Ltd.	
Brother Sales, Ltd. (Headquarters, seven sales offices)	
XING Inc.	
XING Music Entertainment, Inc.	
Brother Logitec Ltd.	
Brother Real Estate, Ltd.	
Brother Living Service Co., Ltd.	
Brother Enterprise, Ltd.	
Betop Staff, Ltd.	
Brother Industries (U.S.A.) Inc.	
Brother International Corporation (U.S.A.) (Headquarters, four offices)	
Brother International Corporation (Canada) Ltd.	
Brother International de Mexico, S.A. de C.V.	
Brother International Corporation do Brasil, Ltda.	
Brother International de Chile, Ltda.	
Brother International Corporation de Argentina S.R.L.	
Brother Mobile Solutions, Inc.	
Brother International del Peru S.A.C.	
Brother Industries (U.K.) Ltd.	
Brother Industries (Slovakia) s.r.o.	
Brother International Europe Ltd.	
Brother Internationale Industriemaschinen GmbH	
Brother Internationale Industriemaschinen GmbH (Italian Branch)	

\*: Nissei Corporation became a consolidated subsidiary of Brother Industries, Ltd. on January 30, 2013.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Brother Sewing Machines Europe GmbH	2016, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother System Technology Development (Hangzhou) Ltd.	
Taiwan Brother Industries, Ltd.	
Brother Industries Technology (M) Sdn. Bhd.	
Zhuhai Brother Industries, Co., Ltd.	
Brother Machinery Xian Co., Ltd.	
Brother Industries (Shenzhen), Ltd.* (Currently: Brother Technology (Shenzhen) Ltd.)	
Brother Industries (Vietnam) Ltd.	
Brother Technology (Shenzhen) Ltd.*	
Brother Corporation (Asia) Ltd.	
Brother Industries Saigon, Ltd.	
Brother Industries (Philippines), Inc.	
Brother Machinery Vietnam Co., Ltd.	
Nissei Trading (Shanghai) Co., Ltd. (Headquarters, one branch)	
Brother International S.A. (Pty) Ltd.	
Brother International (Aust.) Pty. Ltd.	
Brother International Singapore Pte. Ltd.	
Brother International (NZ) Ltd.	
Brother International (HK) Ltd.	
Brother International (Gulf) FZE	
Brother International (Gulf) FZE (Turkey Branch)	
Brother Commercial (Thailand) Ltd.	
Brother Machinery (Asia) Ltd.	
Brother International (Malaysia) Sdn. Bhd.	
Brother International Philippines Corporation	
Brother (China) Ltd. (Headquarters, two branches)	
Brother International (India) Private Ltd.	
PT. Brother International Sales Indonesia	

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Brother International Taiwan Ltd.	2016, 2018 (expended the scope of aggregation for reaudit), 2018 (reaudit due to the partial review of the calculation method), 2019 (expended the scope of aggregation for reaudit)
Brother International (Vietnam) Co., Ltd.	
Brother International Korea Co., Ltd.	
Brother Machinery Shanghai Ltd.	
Nissei Gear Motor Mfg. (Changzhou) Co., Ltd.	
Scopes 1 and 2	
Standard Corp.*1	
Brother International GmbH	
Brother International GmbH (Austrian Branch)	
Brother France SAS	
Brother U.K. Ltd.	
Brother International (Nederland) B.V.	
Brother Nordic A/S	
Brother Norway, branch of Brother Nordic A/S	
Brother Sweden, branch of Brother Nordic A/S, Denmark	
Brother Finland, Brother Nordic A/S Denmark, branch in Finland	
Brother Central and Eastern Europe GmbH	
Brother Sewing Machines Europe GmbH (U.K. Branch)	
Brother International (Belgium) NV/SA	
Brother (Schweiz) AG	
Brother International Corporation (Ireland) Ltd. (Currently: Brother Ireland DAC)	
Brother Italia S.p.A.	
Brother International CZ s.r.o.*2 (Currently: Brother Central and Eastern Europe GmbH (Czech Branch))	
Brother International Hungary Kft.*3	
Brother Iberia, S.L.U.	
Brother Iberia, S.L.U. (Lisbon Branch)	
Brother LLC	
Brother Polska Sp. z o.o.*2 (Currently: Brother Central and Eastern Europe GmbH (Poland Branch))	

\*1: Standard Corp. is a business site that was added for aggregation in April 2018.

\*2: Brother International CZ s.r.o. and Brother Polska Sp. z o.o. were subject to an absorption-type merger in FY2016 (April 1, 2016-March 31, 2017), with Brother Central and Eastern Europe GmbH as the surviving company.

\*3: Brother International Hungary Kft. became the representative office of Brother Central and Eastern Europe GmbH on December 1, 2016.

## Reducing Environmental Impact

### List of ISO 14001-certified Facilities and History of Auditing for ISO 14064

#### History of audit in compliance with ISO 14064-1

Name of site subject to audit	Month and year of audit
Scopes 1, 2, and 3	June 2015
Brother Industries, Ltd., (Headquarters, Mizuho, Hoshizaki, Minato, Momozono, and Kariya Manufacturing Facilities, Research & Development Center, Logistics Center)	
Mie Brother Precision Industries, Ltd.	
Scopes 1 and 2	
Nissei Corporation*1 (manufacturing facilities in Japan)	
Brother Industries (U.K.) Ltd.	
Brother Industries (Slovakia) s.r.o.	
Taiwan Brother Industries, Ltd.	
Brother Industries Technology (M) Sdn. Bhd.	
Zhuhai Brother Industries, Co., Ltd.	
Brother Machinery Xian Co., Ltd.	
Brother Industries (Shenzhen), Ltd.*2 (Currently: Brother Technology (Shenzhen) Ltd.)	
Brother Industries (Vietnam) Ltd.	
Brother Technology (Shenzhen) Ltd.*2	
Brother Industries Saigon, Ltd.	
Brother Industries (Philippines), Inc.	
Brother Machinery Vietnam Co., Ltd.	
Scopes 1 and 2	July 2013
Brother Industries, Ltd., (Headquarters, Mizuho, Hoshizaki, Minato, Momozono, and Kariya Manufacturing Facilities, Research & Development Center, Logistics Center)	
Mie Brother Precision Industries, Ltd.	
Scopes 1, 2, and 3	March 2013
Brother International (NZ) Ltd.	

\*1: Nissei Corporation became a consolidated subsidiary of Brother Industries, Ltd. on January 30, 2013.

\*2: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Addresses of facilities are available here.

► **Facilities All Over the World** <http://www.brother.com/en/corporate/network/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Identifying the environmental impact of business operations

##### Overview of main environmental impact associated with the Brother Group operations

The Brother Group facilities are engaged in processing and assembly to manufacture products. The environmental impacts (including resource consumption, CO<sub>2</sub> emissions, and waste generated) associated with all business operations are quantitatively monitored and summarized to reduce environmental impacts.

