Environmental Initiatives

0.33%
Final landfill disposal rate

39.9% reduction
Greenhouse gas emissions
(baseline year: fiscal 2021)

9,602 people
Total number of participants in environmental conservation activities in fiscal 2024

Environmental Initiatives: Environmental Vision

SHARP Eco Vision 2050 Long-Term Environmental Vision

The international community has recognized the urgent need to address increasingly serious environmental problems, such as climate change, resource depletion, and ocean plastic pollution. This awareness is accelerating global action to solve these social problems, including efforts associated with the achievement of the Sustainable Development Goals (SDGs)and carbon neutrality*1, and the creation of a circular economy*2.
In 2019 Sharp formulated SHARP Eco Vision 2050, a long-term environmental vision based on its Basic Environmental Policy of “Creating an Environmentally Conscious Company with Sincerity and Creativity,” which was established in 1992. Sharp is working toward realizing a sustainable global environment by pursuing long-term goals set in three fields of action with 2050 as the target year: climate change, resource recycling, and safety and security.
In the field of climate change, while keeping in mind the 1.5℃ target*3 stipulated in the Paris Agreement, Sharp aims to become carbon neutral in its business activities. It also seeks to broaden and disseminate clean energy-related products and services and to reduce greenhouse gas emissions from its products and services.
In the resource recycling field, Sharp pursues a circular economy by endeavoring to use recycled materials in all product parts and to achieve zero final landfill disposal from its business activities.
In the safety and security field, Sharp strictly manages chemical substances that may affect people’s health, the natural environment, and ecosystems and restricts their use to eliminate the risk of negative effects.

To address climate change, one of the targets of the long-term environmental vision and a pressing global issue, Sharp is accelerating efforts to achieve net zero CO_2 emissions from its business activities (Scopes 1 and 2) by 2030, and from its entire supply chain (Scopes 1, 2, and 3) by 2050.
Sharp is aiming to solve social problems and continuously boost corporate value by deepening ties with stakeholders through business activities and environmental conservation efforts.

*1 Subtracting the amount of absorption from the amount of greenhouse gas emissions, so that the total is effectively zero.
*2 An economic system aimed at eliminating wastes and circulating resources. Waste products and raw materials are considered new resources and are thus recycled.
*3 The Paris Agreement sets forth the long-term targets of keeping the rise in global average temperature well below 2℃ above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5℃.

Environmental Initiatives: Environmental Vision

Long-Term Environmental Goals

To bring about SHARP Eco Vision 2050, we have stipulated long-term goals in three fields of action. In pursuing these goals, we will strive to create more clean energy than the total amount of energy consumed in Sharp's entire supply chain, while minimizing the environmental impact of our business activities.

Climate Change

Sharp has up to now striven to use less energy in its business activities and to make products that are increasingly more energy efficient so as to reduce the amount of energy consumed by households and society as a whole.
We began developing solar cells after founder Tokuji Hayakawa said, "All the products we make use electricity. As our company grows, we will need more electricity, so why don't we make electricity ourselves?" Since then, we have spent more than half a century working to spread solar power generation.

It is precisely because Sharp makes products that use electricity that we have a responsibility to reduce the environmental impacts resulting from this electricity use.

By promoting the world goal of carbon neutrality, Sharp is taking on the challenge of achieving the following two goals by 2050 and thus becoming carbon-free throughout its supply chain, including its own business activities.

Goal

- Achieve net zero CO_2 emissions across the entire supply chain.
- Create more clean energy than the total amount of energy consumed in Sharp's entire supply chain.

Resource Recycling

Sharp has up to now provided the world with all kinds of value through the creation of new products. At the same time, we have used many resources to do so.

Sharp should continue to provide its stakeholders with all kinds of value by making the most efficient use of finite resources around the globe.

By making more efficient use of resources and continuing to offer maximum value with minimal resources, Sharp is taking on the challenge of achieving the following two goals by 2050 and thus building a circular economy and realizing a recycling-oriented society.

Goal

- Use no newly extracted resources* for making products.
- Achieve zero final disposal to landfill of waste generated in Sharp business activities.

* Excludes those not suitable for recycling from an environmental standpoint.

Safety and Security

Sharp uses various chemicals in production processes in its factories, and the products themselves contain various chemicals. Such chemicals must be strictly managed because some of them can have negative effects on people's health, the natural environment, or ecosystems.

Sharp's business activities must not have a negative effect on people's health, the natural environment, or ecosystems.

As well as complying with current international standards, Sharp has established its own even stricter in-house standards. Under these far-sighted standards, we thoroughly manage relevant chemicals with the goal of eliminating any negative effects that chemicals may have on people's health, the natural environment, or ecosystems.

Goal

- Properly manage chemicals in order to protect people's health, the natural environment, and ecosystems.

Environmental Initiatives: Environmental Management

Putting Sustainable Management into Practice

Basic Approach to Sustainable Management

In accordance with internal environmental conservation guidelines established in line with Sharp's Basic Environmental Philosophy, the Sharp Group Charter of Corporate Behavior, and the Sharp Code of Conduct, Sharp is pursuing environmental consciousness across all of its business activities. Toward realizing a sustainable global environment, Sharp has formulated SHARP Eco Vision 2050, a long-term environmental vision with 2050 as the target year. Under this vision, Sharp is striving to solve social problems and continuously raise corporate value through the development of technologies and the provision of products and services.

System for Promoting Sustainable Management

Sharp has set up the ESG Promotion Group to formulate and carry out the company's environmental vision, policies, and targets, and to strengthen environmental governance. The ESG Promotion Group formulates important environmental policies, strategies, and measures at the corporate level regarding sustainable management based on Sharp's management policies and environmental vision.
The Sustainability Committee* includes the president & CEO, senior executives, and the heads of Sharp business units and subsidiaries. Through this committee, the ESG Promotion Group confirms progress toward environmental goals and supports environmental activities, and forms subcommittees to accelerate efforts on key tasks.
We carry out company-wide initiatives to deal with issues in the areas of product environmental laws and regulations and chemical substance controls. Periodic meetings are held to exchange and accelerate the dissemination of information relevant to these areas. We have also established a working group on product environmental laws and regulations in order to come up with concrete measures and policies for their implementation.

Basic Environmental Philosophy

Creating an Environmentally Conscious Company with Sincerity and Creativity

The Sharp Group Charter of Corporate Behavior (excerpt)

Contribution to Conservation of the Global Environment

The Sharp Group will make efforts to further contribute to global environmental conservation by strengthening our development of proprietary technologies for protecting the global environment and by carrying out business activities in an environmentally conscious manner.

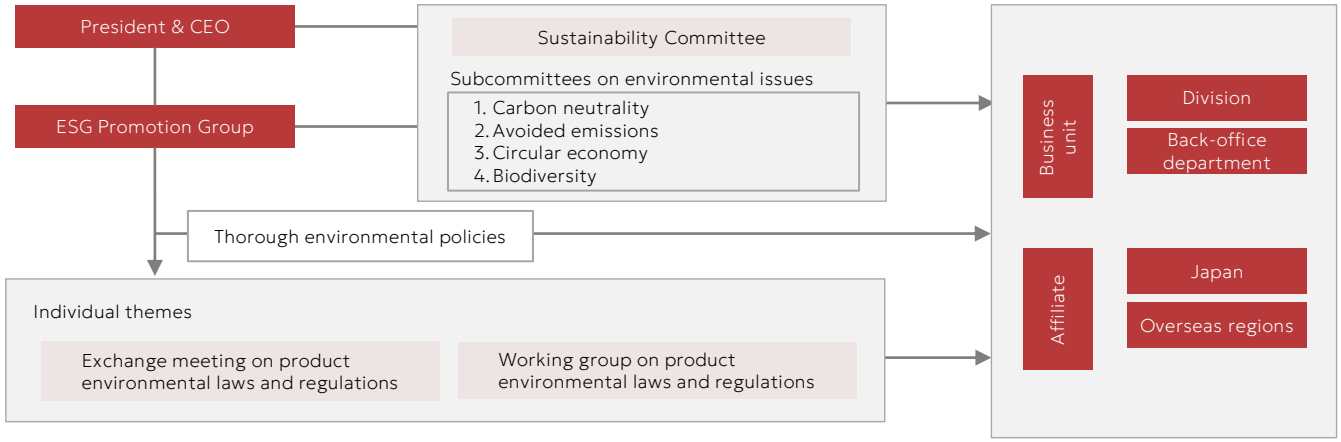
The Sharp Code of Conduct (excerpt)

Contribution to Conservation of the Global Environment

1. To Conserve the Environment
2. To Develop Environmentally Conscious Products and Services, and Conduct Our Business Operations in an Environmentally Conscious Manner

Related information: >
Sharp Group Charter of Corporate Behavior (Contribution to Conservation of the Global Environment)
Sharp Code of Conduct (IV. Contribution to Conservation of the Global Environment)

■ System for Promoting Sustainable Management in the Environmental Area



* See page 011.

Environmental Initiatives: Environmental Management

Putting Sustainable Management into Practice

Environmental Education

In accordance with the basic strategy of its management policy—foster and strengthen human resources—Sharp strives to step up the cultivation of human resources as the foundation of its sustainable management. To this end, the company has been providing training programs, including basic training open to all employees. Since fiscal 2019, Sharp has held environmental awareness training to help all employees acquire a wide range of environmental knowledge, and an introductory training course on environmental laws and regulations, which is mandatory for third-year employees.
Fiscal 2024 saw 13,370 participants join ESG-related e-learning for Sharp employees in Japan.
With the aim of fostering human resources who will contribute to the company in stepping up compliance and achieving its environmental vision, Sharp will continue to improve and expand its environmental education curricula by adjusting them to different duties and roles.

Environmental Performance Data Collection and Management

To support sustainable management, Sharp has introduced a cloud-based system for efficiently collecting and managing data on Sharp's environmental performance, including energy consumption, waste generation, water usage, and chemical substances handled in Sharp's business activities. This system is in operation at Sharp bases in Japan and overseas. Collecting and analyzing such data helps Sharp grasp the current state of its sustainable management, identify problems, and formulate measures. Sharp is also engaging with suppliers to gather primary data.

Promoting an Environmental Management System

Since 1995, Sharp has been operating an ISO 14001-based environmental management system and has acquired ISO 14001 certification for all 26 worldwide production bases. The purpose of this system is to strengthen environmental sustainability management and improve the environmental awareness of employees. ISO 14001 was revised in fiscal 2015. It now requires companies to further their efforts with a more strategic perspective—for example, by integrating their environmental activities with business activities. In response to the revision, Sharp is operating a more effective environmental management system that matches the particular needs of each base.

Related information: > ISO 14001-Certified Plants and Offices

Product and Plant Audits

Sharp regularly carries out a Green Product/Green Device Audit aimed mainly at ensuring compliance in product development. The company checks compliance with the environmental laws and regulations of each country and the reflection of environmentally friendly design in products, such as energy efficiency, resource savings, and recyclability.
Sharp also reviews and evaluates environmental activities at its production bases as part of the CSR self-assessment survey.*

* See page 017.

Legal Violations, Accidents

In fiscal 2024, Sharp was not subject to any lawsuits or fines related to environmentally related legal violations. There were also no major environmentally related accidents.

Environmental Initiatives: Environmental Management

Developing Environmentally Conscious Products and Devices

Developing Green Products and Devices

Sharp calls its environmentally conscious products "Green Products (GP)." The GP Guidelines, which define development and design criteria in line with seven concepts, have been in use at all product design departments since fiscal 1998. In developing products, Sharp sets specific objectives according to the GP Standard Sheet, which is formulated based on the GP Guidelines. In the trial manufacture and mass production stages, it determines how well the actual product has met these objectives. The content of the GP Standard Sheet—the benchmark for development objectives—is revised each year in order to constantly improve the environmental performance of Sharp products.

