

# The Environment

## Environmental Management

### Environmental Policy

Recognizing environmental issues as important, the Yamaha Group is committed to continuing its contribution to the realization of a better global environment.

Based on the Yamaha Group Environmental Policy, Yamaha is actively involved in measures related to climate change on a global scale, including the reducing emissions of hazardous chemical substances and risk of leaking related to business activities, the appropriate use of timber and forest prevention.

These resolutions related to environmental issues are incorporated into our mid-term management plan, and we are conducting business according to the action plans in related business divisions.

» [Yamaha Group Environmental Policy](#)

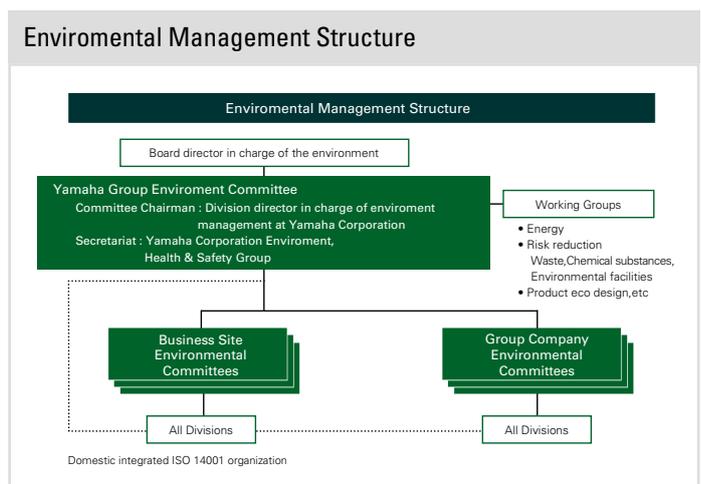
### Environmental Management Systems

The Yamaha Group has created a global environmental promotion system. The board director in charge of environment at Yamaha Corporation is the representative in charge.

The board director in charge of environment conducts a management review once every half-year to check the progress of ongoing measures, items based on requests by stakeholders and laws and regulations, and information about accidents or complains related to environment. Important issues that arise are deliberated in the management meeting.

Based on the “Group Environmental Management Policies & Rules,” integrated for all domestic business sites, each business site overseas has created an Environmental Management System (EMS).

In this system, each business site determines its own environmental goals, develops measures and action plans to achieve them, and executes those measures. We then verify that each business site is actively pursuing its goals through internal environmental audits, and process the results for continuous improvement and strengthening. The Environmental Division of Yamaha Corporation supports and leads all activities related to the environment, such as collecting information on laws and regulations, enacting policies for the entire Yamaha Group, establishing regulations, conducting environmental audits, and following through on each measure.



### ► Acquisition of ISO 14001 Certification

The Yamaha Group is acquiring ISO 14001 certification for environmental management systems that meet international standards.

As of the end of March 2018, the Yamaha Corporation and 22 Group companies in Japan and overseas (total of 23 companies) have acquired certification, including approximately 95% of the Yamaha Group with GHG emissions (scope 1 and 2). The Yamaha Group believes the currently acquired certification is sufficient considering its own environmental load, laws and regulations, and other matters. In the future, when establishing business sites that may have a large impact on the environment, they will be added to the certification scope sequentially.

In 2017, the Yamaha Corporation acquired integrated certification in Japan based on the new standards which were revised on September 2015.

## ► ISO 14001 Certified Sites

### Yamaha Corporation Business Sites in Japan

Site	Acquisition Date	Integration Date
Kakegawa Factory	November 1998	November 2010
Toyooka Factory (including Yamaha Hi-Tech Design Corporation)	June 2000	November 2010
Headquarters Area	February 2001	November 2010

### Group Manufacturing Companies in Japan Site

Site	Acquisition Date	Integration Date
Yamaha Fine Technologies Co., Ltd.	March 2001	November 2010
Sakuraba Mokuzai Co., Ltd.	September 2002	November 2010
Yamaha Music Manufacturing Japan Corporation	August 2014	August 2014
Kitami Mokuzai Co., Ltd.	August 2014	August 2014

### Resort Facilities

Site	Acquisition Date	Integration Date
Yamaha Resort Inc, Katsuragi	November 2001	August 2011

### Group Manufacturing Companies Located Overseas

Site	Acquisition Date
Yamaha Electronics Manufacturing (M) Sdn. Bhd.	December 1998
Tianjin Yamaha Electronic Musical Instruments, Inc.	December 1999
PT. Yamaha Musical Products Indonesia	January 2001
PT. Yamaha Music Manufacturing Indonesia	December 2001
PT. Yamaha Indonesia	May 2002
PT. Yamaha Music Manufacturing Asia	July 2002
PT. Yamaha Electronics Manufacturing Indonesia	January 2003
Yamaha Electronics (Suzhou) Co., Ltd.	March 2004
Hangzhou Yamaha Musical Instruments Co., Ltd.	May 2012
Xiaoshan Yamaha Musical Instruments Co., Ltd.	March 2013

## Initiatives for Promoting Environmental Management

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### ▶ Environmental Accounting

Yamaha Corporation introduced environmental accounting in fiscal 2000 as a means of quantitatively evaluating the effectiveness of its environmental conservation activities. These environmental accounting practices are currently implemented at Yamaha Group production companies and resort facilities in Japan, and have also been implemented at some overseas Group production sites.

For inter-annual records regarding this data, please refer to the environmental data page.

» [Environmental Data](#)

## Environmental Education and Training

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The Yamaha Group offers a variety of training and education opportunities to company employees in an effort to raise their knowledge and skills with respect to the environment. The Group provides environmental training such as “general education” to all employees, “specialty education” for instructors and others, and “environmental facilities education and training” for individuals in charge of environmental facilities. Training is adjusted according to the needs of each site and work-related duties throughout the year.

### ▶ Specialized Training for Environmental Preservation Staff

The Group has established curriculum for employees engaged in operations that require specialized knowledge, including personnel involved in waste management, water treatment, and chemical substance handling operations.

After defining and listing required abilities in regards to operations which have a particularly large impact on the environment and examining the educational needs, we are conducting special training sessions. Environmental technology personnel at headquarters are following up with education for employees in charge of overseas factories.

We also conduct education related to chemical substance management and accident prevention such as the leakage of environmental pollutants. This educational initiative is based on Yamaha Group Chemical Substances Usage Standard or Yamaha Group Environmental Equipment Standards, and conducted onsite to prepare for emergency response.

### ▶ Fostering Internal Environmental Auditors

Training the staff who actually perform our self-regulated activities with respect to environmental preservation is essential for improving the operations of our environmental management system. The Yamaha Group invites lecturers from external organizations and holds annual seminars to train internal environmental auditors as an initiative to improve our environmental preservation activities.

At business sites in Japan, to date, more than 1,164 participants have obtained their internal environmental auditor qualification and of these, 389 employees are still currently employed at Yamaha. This is about 6% of our employees at relevant business sites.

With the migration to an ISO 14001 integrated management system since fiscal 2011, we have held an Internal Environmental Auditor Brush-Up Seminar to improve the skill set of staff members responsible for internal audits.

### ▶ Promoting Environmental Activities of Employees

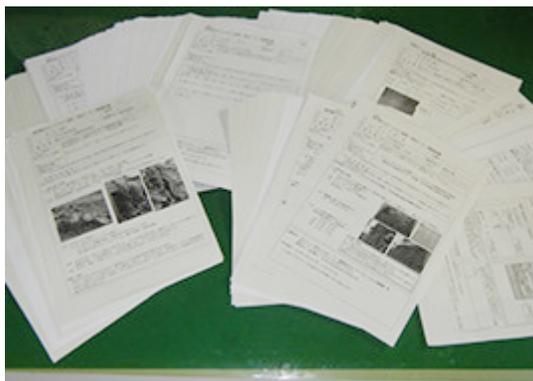
The Yamaha Group provides support and training to improve the environmental awareness of our employees and to promote eco activities that employees can perform as part of their daily routines.

#### **Environmental Awareness Activities in the Home: Smart Life in My Home Commitment and My Eco Commitment Coloring Page**

The Yamaha Group has worked with the Yamaha labor union to promote eco-conscious activities in daily life through projects and tools such as keeping track of eco-conscious household activities, “Smart Life in My Home Commitments” that accomplish eco-conscious activities suitable to each employees’ home, and the “My Eco Commitment Coloring Page” for families with children.