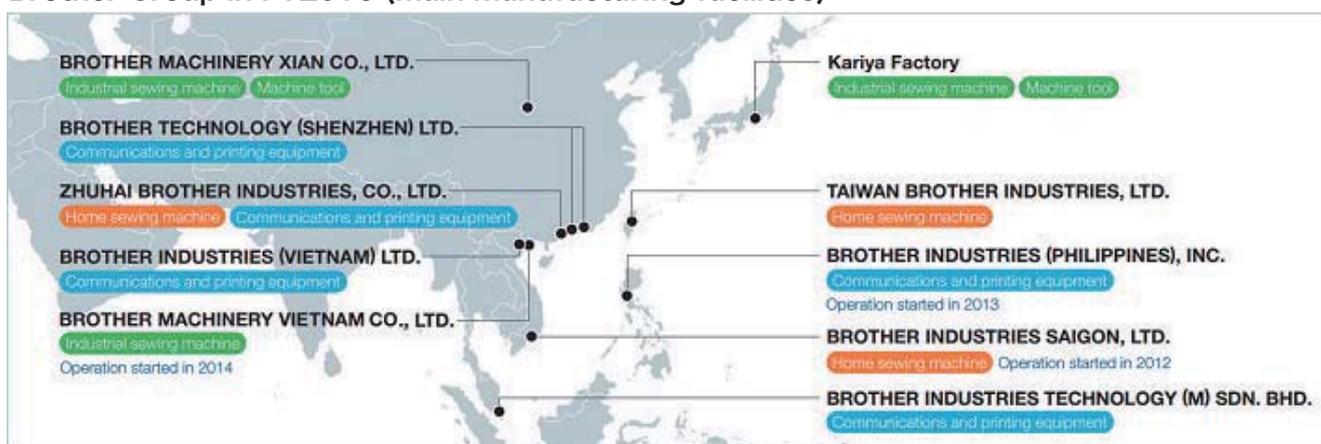
##### Input of Resources, Production & Emission of Substances in FY2016 (April 1, 2016-March 31, 2017)

##### Resource and energy inputs in FY2016

Resource consumption		Total energy consumption		Water consumption	
Product material (t)	202,357	Crude petroleum equivalent (kL)	46,898	Total amount of water consumption (m <sup>3</sup> )	876,435

\*: The scope of aggregation was directly related to the product range (main business sites below).

##### Brother Group in FY2016 (main manufacturing facilities)



##### Production & Emission of Substances in FY2016

CO <sub>2</sub> emissions		Amount of wastewater		Amount of waste	
Greenhouse gas emissions from energy use (t-CO <sub>2</sub> )	100,400	Amount of wastewater (m <sup>3</sup> )	785,210	Production-related waste (t)	11,576
		Amount of wastewater recycled (m <sup>3</sup> )*	90 (0.01%)	Amount of waste recycled (t)	10,513

\*: The Brother Group facilities don't reuse any water resources in FY2016.

## Reducing Environmental Impact

### Material Balance

#### Calculation method

Resource and energy inputs in FY2016		
Resource consumption	The resource consumption is calculated by multiplying the shipments to major products shipped in FY2016 per weight. *: The calculation methods of resource consumption have been changed from FY2015 (April 1, 2015-March 31, 2016).	
Total energy consumption	Total amount of electricity, steam, LPG/LNG, city gas, oil, etc. consumed at target business sites in FY2016	
	Crude petroleum equivalent	Calculated by converting electricity, oil, city gas, etc., LPG/LNG, and steam into crude petroleum, respectively *: The conversion rate for crude oil equivalent is based on the Table of Standard Calorific Values by Energy Source (February 2002) released by the Agency for Natural Resources and Energy, Government of Japan.
Water consumption	Total amount of water consumed at target business sites in FY2016	
	Clean water	Measurement using a water meter
	Industrial water	Same as above
	Underground water	Same as above

Production and emission of substances in FY2016		
CO <sub>2</sub>	Calculated based on the location-based method (using the grid-average emission factors in a certain area such as a country or region) *: The sources of emission factors for the location-based method are as follows: ·IEA - CO <sub>2</sub> EMISSIONS FROM FUEL COMBUSTION 2015 edition ·GHG Protocol - Calculation tools ·DEFRA	
Amount of wastewater	The amount is equivalent to the amount of water intake, or is calculated in accordance with the formula set in respective regions (based on the amount of water intake).	
Amount of waste	Production-related waste	Total amount of waste (including metals, waste plastics, circuit boards, sludge, waste oil/solvents, waste acids/alkalis, glass/ceramics, and batteries) generated in the production process at target business sites in FY2016

## Reducing Environmental Impact

### Material Balance

#### Environmental impact data of main business sites in FY2016

#### Location/Main line of business (as of March 31, 2017)

Name of site	Location	Main line of business (as of March 31, 2017)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	Nagoya, Aichi Prefecture (various locations)	[Mizuho Manufacturing Facility] Research and development of telecommunication/printing equipment, electronic stationery, and home sewing machines [Hoshizaki Manufacturing Facility] Prototype production of printer heads [Momozono Manufacturing Facility, Research & Development Center] Research and development [Kariya Manufacturing Facility] Production of electronic stationery, garment printers, and machine tools
Nissei Corporation	Anjo, Aichi Prefecture	Manufacture and sales of speed reducers, small gears, and die-cast products; and lease of real estate properties (including condominiums)
Mie Brother Precision Industries, Ltd.	Taki-gun, Mie Prefecture	Production of consumables for mobile printers, electronic stationery, etc., recycling of toner cartridges, and product repair services
Brother Industries (U.K.) Ltd.	Wales, U.K.	Production of consumables for printers, All-in-Ones, etc.
Brother Industries (Slovakia) s.r.o.	Krupina, Slovakia	Production of consumables for printers, All-in-Ones, etc.
Taiwan Brother Industries, Ltd.	Kaohsiung, Taiwan	Production of home sewing machines
Brother Industries Technology (M) Sdn. Bhd.	Johor, Malaysia	Business operations terminated on March 31, 2017
Zhuhai Brother Industries, Co., Ltd.	Guangdong, China	Production of electronic stationery, scanners, home sewing machines, karaoke systems for business use, industrial printing equipment, etc.
Brother Machinery Xian Co., Ltd.	Shaanxi, China	Production of industrial sewing machines and machine tools
Brother Technology (Shenzhen) Ltd.*	Guangdong, China	Production of printers and All-in-Ones
Brother Industries (Philippines), Inc.	Batangas, the Philippines	Production of printers, All-in-Ones, and electronic stationery
Brother Industries (Vietnam) Ltd.	Hai Duong Province, Vietnam	Production of printers and All-in-Ones
Brother Machinery Vietnam Co., Ltd.	Hai Duong Province, Vietnam	Production of industrial sewing machines
Brother Industries Saigon, Ltd	Dong Nai Province, Vietnam	Production of home sewing machines

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Environmental impact data for before FY2015 is available on the [CSR Report PDF Download](http://www.brother.com/en/csr/download/index.htm) page.  
<http://www.brother.com/en/csr/download/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Resource consumption, Energy consumption

Name of site	Resource consumption (t)	Energy consumption				
		Electricity (MWh)	LPG (t)	City gas (1,000m <sup>3</sup> )	Gasoline (kL)	Light oil (kL)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	16,284	36,326	0	758	37	0
Nissei Corporation	8,276	31,077	14	2,181	36	4
Mie Brother Precision Industries, Ltd.	310	564	0	0	1	0
Brother Industries (U.K.) Ltd.	994	1,112	0	67	1	1
Brother Industries (Slovakia) s.r.o.	929	556	0	67	0	11
Taiwan Brother Industries, Ltd.	637	1,709	5	0	0	0
Brother Industries Technology (M) Sdn. Bhd.	2,688	3,097	4	0	0	0
Zhuhai Brother Industries, Co., Ltd.	11,672	3,694	0	0	8	5
Brother Machinery Xian Co., Ltd.	11,392	8,863	0	251	1	2
Brother Technology (Shenzhen) Ltd.*	53,627	25,493	0	350	122	48
Brother Industries (Philippines), Inc.	21,476	19,219	41	0	1	0
Brother Industries (Vietnam) Ltd.	60,999	24,005	102	0	0	65
Brother Machinery Vietnam Co., Ltd.	1,625	2,972	128	0	0	7
Brother Industries Saigon, Ltd	9,603	3,897	0	0	0	1

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Environmental impact data for before FY2015 is available on the [CSR Report PDF Download](http://www.brother.com/en/csr/download/index.htm) page.  
<http://www.brother.com/en/csr/download/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Greenhouse gas emissions from energy use (t-CO<sub>2</sub>)