Sharp calls its environmentally conscious devices "Green Devices (GD)." To define guidelines for development and design based on seven concepts, Sharp established the GD Guidelines, which it began applying at all device design departments in fiscal 2004. Sharp sets objectives according to the GD Standard Sheet and assesses how objectives have been met in a similar way to GP standards. The assessment criteria are revised every year so that Sharp can continuously raise the environmental performance of its devices.

■ Green Product Concepts

Energy Saving / Energy Creating	Products with superb energy-saving/energy-creating performance Improve the energy efficiency and reduce the energy consumption of products; other measures
Resource Conservation	Products designed to conserve resources Reduce the amount of materials used; design products that conserve resources during use; extend the life span of products; other measures
Recyclability	Products designed for recycling Design products that are easy to disassemble; use easy-to-recycle materials; other measures
Safe Use and Disposal	Products that can be used and disposed of safely Do not use substances that negatively affect people's health or the environment; other measures
Use of Green Materials and Devices	Products that use green materials and devices Use recycled materials / plant-based plastics; other measures
Environmental Consciousness Pertaining to Batteries, etc.	Products that use batteries, manuals, and packaging with enhanced environmental consciousness Reduce product packaging; design products that allow easy removal of batteries; other measures
Showing Eco Information of Products	Products that show their environmental performance and information Acquire environmental labels (eco labels); implement LCA; other measures

■ Green Device Concepts

Energy Efficiency / Energy Creating	Devices with superior energy efficiency and that consume less energy Reduce power consumption during operation and in standby mode; other measures
Resource Conservation	Devices designed to conserve resources Reduce device weight or volume; other measures
Recyclability	Devices designed for recycling Use standard plastic; design devices that are easy to disassemble; other measures
Safe Use and Disposal	Devices that can be used and disposed of safely Manage usage of chemical substances contained in parts and materials; other measures
Long Life	Devices that make products last longer Extend the life of the product with exchangeable parts and consumables (target: LCD devices); other measures
Packaging	Devices that use packaging with enhanced environmental consciousness Reduce packaging; other measures
Information Disclosure	Devices that give environmental information Provide information on chemical substances in devices; other measures

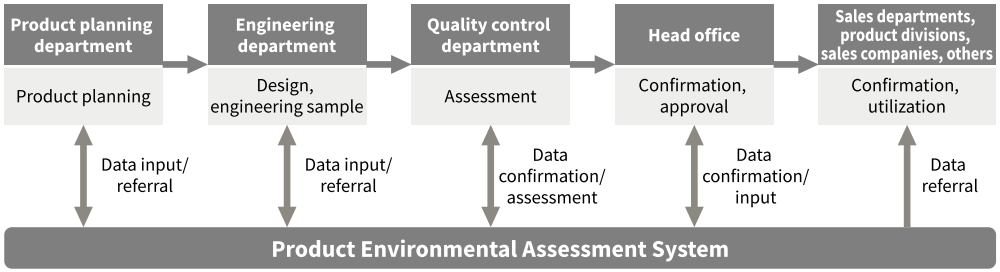
Environmental Initiatives: Environmental Management

Developing Environmentally Conscious Products and Devices

Development Process for Green Products and Devices

When developing and bringing to market Green Products and Green Devices, the product environmental assessment system, which contains the GP/GD Standard Sheet in digital form, is used to confirm environmental performance. The GP/GD Standard Sheet stipulates concrete targets covering seven environmental concepts, as well as rules on how to abide by various countries' environmental laws, which are growing year by year. The departments in charge of development and commercialization use the product environmental assessment system to input data on the products and devices, and to confirm how these are progressing in meeting the environmentally friendly criteria. Since fiscal 2004, Sharp has been using this system to certify products with particularly high levels of environmental performance as Super Green Products.

■ Product Environmental Assessment System Flow



Certifying Super Green Products

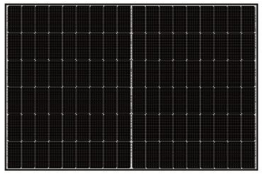
The criteria for certifying Super Green Products are periodically revised in response to changing environmental laws and market demands for greater environmental friendliness. In fiscal 2016, Sharp revised the certification criteria in the following way. Products are certified if (1) they offer class-leading energy-saving or energy-creating performance, or (2) they offer significantly high environmental performance through the use of unique Sharp technology. Sharp also aggressively develops products that make the maximal use of minimal resources. In fiscal 2024, the company added another SGP certification criterion, stating that products would be certified if they (and their packaging) include a percentage of recycled or recyclable materials above a certain Sharp in-house target number.
In fiscal 2024, sales of those products reached 98.4 billion yen, with SGP sales accounting for 22% of all GP sales in Japan.

■ Examples of Super Green Products

Front-loading Plasmacluster washing machine/dryer ES-X12C

Smartphone AQUOS wish4

Digital full-color MFP BP-C131WD



Solar module NU-435PP

EV converter JH-WE2301

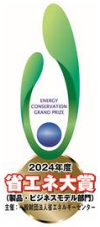
Environmental Initiatives: Environmental Management

Environmentally Conscious Products

Example

“ePoster” Color Electronic Paper Display Wins the Director-General’s Award of the Agency for Natural Resources and Energy in the 2024 Energy Conservation Grand Prize with 2 Models

In the product and business model category of 2024 Energy Conservation Grand Prize, organized by the Energy Conservation Center, Japan, Sharp’s color electronic paper display “ePoster” 2 models <EP-C251/EP-C131> received the “Director-General’s Award of the Agency for Natural Resources and Energy.” Energy Conservation Grand Prize is a program that recognizes outstanding energy conservation efforts and advanced, high-efficiency energy-saving products in the industrial, commercial, and transportation sectors in Japan.
“ePoster” achieves display retention with zero power consumption. Power is only required when rewriting the display, demonstrating excellent energy-saving performance. It incorporates the electronic paper technology of E Ink Holdings Inc. (Headquarters: Hsinchu City, Taiwan, CEO: Johnson Lee), the world’s largest electronic paper company, combining high visibility like paper and rich color expression. Additionally, it features a thin and lightweight design, making it usable in locations where digital signage installation was previously difficult due to power supply and load-bearing issues. Furthermore, it supports simultaneous rewriting of multiple displays remotely. This product was highly evaluated not only for its energy-saving performance but also for its contribution to resource and labor savings in operation. These factors led to this award.



Color electronic paper display “ePoster” (Left: 25.3-inch EP-C251, right: 13.3-inch EP-C131)

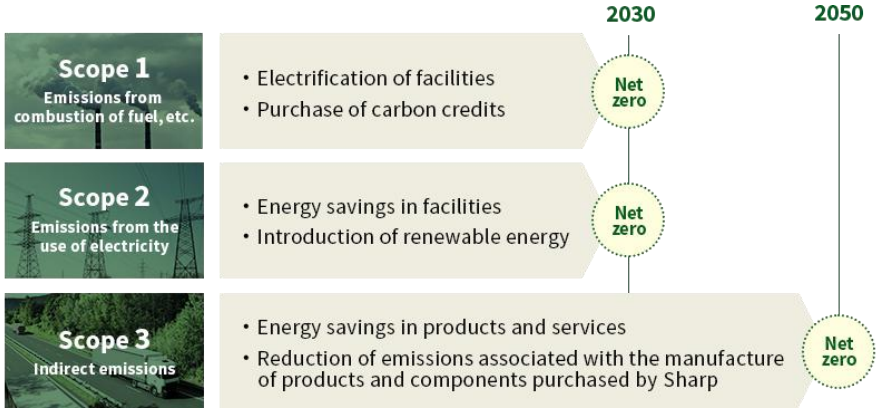
Environmental Initiatives: Climate Change

Sharp's Stance on Climate Change

Achieving a Net-Zero Economy

As climate change risks become more apparent and severe worldwide, society is demanding that companies take further action toward transitioning to a net-zero society. In response, Sharp is aiming to achieve net zero CO_2 emissions from its own business activities (Scopes 1 and 2) by 2030, and net zero indirect CO_2 emissions outside the scope of its activities (Scope 3) by 2050. For Scope 1, Sharp will electrify its facilities and purchase carbon credits. For Scope 2, it will save energy in facilities and introduce renewable energy. For Scope 3, Sharp will make its products and services more energy efficient as well as strengthen cooperation with suppliers to reduce CO_2 emissions associated with the manufacture of products and components purchased by Sharp.

■ Achieve Net Zero CO_2 Emissions across the Entire Supply Chain by 2050



Climate Change Initiatives Based on the Medium-Term Management Plan

In May 2025, Sharp announced its medium-term management plan through fiscal 2027 aimed at accelerating its future growth. In order to accelerate the global expansion of its brand business, as well as the transformation of its business, Sharp has reorganized its brand business into two business groups. One is the Smart Life Business Group, which is centered on daily living, and the other is the Smart Workplace Business Group, which is centered on working. In each of these areas, Sharp will focus and transform its business and work to create new value.

In response to climate change, Sharp will introduce generative-AI compatible products in its brand business and launch unique AI services that utilize data, thereby expanding Sharp's AIoT business in terms of both products and services. It will continue to pursue value creation that is tailored to each individual, while optimizing energy usage to achieve further power and energy savings. In its display device business, Sharp will work to expand the supply of products, such as ultra-low-power-consumption, in-vehicle displays (for EVs) that use Sharp's distinctive IGZO technology and the ePoster electronic paper display that consumes 0W of power when displaying images. Furthermore, Sharp will work to realize innovation in new industrial fields, such as EVs, AI data center solutions, industrial digital transformation, robotics, and outer space.

Sharp will achieve steady business expansion while responding to climate change by strengthening collaboration both inside and outside the company more than ever before, refining its core technologies, accelerating the search for future technologies, and taking on the challenge of creating innovations in a variety of fields.

Life Eee Connect (solar home appliance connection)

ePoster electronic paper display

Environmental Initiatives: Climate Change

Sharp's Stance on Climate Change

Participation in Climate Change Initiatives and Other Efforts

Sharp participates in the Science Based Targets initiative (SBTi)*1, which is focused on pursuing action that will achieve real and reliable results in the fight against climate change, and in March 2024 obtained SBT 1.5℃*2 certification. Also, in order to further accelerate its plan to convert the electricity used in its business activities to 100% renewable energy, Sharp joined the RE100*3 global initiative in February 2025. It will contribute to decarbonization by actively introducing renewable energy at its business sites as well as further promoting the use of renewable energy throughout society through its energy solutions business.

In Japan, Sharp will continue to participate in the Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention*4 and the GX League*5 to promote initiatives by the electrical and electronics industry, along with collaborative efforts across industry, government, and academia and contribute to efforts aimed at achieving carbon neutrality for society as a whole.

*1 This climate change-related initiative is a collaborative effort of the United Nations Global Compact (UNGC), the CDP, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). The SBTi promotes the establishment of science-based GHG emissions reduction targets in conformance with the Paris Agreement.
*2 A target of limiting the increase in global average temperatures to 1.5℃ above pre-industrial levels.
*3 A global initiative that aims for companies to cover 100% of the electricity used in their operations with renewable energy.
*4 This group comprises companies from electrical and electronics industry associations in Japan, such as the Japan Electrical Manufacturers' Association (JEMA) and the Japan Electronics and Information Technology Industries Association (JEITA). The Liaison Group undertakes industry-wide efforts aimed at preventing global warming—for example, proposing action plans to achieve carbon neutrality.
*5 GX stands for 'green transformation'—an initiative to transform society into being carbon neutral by 2050. The GX League is a forum where companies pursuing sustainable growth collaborate with other companies, government, and academic organizations that share the same GX goals.