Examples of Initiatives under the Smart Life in My Home Commitment (Fiscal 2018)

Details of Commitment	Report on Activity
Create a “household garden” to enjoy an eco life with a household garden	We created a household garden and disposed of about 30 liters of raw garbage per month (reduce garbage sent to city).
Converted all household lighting to LED (stage one)	By switching from incandescent light bulbs to LED, we experienced energy-saving effects. We have decided to switch light bulbs to LED in the future.
Used less electricity and gas than last year for each month between July and September	Monitored the electricity and gas meters for the three months between July and September. Used less of both each month compared to last year.



The Smart Life in My Home Commitment activity report sent from employees



My Eco Commitment Coloring Page

▶ Green Eco Curtains Activities in Employee Homes

Beginning in fiscal 2010, the Yamaha Group has encouraged employees to create Green Eco-Curtain in their homes, in parallel with Green Eco Curtain activities at Yamaha business locations.

In addition to providing how-to instructions, Yamaha distributed seeds for bitter melons to those interested.

» [Green Eco Curtain activities at Yamaha business locations](#)



Photos of Green Eco Curtains collected from employee families

# Prevention of Pollution

## Structure for Prevention of Environmental Pollution

In 2014, the Yamaha Group organized the Yamaha Group Environmental Equipment Standards, which defines Group standards regarding the installation, management and operation of environmental facilities to prevent environmental pollution from occurring in our business activities. The road map is determined at each individual site and we are on schedule to complete adaptation at all sites in fiscal 2021.

### ▶ Monitoring and Response to Laws and Regulations

The goals of the Yamaha Group include reducing the environmental impact of our business activities and ensuring compliance with environmental laws. In accordance with the annual plan created by the Yamaha Corporation Environmental Division and the management divisions of each business site, the divisions in charge of environmental measurement regularly monitor emissions, wastewater, noise, odors, and other by products of our activities at each of our places of business, confirming our management status and strictly assessing compliance.

We assess our monitoring according to our own standards, which exceed existing legal standards. In the event that measurements exceed standards or are unusual in some way, we take immediate emergency and correction measures.

In addition, we are developing our system to make quick response to the revision of laws and regulations. The Group collects the latest legal and regulatory information, and the Yamaha Corporation Environmental Division summarizes, checks, and disseminates the information throughout each business site to ensure consistent compliance as a whole Group. Furthermore, the Group has established working groups made up of the management division and production division of each business site to reduce risk and determine responses. The Yamaha Group is carrying out initiatives in both Japan and overseas. For example, in China, where environmental laws have been amended frequently in recent years, the Yamaha Group works closely with Group companies in China to strengthen compliance systems.



Environmental measurements

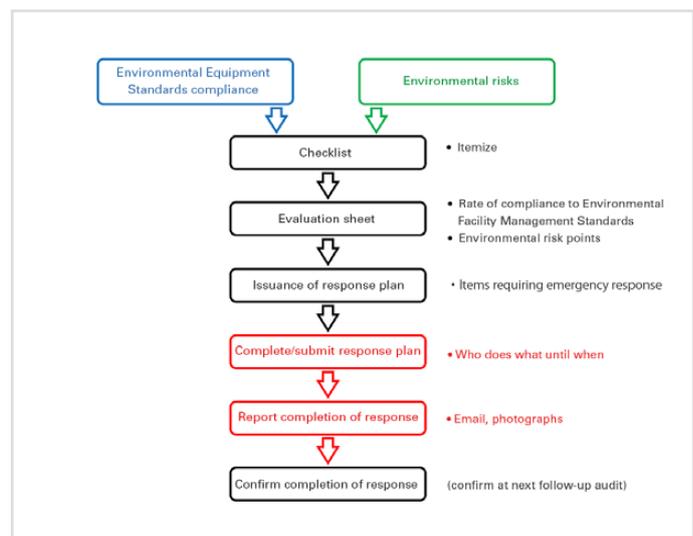
### ▶ Environmental Audits

The Yamaha Group conducts internal environmental audits according to the ISO14001 integrated management system. We also conduct Group-wide environmental audits to prevent environmental accidents or violations of law. These activities serve to reduce our environmental risk as a corporate group.

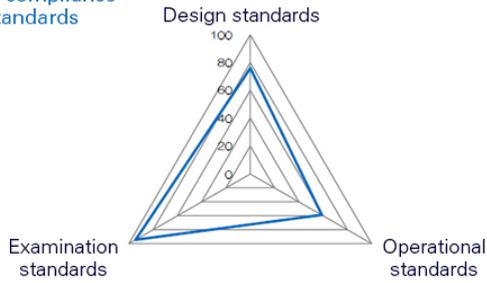
Yamaha Corporation's Environmental Division conduct these audits, using audit staff who have skills and expertise in environmental preservation. In addition to certification as an internal environmental auditor based on ISO 14001 standards, Yamaha audit staff have also received official Pollution Control Manager, Working Environment Measurement Expert and other relevant certifications.

In fiscal 2017, the audit system was adjusted to comply with the Yamaha Group Environmental Equipment Standards to reduce risk. The status of compliance to equipment standards at each site and environmental risks are itemized on a checklist used through the Group. By clarifying priority and items which require a response, the Company is efficiently making improvements.

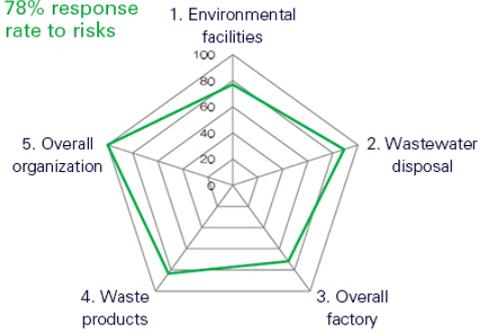
In addition, audits are conducted in direct correlation to the risk level. In fiscal 2018, we conducted environmental audits at four sites in Japan and four sites overseas.



72% compliance to standards



78% response rate to risks



Environmental audit conducted by audit staff of the Yamaha Corporation's environmental division.

► **Preparation for Emergency**

The Yamaha Group is working to prevent environmental pollution caused by the leak of harmful substances and oils from business locations by assuming emergency situations.

Yamaha is identifying risks using Group integration evaluation standards, and as a result, the Yamaha Group is striving to prevent accidents during assumed emergency situations at business sites by improving plans and procedures. Additionally, each site has put procedures, equipment and tools in place to respond to such emergency situations should they occur and is conducting emergency response training.



Emergency response training

## Response to Pollution and Toxic Substances

The Yamaha Group has conducted cleanup measures at two sites with soil and groundwater contamination due to chlorine-based organic solvents. We have already completed the groundwater cleanup at the Yamaha Corporation Toyooka Factory. The Yamaha Headquarters business site has been restored to near-standard levels, and we continue cleanup activities at present. We have completed soil contamination cleanup activities at both sites.

Surveys focusing on water quality and biodiversity in waterways where the waste is discharged are periodically conducted, and constantly monitored for evidence that water discharged from business sites does not exert a negative impact on the watershed and related habitat.

Additionally, as of April 2015, all Group sites in Japan disposed of large machinery, like transformers or condensers that contained high-density PCBs. We have completed shipment packaging registration of small size high-density PCB wastes such as fluorescent lamp stabilizers, and we are organizing proper disposal.

Our activities to remove devices containing low-density PCBs started in fiscal 2017.

At the headquarters factory of Yamaha Music Manufacturing Japan, the Company updated the wastewater processing equipment in March 2018 in order to improve earthquake resistance and processing capabilities. This new equipment can process twice the wastewater of the previous equipment and has been designed to withstand an earthquake with an intensity of 6-strong to 7.



Groundwater purification equipment at the headquarters office



Wastewater processing equipment at the headquarters factory of Yamaha Music Manufacturing Japan

## Chemical Substance Management and Reduction of Emissions

When utilizing chemical substances, the Yamaha Group strives to minimize adverse impact on people and the environment by thoroughly managing chemical substances such as those designated under the PRTR\*1 Law, and reducing emissions of substances from production processes and products. In 2013, the Group reviewed management regulations regarding chemical substance use in factories and established Yamaha Group Chemical Substances Usage Standard to reduce environmental load and improve the work environment at all major factories in Japan and overseas.

At present, the chemical emissions that occur in the course of production processes in companies of the Yamaha Group mainly consist of volatile organic compounds (VOCs)\*2. The Group is constantly monitoring VOC emissions and is working to replace and reduce VOCs. (For inter-annual records regarding VOC emission, please refer to the environmental data page.)

In accordance with the Yamaha Group Chemical Substances Usage Standard, from fiscal 2016, Yamaha began activities to abolish all use of dichloromethane and reduce the use of 1-bromopropane. In fiscal 2017, two business sites eliminated the use of dichloromethane and replaced the use of 1-bromopropane by 80% through the introduction of an alternative substance. Additionally, our factory in China introduced a VOC disposal facility to reduce emissions.