Name of site	Greenhouse gas emissions from energy use (t-CO <sub>2</sub> )			
		Scope 1		Scope 2
			From lubricant	
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	22,298	1,519	0	20,779
Nissei Corporation	22,034	4,258	0	17,776
Mie Brother Precision Industries, Ltd.	326	3	0	322
Brother Industries (U.K.) Ltd.	642	132	0	511
Brother Industries (Slovakia) s.r.o.	253	193	37	98
Taiwan Brother Industries, Ltd.	1,013	13	0	1,000
Brother Industries Technology (M) Sdn. Bhd.	2,158	63	51	2,146
Zhuhai Brother Industries, Co., Ltd.	2,662	32	0	2,630
Brother Machinery Xian Co., Ltd.	6,793	483	0	6,311
Brother Technology (Shenzhen) Ltd.*	19,222	5,984	4,912	18,151
Brother Industries (Philippines), Inc.	11,214	125	0	11,089
Brother Industries (Vietnam) Ltd.	8,954	4,954	4,474	8,474
Brother Machinery Vietnam Co., Ltd.	1,451	402	0	1,049
Brother Industries Saigon, Ltd	1,378	2	0	1,376

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Environmental impact data for before FY2015 is available on the [CSR Report PDF Download](http://www.brother.com/en/csr/download/index.htm) page.  
<http://www.brother.com/en/csr/download/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Water intake, Amount of wastewater, Amount of recycled water

Name of site	Water intake			Amount of wastewater		Amount of recycled water (m <sup>3</sup> )
	Clean water (m <sup>3</sup> )	Industrial water (m <sup>3</sup> )	Underground water (m <sup>3</sup> )	Public water (m <sup>3</sup> )	Sewer system (m <sup>3</sup> )	
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	87,772	0	0	16,740	69,833	0
Nissei Corporation	83,740	0	0	710	19,908	0
Mie Brother Precision Industries, Ltd.	50	0	1,358	1,408	0	0
Brother Industries (U.K.) Ltd.	1,475	0	0	0	1,475	0
Brother Industries (Slovakia) s.r.o.	0	0	2,278	2,278	0	0
Taiwan Brother Industries, Ltd.	15,343	0	0	0	15,343	0
Brother Industries Technology (M) Sdn. Bhd.	16,838	0	0	0	16,838	0
Zhuhai Brother Industries, Co., Ltd.	88,221	0	0	0	88,221	0
Brother Machinery Xian Co., Ltd.	26,003	8,668	0	0	27,126	0
Brother Technology (Shenzhen) Ltd.*	296,511	0	0	296,511	0	90
Brother Industries (Philippines), Inc.	0	0	82,133	0	69,813	0
Brother Industries (Vietnam) Ltd.	129,051	0	0	0	129,051	0
Brother Machinery Vietnam Co., Ltd.	8,468	0	0	0	7,134	0
Brother Industries Saigon, Ltd	28,527	0	0	0	22,822	0

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Environmental impact data for before FY2015 is available on the [CSR Report PDF Download](http://www.brother.com/en/csr/download/index.htm) page.  
<http://www.brother.com/en/csr/download/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Water pollution load

Name of site	Water pollution load				
	BOD (mg/L)	COD (mg/L)	n-hexane		SS (mg/L)
			Mineral oils (mg/L)	Animal and vegetable oils (mg/L)	
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	34.0	6.7	6.6		6.8
Nissei Corporation	86.3	4.2	1.0		3.5
Mie Brother Precision Industries, Ltd.	2.0	10.0	-	-	7.0
Brother Industries (U.K.) Ltd.	-	-	-	-	-
Brother Industries (Slovakia) s.r.o.	2.5	16.3	-	-	5.0
Taiwan Brother Industries, Ltd.	1.4	13.5	-	-	10.1
Brother Industries Technology (M) Sdn. Bhd.	-	-	-	-	-
Zhuhai Brother Industries, Co., Ltd.	18.0	61.0	1.7		9.5
Brother Machinery Xian Co., Ltd.	14.0	55.9	0.3	0.1	14.5
Brother Technology (Shenzhen) Ltd.*	8.3	20.0	0.0		0.0
Brother Industries (Philippines), Inc.	43.8	85.1	2.0		22.9
Brother Industries (Vietnam) Ltd.	Less than 3	Less than 6	-	-	-
Brother Machinery Vietnam Co., Ltd.	5.0	26.0	Less than 0.7		10.0
Brother Industries Saigon, Ltd	33.0	70.3	-	-	-

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

Environmental impact data for before FY2015 is available on the [CSR Report PDF Download](http://www.brother.com/en/csr/download/index.htm) page.  
<http://www.brother.com/en/csr/download/index.htm>

## Reducing Environmental Impact

### Material Balance

#### Waste amount

Name of site	Waste amount						
	Production-related waste (t)	Material recycling (t)	Thermal recycling (t)	Incineration amount (t)	Other disposal amount (t)	Amount of landfill waste (t)	Rate of landfill waste (%)
Eight business sites in Japan (head office of Brother Industries, Ltd., Mizuho Manufacturing Facility, Hoshizaki Manufacturing Facility, Minato Manufacturing Facility, Momozono Manufacturing Facility, Kariya Manufacturing Facility, Research & Development Center, Logistics Center)	1,702.2	1,527.9	164.3	10.0	0.0	0.0	0.0
Nissei Corporation	3,650.1	3,451.7	198.4	0.0	0.0	0.0	0.0
Mie Brother Precision Industries, Ltd.	101.0	80.1	20.9	0.0	0.0	0.0	0.0
Brother Industries (U.K.) Ltd.	358.4	350.6	7.9	0.0	0.0	0.0	0.0
Brother Industries (Slovakia) s.r.o.	481.8	402.8	79.1	0.0	0.0	0.0	0.0
Taiwan Brother Industries, Ltd.	71.2	16.6	0.0	54.5	0.0	0.0	0.0
Brother Industries Technology (M) Sdn. Bhd.	143.5	143.5	0.0	0.0	0.0	0.0	0.0
Zhuhai Brother Industries, Co., Ltd.	236.7	219.1	0.0	17.6	0.0	0.0	0.0
Brother Machinery Xian Co., Ltd.	567.3	356.6	4.2	158.9	47.6	0.0	0.0
Brother Technology (Shenzhen) Ltd.*	934.8	886.9	47.3	0.0	0.5	0.0	0.0
Brother Industries (Philippines), Inc.	1,044.5	808.6	0.0	0.0	124.8	111.0	10.6
Brother Industries (Vietnam) Ltd.	1,521.3	1,367.1	0.0	154.2	0.0	0.0	0.0
Brother Machinery Vietnam Co., Ltd.	412.4	57.1	0.0	345.7	0.0	9.6	2.3
Brother Industries Saigon, Ltd	332.9	304.5	0.0	28.4	0.0	0.0	0.0

\*: Brother Industries (Shenzhen), Ltd. was subject to an absorption-type merger in October 2016, with Brother Technology (Shenzhen) Ltd. as the surviving company.

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<http://www.brother.com/en/csr/download/index.htm>

# Communicating Environmental Commitment

## Environmental Communication Activities

### Engagement with stakeholders

The Brother Group's relationship with stakeholders is defined in "3. Stakeholders" of the Basic Policies in the Brother Group Global Charter published in 1999. All Group companies and all our employees base their decisions and actions on the Charter. Six types of stakeholders are specified in the Basic Policies: "Customers," "Our Associates," "Business Partners," "Shareholders," "Local Community," and "The Environment." Notably, "The Environment" affects all aspects of our business operations. Thus, the Brother Group endeavors to enhance its engagement in environmental conservation in order to fulfill mutually acceptable social responsibility with the five other stakeholders.



Working with you for a better environment

Brother Earth logo and slogan

Under the environmental slogan "Brother Earth" formulated in 2010, the Brother Group has been accelerating these activities based on the unified message of "Working with you for a better environment."