Reducing Greenhouse Gas Emissions across the Supply Chain

For greenhouse gas emissions across the entire Sharp value chain, emissions from its own activities (Scopes 1 and 2) account for 3.5%, and indirect emissions outside the scope of its activities, such as emissions associated with material procurement, transportation, and the use of sold products (Scope 3), account for 96.5%. Because of this, Sharp recognizes the importance of reducing greenhouse gas emissions across its entire supply chain, not only through its own efforts to reduce the environmental impact of its activities, like product manufacturing, but, also, through efforts to reduce the environmental impact of material procurement and product use by customers (improving product energy efficiency).

Greenhouse gas emissions from Sharp's activities are expected to decrease gradually as it makes progress with the asset-light initiative implemented in fiscal 2024. However, to ensure it achieves net zero emissions in 2030, Sharp will continue to pursue various reduction measures and the introduction of renewable energy. As part of its reduction efforts, Sharp is conserving energy at its production sites (such as by switching to LED lighting and improving the efficiency of outdoor air-processing units and air-conditioning systems). Sharp is also moving forward with the use of renewable energy, such as by introducing solar power systems at its production sites both in Japan and overseas. The utilization rate of renewable energy in its electricity consumption reached 25% by fiscal 2024*6.

In materials procurement, Sharp will further strengthen cooperation with its business partners to reduce greenhouse gas emissions. In the field of transportation, Sharp continues to pursue a modal shift (a switch from truck-based transportation to environmentally friendly methods like ships and railroads) while also working to optimize landing points and review its parts procurement sources.

Sharp is actively working to create environmentally friendly products and devices whose use will result in reduced greenhouse gas emissions, as these emissions account for the largest portion across the company's entire supply chain. Sharp designates its environmentally friendly products and devices as "Green Products" and "Green Devices." It has formulated and implemented guidelines that summarize the development and design rules of these products and devices in order to ensure it is continually working to improve their environmental friendliness.*7

Contributing to Society through the Widespread Adoption of Renewable Energy

"As a manufacturer of products that consume electricity, we have a responsibility to become a manufacturer of electricity itself." This has been the motivating resolve behind Sharp's work on solar power generation begun in 1959. Sharp's efforts over the last half century have expanded into a wide range of fields, from residential use to power generation under harsh conditions in lighthouses and satellites, to mega solar power plants around the world. Based on its medium-term management plan, Sharp will also work to develop and deepen its core technologies in the energy sector, such as solar cells for space-based applications and perovskite solar cells.

Sharp will continue to work to further promote the use of renewable energy in all sectors of society and to contribute to the realization of a net-zero economy.

*6 See page 045.
*7 See page 033.

Environmental Initiatives: Climate Change

Avoided Emissions

Calculating Avoided Emissions

In addition to reducing greenhouse gas (GHG) emissions throughout its supply chain, Sharp will contribute to reducing those emissions throughout society by switching to innovative products with improved energy efficiency. This initiative is calculated as "avoided emissions*1."

Avoided emissions are the amount of GHG emissions reduced in society as a result of the use of a company's energy-saving products and services. They are a new indicator for evaluating a company's ability to address problems as a solutions provider that offers solutions to the social issue of climate change. Sharp's avoided emissions in fiscal 2024 were 122,000 t-CO_2.

Avoided Emissions Calculation Method

With reference to various guidelines and case studies on avoided emissions*2, Sharp utilizes the following approach to calculating avoided emissions. This calculation method will be revised as appropriate if any new standards are established or guidelines are updated regarding the concept and calculation methodology of avoided emissions.

■ Avoided Emissions (Fiscal 2024)

Avoided emissions type	Products subject to calculation	Avoided emissions (thousand tons CO_2)
Replacement with energy-saving products	TVs, air conditioners, refrigerators, washing machines, microwave ovens, laundry dryers/dehumidifiers	122

■ Calculation target: Six major products of Sharp brand business
TVs, air conditioners, refrigerators, washing machines, microwave ovens, laundry dryers/dehumidifiers.

■ Calculation scope: CO_2 emissions associated with electricity consumption during product use
Because the "use" stage accounts for approximately 90% of the CO_2 emissions in the life cycle of Sharp products, Sharp has determined that other stages such as "procurement" and "manufacture" can be excluded.

■ Baseline: Comparison with the average product on the market in the calculation year*3
The CO_2 equivalent of the electricity consumed by an average product with equivalent functionality to Sharp's products in the market in the country or region where it is sold in the fiscal year of calculation.

■ Calculation period: Flow method
The lifetime is set taking into consideration the period during which repair parts for Sharp products are available and the results of investigations into the period during which the products are used.

■ Calculation formula: Calculated using the following formula
(Annual power consumption of average products on the market – Annual power consumption of Sharp products*4) 0 CO_2 emissions factor associated with electricity usage*5 0 Annual sales volume of Sharp products 0 Lifetime

*1 Avoided emissions have a different purpose and calculation method from the emissions from a company's own activities (Scopes 1 and 2) and indirect emissions outside the scope of a company's activities (Scope 3) and does not offset these.
*2 Guidance on Avoided Emissions (WBCSD, March 2023), Guidelines for Quantifying Avoided Greenhouse Gas Emissions (Ministry of Economy, Trade and Industry, March 2018), Avoided Emissions: Hypothetical Cases for Avoided Emissions Disclosure (GX League, May 2024).
*3 Based on regulations and survey results (including Sharp's own findings) in the country and region where the product is sold.
*4 Sharp uses regulations and survey results from the country and region in which each product is sold (including Sharp's own findings and calculations).
*5 Uses the total CO_2 emissions factor associated with electricity consumption in the country or region where the product is sold (IEA Emissions Factor 2024).

Environmental Initiatives: Climate Change

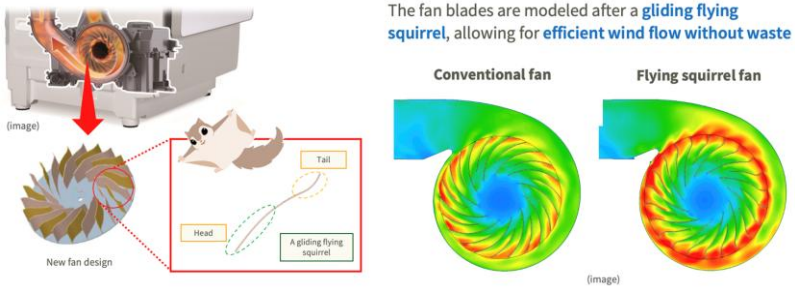
Avoided Emissions

Examples

Front-Loading Washer/Dryer Achieves Industry's Highest Level of Energy Efficiency

- Nature technology—flying squirrel fan

In addition to a hybrid drying technology that combines a heat pump and support heater, this product is also equipped with a new type of drying fan that uses Sharp's unique biomimetics. By increasing the amount of air sent into the tub and improving drying efficiency, Sharp has reduced the amount of power consumed for each wash and dry cycle, achieving the industry's highest level of energy efficiency.



Increased drying airflow of biomimetic flying squirrel fan

Inverter Air Conditioners for the Indonesian Market

- J-Tech-Inverter technology

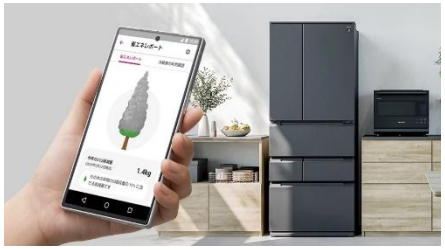
In the Indonesian market, Sharp is working to spread the use of inverter air conditioners. Demand for air conditioners in Indonesia is increasing year by year, and air conditioners are used for long periods throughout the year. Sharp believes that by popularizing inverter air conditioners, it can contribute to reducing CO_2 emissions throughout Indonesian society. Sharp's air conditioners are equipped with J-Tech-Inverter technology (compressor and motor control technology), which effectively controls power consumption compared to conventional fixed-speed air conditioners, achieving energy savings and highly energy-efficient operation.

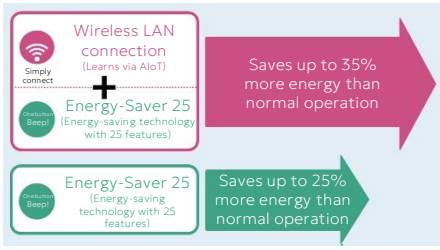
J-Tech-Inverter-equipped air conditioner

Energy-Saving Refrigerator Operation Using AI and Wireless LAN

- Energy-Saver 25 technology and Connect to Save More* cloud service function

Sharp refrigerators utilize Energy-Saver 25 technology (sensors, various controls, etc.) to achieve energy savings of up to 25% compared to normal operation. The refrigerator's Connect to Save More cloud service function connects to a wireless LAN and enables AI on the cloud to learn about how the refrigerator is used and then to operate in an energy-saving manner according to the user's lifestyle. By combining this with Energy-Saver 25, it is expected that energy savings of up to 35% can be achieved compared to normal operation.





Connect to Save More usage (image)

*Although Connect to Save More was not reflected in this calculation, it is expected that the utilization of this technology will reduce the amount of power consumed during product use, leading to further reductions in CO_2 emissions.

Future Avoided Emissions Initiatives

Currently, Sharp calculates avoided emissions for the six main products of its brand business. In the future, it will consider methods for calculating avoided emissions for other products, services, and solutions. Furthermore, by setting medium- to long-term targets, Sharp will accelerate its technological innovation and use its distinctive technologies to contribute to decarbonization not only in Japan but also in Asia and around the world.

Environmental Initiatives: Climate Change

TCFD-Based Information Disclosure

Action on the TCFD Recommendations

The Task Force on Climate-related Financial Disclosures (TCFD) was established by the Financial Stability Board (FSB), an organization promoting international financial stability. In 2017 the TCFD released recommendations for companies to disclose information on the risks and opportunities of climate change. Sharp has declared support for the TCFD recommendations and is expanding disclosure of climate-related information in accordance with the framework set by the TCFD.

1. Governance

Climate-related issues are monitored and countermeasures supervised by the president & CEO, who chairs the Sustainability Committee*1. The committee includes senior executives and members from head office departments, business units, and subsidiaries. The committee works to thoroughly implement policies and visions related to aspects of ESG such as climate change; it deliberates on and promotes active measures; and it shares the latest trends on societal issues.
Through monitoring and review by management at committee meetings, Sharp continuously strengthens climate change action to play a part in making society sustainable.

2. Strategy

Sharp sees climate change as both a risk and an opportunity in the medium to long term. We are studying strategies and learning about organizational resilience in the context of climate change-related risks and opportunities. To understand long-term impacts up to 2050, we analyzed climate change scenarios outlined by the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC) (1.5℃ scenario*2 and 4℃ scenario*3). The following page provides detailed information about those risks and opportunities, along with a summary of associated measures.

3. Risk Management

Sharp identifies and assesses climate-related risks in accordance with the Rules of Business Risk Management*4, in which the basic approach to risk management has been established. Specifically, Sharp identifies climate-related risks that are highly likely to occur based on its analysis of climate scenarios forecast for the future. Sharp reports its findings as necessary to senior executives and the Internal Control Planning Division, which serves as the risk management secretariat. It also facilitates necessary improvement measures in partnership with involved departments.