Yamaha's VOC disposal facility in Tianjin

\*1 PRTR: An abbreviation for Pollutant Release and Transfer Register. The PRTR Law is an abbreviation of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

\*2 VOCs (volatile organic compounds): These compounds, contained as thinning agents for coatings and adhesives, are believed to be one factor in the release of photochemical oxidants and suspended particulate matter (SPM).

## ▶ Reducing Chemical Substance Emissions in Coating Processes

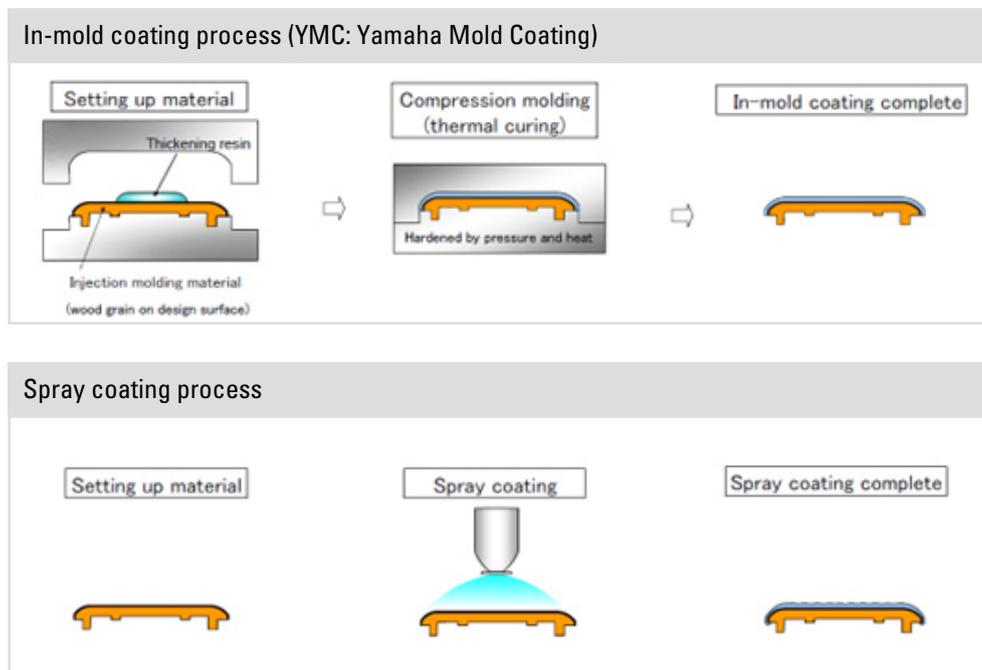
In the coating processes that give musical instruments and automotive interior components their beautiful appearance and durability, Yamaha continues to research and introduce coating methods that reduce the environmental impact by reducing the use of paints and the emission of organic solvents.

To date, we have developed applications for electrostatic coating, powder coating and flow coater in accord with each product and are making use of them in our production process.

Yamaha Music Manufacturing Co., Ltd. began switching the coating materials for parts from one containing an organic solvent to a water-based coating in the piano manufacturing process. Water-based coating also has the positive effect of improving the work environment.

Similarly, Yamaha Fine Technologies Co., Ltd. developed an in-mold coating method that completes the coating process inside of the mold, and has adapted this method for automobile interior components. By switching from traditional spray coating to in-mold coating, more than 90% of adhesion efficiency\*3 is achieved, less organic solvents are released into the atmosphere, and less paint is used owing to high coating efficiency. Ventilating operations in the workplace have been reduced as well. This, in turn, contributes to a significant reduction in the amount of energy used.

\*3 Adhesion efficiency: ratio of materials adhering as coat compared to total used.



## ▶ Protecting the Ozone Layer

The Yamaha Group has historically worked to reduce usage of fluorocarbons to protect the ozone layer. We eliminated the use of all special chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). After we eliminated the use of all special CFCs used in manufacturing processes in fiscal 1994, we used HCFCs, which have a lower ozone depletion potential compared to special CFCs, in the degreasing process for metal materials. However, we also eliminated the use of all HCFCs by fiscal 2006 because of its large impact on global warming.

## Environmental Accidents and Litigation

During fiscal 2018, the Yamaha Group did not violate any laws, receive fines, pay fees, or be named in any lawsuits with respect to environmental concerns. The Yamaha Group did not experience any accidents having an effect on the outside environment, nor did we receive any significant complaints.

# Environmentally Friendly Products and Services

## Environmentally Friendly Design and Green Procurement

The Yamaha Group has positioned efforts to develop technologies and offer products and services that minimize any burdens on the environment under its [Yamaha Group Environmental Policy](#).

With respect to the various product groups, we perform product life cycle assessments (LCA) that cover all product life cycle stages, including material procurement to production, transport, use, and disposal to identify what aspect of a product group life cycle has the largest environmental impact and to tackle environmentally friendly design from multiple angles.

For chemical substances contained in our products, we have created containment standards and a management system, and perform green procurement.

### ► Primary Product Characteristics According to Life Cycle Assessments, and Initiatives

(Note: The size of each circle indicates the relative environmental load associated with that stage in the product life cycle.)

#### Acoustic Instruments

##### Characteristics:

- There is no energy consumption during use, and products have a long life and may be used for decades.
- The environmental load at the materials production stage is low in terms of CO<sub>2</sub> emission if lumber is the primary material. However, there is a need to consider deforestation and to protect scarce natural materials to prevent resource depletion, which means the environmental load of producing raw materials is higher than other stages.
- During product use, VOCs emitted from wood materials may have an environmental impact.
- While products are characterized by their long life, products may be left idle depending on the circumstances of customers and later disposed of.

##### Measures:

- In order to ensure appropriate lumber procurement, “Yamaha Timber Procurement Policy” are to be established and efforts strengthened.
- Reduce VOC emissions from wood materials (during product use) and take steps to establish a mechanism for product reuse.
- Add functions and continue use.

#### Electronic Musical Instruments

##### Characteristics:

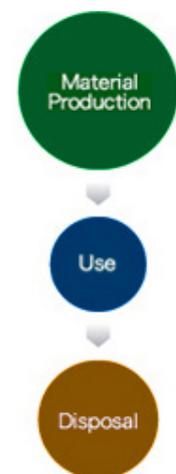
- Many do not consume electricity when not in use, and there is a growing demand for efforts to be devoted to products with a comparatively small environmental burden when used.
- Large products require a lot of materials in the material production phase, creating a comparatively large environmental load. Difficulties may also occur at local bodies and elsewhere at the time of disposal, necessitating consideration of how better to promote recycling.
- The many different materials used in these products necessitate management of chemicals contained in materials used in material production and efforts to promote recycling at the time of disposal.
- Need to take measures for environmental pollution due to substances that exert environmental load in waste materials.

##### Measures:

- Resource-saving design that allows longer use of electronic instruments through upgrade kits, and energy-saving design using new technologies such as digital amplifiers and switching power supplies.
- Stricter efforts to control substances with an environmental impact in products via green procurement, etc.
- Reduce the amount of substances that exert environmental load when products become waste.



Lifecycle of acoustic instruments



Lifecycle of electronic musical instruments

## AV Equipment, IT Equipment

### Characteristics:

- Some IT devices operate constantly, while AV devices also consume electricity during standby, thus making the environmental load of the use phase comparatively large.
- The many materials contained in these products make necessary management of the chemicals contained in materials during material production and efforts to promote recycling at time of disposal.
- The environmental load is comparatively small during material production because there are not many large products.

### Measures:

- Stricter efforts to control substances with an environmental impact in products via green procurement.
- Miniaturization, integration and other resource-saving designs, new technologies such as digital amplifiers and switching power supplies; the use of energy-saving designs to reduce standby power consumption.



## ► Management of Chemical Substances Contained in Products

Some chemical substances contained in products have an environmental impact and therefore required proper treatment on disposal. Such substances may have potential health impacts to their users depending on application. For that reason, countries around the world have been strengthening restrictions for chemical substances contained in products and requiring data disclosure.

In February 2003, Yamaha established its own Standards for Chemical Content in Products. These standards are used to manage chemical substances in products during design and development to help ensure legal compliance and reduce environmental load. The standards are revised when necessary in response to legislative changes, the accession of voluntary standards, and other factors.

## ► Creation of the Management System for Chemical Substances Contained in Products

In order to manage chemical substances contained in products, it is imperative to identify and control the chemical substances contained in the parts and materials making up finished products.