Stakeholders	Examples of engagement in environmental conservation
Customers	<ul style="list-style-type: none"> <li>• Disseminate environmental information on Brother's special website on the environment (brotherearth.com)</li> <li>• Ensure interactive communication through SNSs</li> <li>• Promote eco-conscious design of products and offer environmental information about products</li> </ul>
Our Associates	<ul style="list-style-type: none"> <li>• Disseminate environmental information and ensure interactive communication on the intranet</li> <li>• Encourage employees to work on environmental conservation and contribute to local communities</li> </ul>
Business partners	<ul style="list-style-type: none"> <li>• Hold dialogues and build partnerships through green procurement activities</li> <li>• Hold dialogues and promote collaboration by calculating Scope 3 and reducing GHG emissions</li> </ul>
Shareholders	<ul style="list-style-type: none"> <li>• Disseminate environmental information through shareholder newsletters (Brother Industries, Ltd.)</li> <li>• Introduce environmental activities and hold dialogues with shareholders at communication meetings (Brother Industries, Ltd.)</li> </ul>
Local community	<ul style="list-style-type: none"> <li>• Clean up areas around facilities, beaches, etc.</li> <li>• Promote activities to conserve biodiversity in collaboration with communities</li> </ul>

## Communicating Environmental Commitment

### Environmental Communication Activities

#### Promote and upgrade Brother's special website on the environment (brotherearth.com)

Brother's special website on the environment (brotherearth.com) was launched to publicize Brother's environmental vision and efforts, and environmental technologies.

"Environmental Views" presents videos about environmental conservation activities on which Brother has been working with many stakeholders in different parts of the world. "Eco-conscious products" aims to introduce the designers' commitment to the product development.

The website also explains the environmental performance of Brother's main products, hosts Click for the Earth (an environmental conservation activity which enables visitors to donate with a single click), and provides information about events based on the theme of the environment, in particular.

Brother's official Facebook, Twitter, and YouTube SNS accounts are also utilized to disseminate information.

In FY2016 (April 1, 2016-March 31, 2017), two videos were posted on the website: "High Tatras mountains: the reforestation project in Slovakia," by Brother Industries (Slovakia) s.r.o. in collaboration with a local NPO, and "Toner Cartridges Recycle," which introduces the toner cartridges recycle program in Europe. THE ZOO OF EXTINCT ANIMALS x Brother Earth content, which introduces the "ZOO OF EXTINCT ANIMALS" project promoted by Higashiyama Zoo and Botanical Gardens in Nagoya City, Aichi Prefecture, was also posted. The reforestation activity in Slovakia was newly added to Click for the Earth.

## Communicating Environmental Commitment

### Brother Eco Point Program

#### Brother eco point program introduced in more than 40 countries and regions

Under the Brother eco point program, eco points are awarded for eco-conscious actions by employees and their families. Eco points are also awarded for used consumables collected from customers. Brother carries out various environmental conservation activities depending on the number of points earned.

To raise the environmental awareness of employees and thus help prevent global warming, the Brother eco point program was launched in April 2008 for group facilities in Japan, and has been shared by the group's facilities outside Japan since FY2009 (April 1, 2009-March 31, 2010).

At the Brother Group, employees and their families have been working to reduce CO<sub>2</sub> emissions as much as possible in their daily lives. In addition to making financial contributions, employees actively participate in environmental conservation activities. Personal experience helps increase eco consciousness and expands the scope of activities.

As of March 31, 2017, the Brother eco point program is in place in more than 40 countries and regions. In FY2016 (April 1, 2016-March 31, 2017), Brother Industries Saigon, Ltd. launched its program in Vietnam.

#### Brother facilities that have introduced the eco point program



#### Number of participants in the eco point program

	FY2012	FY2013	FY2014	FY2015	FY2016
Number of participants	14,776	21,440	25,908	31,899	31,663

## Communicating Environmental Commitment

### Brother Eco Point Program

#### Activities under the Brother eco point program

##### Group companies in Japan (Japan)

Brother Industries, Ltd. (BIL) is working with Brother Sales, Ltd. (Brother Sales) and other group companies in Japan to promote the Brother eco point program. Specifically, eco points are awarded for eco-conscious actions taken by employees and their families, such as turning off unnecessary lights, saving water, separating waste, using washable cups instead of disposable ones, using stairs (2UP3DOWN), traveling on foot, by bicycle or public transportation, and participating in local clean-up activities. The points earned are used as contributions to fund the environmental conservation activities in which employees and their families participate as volunteers.



Brother eco point program commendation for FY2016 (May 2017)

A commendation program is in place to boost this program, and each year, participants who earned many points during the past year are commended.

Brother Sales also awards points when used toner and ink cartridges of All-in-Ones and printers are collected.

##### ▶Environmental Commendation and Awards

<http://www.brother.com/en/eco/management/award/index.htm>

##### ▶Biodiversity

<http://www.brother.com/en/eco/biodiversity/index.htm>

# Biodiversity

## Biodiversity Conservation Activities

### Policy of activities

To maintain the health of Mother Nature which sustains humankind, it is essential to implement measures against global warming and ensure biodiversity conservation and sustainability. The Brother Group launched greening activities in 1966, and started to work on biodiversity conservation through activities to plant seedlings, etc. in 2005.

The Nagoya Protocol and Aichi Biodiversity Targets were adopted at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD-COP10) held in Nagoya, Aichi in October 2010. In response, the Brother Group added a new commitment: "We will endeavor to reduce our impact on the ecosystem and to conserve biodiversity in all our operations." to the Action Guidelines in the Environmental Policy in FY2011 (April 1, 2011-March 31, 2012). In FY2012 (April 1, 2012-March 31, 2013), the Brother Group established a biodiversity conservation policy, and the scope has been expanded to cover activities in all business operations.

### Brother Group's biodiversity conservation policy

#### Basic policy

To help build a sustainable society, the Brother Group will endeavor to reduce the impact of its operations on biodiversity and ensure biodiversity conservation through environmental and social contribution activities.

<b>1. Challenges in management</b>	The Brother Group recognizes biodiversity conservation as an important challenge for corporate survival, and works on environmental management.
<b>2. Business operations</b>	The Brother Group identifies the impact of all its operations (including procurement of raw materials) on biodiversity, and constantly endeavors to reduce the impact.
<b>3. R&amp;D activities</b>	The Brother Group gathers information and acquires technologies regarding conservation and sustainable use of biodiversity, and promotes technological development.
<b>4. Social contribution activities</b>	The Brother Group works on biodiversity conservation activities in collaboration with stakeholders including government organizations, local residents, and NGOs.
<b>5. Activities involving all employees</b>	Actions are led by top management, and measures are taken throughout the company to help all employees increase their knowledge about biodiversity and encourage them to work voluntarily on conservation activities.
<b>6. Communication</b>	Details of activities are actively disclosed in and outside the company to raise awareness of biodiversity conservation activities.

# Biodiversity

## Biodiversity Conservation Activities

### Brother Group's commitment to Aichi Biodiversity Targets

The Aichi Biodiversity Targets represent the global targets that serve as the core of the Strategic Plan for Biodiversity 2011-2020 adopted at CBD-COP10. It was agreed at CBD-COP10 to "take effective and urgent action to halt the loss of biodiversity" by 2020, and actions required of respective countries were compiled as 20 items in the Aichi Biodiversity Targets. Based on these items, the Four Electrical and Electronic Associations\* Biodiversity Working Group, of which Brother Industries, Ltd. is a member, identified eight items that are closely linked with the environmental and biodiversity conservation activities which companies in the electrical and electronic industries can work on and make more significant contributions through active promotion. The vision for contributing to respective targets by member companies was compiled and released as the Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries in March 2015.

The table below summarizes the main activities undertaken by the Brother Group in line with the guidelines (as of March 31, 2016).

#### Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries and the status of the Brother Group's activities

Aichi Biodiversity Targets		Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries	Status of the Brother Group's activities
Target 1: Awareness increased	People recognize the value of biodiversity and related activities.	Member companies will conduct employee education on biodiversity wherever possible so that the importance of biodiversity conservation will be widely recognized. Member companies will also contribute to raising public awareness of information about their conservation activities through by cooperating with other stakeholders.	<ul style="list-style-type: none"> <li>The biodiversity basic policy was established based on the Brother Group Environmental Policy, and all employees were informed of the policy.</li> <li>Employees participated in the GREEN ECHO project under the auspices of the Environmental Partnership Organizing Club. They cultivated traditionally grown vegetables, etc. to become more familiar with plants. The activities helped raise the environmental awareness of employees and member companies.</li> </ul>  <p>Showing support for the GREEN ECHO project - raising environmental awareness by growing plants</p>  <p>Introducing the Chita No. 3 onion (a traditional vegetable of Aichi Prefecture) cultivated from seeds by employees at the Environmental Partnership Organizing Club</p>

\*: The Four Electrical and Electronic Associations consist of the Japan Electrical Manufacturers' Association, the Japan Electronics and Information Technology Industries Association, the Communications and Information network Association of Japan, and the Japan Business Machine and Information System Industries Association.