4. Metrics and Targets

In 2019 Sharp formulated SHARP Eco Vision 2050, a long-term environmental vision based on its basic environmental policy of “Creating an environmentally conscious company with sincerity and creativity,” which was established in 1992. Sharp is working toward realizing a sustainable global environment by pursuing long-term goals set in three fields of action with 2050 as the target year: climate change, resource recycling, and safety and security. With regard to the pressing global issue of climate change, Sharp is accelerating efforts to achieve net zero CO_2 emissions from its business activities (Scopes 1 and 2) by 2030, and from its entire supply chain (Scopes 1, 2, and 3) by 2050.

■ Progress towards Reducing GHG Emissions (Fiscal 2024 Results)

Base Year (fiscal 2021 results)	Fiscal 2024 Results	Base Year Comparison
1,365 thousand tons CO_2	820 thousand tons CO_2	39.9% reduction

*1 See page 011.
*2 IEA Net Zero Emissions by 2050 Scenario; SSP1-1.9 scenario from the IPCC 6th Assessment Report (AR6).
*3 RCP 8.5 scenario from the IPCC 5th Assessment Report (AR5).
*4 See page 138.

Environmental Initiatives: Climate Change

TCFD-Based Information Disclosure

■ Business Risks and Opportunities; Sharp's Response

Scenario	Factors	Changes	Impacts on Sharp	Risk or Opportunity	Degree of Impact	Time Until Impact Becomes Apparent*	Sharp's Response
1.5℃	Introduction of carbon pricing	Increased raw material procurement costs	Costs passed on to purchase prices due to carbon tax levied on Sharp-purchased products	Risk	Large	Short term	● Seek to use raw materials with low GHG emissions ● Find suppliers that strive to reduce environmental impact ● Optimize purchase volume (thorough inventory control)
		Increased direct operational costs	Increased payment costs due to carbon tax levied in line with Sharp's GHG emissions	Risk	Large	Short term	● Reduce GHG emissions through further energy savings ● Further investment into low-carbon facilities and equipment by introducing internal carbon pricing
	Pressure to decarbonize and pursue environmental friendliness in the supply chain	Decline in competitiveness due to failure to meet user needs for environmental friendliness	Decrease in sales due to failure to meet user expectations for environmental friendliness	Risk	Medium	Short term	● Understand market needs through ongoing communication with users ● Ongoing R&D in energy savings
		Increased costs associated with switching to environmentally friendly materials	Increased costs associated with switching to electric furnace materials, recycled plastic, and bio-plastic, which emit less GHGs	Risk	Medium	Medium term	● Find suppliers that provide low-cost environmentally friendly materials ● Maintain consumer price elasticity through disclosure of the use of environmentally friendly materials
		Increased energy procurement costs due to switching to renewable energy	Increased costs associated with in-house power generation, power purchase agreements (PPA), switching to renewable energy, and purchase of environmental value certificates	Risk	Small	Medium term	● Reduce GHG emissions through further energy savings ● Seek partners in low-cost PPA and renewable energy projects
	Expansion of the renewable energy market	Increased demand for solar power-related products and systems from producers and users of renewable energy	Increased possibility for revenue growth by expanding product and system offerings	Opportunity	Medium	Short term	● Ongoing development of solar power-related products and systems in response to market demand
		Increased demand for zero energy houses (ZEH)	Increased possibility for revenue growth by strengthening offerings of flat-rate solar power services for homes and home energy management systems (HEMS)	Opportunity	Medium	Short term	● Provide energy solutions (systems, services) that meet market demand
	Expansion of environmental protection businesses	Expansion of circular economy business models	Increased support from customers by establishing a waste-free circular economy business model, amid growing efforts for decarbonization in society	Opportunity	Small	Medium term	● Further pursue the recycling of waste plastic by leveraging closed-loop material recycling and other technologies ● Aggressively create new business opportunities through ongoing information gathering on solar cell recycling
4℃	Intensifying weather-driven disasters	Disruptions in the supply chain	Intensifying weather-driven disasters affect Sharp suppliers and bases and the supply chain, leading to a loss in sales opportunities for Sharp	Risk	Medium	Long term	● Purchase from multiple sources and regions ● Survey the status of our main suppliers' business continuity plans (BCP) and reinforce measures ● Further upgrade BCPs at Sharp bases

* Short term: three years or less; medium term: by around 2030; long term: by around 2050.

Environmental Initiatives: Climate Change

Greenhouse Gas Emissions Based on the GHG Protocol Initiative

Sharp calculates greenhouse gas emissions based on the GHG Protocol*1 and then works to limit those emissions across the entire supply chain.*2

*1 The GHG Protocol is an international standard for calculating greenhouse gas (GHG) emissions. It was jointly established by the World Business Council for Sustainable Development (WBCSD), a coalition of the world's leading companies, and the World Resources Institute (WRI), a United States-based think tank.
*2 Scopes 1 and 2 are calculated for Sharp Corporation production sites and production subsidiaries in Japan and overseas. Scope 3 is calculated for Sharp's entire supply chain.
*3 Flat-panel TVs, air conditioners, refrigerators/freezers, washing machines/dryers, air purifiers, Plasmacluster Ion generators, microwave ovens, copiers/MFPs, solar cells..
*4 Annual power consumption of each product 0 number of units sold 0 product life 0 CO_2 emission coefficient.
*5 TVs (CRT TVs, flat-panel TVs), air conditioners, refrigerators/freezers, washing machines/dryers.

■ Greenhouse Gas Emissions by Scope 1/2/3 Categories Based on the GHG Protocol Initiative (Fiscal 2024)

Category		Emissions (Thousand Tons CO_2)	Notes
Scope 1 (direct GHG emissions from business activities)		260	Emissions from combustion of fuel, etc.
Scope2 (indirect GHG emissions from usage in business activities)		560	Emissions from the use of electricity. Location-based emissions (calculated using the average emission intensity of each region) were 765 thousand tons CO_2
Total of Scope 1 and Scope 2		820	
Scope 3 (indirect GHG emissions from outside the scope of business activities)	1. Purchased goods and services	1,879	Emissions from the manufacture of materials procures for products sold in the reporting year
	2. Capital goods	82	Emissions from the construction, manufacture, and transportation of capital goods (such as equipment, machinery buildings, facilities, and vehicles)
	3. Fuel-and energy-related activities (not included in Scope 1 or 2)	150	Emissions from the procurement of fuels (natural resource extraction, manufacture, and transportation) consumed in the generation of electricity and heat procured from other companies
	4. Upstream transportation and distribution	153	Emissions from the transportation of parts and materials and products manufactured
	5. Waste generated in operations	2	Emissions from waste disposal and treatment
	6. Business travel	16	Emissions from business travel by all employees
	7. Employee commuting	15	Emissions from commuting by all employees
	8. Upstream leased assets	–	Included in Scope 1 and 2 emissions
	9. Downstream transportation and distribution	46	Emissions from the transportation (from retailers to end consumers) of main products*3 sold in the reporting year
	10. Processing of sold products	44	Emissions from processing at destination of products
	11. Use of sold products	19,337	Emissions*4 from the use of the main products*3 sold in the reporting year
	12. End-of-life treatment of sold products	809	Emissions from recycling 4 types of appliances*5, copiers/MFPs, and PCs. And emissions of refrigerants when disposing of air conditioners
	13. Downstream lease assets	–	Not applicable
	14. Franchises	–	Not applicable
	15. Investments	–	Not applicable
Scope 3 total		22,533	
Scope 1 + 2 + 3 total		23,353	

Environmental Initiatives: Climate Change

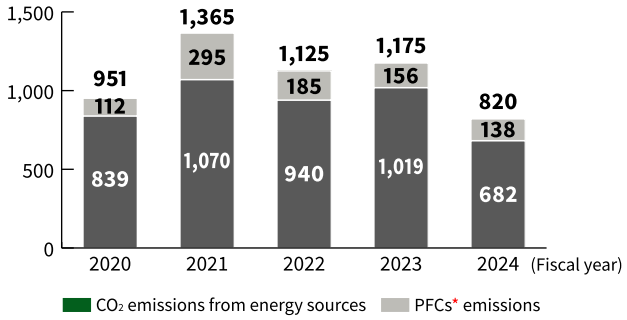
Reducing Business Activity-Linked Greenhouse Gas Emissions

Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Reduce greenhouse gas emissions by 33.3% (baseline year: fiscal 2021)	■ Reduced greenhouse gas emissions by 39.9% (baseline year: fiscal 2021)	★★★	■ Reduce greenhouse gas emissions by 44.4% (baseline year: fiscal 2021)

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

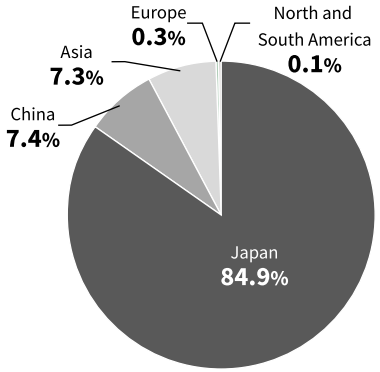
To address the global problem of climate change, Sharp is working to reduce GHG emissions from its business activities. We aim to achieve net zero CO_2 emissions from business activities by 2030. The Sharp Group's GHG emissions from business activities in fiscal 2024 was down 39.9% to 820,000 tons CO_2 compared to the previous fiscal year.
In addition to energy-saving actions at each site, Sharp is using non-fossil certificates to reduce the amount of greenhouse gas emissions. As well, as part of structural reform aimed at achieving a brand-business-focused portfolio, efforts such as selling assets in the device business, where energy consumption is high, and optimization of manufacturing capacity allowed us to dramatically reduce emissions.
We will continue to achieve targets by, for example, making production lines more efficient and introducing renewable energy.

■ Sharp Group's GHG Emissions from Business Activities



* HFCs, PFCs, sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3).

■ GHG Emissions by Region (Fiscal 2024)



Environmental Initiatives: Climate Change

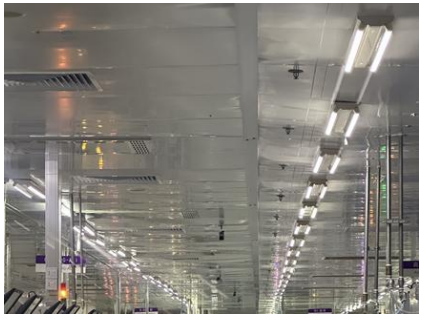
Reducing Business Activity-Linked Greenhouse Gas Emissions

Example

Reducing Greenhouse Gas Emissions at Production Sites

WSEC, Sharp's production base in China, has upgraded the electronic control system for the factory's air conditioning equipment and implemented total optimization control. It also takes other energy-saving measures, like replacing factory lights with LED lamps. In addition, a solar power system with an output of 2 MW-dc and annual power generation of 2,485 MWh was installed on the factory roof. As a result of these efforts, greenhouse gas emissions were reduced by approximately 4,000 t-CO_2 in fiscal 2024.

Sharp is actively pursuing energy-saving initiatives and the introduction of solar power systems at its domestic and overseas bases as it works to reduce greenhouse gas emissions globally.