In fiscal 2009, the Yamaha Group established a management system and the Yamaha Group conducts a survey of its chemical-containing parts and materials with the cooperation of its suppliers, thereby contributing to improved management of these substances.

In fiscal 2011, Yamaha renewed its chemical substance management system, and adopted the AIS,\*<sup>1</sup> a standard industry format for the identification of chemical substances in products. The new system was likewise designed to comply flexibly with the European Union's ever-growing chemical substance regulations, such as SVHC\*<sup>2</sup> under REACH. Yamaha also holds briefing sessions in Japan and internationally to explain to and gain the cooperation of suppliers in implementing its new chemical management system.

\*1 AIS: An abbreviation for Article Information Sheet. A basic communication sheet standardized by JAMP (Joint Article Management Promotion-consortium) for providing information on chemical substances contained in products. Parts makers can use the information on chemical contained that they receive from material makers to pass on to those they supply, ensuring the fluid transmission of information downstream.

\*2 SVHC: An abbreviation for Substance of Very High Concern such as carcinogens. Under the REACH regulations, if a product contains more than a certain amount of an SVHC-designated substance, there is an obligation to disclose information and manage the product.

## ► Promotion of Green Procurement

The Yamaha Group formulated and published the Green Procurement Standards in 2002. Data on the substances contained in materials and the status of initiatives for managing chemical substances provided by suppliers plays a role in confirming the status of restricted substances contained in products and assessing the influence of environmental regulations. For this activity, we set the core issue connected to human health and environment. We strive to procure materials and parts that have minimal load on the environment, and review Green Procurement Standards as required in line with changes in global environmental regulations.

» [Green Procurement Standards](#)

## Yamaha Eco-Products Program

The Yamaha Group launched the Yamaha Eco-Products Program in 2015 to promote the creation of environment-friendly products. This program aimed to clarify environmental standards and promote environmentally friendly products.

A Yamaha Eco-Label is affixed to those products meeting our environmental standards, thus certifying them as Yamaha Eco-Products. Our objective is to provide straightforward information on our environmental efforts and support our customers in the decision-making process when selecting a product. As of March 31st 2018, the number of certified products, including older products, has surpassed 320, 30 of which are newly developed products bearing the Eco-Label.



Yamaha Eco-Label

» [Yamaha Eco-Products Program](#)

» [Sustainable Consumption](#)

## Products Supporting the Reduction of Environmental Load

The Yamaha Group products are not only for general consumers, but also for businesses. Some of the products help to reduce the environmental load of our customers' business activities or can be used to reduce environmental load when using products manufactured by the customer. The Yamaha Group works to reduce environmental load throughout society through the development and promotion of such products.

» [Application of environmental technologies](#)

## Use of Sustainable Resources

### Initiatives for Timber Resources

Among the instruments that the Yamaha Group produces, including pianos as well as string, percussion, and woodwind instruments, many require a primarily wood construction for acoustic reasons. Large amounts of timber are also used when making electronic musical instruments, speakers and soundproof rooms, due to the merits of wood in terms of acoustic performance, function, design, and texture.

Considering the diverse variety of timber used in our business operations, the Group established the "Yamaha Group Timber Procurement Policy," which indicates the direction of our timber usage in order to better conserve this precious resource, as well as ensure its availability for continued use in the future. The Yamaha Group also established the Yamaha Supplier CSR Code of Conduct, which clearly stipulates points related to the harvesting and trading of timber resources, that Yamaha suppliers are requested to observe.

The Policy and Code of Conduct help the Yamaha Group accomplish sustainable procurement that is friendly to the environment and the biodiversity within its ecosystems, and meet its aim to maximize the use of timber as a first-rate recyclable resource without waste.

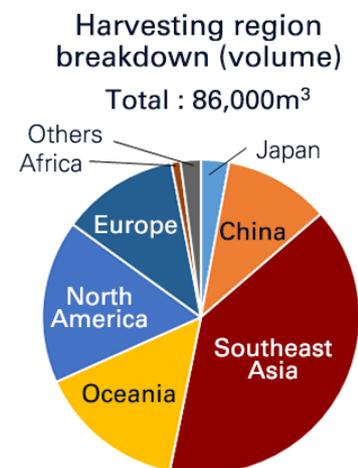
» [Yamaha Group Timber Procurement Policy](#)

» [Yamaha Supplier CSR Code of Conduct](#)

For figures regarding volume, please refer to the environmental data page.

» [Environmental Data](#)

Ratio of Yamaha Timber Resources Origin by Country (fiscal 2018)



Excludes some products that are not Yamaha brand and OEM/ODM products.

## ► Initiatives for Sustainable Timber Procurement

It is necessary to consider the environment in a way that ensures timber is utilized in a sustainable way. Operations must consider forest conservation and timber resource volumes, sustain the economic viability of the supply chain, and contribute the advancement of the community through creating jobs and encouraging infrastructure. The Yamaha Group has established a due diligence system to prevent procuring timber from illegal sources as it promotes a strict confirmation process for timber procurement legality through site visits and surveys of documents for procurement sources. In addition to environmental considerations, the Group is expanding the use of certified timber, such as FSC certified timber, which is produced in societally and economically sustainable forests and contributes to the advancement of the community.

From fiscal 2016, Yamaha began investigating African Blackwood, which is an important material used for wood wind instruments, specifically regarding the ecology, amount of resources, and forestry management status in the United Republic of Tanzania where the timber was being procured at that time as Yamaha aimed to conserve the tree, and secure a stable procurement source.

This tree is classified as Near Threatened by the IUCN Red List and in recent years the resource volume has been trending down. As a result of investigating the management status of these forests and ecological status, including distribution, growth, and natural regeneration, we discovered that sustainable procurement is possible with proper management. Following these results, from fiscal 2016, Yamaha aimed to construct a business model which could sustainably use African Blackwood as a material for musical instruments. Yamaha is continuing surveys and is proposing initiatives as a BOP cooperation business with the Japan International Cooperation Agency (JICA).

In fiscal 2018, we cooperated with local NGOs and the local community to begin tree planting activities for African Blackwood as we aim to secure future resource volume. In addition, Yamaha formed a partnership with local timber producers and is conducting initiatives aimed at the efficient use of existing resources, including procuring certified timber from FSC-certified forests\*, and improving the usage efficiency of wood materials.

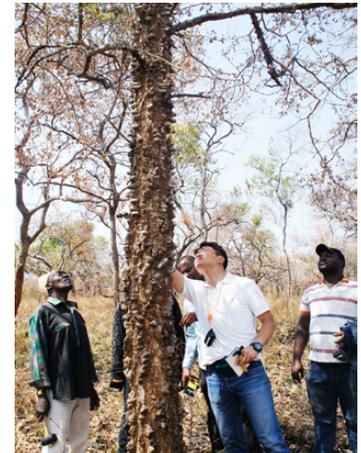
\* FSC-certified forests are believed to be guaranteed as having sustainable forestry management as certification is received after auditing by a third-party organization



African Blackwood seedlings



Built tree nursery facilities, such as pump, water tank, and well in corner of local agricultural village



Ecological survey

## ► Creation of a Circulating-type Forest

Kitami Mokuzai Co., Ltd., a Hokkaido-based company that manufactures piano sound boards using natural *Picea glehnii*, signed an agreement to establish "Piano Forests" in cooperation with the Okhotsk Sub-prefectural Bureau and the town of Engaru, Monbetsu-gun, Hokkaido Prefecture in March 2016. Since then, these organizations have been working together to create a circulating-type forest and expand the demand of artificial *Picea glehnii*.

In recent years, due to a decrease in natural forest timber, it has become essential to secure a stable supply for the timber grown in Hokkaido. As a result, to secure a stable supply of *Picea glehnii*, the three parties established "Piano Forests" in the forestlands owned by the Okhotsk Sub-prefectural Bureau and the town of Engaru. The aim is to preserve the forests and to ensure that the Okhotsk "tree culture" is passed on to future generations.

Moreover, in the future, we will work to grow high-quality timber in this forest and use it to manufacture piano sound boards.



A *Picea glehnii* plantation

## ► Use of Timber Resources in Environmentally Friendly Products

The Yamaha Group is proactively introducing wood cultivated specifically for industrial purposes on planned plantations as well as certified wood, which is properly managed so that the lumbering process does not harm the forest or the ecology. These measures aim to use the excellent renewable resource of trees on a sustainable basis.

In addition, the Group focuses on developing alternative materials that accurately reproduce the sound quality of rare wood materials best suited for instruments.

Case examples are introduced in the application of environmental technologies page.