# Biodiversity

## Biodiversity Conservation Activities

### Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries and the status of the Brother Group's activities

Aichi Biodiversity Targets		Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries	Status of the Brother Group's activities
Target 1: Awareness increased	People recognize the value of biodiversity and related activities.	Member companies will conduct employee education on biodiversity wherever possible so that the importance of biodiversity conservation will be widely recognized. Member companies will also contribute to raising public awareness of information about their conservation activities through by cooperating with other stakeholders.	<ul style="list-style-type: none"> <li>The eco point program and Click for the Earth donation program have been promoted. Employees and their families, as well as customers, have been encouraged to work on eco-conscious actions, and have been solicited to participate in biodiversity-related activities, etc., thereby raising environmental awareness and expanding the scope of the programs.</li> <li>▶ <b>Brother Eco Point Program</b> <a href="http://www.brother.com/en/eco/communication/eco_point/index.htm">http://www.brother.com/en/eco/communication/eco_point/index.htm</a></li> <li>▶ <b>Click to save our planet with Brother Earth</b> <a href="http://www.brotherearth.com/en/top.html">http://www.brotherearth.com/en/top.html</a></li> </ul>
Target 4: Sustainable consumption and production	All parties concerned implement their plans for sustainable production and consumption.	<p>Member companies will conduct the following activities in their production activities and supply chains at each life-cycle stage wherever possible, in order to achieve sustainable consumption and production.</p> <ul style="list-style-type: none"> <li>• Continuous efforts to reduce CO2 emissions in the production process</li> <li>• The provision of products and services that contribute to achieving a low-carbon society</li> <li>• Reducing the volume of waste to be landfilled</li> <li>• The 3R activities (Reduce, Reuse and Recycle)</li> <li>• The procurement of biodiversity-friendly materials, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Resource conservation has been promoted, with reductions in size and weight, collection, and recycling of products in mind, from the development phase.</li> <li>• CO2 emissions have been reduced by increasing the energy-saving performance of electronic circuits, implementing energy-saving functions, etc., thereby promoting the prevention of global warming.</li> <li>• ISO 14001 was introduced at respective business sites. Environmental conservation activities involving all employees (e.g. energy and resource conservation, chemical substances control, waste management, water saving, prevention of pollution) have been promoted to reduce impacts on ecosystems.</li> <li>• Efforts have been made to reduce CO2 emissions and prevent global warming by increasing efficiency in energy use (e.g. electricity and fuel) at business sites and shifting to substances whose global warming coefficient is small, etc., thereby mitigating climate change and impacts on ecosystems.</li> <li>▶ <b>Environmental Considerations within Product Life Cycles</b> <a href="http://www.brother.com/en/eco/product/index.htm">http://www.brother.com/en/eco/product/index.htm</a></li> <li>▶ <b>CO2 Emission Reduction Activities</b> <a href="http://www.brother.com/en/eco/facility/index.htm">http://www.brother.com/en/eco/facility/index.htm</a></li> <li>▶ <b>Zero Waste Emission Activities</b> <a href="http://www.brother.com/en/eco/facility/waste/index.htm">http://www.brother.com/en/eco/facility/waste/index.htm</a></li> <li>▶ <b>Activities to Reduce Water Consumption</b> <a href="http://www.brother.com/en/eco/facility/water/index.htm">http://www.brother.com/en/eco/facility/water/index.htm</a></li> <li>▶ <b>Collection and Recycling</b> <a href="http://www.brother.com/en/eco/product/recycling/index.htm">http://www.brother.com/en/eco/product/recycling/index.htm</a></li> </ul>

# Biodiversity

## Biodiversity Conservation Activities

### Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries and the status of the Brother Group's activities

Aichi Biodiversity Targets		Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries	Status of the Brother Group's activities
Target 5: Habitat loss halved or reduced	The loss of natural habitats including forests is at least halved, and degradation and fragmentation are significantly reduced.	Member companies will, wherever possible, take social actions and conduct biodiversity-conscious management of green spaces within their business premises, as well as promote the creation of ecosystem networks around the business premises, in order to protect habitats and reduce the degradation and fragmentation of habitats.	<ul style="list-style-type: none"> <li>In the U.K., Brother has supported reforestation activities at a former quarry site, and provided opportunities to learn that reforested areas are inhabited by various animals and plants. <ul style="list-style-type: none"> <li>▶ <a href="http://www.brotherearth.com/en/news_detail/126.html">Contributing to Reforestation at a Former Quarry Site (UK)</a></li> </ul> </li> <li>In Inner Mongolia, Brother has worked on a project to prevent desertification and promote greening, and planted seedlings of Russian olive (<i>Elaeagnus angustifolia</i>), a plant well adapted to the desert environment and saxaul (<i>Haloxylon ammodendron</i>) which is resistant to dry conditions. <div> </div> <ul style="list-style-type: none"> <li>▶ <a href="http://www.brotherearth.com/en/environmental-views/inner_mongolia.html">Project for Combating Desertification in Inner Mongolia - Prevent the further spread of desertification -</a></li> <li>▶ <a href="http://www.brotherearth.com/en/top.html">Click to save our planet with Brother Earth</a></li> </ul> </li> </ul>
Target 8: Pollution reduced	Pollution caused by chemical substances, fertilizers, and pesticides is reduced to the extent that is no longer harmful.	Member companies will strive for the appropriate management of chemical substances from a global perspective and reduce adverse effects on ecosystems wherever possible, in order to prevent pollution that is detrimental to ecosystems and biodiversity.	<ul style="list-style-type: none"> <li>When procuring raw materials for products, Brother has actively promoted green procurement, avoided chemical substances that affect the environment, and pursued biodiversity-conscious procurement of raw materials.</li> <li>Efforts have been made to reduce environmental impacts due to operations at manufacturing facilities (e.g. eliminating boilers fueled by heavy oil, decomposing pollutants using catalytic combustion systems, introducing advanced wastewater treatment systems), thereby reducing the impacts on ecosystems due to the pollution of air, water, soil, etc. <ul style="list-style-type: none"> <li>▶ <a href="http://www.brother.com/en/eco/regulation/index.htm">Compliance with Environmental Laws and Regulations on Products</a></li> <li>▶ <a href="http://www.brother.com/en/eco/regulation/green_procurement/index.htm">Green Procurement</a></li> <li>▶ <a href="http://www.brother.com/en/eco/facility/pollution/index.htm">Preventing Pollution</a></li> </ul> </li> </ul>

# Biodiversity

## Biodiversity Conservation Activities

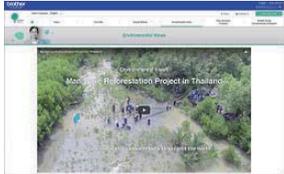
### Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries and the status of the Brother Group's activities