Switching to LED lighting in the factory

Solar power system installed on the factory roof

Environmental Initiatives: Climate Change

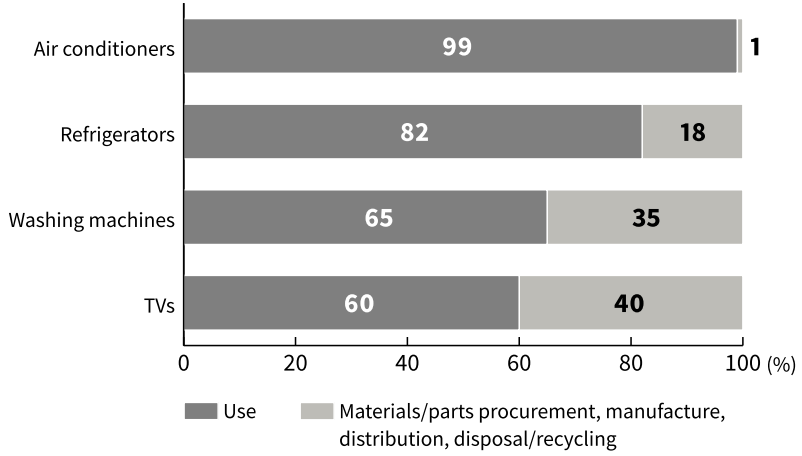
Product Life Cycle Assessment

Identifying and Reducing Environmental Impacts throughout the Life of Products

Sharp performs a life cycle* assessment (LCA) on its products to identify their impact on the environment throughout their life cycle the results in product planning and development.
Consumer electronics generally have a large impact on the environment during use. Thus, by focusing on improving their energy savings, overall environmental impact can be effectively reduced.

* The life of a product from materials and parts procurement to manufacture, distribution, use, disposal, and recycling.

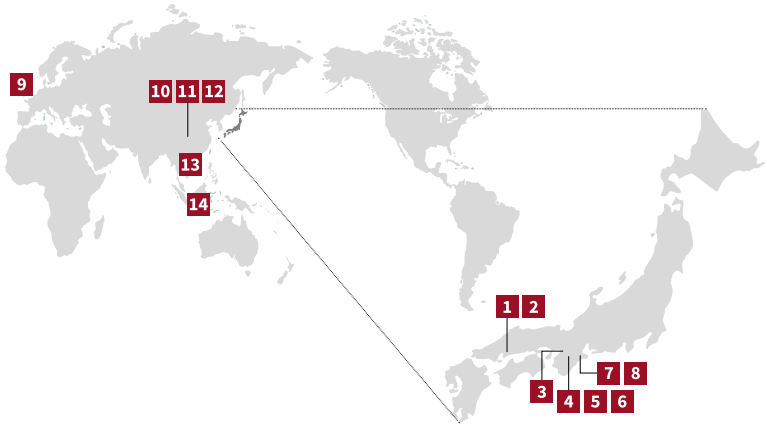
■ Life Cycle CO_2 Emissions by Percentage of the 4 Types of Appliances



Utilizing Renewable Energy

Sharp has introduced the use of PV systems and other power sources to its domestic and overseas production bases and is advancing the use of renewables to do its part to create a net-zero society. In fiscal 2024, the amount of renewable energy was 367.13 million kWh. The proportion of renewable energy in Sharp's electricity consumption increased to 25%. In-house solar power generation was 6.99 million kWh.

■ Solar Power Systems at Sharp Bases Worldwide



Domestic Bases	
No.	Name
1	Hiroshima
2	Fukuyama
3	Yao
4	Katsuragi
5	Nara
6	Tenri
7	Kameyama
8	Mie
Overseas bases	
No.	Name
9	SUKM (UK)
10	NSEC (China)
11	SOCC (China)
12	WSEC (China)
13	SATL (Thailand)
14	SEID (Indonesia)


Solar power systems installed on the roofs of Sharp production bases
(left: Kameyama in Japan; right: NSEC in China)

Environmental Initiatives: Climate Change

Utilizing Renewable Energy

Example

“Life Eee Connect” Service Wins the Director-General of the Agency for Natural Resources and Energy Award at the New Energy Award 2024

Sharp’s energy management service “Life Eee Connect,” which integrates solar power systems with home appliances and residential equipment to reduce electricity costs, has won the Director-General of the Agency for Natural Resources and Energy Award in the product and service category at the New Energy Award 2024, organized by the New Energy Foundation (sponsored by the Ministry of Economy, Trade and Industry). The New Energy Award is a system that recognizes excellent examples of the development of equipment and services related to new energy and the use of distributed energy, with the aim of promoting the introduction of new energy such as solar power.
“Life Eee Connect” is an energy management service that intelligently controls home appliances and residential equipment on behalf of customers using Sharp’s proprietary AI in households with installed solar power systems. This service, which applies AI control developed through battery control, was launched in November 2023 as the industry’s first service to reduce electricity purchases by integrating control of solar power systems with home appliances and residential equipment. So far, it has achieved integration with air conditioners, water heaters, refrigerators, and front-loading washer/dryers.

The service was recognized for its effective use of surplus electricity through AI control of home appliances and residential equipment, achieving efficient electricity cost reduction, and for utilizing the common communication standard for IoT devices, “ECHONET Lite,” making it applicable to appliances and residential equipment from other manufacturers. These factors led to this award. Sharp will continue to expand services utilizing solar power systems and battery systems, contributing to the achievement of carbon neutrality for society as a whole.

令和6年度
新エネ大賞受賞

NEW ENERGY AWARD

資源エネルギー庁長官賞
「業界初、AIにより再エネを
最大活用し家電の電気代を削減する
『Life Eeeコネクト』サービス」

（商品・サービス部門）
主催：一般財団法人新エネルギー財団

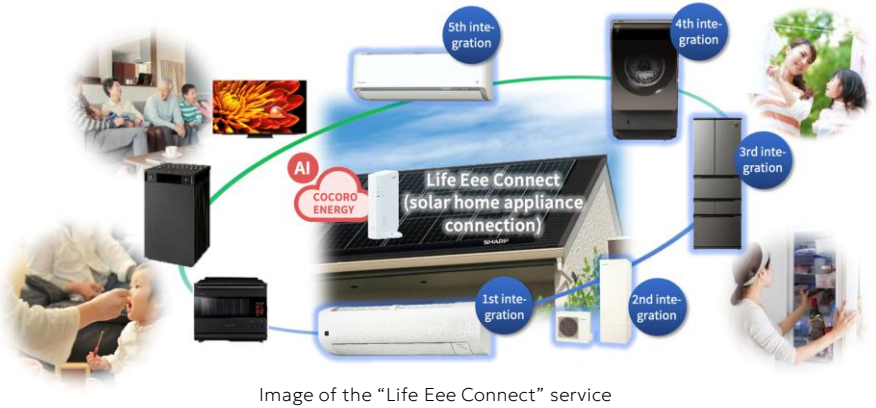


Image of the “Life Eee Connect” service

Environmental Initiatives: Climate Change

Reducing Logistics-Related Environmental Impact

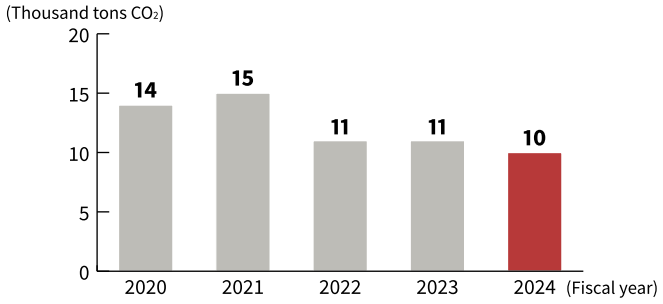
Reducing the Environmental Impact of Logistics in Japan

Sharp observes a rule set forth in the Japanese Energy Conservation Act*1 that requires specified shippers to reduce energy intensity by 1% or greater per year. All Sharp Group companies in Japan are working to reduce the environmental impact and costs associated with logistics.

In fiscal 2024, Sharp Group greenhouse gas (GHG) emissions from shipping activities in Japan were 10,000 tons CO_2. For Sharp Corporation, energy intensity was improved by an average of 8% for the most recent five years (fiscal 2020 to 2024). Sharp is steadily implementing a modal shift*2, a change from conventional trucking to more environmentally friendly modes of transport, such as shipping (non-international coastal trading vessels) and rail (Japan Railways containers). And, by unloading imported goods at harbors chosen for their proximity to their main sales locations, Sharp is reducing re-transport between distribution centers. These efforts enable Sharp to reduce the environmental impact of its distribution activities. For shipments, Sharp has been certified with an Eco Rail Mark*3 by the Ministry of Land, Infrastructure, Transport, and Tourism and the Railway Freight Association.

*1 Act on Rationalization of Energy Use and Shift to Non-Fossil Energy
*2 To shift freight transport from conventional trucking to more environmentally friendly modes of transport, such as rail and shipping.
*3 Products or companies that use a certain amount of rail transport for freight are given Eco Rail Mark certification. The mark is used on items such as product packaging and brochures to inform the public that a company uses environmentally friendly modes of transport.

■ GHG Emissions from Freight Shipments (Japan)



Eco Rail Mark certification

Reducing the Environmental Impact of International Logistics

Sharp has a wide range of initiatives to reduce the amount of GHGs that are emitted as a result of international shipping. The company is reducing airfreight volume as it switches to environmentally friendly modes of transport, and it is also improving load efficiency. Further, it is reviewing shipping routes and switching to harbors that are closer to the final destinations for products. Sharp is also switching to suppliers located closer to its factories.

Environmental Initiatives: Resource Recycling

Approach to Resource Recycling

Towards the Realization of a Circular Economy

Sharp has provided the world with diverse value through the new products it creates but, at the same time, has consumed a large amount of resources. By making greater efforts to use resources more effectively and to provide maximum value with minimal resources, Sharp aims to foster a circular economy that will result in the realization of a recycling-based society. Specifically, Sharp focuses on the three areas of products, manufacturing, and recycling to create environmentally friendly products and devices, develop environmentally beneficial technologies, reduce the environmental impact of its business activities, recycle used products, and pursue other efforts across a wide range of domains.

Three-Area Approach

(1) Products: Sharp performs environmentally conscious design and life cycle assessments for newly developed products and strives to reduce virgin plastics and waste by conserving resources, extending product life, and using recycled materials. Sharp has also put into practical use a closed-loop material recycling technology that reuses plastics collected from used home appliances as components for new home appliances.

Keywords: Virgin plastics | Closed-loop material recycling technology

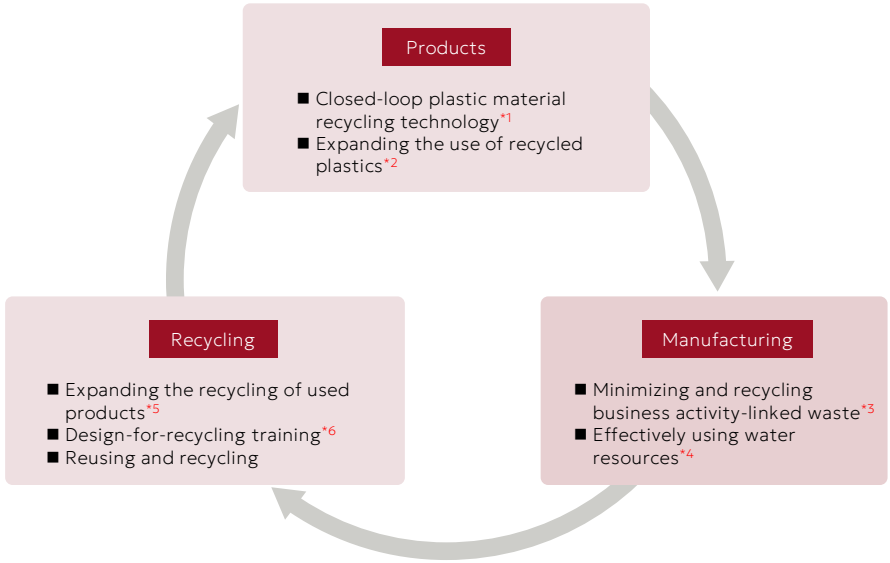
(2) Manufacturing: Sharp aims to reduce the environmental impact of its factories through the efficient use of resources. Sharp is working to reduce and recycle waste generated in the manufacturing process, while also actively reducing water withdrawal and recycling wastewater from processes in order to make effective use of water resources.