» [Application of Environmental Technologies](#)

## Reduction and Sustainability of Raw Materials

### ► Resource-Conservation in Products

The Yamaha Group is striving to conserve resources used in its products from a variety of standpoints, such as reducing product size and weight, integration of several products into one and by reducing product packaging. Further, the Group is also taking efforts in its piano renewal business, and is aiming to extend the longevity of its products that will ultimately lead to less use of resources.

» [Environmentally Friendly Products and Services](#)

» [Initiatives to Extend Longevity of Products](#)

» [Piano Renewal Business](#)

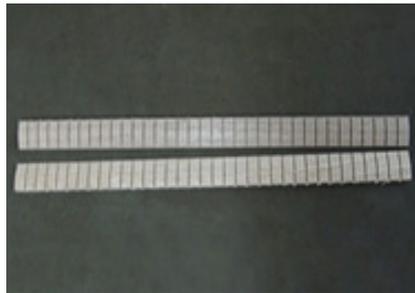
### ► Utilization of Sustainable Materials

Yamaha conducts initiatives to develop alternative materials that can be substituted for scarce timber, and adopts sustainable materials such as biomass-derived resins for use in its products

» [Environmentally Friendly Products and Services](#)

### ► Making Effective Use of Timber Resources

Yamaha is working to reduce waste by improving the yield ratio in timber processing, and reusing and recycling wood chips from processes. The Company is both selling offcuts to building material makers as raw material for hard board, and creating other components using offcuts. In recent years, the Company has also begun unique initiatives, such as using wood chips produced in the wood manufacturing process at the Kakegawa Factory, which manufactures pianos, as bedding for cows.



Some timber offcuts previously disposed of as waste are instead reused as angle rafters (reinforcing materials inside guitar bodies)



Briquettes made from sawdust left over from the piano manufacturing process (pellet)

Recycling as a material for wood plastic composite (WPC)

## ► Waste Reduction and Resource Recycling

The Yamaha Group (in Japan) has established systems to perform recovery/separation in order to reduce waste produced at factories and offices and promote recycling. The Yamaha Group (in Japan) has a recycling rate of about 99%.

### Examples of Waste Reduction

Business-site	Timing	Description of activity
Toyooka Factory	Nov. 2010	Introduced vacuum concentration equipment for liquid waste and reduced the amount of waste acids and waste alkali generated in the wind instrument manufacturing process by about 80%.
	Fiscal 2012	Began processing waste from the R&D Department, which includes rare metals, as valuable resources and effectively utilizing it.
Kakegawa Factory	Sep. 2009	Installed more wastewater processing equipment and began the in-house processing of wastewater including adhesive agents generated in the piano manufacturing process. This has led to a waste reduction of around 900 tons annually.
	Sep. 2012	Increased ability to process wastewater including adhesive agents. This has led to a waste reduction of around 270 tons annually.
Xiaoshan Yamaha Musical Instrument Co., Ltd.	Fiscal 2014	Reduced paint process-related waste by keeping the circulating water used in the musical instrument painting booths clean to enable longer usage. Reduced waste by about 120 tons/year.
Yamaha Fine Technologies Co., Ltd.	Fiscal 2012	Reduced car part rejects by reducing equipment defects and quality defects. Reduced the factory's overall waste generation by 16% and achieved energy savings and resource savings by improving productivity.



Vacuum concentration equipment (Toyooka Factory)

For data related to waste, please refer to the environmental data page.

» [Environmental Data](#)

## ► Recycling of products and packaging

The Yamaha Group is striving to both respond to laws and ordinances related to recycling products and packaging in each country and region, including the WEEE directive of the European Union, and efficiently use resources in Japan by establishing nationwide recovery points for used Electone products to conduct recovery and recycling.

## Preservation of Water Resources

The Yamaha Group uses water to wash products and cool facilities. The Group evaluates water-related risks through its comprehensive risk assessment conducted throughout the Group as well as surveys and water-related risk evaluation tools at every work site. These measures are used to evaluate "physical water stress," "water quality," "regulatory risks related to water resources," and "reputational risks." The Group does not have large-scale production activities in areas where water resources are poor, so we believe there is not a large impact on the environment due to water use.

On the other hand, in the manufacturing processes of wind instruments, much water is used in the plating and washing process. Because of this, since the first half of the 1970s, the Yamaha Group has been recycling cooling water and wastewater from production processes using a reverse osmosis (RO membrane) device, as well as actively pursuing a policy to prevent leakage in water facilities.

» [Protection of Biodiversity \(water quality preservation\)](#)

» [Prevention of pollution \(monitoring and compliance to laws and regulations\)](#)

For data related to water usage and reuse, please refer to the environmental data page.

» [Environmental Data](#)

## ► Initiatives for Conservation and Recycling Use

### Xiaoshan Yamaha Musical Instrument Co., Ltd.

Xiaoshan Yamaha Musical Instrument Co., Ltd., which manufactures wind instruments and percussion instruments in China, installed a wastewater treatment facility that purifies wastewater to the level of pure water. As a result, approximately 80% of the wastewater is now being reused for manufacturing processes. (In compliance with legal provisions for the inspection and improvement of corporate pollution resulting from electroplating in Zhejiang Province.\*4)

In January 2015, a change was made to the cooling method for the annealing furnaces used for heat treating the copper tube components of wind instruments. The new cooling method uses a circulating water supply. As a result, water used for cooling was reduced by approximately 5,700 tons from the previous fiscal year.

\*4 Legislation passed in Zhejiang Province aims to enhance environmental preservation in electroplating factories. Companies engaged in electroplating processes must conform to 56 items related to environmental preservation system and equipment. Standards for metals such as copper and nickel are stricter than those for general factory wastewater.



Wastewater treatment facility (Xiaoshan Yamaha Musical Instrument Co., Ltd.)



Cooling unit using circulated water (Xiaoshan Yamaha Musical Instrument Co., Ltd.)

### P.T. Yamaha Musical Products Indonesia

The Group also introduced a wastewater treatment facility that enables the reuse of 60% or more of the wastewater at the wind instrument manufacturer P.T. Yamaha Musical Products Indonesia (YMPI). Furthermore, wastewater treatment processes are rationalized to reduce the use of chemicals.

In 2017, the Group introduced equipment to allow cyclical reuse of wash water used in the recorder production processes. This equipment has reduced water use by about 12,000 tons per year.



Wastewater treatment facility at YMPI

### Hangzhou Yamaha

In response to increasingly stringent wastewater standards, Hangzhou Yamaha introduced a new wastewater treatment facility in May 2016.

This facility enables us to clean wastewater for reuse. The wastewater treated in this facility is reused for cooling water, etc., enabling 10,000 tons of water to be saved in fiscal 2017.



Wastewater treatment facility (Hangzhou Yamaha)



Reusing wastewater for cooling water (Hangzhou Yamaha)

# Climate Change Mitigation and Adaptation

## Basic Measures and Targets/Achievements

Regarding measures against climate change, the Yamaha Group endeavors to reduce its greenhouse gas emissions through optimization of production methods and equipment configuration, improving air conditioning equipment operational methods, installation of equipment with high energy efficiency, and extensive energy management, including adjustments to facility operating hours and thermostat settings. The Group has also introduced cogeneration systems and fuel switching.

Emission volumes are controlled in accordance with the GHG Protocol\*1. The calculation and management of the whole process, including the supply chain (Scope3), began in fiscal 2017. We will continue advancing our reduction measures while improving the accuracy of GHG calculations. From fiscal 2017, the Group has executed third-party verification of GHG emissions for Scope1 and Scope2, as well as portions of Scope3.