Aichi Biodiversity Targets		Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries	Status of the Brother Group's activities
Target 9: Invasive alien species prevented and controlled	Invasive alien species are controlled or eradicated.	Member companies will actively work on the eradication of invasive alien species, the prevention of the introduction of invasive alien species and awareness-raising activities about the problem, particularly in the transportation of their products, in the management of green spaces within their business premises and in their social actions, in order to prevent the impacts caused by invasive alien species.	<ul style="list-style-type: none"> <li>Taiwan Brother Industries, Ltd. removed Mikania micrantha (a climbing annual plant of Asteraceae) and ran an environmental education program to prevent damage caused by the rapidly-proliferating alien species at Kaohsiung Metropolitan Park.               <div> </div> <p>Mikania micrantha</p> </li> <li>In Okazaki, Japan, Brother has removed moso bamboo shoots (a fast-growing alien species) in Chiharazawa designated as a nature conservation area by the Aichi Prefectural Government, to allow sunlight to reach broad-leaved indigenous trees, such as Stewartia monadelphica and Malus tschonoskii, which are rarely found on plains, and protect these species.               <div> </div> <p>▶ <b>Activities to cut moso bamboo trees</b>  <a href="http://www.brotherearth.com/en/news_detail/505.html">http://www.brotherearth.com/en/news_detail/505.html</a></p> <p>▶ <b>Click to save our planet with Brother Earth</b>  <a href="http://www.brotherearth.com/en/top.html">http://www.brotherearth.com/en/top.html</a></p> </li> </ul>
Target 11: Protected areas increased and improved	At least 17% and 10% of the land and marine areas are designated as protected areas, etc. for conservation.	Member companies will, wherever possible, conduct biodiversity-conscious green space management which contributes to protected areas within their business premises and on land owned by their companies, as well as conduct conservation activities in protected areas outside their company premises, in order to expand protected areas that are important for biodiversity.	<ul style="list-style-type: none"> <li>In Central and South America (e.g. the Republic of Peru), Brother has supported activities to conserve tropical rainforests and protect habitats of endangered wild animals in the Amazon Basin.               <p>▶ <b>Protecting the Amazon Rainforest in Peru</b>  <a href="http://www.brotherearth.com/en/news_detail/141.html">http://www.brotherearth.com/en/news_detail/141.html</a></p> </li> <li>In Canada, Brother has supported activities to restore forests and protect habitats for wildlife, and helped prevent soil erosion and improve the water quality of the Red River Basin.               <p>▶ <b>Developing reforestation activities in Canada</b>  <a href="http://www.brotherearth.com/en/news_detail/440.html">http://www.brotherearth.com/en/news_detail/440.html</a></p> </li> </ul>

# Biodiversity

## Biodiversity Conservation Activities

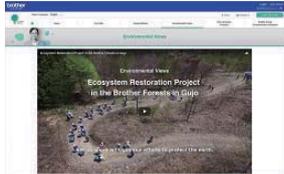
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Target 14: Ecosystems and essential services safeguarded	Ecosystems that offer the blessings of nature are restored and conserved.	Member companies will conduct activities for conserving and restoring ecosystems wherever possible, so that ecosystem services can be used sustainably.	<ul style="list-style-type: none"> <li>In the U.S., Brother has supported the Replanting Our National Forests campaign to protect national forests that provide habitats for wildlife, as well as precious natural resources for construction materials, clean air, and drinking water, thereby protecting forests threatened by fire, diseases, and insects.</li> <li>▶ <b>Restoring precious forests by tree-planting activities in the USA</b> <a href="http://www.brotherearth.com/en/news_detail/436.html">http://www.brotherearth.com/en/news_detail/436.html</a></li> <li>In Slovakia, Brother has worked on a reforestation project in the High Tatra mountains where more than three million trees were lost due to a severe storm.</li> <li>▶ <b>High Tatra mountains: the reforestation project - Activities to plant seedlings and maintain the beautiful forests into the future -</b> <a href="http://www.brotherearth.com/en/environmental-views/slovakia.html">http://www.brotherearth.com/en/environmental-views/slovakia.html</a></li> <li>▶ <b>Click to save our planet with Brother Earth</b> <a href="http://www.brotherearth.com/en/top.html">http://www.brotherearth.com/en/top.html</a></li> </ul> 

# Biodiversity

## Biodiversity Conservation Activities

### Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries and the status of the Brother Group's activities

Aichi Biodiversity Targets		Action Guidelines for Biodiversity Conservation in the Electrical and Electronic Industries	Status of the Brother Group's activities
Target 19: Knowledge improved, shared and applied	Relevant knowledge, science and technology are improved.	Member companies will work on the development and dissemination of monitoring technologies which use ICT as well as promote the accumulation of data through biodiversity monitoring wherever possible, in order to improve knowledge, the scientific base and technologies relating to biodiversity.	<ul style="list-style-type: none"> <li>In Australia, Brother has supported a survey on the biology and ecology of manta rays (<i>Manta birostris</i>) which are an icon of Australia's oceans and seas and assessed the impact of marine debris on sea turtles (endangered species), in order to understand and conserve the country's unique ocean environment.</li> </ul>  <p>► <b>Project Manta - An international project to save marine life -</b>  <a href="http://www.brotherearth.com/en/environmental-views/australia.html">http://www.brotherearth.com/en/environmental-views/australia.html</a></p> <ul style="list-style-type: none"> <li>In Gujo, Gifu, Japan, Brother has planted seedlings of indigenous deciduous trees such as <i>Quercus serrata</i> Murray and <i>Quercus crispula</i> Blume as well as <i>Magnolia salicifolia</i> (willow-leaved magnolia), which is designated as the city flower of Gujo, etc. on a former ski ground by utilizing the eco point program. Brother has conducted a survey about the impact of this activity on the ecosystem and started to review the model of afforestation activities to restore the ecosystem.</li> </ul>  <p>► <b>Ecosystem Restoration Project in the Brother Forests in Gujo</b>  <a href="http://www.brotherearth.com/en/environmental-views/gujo.html">http://www.brotherearth.com/en/environmental-views/gujo.html</a></p> <p>► <b>Click to save our planet with Brother Earth</b>  <a href="http://www.brotherearth.com/en/top.html">http://www.brotherearth.com/en/top.html</a></p>

# Biodiversity

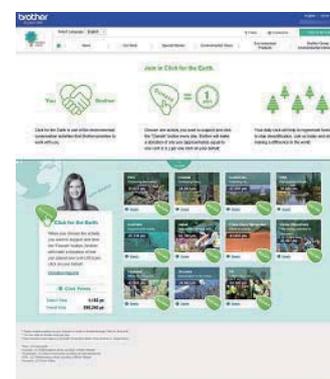
## Biodiversity Conservation Activities

### Brother Group's biodiversity conservation activities

#### Click for the Earth donation program

Visitors to the Click for the Earth website are requested to support environmental conservation activities that are implemented by the Brother Group in different regions of the world. One click is allowed per day for each visitor, and is counted as one point. Each year, BIL funds environmental conservation activities in the following fiscal year or later depending on the total points (1 yen per point).

- ▶ **Fiscal year 2016 points and donation amounts for each activity have been determined**  
[http://www.brotherearth.com/en/news\\_detail/659.html](http://www.brotherearth.com/en/news_detail/659.html)
- ▶ **Fiscal year 2015 points and donation amounts for each activity have been determined**  
[http://www.brotherearth.com/en/news\\_detail/596.html](http://www.brotherearth.com/en/news_detail/596.html)
- ▶ **Fiscal year 2014 points and donation amounts for each activity have been determined**  
[http://www.brotherearth.com/en/news\\_detail/469.html](http://www.brotherearth.com/en/news_detail/469.html)
- ▶ **Fiscal year 2013 points and donation amounts for each activity have been determined**  
[http://www.brotherearth.com/en/news\\_detail/325.html](http://www.brotherearth.com/en/news_detail/325.html)
- ▶ **Fiscal year 2012 points and donation amounts for each activity have been determined**  
[http://www.brotherearth.com/en/news\\_detail/125.html](http://www.brotherearth.com/en/news_detail/125.html)
- ▶ **You are invited to join in Click for the Earth donations (free of charge) for supporting Brother's activities.**  
<http://www.brotherearth.com/en/top.html>



#### Brother Industries, Ltd., Brother Sales, Ltd., Brother Real Estate, Ltd. [Japan]

On the occasion of the 100th anniversary of its founding in 2008, the Brother Group concluded an agreement with Gujo City in Gifu Prefecture to build healthy forests. The Brother Group supports activities to plant seedlings and thin forests at Brother Forests in Gujo\*.