Keywords: Waste | Water resources

(3) Recycling: In addition to collecting and recycling used products, Sharp provides employees with design-for-recycling training and tours of recycling factories.

Keywords: Recycling used products | Design-for-recycling training

■ Resource Recycling Focus Areas



*1 See page 050. *2 See page 051 *3 See page 056. *4 See page 058. *5 See page 053. *6 See page 054.

Environmental Initiatives: Resource Recycling

Reducing Virgin Plastics

Approach to Reducing Virgin Plastics

Due to their usefulness, plastics are used in a wide range of products, containers, and packaging, making them essential materials in modern society. At the same time, however, the recycling of plastics is becoming increasingly important both domestically and internationally, prompted by issues such as ocean plastic pollution and the depletion of oil resources.
Sharp has set a medium-term target for virgin plastics in order to strengthen its efforts to reduce the amount of virgin plastics used in its products and packaging. To achieve this target, Sharp has established a subcommittee and is working to use more plastic alternatives, recycled plastics, and bioplastics.

Medium-Term Target for Virgin Plastics

To ensure its efforts aimed at resource recycling, Sharp has joined the Circular Partners*1 and has set the following target as it works to help realize a circular economy.

*1 A Ministry of Economy, Trade and Industry (Japan)-led partnership between industry, government, and academia, which is focused on the circular economy.

Target indicator	Percentage of products using recycled plastics or bioplastics among new products for the reporting year
Target level	70% or more
Target year	Fiscal 2030

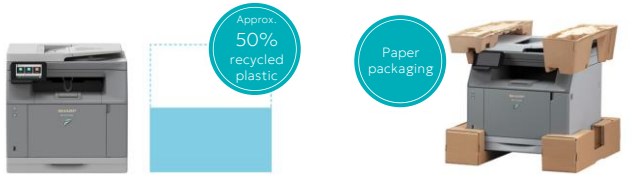
Virgin Plastic Reduction Subcommittee

In order to steadily advance its efforts to reduce the amount of virgin plastics used, Sharp has established a Virgin Plastic Reduction Subcommittee comprised of in-house engineers. This subcommittee holds discussions on virgin plastic reduction and shares relevant information and trends.

Examples of Virgin Plastic Reduction

In order to reduce the amount of virgin plastics used, Sharp is actively working to switch to plastic alternatives and to adopt recycled plastics and bioplastics.

■ Examples of Virgin Plastic Reduction

Packaging and products	**Using recycled plastics and less plastic** The MFP main body is made of approximately 50% recycled plastic, and packaging materials like corrugated cardboard and other eco-friendly materials are used in place of polystyrene foam, significantly reducing the amount of plastic waste. 
Products	**Example of recycled plastic use** Smartphone casing is made of approximately 60% recycled plastic. 
	Example of bioplastic use The egg tray included with Plasmacluster refrigerators*2 uses a biomass composite plastic containing bamboo powder, which has antibacterial properties*3. 

*2 Fit63 series: SJ-MF55P/MF51P/MF46P/MF43P/MW46P
*3 Tester: Kaken Test Center General Incorporated Foundation; Test method: JIS Z 2801 antibacterial test; Antibacterial method: 2,6-dimethoxy-1,4-benzoquinone and tannin; Test subject: Egg tray; Test result: Antibacterial effect of over 99%

Environmental Initiatives: Resource Recycling

Environmental Technologies That Contribute to a Sustainable, Recycling-Based Society

Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Consider ways to add value to polystyrene ■ Expand use of recycled plastics in products	■ Completed basic development for HIPS horizontal recycling ■ Newly adopted for refrigerators, MFPs, and air purifiers	★★★	■ Practical application of recycled HIPS ■ Expand use of recycled plastics in products

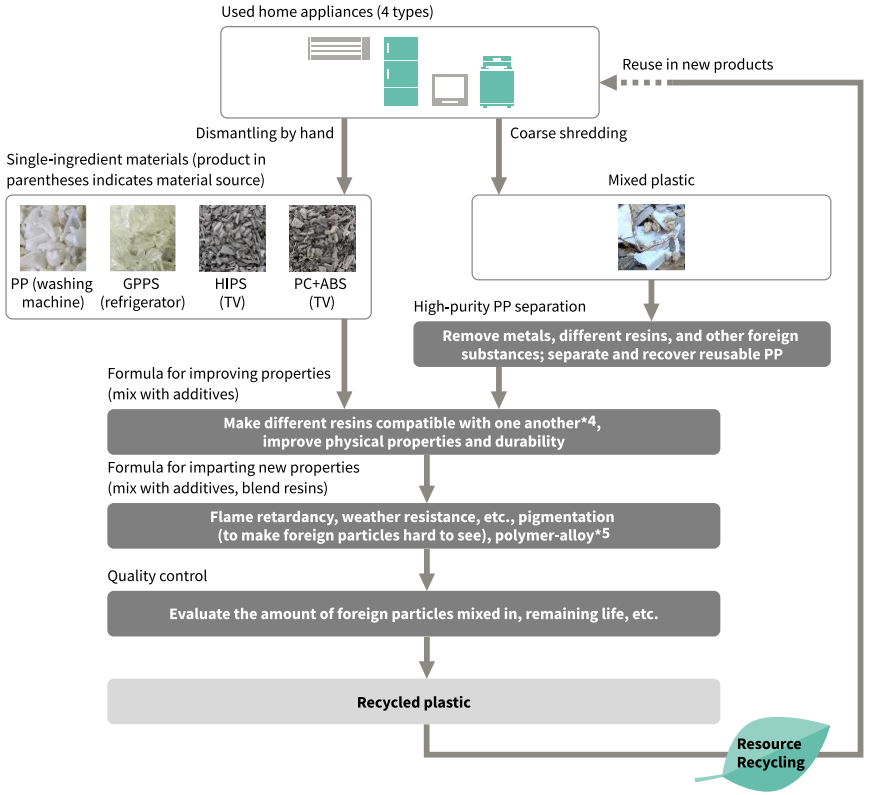
Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

Expanding the Use of Recycled Plastics

In recycling materials, such as when end-of-life plastic is reused to make new products, the open-loop material recycling scheme is commonly adopted. It involves reusing recycled materials to make things like daily necessities and sundries. The majority of these are used only once and disposed of as municipal waste.
As opposed to this type of recycling, Sharp and Kansai Recycling Systems Co., Ltd.*1 jointly developed closed-loop plastic material recycling technology with a view to making better use of finite resources and reducing waste. This technology enables the repeated recovery of plastic from used consumer electronics products as well as the reuse of that plastic in parts of new consumer electronics products. The technology has been in practical use since fiscal 2001, when the Act on Recycling of Specified Kinds of Home Appliances (Home Appliance Recycling Act) was enacted in Japan.
Sharp has been striving to make more plastic recyclable through the development of new technologies. These include a technology for recovering high-purity polypropylene (PP) from mixed plastic parts and parts that contain metal; a technology for improving the properties of recovered PP, HIPS*2, and PC+ABS*3 materials so that their quality is on a par with that of virgin materials; a technology that gives materials added value by imparting properties such as flame retardancy, weather resistance, and an antibacterial property, with the aim of expanding applications for recycled plastic; and a quality-control technology for ensuring optimal quality. Thanks to the development and introduction of these technologies that integrate everything from recovery to quality control, Sharp has been able to establish closed-loop material recycling to produce high-grade recycled plastic.

*1 A consumer electronics recycling company established in Japan with joint investment from Sharp, Mitsubishi Materials Corporation, and four other companies.
*2 High-impact polystyrene (general-purpose polystyrene [GPPS] given impact resistance by adding rubber).
*3 A polymer alloy of polycarbonate and acrylonitrile, butadiene, and styrene (a resin given new properties as a result of mixing in several types of polymers).

■ Recycling Plastic Recovered from the 4 Types of Home Appliances



*4 Blending multiple types of resins uniformly and finely dispersed into one another at the molecular level.
*5 A resin given new properties as a result of mixing in several types of resins.

Environmental Initiatives: Resource Recycling

Environmental Technologies That Contribute to a Sustainable, Recycling-Based Society

Expanding the Use of Recycled Plastics

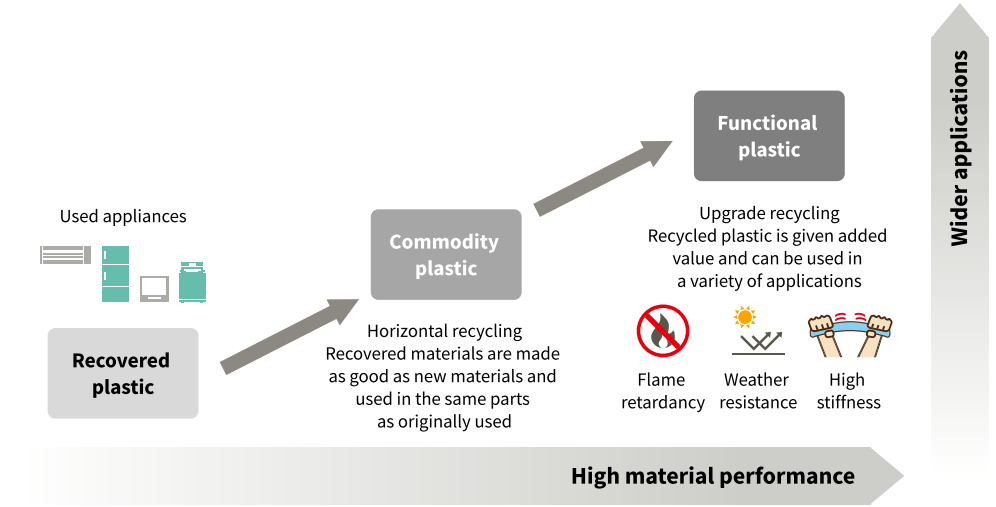
Sharp is pursuing greater recycling of used plastics, not only through horizontal recycling, in which used plastics are made as good as new material and incorporated into the same parts as they were originally used, but also through upgrade recycling, in which the recycled plastic is given added value with flame retardancy, weather resistance, high stiffness, or color.

In fiscal 2024, Sharp developed white recycled polypropylene using polypropylene recovered from used refrigerators as the raw material. This provides a significant improvement in appearance, which was a challenge for recycled plastics, while maintaining the physical properties and durability required for home appliances. Sharp has adopted this material for use in the exterior parts of its refrigerators.

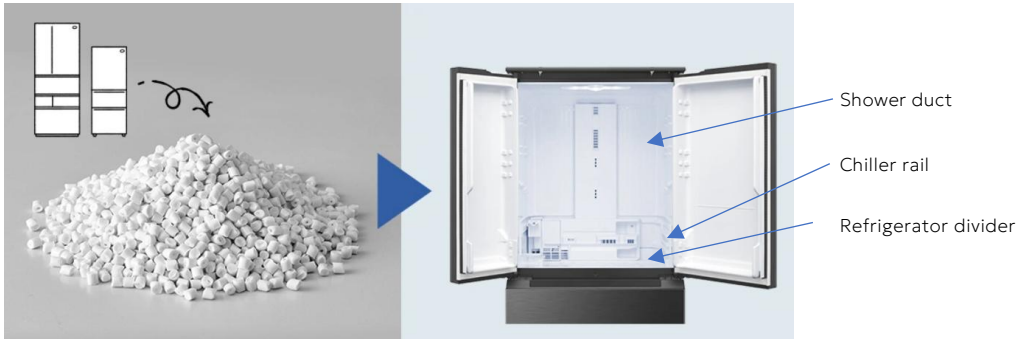
Traditionally, recycled plastics have been limited to use in internal parts due to appearance issues, such as black spots caused by impurities, like environmental dirt and foreign matter, and uneven coloring caused by variations in raw materials. Now, thanks to technology jointly developed with Kansai Recycling Systems, the entire process from separation, collection, and sorting of the raw materials to recycling has been optimized. By using Sharp's proprietary recycling technology, it has become possible to mass-produce high-quality white recycled plastic that can be used in the exterior parts of home appliances. This technology makes it possible to expand the scope of application of recycled plastic and is, therefore, expected to further increase the rate of recycled plastics used in products.