\*1 Standard for the calculation and reporting of greenhouse gas emissions

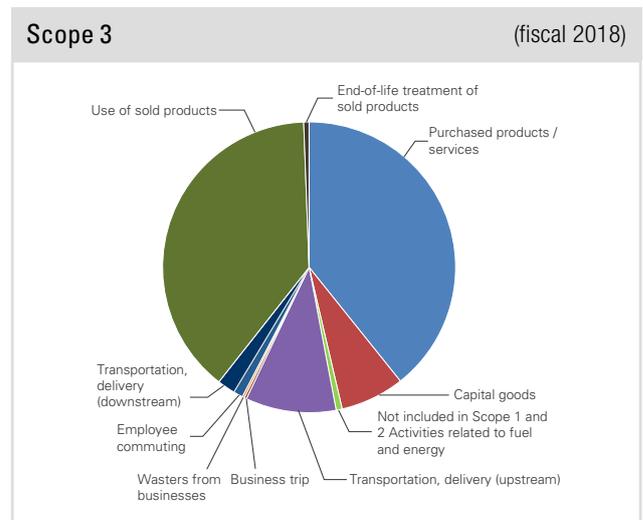
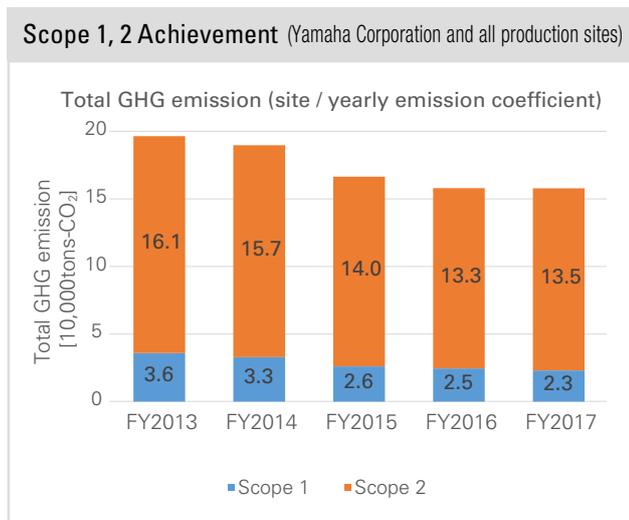
[» Verification Statement](#)

### ► Initiatives and Achievements to Date

The Yamaha Group recognizes that the “2°C Target” of the “Paris Agreement” is a standard with science-based evidence with regard to Scope1 and Scope2 GHG emissions, and intends to use the industry-specific calculation tools from the “SBT (Science Based Targets)” international initiative determine its medium-to-long-term reduction plan.

[» Science Based Targets/Companies Taking Action](#)

As an energy-saving initiative, the Yamaha Corporation and its production sites in Japan set the goal to reduce CO<sub>2</sub>emissions intensity by 1% each year, and overseas production sites have set their goals using numerical values corresponding to each site, and all locations are proactively working to achieve their targets.



\*GHG ... Green House Gas

- Combined value of indirect emission through purchased electricity and steam, direct emission of carbon dioxide through in-house power generation heat usage, and GHG emission through manufacturing processes. (Scope 1+2)

- This data was collected from Yamaha Group headquarters, major manufacturing factories, and resort facilities on a worldwide basis. (estimated to consist over 90% of all Yamaha Group sites)

### ► CO<sub>2</sub> Absorption through Tree Planting Activities in Indonesia

After conducting “Yamaha Forest” tree planting activities between fiscal 2006-2017 in Indonesia, in fiscal 2018 the Company confirmed the growth status of the forest by satellite imagery and estimated the CO<sub>2</sub> volume absorbed by the trees. The Company estimates that approximately 42,000 tons of CO<sub>2</sub> was absorbed until now.

[» Protection of Biodiversity](#)

[» Environmental Data](#)

## Reduction of Greenhouse Gases

### ► Manufacturing Process Initiatives

#### Energy Conservation Activities at String and Percussion Instrument Factory

Yamaha Music Manufacturing Japan Corporation, which manufactures string and percussion instruments, established the Energy-saving Promotion Committee, and since then has been engaging in initiatives to reduce CO<sub>2</sub> emissions. Measures taken included ensuring the appropriate pressure for compressors, partitioning work booths, introducing power usage monitors and installing mosquito screens in offices. The company implemented measures to save space and improve energy efficiency by consolidating equipment inside factories and rationalizing equipment layouts. In fiscal 2016, the company applied a thermal-barrier coating on the roof of the factory, improving air conditioning efficiency as a result. The company will continue to conserve energy through appropriate management of air conditioning and process integration.

#### Energy Conservation Measures at Piano Factory

Yamaha Music Manufacturing Japan Corporation\* is conducting a range of ongoing efforts to conserve energy.

Specific activities include the removal of unnecessary lighting, changing from rapid-type fluorescent lighting to Hf-type lighting, replacing compressors with inverter compressors, updating distribution transformers and air-conditioning equipment, improving air-conditioning control, and others. With these activities, we have achieved our goal, including reducing CO<sub>2</sub> emissions by approximately 198 tons, and reducing electricity usage by approximately 383MWh for the cumulative total over four years from fiscal 2015.



Cogeneration equipment at Kakegawa Factory

#### Reduction of Peak Power at Factory

At Yamaha Fine Tech Co., Ltd., power consumption was reduced by efficiently managing air-conditioning and sprinkling water on the factory roof during the period of peak power consumption. In fiscal 2015, a summer system (July-September), whereby the start time is moved two hours ahead to 6:00 a.m., was introduced for the automobile interior parts painting process where the air-conditioning load is high. Through these measures, the peak power point was shifted from 2:00 p.m. to 11:00 a.m. Peak power consumption was reduced by approximately 310kWh in the hotter part of the afternoon, and power consumption by 200,000kWh during the three-month period. Moreover, improved labor efficiency enables the company to save electricity by shortening facility operating hours.

We will continue efforts to reduce power consumption through a range of measures, such as reducing the number of air-conditioning and heating units required, by reviewing workplace layout the use of steam during the winter.

#### Energy Conservation Activities at a Factory in China

Hangzhou Yamaha Musical Instruments Inc. introduced various energy-saving measures that include making technological improvements and enhancing everyday management to suppress growing energy consumption as a result of increased production.

Recognizing these energy-saving efforts to help the environment, Hangzhou City officials presented the company with "Cleaner Production Certification\*1" in accordance with China's Cleaner Production Promotion Law at the end of 2011.

Since then, the company has implemented measures to reduce energy usage as follows:

- The appropriate operation management of dust collectors
- Reducing water supply operation times, the strategic use of lighting, and reducing the amount of time lights are used
- An automatic control system for dust collectors was introduced and digital electricity meters were installed in switchboards to further minimize energy consumption, thereby reducing downtime for machinery at night
- Sequential shift of electric light to LEDs.



Notice board of environmental activities such as those for saving energy



Environmental education for employees

## ► Environmental Initiatives at Resort Facilities

Yamaha Resort Inc. is working to reduce CO<sub>2</sub> emissions as follows:

### **Introduced a means of concentrating on work (Katsuragi Kitanomaru)**

Established fixed dates of closure. Power consumption reduced approximately 10%.

### **Reduced power consumption of golf course operations (Katsuragi Golf Club)**

Green fan (greens maintenance) and air-conditioning in the facilities were adjusted, resulting in an approximately 25 MWh drop in power consumption per year

### **Introduced electric golf carts (Katsuragi Golf Club)**

Gasoline-powered golf carts have been replaced with electric models.. Eliminated more than 8 tons of CO<sub>2</sub>emissions a year.

### **Changed lighting to LEDs.**

Implemented in prioritized areas where business necessitates keeping lighting on, resulting in a yearly reduction of around 25 MWh

## ► Initiatives at Offices

### **Key Measures to Conserve Electricity**

Efforts included reducing the amount of lighting (after examination of luminance), introducing LED lighting, turning off advertising lights, suspending elevators and notifying employees of power consumption to raise awareness.

### **The Move to LED Lighting**

The Yamaha Corporation headquarters saved about 38MWh of power per year by replacing approximately 830 florescent lights and mercury lamps with LED lighting in offices between fiscal 2014 and 2018. In fiscal 2015, the Yamaha Toyooka Factory saved approximately 44MWh by changing outside lighting to LEDs. Moreover, in fiscal 2017, 1,100 units of indoor fluorescents lights were changed out to LED lights, resulting in a power savings of approximately 15MWh per year. Further efforts will be taken to systematically install more LED lighting in factories and business sites in the future.

In fiscal 2018, the initiative to save electricity every day at the headquarters office was recognized as the Company received the “2017 Excellence in Energy Management Company” award by the Chubu Electricity Use Rationalization Committee in February 2018.

### **Implemented “Cool Biz” and “Warm Biz” initiatives**

Summer (May to October): Encourage light attire such as no necktie and set air conditioning temperature to over 28°C

Winter (November to March): Wear warmer clothes so as not to rely too heavily on heating equipment and set temperature of heaters to under 20°C



In-house educational posters promoting the Cool Biz and Warm Biz programs

### **Participated in the Ministry of the Environment’s Lights Down Campaign**

The Yamaha Group’s offices and facilities have participated on an individual basis in the Lights Down Campaign, where businesses turn off illuminated outdoor advertising. The campaign raises awareness of saving electricity and realizing use of daily lighting.

Performance in fiscal 2017: 20 facilities conducted and cut back electric power consumption by approximately 2,600kWh while reducing CO<sub>2</sub>emissions by approximately 1.0 ton.

Performance in fiscal 2018: 20 facilities conducted and cut back electric power consumption by approximately 1,100kWh while reducing CO<sub>2</sub>emissions by approximately 0.5 tons.