Employees and their families of Brother Industries, Ltd. (BIL), Brother Sales, Ltd. (Brother Sales), and customers of Brother Real Estate, Ltd. (Brother Real Estate) among others work on the activities to plant seedlings, with the help of local people. Since FY2008 (April 1, 2008-March 31, 2009), seedlings have been planted in spring and autumn each year. Brother Sales earns Brother eco points depending on the number of used consumables for printing equipment collected, while Brother Real Estate earns the points depending on the number of houses built. They plant the number of seedlings equivalent to the total points earned, respectively.

As of October 2016, the total number of participants has totaled about 1,800. During the past nine years, 5,402 seedlings have been planted. Participants plant seedlings of native species including *Quercus serrata* Murray, *Quercus crispula* Blume, *Alnus hirsute* (which easily grows on uncultivated land), and *Magnolia salicifolia* (the symbol flower of Gujo City). Some seedlings had grown to over several meters in height, highlighting considerable results.

\*: "Brother Forests in Gujo" refers to three sites in Gujo City, Gifu Prefecture. In February 2008, a three-party agreement was signed among Gifu Prefecture, Gujo City, and BIL to restore the three forests, as part of "the program to build forests in collaboration with companies" promoted by Gifu Prefecture. In ten years since signing the agreement, we will plant seedlings of indigenous species on a former ski ground (8 hectares) and thin two forests (20 hectares in total) to encourage the growth of healthy forests. About 6,000 seedlings (reviewed in FY2013 [April 1, 2013-March 31, 2014]) will be planted during this ten-year period. By the end of October 2016, 5,402 seedlings (including 1,978 and 440 seedlings planted by Brother Sales and Brother Real Estate, respectively) have been planted in total.

## Biodiversity

### Biodiversity Conservation Activities

In line with the activities to plant seedlings, field observation programs and other events have been organized regularly for participants under the guidance of local forestry staff. The field observation programs provide opportunities to learn about indigenous plants and the biology and ecology of precious organisms. In 2016, various workshops were held concurrently with a local festival so that employees could work with local elementary school students on planting seedlings, making handicrafts using forest thinning materials, chopping wood, etc. Thus, the Brother Forests in Gujo serve as a recreational space for local people.

Along with the activities to plant seedlings, from FY2015 (April 1, 2015-March 31, 2016) to FY2016 (April 1, 2016-March 31, 2017), a team from the Consulting Firm for Clinical Environmental Studies, Nagoya University was asked to assist in a survey to estimate the survival rate of planted seedlings, growth status by species, moisture and gravel content in soil, and species of butterflies, wild birds, and plants which inhabit the forests, among others. The survey found that the soil of some areas was inappropriate for planting seedlings, and that these areas were inhabited by *Luehdorfia japonica* and *Argyronome laodice* (butterfly species designated as VU)\*1. Based on consultations with the university, it was decided to regularly weed these areas, utilize the grassland as a habitat for endangered species, and intensively plant new seedlings in areas appropriate for planting seedlings. We continue to protect the environment inhabited by various species of organisms and to create biodiverse woods.



A workshop to experience wood burning using forest thinning materials



*Luehdorfia japonica*



▶ Ecosystem Restoration Project in the Brother Forests in Gujo

<http://www.brotherearth.com/en/environmental-views/gujo.html>

To watch a video about the seedling planting activities and surveys at the Brother Forests in Gujo, visit [brotherearth.com](http://brotherearth.com), Brother's special website on the environment.

#### Number of seedlings that have been planted (April 2012-October 2016)\*2

Year	2012		2013		2014		2015		2016	
	April	October								
Number of seedlings planted	350	350	250	250	250	250	250	250	350*3	250
Brother Sales	176	172	201	106	100	100	100	100	100	100
Brother Real Estate	38	37	38	37	38	37	38	37	38	37

These activities are covered by the Brother eco point program, which has been promoted by BIL with group companies, and by the Click for the Earth donation program\*4, which customers can join on [brotherearth.com](http://brotherearth.com), Brother's special website on the environment.

\*1: VU represents a high risk of endangerment in the wild.

\*2: The number of seedlings planted from FY2008 to FY2010 (April 1, 2010-March 31, 2011) is indicated on p. 81 of the 2014 Brother Group Corporate Social Responsibility Report (Environmental Activities).

\*3: Gujo City, Gifu Prefecture paid the expenses for 100 out of 350 seedlings.

\*4: Visitors to the Click for the Earth website are requested to support environmental conservation activities that are implemented by the Brother Group in different regions of the world. One click is allowed per day for each visitor, and is counted as one point. Each year, BIL funds environmental conservation activities in the following fiscal year or later depending on the total points earned (1 yen per point).

▶ You are invited to join in Click for the Earth donations (free of charge) to support Brother's activities. <http://www.brotherearth.com/en/top.html>  
 ▶ Environmental Views on [brotherearth.com](http://www.brotherearth.com), Brother's special website on the environment <http://www.brotherearth.com/en/>

## Glossary (Environment)

### In alphabetical order

#### **Biodiversity**

Variation and interrelation of living things

The Convention on Biological Diversity concluded in Rio de Janeiro in 1992 defines diversity on three levels: ecosystem, species, and genetic.

#### **BOD**

Short for "biochemical oxygen demand"

BOD is used as an index that shows the level of water pollution caused by organic compounds. Specifically, BOD is the amount of oxygen (mg/L) needed by aerobic biological organisms in a body of water to break down organic compounds through oxidative decomposition.

#### **Brother Earth (a Brother term)**



Logo and slogan (established in 2010) that symbolize the Brother Group's environmental activities.

The Brother Group's environmental activities are publicized worldwide under the unifying message of "Working with you for a better environment."

#### **Brother eco point program (a Brother term)**

To raise the environmental awareness of employees and thus help prevent global warming, eco points are awarded for eco-conscious actions by employees and their families. Eco points are also awarded for used consumables collected from customers. Brother carries out various environmental contribution activities depending on the number of points earned.

#### **Brother Green Label (a Brother term)**

Brother's unique environmental label (created in October 2001, revised in February 2007). Brother Industries, Ltd. awards the label to products that meet voluntary environmental standards (Brother Green Label standards) for products.

#### **CDP (former name: Carbon Disclosure Project)**

An international NPO headquartered in London, U.K.

Since 2003, CDP has been working with institutional investors to request major companies worldwide to disclose information about business risks associated with climate change, business opportunities, greenhouse gas emissions, etc. CDP evaluates the collected information and publicizes the results.

## Glossary (Environment)

### CEPA

Short for "Canadian Environmental Protection Act"

CEPA is an act that regulates evaluation and management of chemical substances in Canada. Enforced in 1994, CEPA aims to ensure safety of environment and safety of the effect of environment to human bodies by management of chemical substances and organisms.

### Click for the Earth (a Brother term)

One of Brother's environmental conservation activities that Brother provides for with stakeholders. Each visitor is encouraged to choose one activity to support and click the "Donate" button. Brother will make a donation of one yen per click on each visitor's behalf. Your click will help to regenerate forests and to stop desertification.

### COD

Short for "chemical oxygen demand"

COD is used as an index that shows the level of water pollution caused by organic compounds. COD refers to the amount of oxygen (mg/L) consumed when organic compounds in a body of water are chemically decomposed by oxidizing agents (potassium permanganate or potassium dichromate).

### COP10

Short for the tenth meeting of the Conference of the Parties (COP10) that was held in Nagoya, Aichi. At COP10, the Strategic Plan for Biodiversity 2011-2020 (commonly known as the Aichi Biodiversity Targets) was adopted to take effective and urgent action to halt the loss of biodiversity.

### Eco Declaration (ECMA370)

The Eco Declaration is a standardized format and system for disclosing the environmental characteristics of electric home appliances (including fax machines and All-in-Ones) in Europe. The Eco Declaration is useful for comparing two or more products.