Additionally, as a new initiative, Sharp is pursuing the development of recycled high-impact polystyrene (HIPS) made from polystyrene recovered from used home appliances. Polystyrene is one of the main types of plastic used in home appliances, but, because it is susceptible to thermal degradation and the adverse effects of foreign matter, it is difficult to utilize in horizontal recycling via conventional technology. Thus, until now, it has been used for things like everyday items and miscellaneous goods. In fiscal 2024, Sharp completed the basic development of technology needed to separate and recover polystyrene, as well as development of formulation technology to improve the physical properties of polystyrene to the same level as new material. Moving forward, Sharp will work to steadily advance development of durability and mass production technologies, with a goal of achieving practical application by fiscal 2025.

■ Used Plastic Recycling Method



■ Examples of Colored Recycled Polypropylene Use



Used refrigerator parts are crushed into recyclable plastic (pellets)

Recycled into new refrigerators

Environmental Initiatives: Resource Recycling

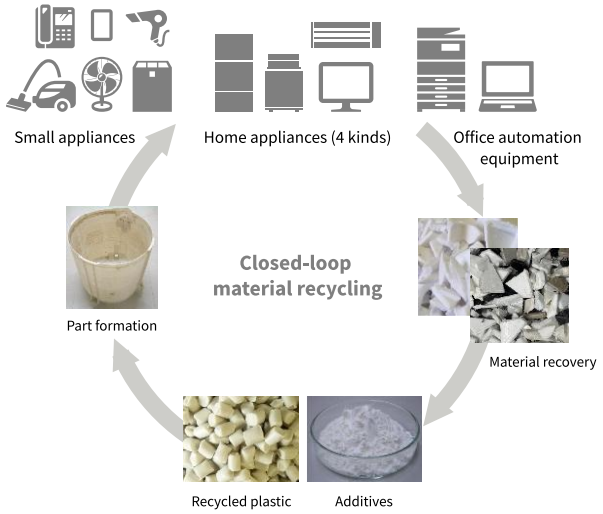
Environmental Technologies That Contribute to a Sustainable, Recycling-Based Society

Establishing a Circular Economy

The use of recycled plastics developed through Sharp's own closed-loop material recycling technology was extended to refrigerators, air conditioners, washing machines, and small appliances released in fiscal 2024. In fiscal 2024, the cumulative total amount used since fiscal 2001 reached 21,000 tons.
In fiscal 2024, Sharp began using recycled PC+ABS from flat-panel TVs for parts in MFPs that require environmental labels*. Sharp will expand this plastic recycling technology, which began with four types of home appliances, to a wider range of other Sharp products in an effort to reduce the environmental impact of its products. Moving forward, Sharp aims to expand closed-loop material recycling to all of its products, not just these four home appliances, to contribute to the realization of a circular economy.

*Labels are given to products and services to certify that they help reduce the environmental impact on the Earth. EPEAT, Blue Angel, Eco Mark, others.

■ Establishing a Circular Economy



■ Examples of Recycled Plastic Use

Product	Part	Recycled Plastic	Source
Washing machine	Washing tub	PP	Washing machine tub
Refrigerator	Duct cover, pump cover		Refrigerator vegetable case
	Shower duct cover, refrigerator divider, other		
	Evaporator cover		Washing machine spin tub, balancer, other
Air conditioner	Condensation cover, motor holder		
Stick vacuum cleaner	Stand, nozzle, other		Air conditioner, refrigerator, and washing machine parts
Ceramic fan heater	Casing	Flame-retardant PP	
Air purifier	Power supply box	Flame-retardant HIPS	Flat-panel TV back cabinet
Car Plasmacluster Ion generator	Internal parts	Flame-retardant PC+ABS	Flat-panel TV back cabinet
MFP	LCD holder, other		
Handheld device (Handy Terminal) charger	Charger		

Related information: >
Closed-Loop Plastic Material Recycling Technology

Environmental Initiatives: Resource Recycling

Expanding the Recycling of Used Products

Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Improve conveyance efficiency of washing machine line and reduce burden on workers	■ Conveyance efficiency improved by approx. 29%	★★	■ Improve refrigerator line compressor processing efficiency

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

Sharp's Stance on Recycling Used Products

Sharp collects and recycles used products in compliance with the recycling laws and regulations of the respective country or region. Through the effective use of limited resources, Sharp is, in cooperation with consumers and recyclers, contributing to the realization of a sustainable society.

Japan: Recycling 4 Kinds of Home Appliances in Japan (Air Conditioners, TVs, Refrigerators, and Washing Machines)

As a member of the B Group*1 for home appliance recycling, Sharp has constructed—and is operating—a highly efficient recycling system consisting of 19 recycling plants in Japan. In fiscal 2024, Sharp collected 2.297 million units (up 1% over the previous fiscal year) of the four types of appliances covered by the Home Appliance Recycling Act. The processed and recycled weight amounted to approximately 64,000 tons (down 1% over the previous fiscal year). For all four appliance types, Sharp's rate of recycling exceeded the legally stipulated levels.

*1 The B Group consists of Sharp Corporation, Sony Corporation, Hitachi Global Life Solutions, Inc., Fujitsu General Ltd., Mitsubishi Electric Corporation, and other companies.

■ Sharp Corporation's Recycling Results for 4 Home Appliance Types (Fiscal 2024)

Note: All figures are rounded down to the nearest whole number.

	Unit	Air Conditioners	CRT TVs	Flat-Panel TVs	Refrigerators/ Freezers	Washing Machines/ Dryers	Total
Units collected from designated collection sites	1,000 units	360	62	985	442	442	2,297
Processed and recycled units	1,000 units	351	63	989	439	439	2,286
Processed and recycled weight	Tons	14,219	1,349	14,934	25,548	17,933	73,986
Recycled weight	Tons	13,540	1,002	12,944	20,551	16,937	64,976
Recycling rate	%	95	74	86	80	94	–
Legally required recycling rate	%	80	55	74	70	82	–

Toward Making Better Use of Resources

Sharp and Kansai Recycling Systems Co., Ltd.*2 have joined forces to make effective use of resources and to improve recycling efficiency.
In the recycling process, the unloading of containerized washing machines has, up until now, been done manually, but as front-loading washing machines weigh between 60 kg and 80 kg, this was physically demanding for the workers. Therefore, in fiscal 2023, Sharp introduced a tilting device that automatically loads washing machines into the supply work area, and, in fiscal 2024, it introduced a transport conveyor to improve work efficiency and safety. As a result, conveyance efficiency has improved by 29% and work efficiency has improved by 3%.

*2 A consumer electronics recycling company established in Japan with joint investment from Sharp, Mitsubishi Materials Corporation, and four other companies.

Washing machine conveyor line

Tilting device

Environmental Initiatives: Resource Recycling

Expanding the Recycling of Used Products

Recycling Used Products and Communicating with Local Communities

In accordance with the Home Appliance Recycling Act, Kansai Recycling Systems Co., Ltd. recycles four types of used home appliances (air conditioners, TVs, refrigerators, washing machines) in Hirakata, Osaka Prefecture and Iga, Mie Prefecture. Kansai Recycling Systems publicizes its activities by collaborating with the local government and board of education to, for example, give factory tours to elementary and junior high students and lead classes at their schools. As well, the company recently took part for the first time in a careers event*1 for junior and senior high school students. In fiscal 2024 the company welcomed a total of 1,695 visitors from Japan and overseas, bringing the cumulative visitor total to more than 33,000 people. Kansai Recycling Systems also continued to participate in off-site lectures and local events*2. These included a washing machine dismantling demonstration and a participatory washing machine lid dismantling.

*1 School lessons in which people working in various jobs are invited to lead the class and talk about their work, showing students how interesting work can be and widening their opportunities for the future.
*2 At Hirakata Eco Forum 2024 (February 10, 2024), the company demonstrated how a washing machine is dismantled; at Holantotte Hirakata Resource Recycling Symposium (March 9, 2025), participants could try dismantling a washing machine lid.

At local events
Left: Demonstration of dismantling a washing machine
Right: Young participants dismantle a washing machine lid

Design-for-Recycling Training

Sharp is committed to considering the whole life cycle of products it manufactures. Together with Kansai Recycling Systems—where four kinds of Sharp products are recycled—Sharp has been holding design-for-recycling training for product planners and designers. In November 2024, eight people including those in charge of TVs took part, and in April 2025, 25 people in charge of white goods took part in the training.

The training emphasized the importance of designing products with an eye to their eventual recycling, with a focus on plastic material recycling. It also included a tour of the recycling plant. Participants practiced dismantling products, including a fully automatic washing machine in use for over a decade, an air conditioner with automatic filter cleaning, a refrigerator, and an OLED TV, which came under the Home Appliance Recycling Act in fiscal 2024. They saw how the ease of dismantling depends on the fastening method used—for example, whether the product is held together with screws—and learned the importance of separating components into discrete material types. They also learned about material labeling and design considerations in ensuring high-quality recycling and listened to feedback from the workers. Participants gained a better understanding of the recycling process, and expressed a desire to focus on achieving both quality and recyclability in their future designs. We will continue to foster awareness within the company so that we can pursue manufacturing that considers everything from material selection to end-of-life recycling.

Dismantling a TV

At a lecture

Reusing and Recycling Copiers and MFPs in Japan

Sharp is reusing and recycling copiers and MFPs collected both through Sharp distribution channels and through common industry channels. The company is also collecting used toner cartridges and remanufacturing them to the same quality standard of new products, thus assuring that customers will always get the same high quality. Sharp designs its toner cartridges for easy reuse and recycling. This ensures durability and reduces the amount of time needed to reprocess used cartridges.

Environmental Initiatives: Resource Recycling

Expanding the Recycling of Used Products

North America

In 2007, Sharp's American manufacturing and sales base SEC established MRM (Electronic Manufacturers Recycling Management Company, LLC)*1 to manage recycling of AV products. Growing nationwide efforts have seen a total of 2,050 collection points established for used products. MRM operates in accordance with the laws and regulations of each state and recycled a total of 62,000 tons of used products in fiscal 2024.
In addition, since 2008, as part of its efforts to protect the environment and reduce landfill waste, SEC has been working with recycling companies to recycle all Sharp consumables, including toner cartridges, bottles, toner collection containers, and drum units. SEC encourages recycling by covering the materials and costs required to return used products.

*1 MRM is a joint venture with Panasonic Corporation of North America and Toshiba America Consumer Electronics, LLC.

Canada

With the cooperation of its recycling partner, EPRA (Electronic Products Recycling Association), Sharp's Canadian sales base SECL recycled more than 201,405 kg of Sharp products in Ontario in 2024. This includes electronics across all product sectors, including printers, displays, and consumer products.
SECL and EPRA are committed to complying with Ontario regulations, which require more products to be recycled each year. SECL's goal for 2025 is to recycle 236,997 kg of electronic devices, and the company has concluded an agreement with EPRA to achieve this goal.