### Green Eco Curtain Activities

These activities conserve energy and boost awareness in employees by planting “curtains” of morning glories, bitter melon and other vine-type plants along the windows and walls of the buildings.



Green Eco Curtain at Yamaha Corporation's headquarters office



Green Eco Curtain at Yamaha Labor Union office

### ► Initiatives in Logistics

#### Saving Energy and Reducing CO<sub>2</sub> Emissions in Logistics

The Yamaha Group is working to increase energy efficiency and reduce CO<sub>2</sub> emissions in logistics operations. Guided by a basic policy of raising transport efficiency, we continually review transport routes, adopt routes that incorporate more efficient modes of transport, raise container loading ratios, streamline loading sites and warehouse facilities, and conduct joint transport with other companies. Efforts are also being made to reduce CO<sub>2</sub> emissions by disposing of waste locally and switching from air to sea for international shipping.

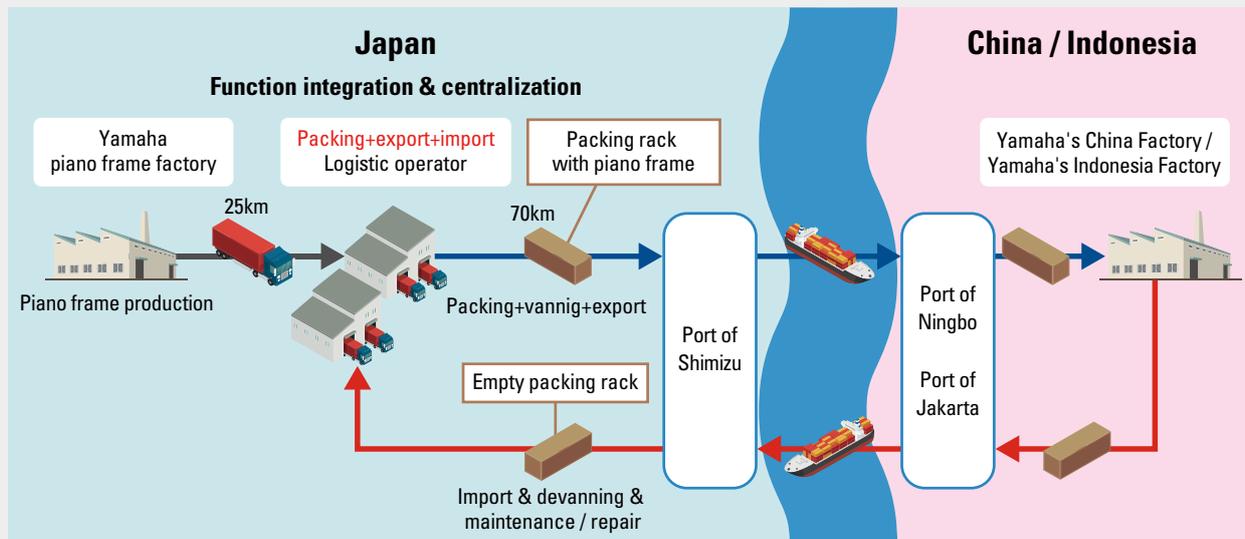
The Yamaha Group's total domestic transport volume and CO<sub>2</sub> emissions in fiscal 2018 remained about the same compared to the previous fiscal year, reaching 1,859 million ton-kilometers, while CO<sub>2</sub> emissions also resulted similar to last year's figures reaching 2,820 tons. Reducing CO<sub>2</sub> emissions from logistics requires the cooperation of transport companies, so we are working with them to develop appropriate systems by requesting transportation companies we work with to cooperate in environmental efforts and incorporating environmental matters into questionnaires.

» [Environmental Data](#)

#### Reduced Resources and CO<sub>2</sub> Emissions in Piano Frame

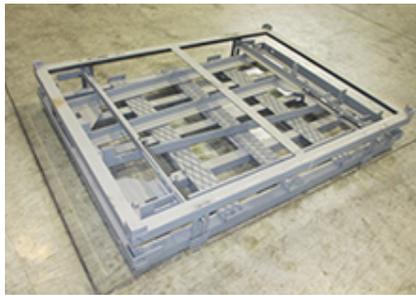
Previously, Yamaha used disposable iron packing racks when transporting piano frames from Japan to overseas factories. We are gradually introducing returnable packing racks for piano frames that can be used multiple times in order to encourage conservation of resources. In addition, by shortening the transportation route and improving load efficiency, the Company achieved a 100-ton reduction in CO<sub>2</sub> emissions associated with the disposal of iron packing and a 1,600-ton reduction in iron resource consumption for the year. Going forward, we will examine the possibility of shortening transport distance and reducing disposable packing materials, including for parts aside from piano frames.

Flow chart of logistics of returnables





Returnable rack for grand piano frames



Folded packing rack (when being returned)

### Conserving Resources and Reducing CO<sub>2</sub> Emissions by Standardizing Packing Materials for Shipping Components and Materials

The Yamaha Group designs and standardizes packing boxes according to container size used in transportation, thereby improves the loading ratio of the container. This has let us reduce the number of containers used and eliminate 3 tons of associated CO<sub>2</sub> emissions a year. The Group has also cut down on paper resource usage by designing packaging that uses as little cushioning and other packaging material as possible.

Our assumption is that the supply of materials and components from overseas locations to Japan will increase. Therefore, we first designed the standard packing boxes for piano components that can be used between China and Japan, and we are conducting validation for its practical use.



Loading container with packing boxes prior to standardization (left), Loading container using standardized packing boxes (right)

## Protection of Biodiversity

### Responsibility as a Company Using Timber

The Yamaha Group conducts business activities supported by natural resources and an ecosystem that produces these resources, such as using timber as a raw material to make a variety of products including acoustic musical instruments. The Group promotes applicable business activities, appropriate timber use and environmental preservation activities based on its commitments for the preservation of forests and biodiversity, as stated in our sustainability and environmental policies.

» [Yamaha Group Sustainability Policy](#)

» [Yamaha Group Environmental Policy](#)

» [Use of Sustainable Resources](#)

## Initiatives for Environmental Preservation/Protection of Biodiversity

### ► Measures for Chemical Substances

In an effort to inhibit the impact of chemical substances on the environment and ecosystem, Yamaha is working to strengthen management and reduce usage, and implementing measures to prevent leakage.

» Prevention of pollution

### ► Water Quality Preservation

We build treatment facilities, and monitor and audit them so that the wastewater from processes will not contaminate public water systems, land and groundwater.

» Prevention of pollution

### Evaluation of the Impact of Factory Wastewater on the Ecosystem (Toyooka Factory)

In 2016, Yamaha Corporation's Toyooka Factory conducted an evaluation to assess the impact of factory wastewater on the ecosystem. At the Toyooka Factory, Yamaha Music Manufacturing Japan Corporation produces wind instruments, and detoxifies wastewater generated in production processes before releasing it into waterways. In this investigation, we evaluated the effectiveness by using the WET Method\*, and confirmed that the impact on the ecosystem is minimal.

\* WET method: Whole Effluent Toxicity. This is the wastewater management method to evaluate whether the wastewater from factories/businesses is harmful to ecosystems by measuring the impact on the existence, growth and reproduction of aquatic organisms, such as algae, water fleas, and fish in diluted wastage.

### ► Preservation of Forests/Natural Environments

#### Yamaha Forest Activities in Indonesia

Yamaha Corporation and six local Indonesian subsidiaries\*<sup>3</sup> carried out Yamaha Forest activities in the form of planting in Indonesia from fiscal 2006 to 2017, thus contributing to the regional society. Indonesia is a treasure trove of diverse world species. In recent years, however, the forests that produce the bounty of biodiversity have been in rapid decline.

Phase 1 activities of the Yamaha Forest project begun in fiscal 2006 involved planting approximately 110,000 saplings over approximately 127 hectares of public land in Sukabumi, West Java in efforts to restore the functionality of the forest together with Yamaha Motor Group. This area is designated by the provincial government as "HUNTAN KOTA" (city forest preserve), and is managed appropriately. In Phase 2, which commenced in fiscal 2011, the project involved planting approximately 50,000 saplings over approximately 50 hectares of arid land in Ciremai National Park in Kuningan, West Java to regenerate the forest and recover the ecological system.

Yamaha worked with the Japan International Cooperation Agency (JICA), the Ministry of Forestry of the Republic of Indonesia, and the Forestry Department of the University of Kuningan. These initiatives involved planting tree types selected based on academic studies in order to restore natural forests and rehabilitate ecosystems in accordance with regional characteristics. A tree planting event was held annually and various local parties participated. The event consisted of commemorative tree planting and educating the children involved about the environment.