### E-learning

Learning/education and training using the Internet (or an intranet)

### Emissions

Substances emitted or released primarily into the atmosphere

## Glossary (Environment)

### **Environmental accounting**

A mechanism that enables companies etc., to realize the cost of environmental conservation in business operations and the effect derived from the activities, and to conduct measurements and make reports as quantitatively as possible (in monetary or physical units), in pursuit of sustainable development.

### **Environmental Information System (a Brother term)**

The Brother Group established its proprietary environmental information system in cooperation with suppliers to investigate, avoid the use of, and manage chemical substances contained in products. The Environmental Information System has been improved to quickly comply with laws and regulations in respective countries.

### **Environmental management system**

A mechanism (e.g. a framework, or a procedure) that enables organizations to set and achieve their environmental policies and targets in promoting voluntary environmental conservation activities.

### **ErP Directive (a framework to set ecological design requirements for energy-related products)**

ErP is short for "Energy-related Products."

The ErP Directive (enforced in 2005, revised in 2009) establishes a framework for the eco-conscious design of energy-related products, such as air conditioners and refrigerators sold in the EU, to help prevent global warming.

### **FSC**

Short for "Forest Stewardship Council"

FSC is an international organization that promotes responsible management of forests and certifies distribution and processing of timber from forests as well as timber-producing forests themselves.

### **Green procurement**

Before products and services are purchased, the need for the purchase should be fully considered. If the purchase is necessary, products and services with minimal environmental impact should preferentially be purchased, without focusing solely on price and quality. This concept is called "green purchase." Green procurement refers to procurement of products and services based on the concept of green purchase.

## Glossary (Environment)

### ISO 14001

An international standard for environmental management system established by the ISO (International Organization for Standardization) (published in 1996).

### ISO 14064

An international standard established by the ISO (International Organization for Standardization) regarding calculation, reporting, and verification of GHG (greenhouse gas) emission reductions in organizations and projects (published in 2006).

### JIG

Short for "Joint Industry Guide for Material Composition Declaration for Electronic Products" JIG (published in 2005) are the common guidelines applicable in Japan, the U.S., and Europe regarding disclosure of information about chemical substances contained in electrical and electronic equipment. The guidelines aim to increase the efficiency of the process for investigating chemical substances.

### LCA

Short for "life cycle assessment"

A technique for quantitatively evaluating resource input and environmental impact in the product lifecycle (from procurement of raw materials, to production, logistics, use, and disposal) and their potential impact on the global environment and ecosystem.

### Low Energy Standby (a Brother term)

Technology to reduce standby power (power that is consumed even when the operation of a product with a plug connected is stopped) to very close to zero.

### LRQA

Short for "Lloyd's Register Quality Assurance Limited"

A certification organization which conducts examinations in the fields of quality, environment, safety and health, etc. LRQA confirms and provides validation and verification regarding greenhouse gas emissions.

### Membrane bioreactor

This is a type of activated sludge process to purify sewage and industrial wastewater. A filtration membrane is used to separate treated water from activated sludge.

## Glossary (Environment)

### Milestone

A milestone is a date or an event that must be observed as a target of progress in project management. Milestones are set to ensure the management of important and significant targets.

### Nagoya Protocol

The protocol to the Convention on Biological Diversity (CBD) was adopted at the tenth meeting of the Conference of the Parties (COP10) in Nagoya, Aichi in October 2010. The official name is the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. The protocol provides measures to ensure proper implementation of the rules set out in the CBD.

### N-hexane extracts

This is a generic term for non-volatile substances extracted by n-hexane (volatile liquids that are widely used in solvents.) N-hexane extracts are used as an index to represent the oil content (mg/L), etc. in water such as mineral oils and animal/vegetable oils and fats.

### Post-consumer material

The material that is recycled from used products that are collected from consumers

### Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This was enacted in 1986 in California to protect humans and drinking water sources from toxic chemical substances. The state government is required to publish a list of toxic substances at least once a year. Manufactures are required to label toxic substances on the list if they are contained in products.

### PRTR Law (Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof)

PRTR is short for "Pollutant Release and Transfer Register."

The PRTR Law (enforced in 1999 in Japan) aims to promote voluntary improvement of the management of chemical substances by business operators and to prevent any impediments to the preservation of the environment by taking measures for the confirmation of release amounts, etc. of specific chemical substances in the environment (PRTR) and measures for the provision of information concerning the properties and handling of specific chemical substances (SDS), etc.

## Glossary (Environment)

### REACH Regulation

REACH is short for "Registration, Evaluation, Authorization and Restriction of Chemicals."  
This regulation on the registration, evaluation, authorization and restriction of chemicals in Europe (enforced in 2007) aims to protect human health and the environment.

### Recycled pellet

Particles (measuring about 3-5 mm) of molten waste plastics to be used as raw materials

### RoHS Directive (directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment)

RoHS is short for "Restriction of Hazardous Substances."  
This EU directive (enforced in 2006) prohibits the use of harmful substances contained in electrical and electronic equipment (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE)) in principle.

### Scopes 1, 2, and 3

Scopes are standards for calculating and reporting greenhouse gas (GHG) emissions. The three different scopes help minimize overlapping calculations and identify target gases.

Scope 1: Direct GHG emissions by business operators

Scope 2: Indirect GHG emissions resulting from use of electricity, heat, and steam supplied by other entities

Scope 3: Indirect GHG emissions other than Scopes 1 and 2 (emissions by other entities in connection with business operators' activities)

### SDS

Short for "safety data sheet"

SDSs are documents which provide information about properties and the handling of chemical substances when transferring or supplying designated chemical substances and products containing these chemical substances to other business operators, in order to promote improvements in appropriate management of chemical substances by business operators. As of June 2014, the Brother Group offers the information in 25 languages.

### Social media

A category of web services that enable interactive communication among users

## Glossary (Environment)

### Sound material-cycle society

A society where consumption of natural resources is reduced and environmental impact is minimized.

A sound material-cycle society can be achieved by taking the following steps:

Phase 1: Reducing products etc. that turn into waste

Phase 2: Reusing waste as resources as much as possible

Phase 3: Properly disposing of waste that cannot be used in any way

### SS

Short for "suspended solids"

SSs are insoluble suspended solids in water. These solids are called suspended matter in JIS (Japanese Industrial Standards), and suspended solids in environmental and wastewater standards. SSs pass through 2 mm sieves but remain on 1 µm filtration media.

### SVHC

Short for "substances of very high concern"

SVHCs may seriously affect human health and the environment.

### 3PL

Short for "third party logistics"

Outsourcing services to plan most efficient logistics strategies, propose establishment of logistics systems, and undertake and implement comprehensive projects on behalf of consigners.

### TSCA

Short for "Toxic Substances Control Act"

This US act (enforced in 1976) aims to regulate chemical substances and mixtures that present a substantial risk of injury to human health or the environment.

### Type I labels

Awarded by third party organizations to products that contribute to environmental conservation based on certain standards

Eco Mark and the Blue Angel are popularly known in Japan and Germany, respectively.

### Type II labels

Self-declared by business operators regarding the environmental information of their products  
Brother Industries, Ltd. created the Brother Green Label.

## Glossary (Environment)

### **Type III labels**

Awarded to products whose environmental information is disclosed quantitatively based on LCA (Life Cycle Assessment)

In Japan, EcoLeaf is managed and issued by the Japan Environmental Management Association for Industry.

### **UFP**

Short for "ultrafine particle"

UFPs are particles measuring 0.1  $\mu\text{m}$  (1/1,000 of 0.1 mm) or less in diameter.

### **WEEE Directive**

WEEE is short for "Waste Electrical and Electronic Equipment."

This EU directive (enforced in 2003) imposes obligations on member countries, sales business operators, manufacturers, etc. for waste electrical and electronic equipment in design, sorted collection, and recycling.

### **Zero Waste Emission Activities (a Brother term)**

These are the Brother Group's waste reduction activities to help use resources effectively and prevent resource depletion. "5R activities" are ensured to curb waste generation, reduce emissions, and achieve "zero landfill waste" (meaning that less than 1% of waste generated at factories is sent to landfill).