Yamaha transferred control of this area to Ciremai National Park in fiscal 2017 and it will be preserved for future generations through the management of the local government and people involved.

In fiscal 2018, the Company both confirmed the status of forest growth using satellite imagery, and estimated the CO<sub>2</sub> emissions absorbed by the forests in both Yamaha Forest areas for both Phases 1 and 2. The Company estimated that approximately 42,000 tons of CO<sub>2</sub> have been absorbed until now.

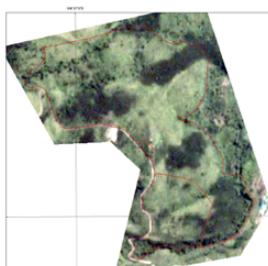
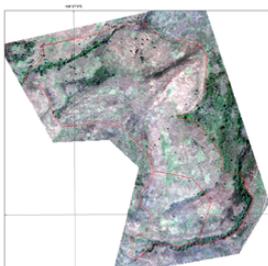


## Achievements of Indonesia Yamaha Forest Activities

	Phase I (FY2006 — FY2010)	Phase II (FY2011 — FY2015)
<b>Sponsor</b>	Yamaha Corporation and six local Indonesian subsidiaries Yamaha Motor Co, Ltd. and two local Indonesian subsidiaries	Yamaha Corporation and six local Indonesian subsidiaries
<b>Cooperation</b>	OISCA	Japan International Cooperation Agency (JICA), Local National Park Management Office, National Kuningan University Forest Department
<b>Location</b>	Sukabumi Regency, West Java, Indonesia	Chiremei Mountain National Park, Kuningan Regency, West Java, Indonesia
<b>Period</b>	From December 2005 to March 2010	From December 2010 to March 2015 (planting activities) April 2015 to March 2017 (Maintenance)
<b>Main cause of forest loss</b>	Destructive timber practices	Forest fire
<b>Purpose</b>	Recovery of biodiversity, recharge water source, prevention of soil erosion, CO <sub>2</sub> absorption and fixation	Recovery of biodiversity, recharge water source, prevention of soil erosion, CO <sub>2</sub> absorption and fixation
<b>Area</b>	126.7ha	50ha
<b>Number of trees</b>	115,110	52,870
<b>Type of tree</b>	Mahogany, teak, Paraserianthes falcataria, eucalyptus, Melina, Meranti etc. Total of 21.	Based on domestic vegetation research (Bayur, Peutag, Salam, AcaciaMimosa, Teurap, etc.) Total of 46.
<b>Content of Activities</b>	<ul style="list-style-type: none"> <li>Planting and management</li> <li>Planting ceremony (total 9,180 participants)</li> <li>Environmental education activities (farmers' group or planting activity at schools, etc.), Education support (support of desk, chair, etc.), Regional support (construction of community water area)</li> </ul>	<ul style="list-style-type: none"> <li>Planting and management (participated in JICA's Rehabilitating Degraded Lands Project for protection of biodiversity)</li> <li>Planting ceremony (total 1,300 participants)</li> <li>Environmental education for elementary school students</li> </ul>
<b>CO<sub>2</sub> Absorption Volume Fiscal (FY2018 estimate)</b>	30,929 tons (12 years)	11,542 tons (7 years) People related to Yamaha totaled 120



Left: Start of planting (2011) , right: Steady growth (2017)



Planting area satellite imagery (right: 2009, left: 2017/survey: Kokusai Kogyo Co., Ltd.)

## ► Enshunada Coastal Forest Recovery Support

As one part of our environmental preservation activities, Yamaha Corporation signed on as a “Shizuoka Forests of the Future Supporter” with Shizuoka Prefecture and Hamamatsu City in March 2007.

Based on this agreement, Yamaha works to support reforestation of the Enshunada Coastal Forest in Hamamatsu City. This activity is to continuously plant young trees in the coastal forest that was seriously damaged by pine weevils. Trees planted have been growing steadily.

In October 2017, the 10th planting event was planned jointly, with Yamaha Motor Co., Ltd. participants, including employees of Yamaha and Yamaha Motor and their families, members of the community, and related parties intended to join the event. However, it was cancelled due to an approaching typhoon. After the weather cleared, the in-house personnel in charge of the environment, the Hamamatsu City Park management staff, and parties related to garden maintenance planted trees.

### Planting achievement

Timing	Number of trees
1st year 2008	115
2nd year 2009	180
3rd year 2010	150
4th year 2011	155
5th year 2012	160
6th year 2013	200
7th year 2014	300
8th year 2015	480
9th year 2016	245
10th year 2017	330
Total	2,315



After planting



Staff who planted trees

These activities were given the certification label (smile label) by the “Shizuoka Future Forests Supporter” office in the Forest Resources Division of the Environmental Protection Bureau of Shizuoka Prefecture’s Community and Environmental Affairs Department. This certifies that these activities serve as a physical contribution (smile 1), a financial contribution (smile 2), and a partnership with the region (smile 3).



Smile 1: Physical contribution



Smile 2: Financial contribution



Smile 3: Partnership with the region

### ► Preservation Activities for Protecting Scarce Species

In September 2017, the “Baby Sea Turtle Observation and Sustainable Beach Strategy” event planned by Yamaha Motor Co, Ltd. was held at Enshunada Beach in Hamamatsu City, Shizuoka Prefecture. A total of 82 employees from the Yamaha Group participated. Since 1991, Yamaha Motor Co, Ltd. has continued these preservation activities to save the baby Carettinae turtles, which were categorized as an endangered species.

On the day of the event, members learned about the habitat and costal environment of the Carettinae, released baby Carettinae to the sea, and removed waste from the beach. Vegetation not natural to the area was also removed from the beach to protect the chaetodera laetescripta, scarce organisms that live on the sandy beach.



Releasing baby Carettinae to the sea



Removal of alien vegetation

# Application of Environmental Technologies

## Products supporting the reduction of environmental load

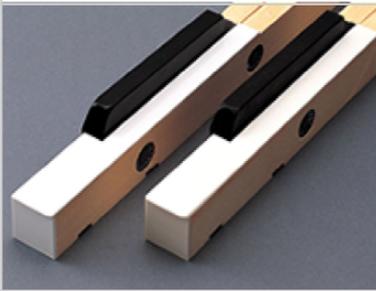
Products/Services	Environmental feature/effect	Appearance	Related pages
<b>Micro prober</b> (a conduction and insulation inspection device produced by Yamaha Fine Technologies Co., Ltd.)	Reduce waste and saves resources by improving yield rate of test objective products		<a href="#">» Micro prober</a>
<b>Helium Leak Tester</b> (Yamaha Fine Technologies Co., Ltd. product)	Comply with automobile environmental regulations. Reduces environmental load while driving.		<a href="#">» Helium Leak Tester</a>
<b>Hydrogen leak detector</b> (Yamaha Fine Technologies Co., Ltd. product)	Promote hydrogen as next generation energy		<a href="#">» Table-top sniffer hydrogen detector</a>

## Products Considering Timber Resources

### Protection of Natural Forests

Products/Services	Outline	Appearance	Related pages
Electric guitar "RGX-A2"	Use afforested timber in place of natural timber		<a href="#">» RGXA2 (Japanese Only)</a>

## Substituting Parts for Scarce Timber

Products/Services	Outline	Appearance	Related pages
Glass- strengthened plastic resin "Acoustalon™"	Substitute Marimba sound board parts made from scarce timber using alternative material		—
Ebony-style natural wood	Substitute piano black key parts made from scarce ebony using alternative material		—
Carbon bow	Substitute for Brazilwood and other rare woods used		—

## Chemical Substance Use Control (timber reform using A.R.E.)

Products/Services	Outline	Appearance	Related pages
YVN500S acoustic violin, L Series acoustic guitar, etc.,	Using A.R.E. *treatment on body materials to improve sound features without using chemical substances		<a href="#">» YVN500S</a>
Yamaha Hall in the Yamaha Ginza Building	Using A.R.E.*treatment on stage floor to improve the sound characteristics without using chemical substances		<a href="#">» Yamaha Hall (Japanese Only)</a>

\* A.R.E.: Acoustic Resonance Enhancement

Yamaha's proprietary technology for aging wood in a short time to improve its acoustic characteristics. Through precise control of temperature, humidity, and atmospheric pressure, the acoustic properties of the wood can be manipulated into a more ideal condition, similar to the acoustic characteristics of wood materials in instruments that have been played for years. Existing timber reform technologies are achieved utilizing chemical agent-based reforming method; however, A.R.E. does not use chemical agents in the processing stage at all. Therefore, this technology has a lower environmental impact.

[» Yamaha Eco-Products Program](#)