Sweden

Sharp's sales base in Sweden, SBS-SE, has launched a new partnership program called the Circular Ambassador Program in collaboration with Inrego AB to promote circular business as an ambassador while also expanding partnerships with other businesses in the Nordic region.
SBS-SE achieved 26,501 kg CO_2e*2 in recycled products and received a certificate from Inrego. This is equivalent to the energy needed to run 2,544 refrigerators for a year, to heat 106 apartments for a year, or to drive around the world four times.

*2 CO_2e: CO_2 equivalent

Certificate

Australia

Sharp's Australian sales base SCA is a member of the APCO (Australian Packaging Covenant Organisation) and is a signatory to the Australian Packaging Covenant. Members agree to shared responsibility and joint efforts. SCA works with government and industry to achieve sustainable packaging through material reduction, design, specific recycling rates, landfill waste reduction, alternative materials, and circular economy activities.
SCA also uses Ecycle Solutions to collect e-waste and expanded polystyrene from its work sites and warehouses. Ecycle Solutions is approved and monitored by the local government to ensure minimization of waste to landfills by recycling in the correct manner. In addition, SCA is introducing similar systems at its partner locations.

Environmental Initiatives: Resource Recycling

Minimizing and Recycling Business Activity-Linked Waste

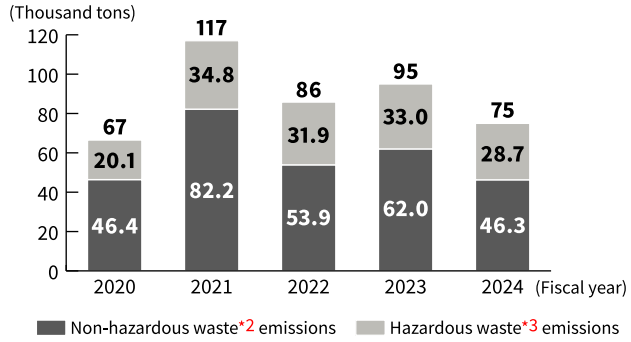
Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Final landfill disposal rate of less than 0.5%	■ Final landfill disposal rate 0.33%	★★	■ Final landfill disposal rate of less than 0.5%

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

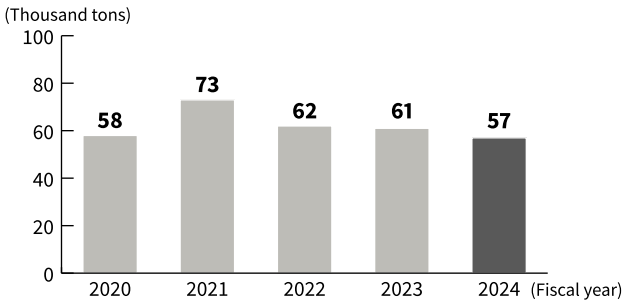
Curbing the Amount of Waste, etc. Generated

Sharp has been working to reduce waste and to recycle as much of it as possible in an effort to contribute to building a circular economy.
In fiscal 2024, the amount of waste, etc. generated by Sharp decreased by 21% compared to the previous fiscal year to 75,000 tons. The amount of recycling was 57,000 tons. Meanwhile, the final landfill disposal rate was 0.33%—low enough to achieve our third year in a row of zero discharge to landfill*1 on a global scale. Sharp will continue to strengthen waste-reduction efforts at overseas bases while maintaining global zero discharge to landfill.

■ Amount of Waste, etc.



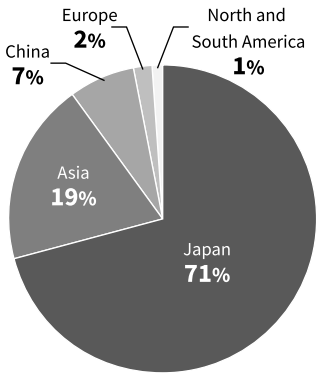
■ Amount of Recycling



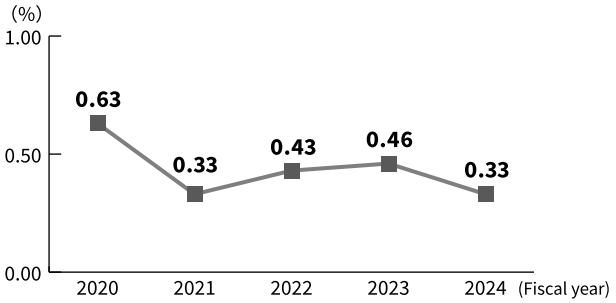
Appropriate Storage and Management of PCB Wastes

In Japan, Sharp properly stores and manages waste PCB (polychlorinated biphenyls) in accordance with the Act on Special Measures Concerning Promotion of Proper Treatment of PCB Wastes. Sharp has completed processing of all high-concentration waste PCB in fiscal 2022. As for the remaining low-concentration waste PCB, Sharp is on track to finish processing them at the earliest date possible.

■ Waste, etc. by Region (Fiscal 2024)



■ Final Landfill Disposal Rate



*1 Sharp defines “zero discharge to landfill” as a final landfill disposal rate of less than 0.5%. Final landfill disposal rate (%) = Amount of landfill disposal 1 amount of waste, etc. generated 0 100.
*2 Of general waste and industrial waste, waste that contains no hazardous substances.
*3 Waste designated as ‘specially controlled industrial waste’ in Japan and as ‘hazardous’ in countries/regions around the world.

Environmental Initiatives: Resource Recycling

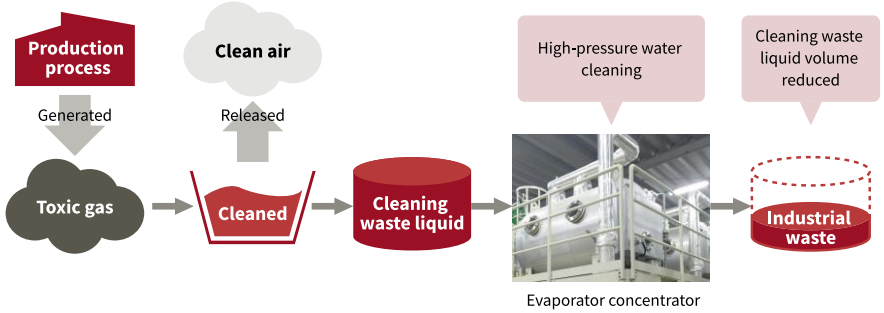
Minimizing and Recycling Business Activity-Linked Waste

Example

Reducing Industrial Waste through Cleaning of Waste Liquid Concentrators

At the Kameyama Plant (Kameyama, Mie Prefecture), we strive to reduce the amount of industrial waste generated in the LCD production process.
The cleaning liquid (sodium fluoride) used to clean the toxic gases generated in the production of LCDs is reduced in volume in evaporator concentrators before being disposed of as industrial waste. The processing ability of the evaporator concentrator, however, decreases when it evaporates the waste liquid and crystals are generated.
In fiscal 2024, we began periodically cleaning the evaporator concentrators with high-pressure water to lessen the deterioration of their processing ability. This helped achieve an annual decrease of 1,320 tons.

■ Flow of Cleaning Waste Liquid Treatment Process



Environmental Initiatives: Resource Recycling

Effectively Using Water Resources

Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Improvement rate of water intensity: 10% (baseline year: fiscal 2021)	■ Improvement rate of water intensity: 5% (baseline year: fiscal 2021)	★	■ Improvement rate of water intensity: 10% (baseline year: fiscal 2021)

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

Sharp's Stance on Water Resources

Water resource problems are arising on a worldwide scale with the increase in the world's population, the economic growth of developing countries, climate change, and other factors. Sharp is striving to make effective use of water resources in line with the environmental conservation guidelines stipulated in Sharp's Basic Environmental Philosophy, the Sharp Group Charter of Corporate Behavior, and the Sharp Code of Conduct. In particular, Sharp recognizes that securing the water resources necessary for the production of LCDs and other electronic devices is a serious issue that could affect business continuity. That is why Sharp is pursuing the reduced use of new water and an increased use of recycled water.

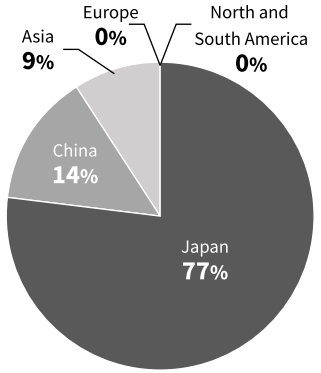
Reducing the Amount of New Water Used and Using More Recycled Water

The volume of new water used by Sharp in fiscal 2024 decreased by 5% compared to the previous fiscal year to 8.8 million m^3. The improvement rate of water intensity was 5%. To minimize the effects on business continuity of the risk of water shortages, Sharp assesses water risk at its plants using the Aqueduct assessment tool developed by the World Resources Institute (WRI). SATL, Sharp's production base in Thailand, is located in an area of highest risk. It is therefore reducing its use of new water by recycling water discharged from the production process and other sources.

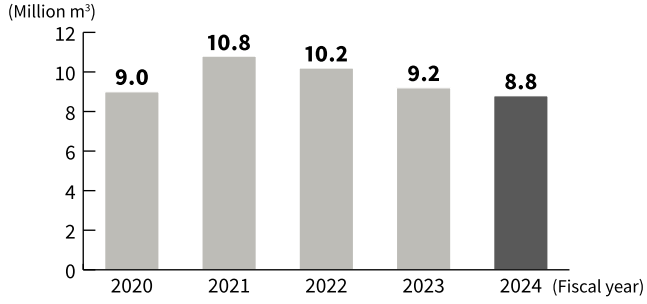
The Kameyama Plant (Kameyama, Mie Prefecture, Japan) and the Mie Plant (Taki District, Mie Prefecture, Japan) require a large amount of water in the production process for LCDs and other products. All of the water discharged from the production process is collected and reused via a closed-loop recycling system adopted at both plants. Through measures such as this, Sharp is maintaining a recycling rate* of at least 60%. Looking ahead, Sharp will pursue further water-use efficiency worldwide and boost production efficiency in accordance with business expansion.
In fiscal 2024, there were no litigation issues, fines, or penalties due to violations of water-related laws and regulations. There were also no serious water-related accidents.

* Recycling rate = Amount recycled 1 (amount of new water + amount recycled).

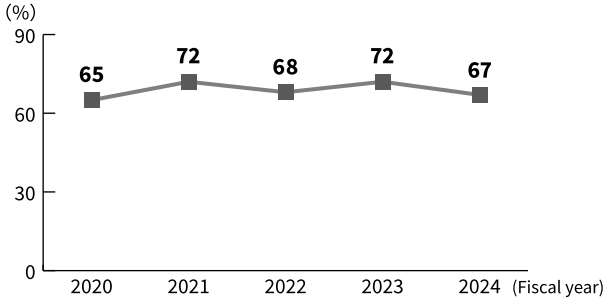
■ New Water Used by Region (Fiscal 2024)



■ Volume of New Water Used



■ Water Recycling Rate



Environmental Initiatives: Resource Recycling

Effectively Using Water Resources

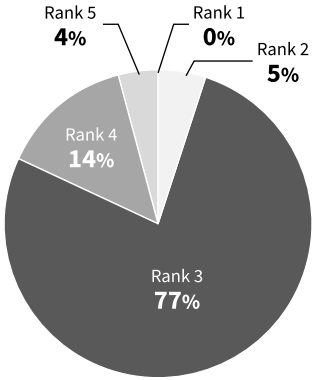
■ Water Used and Drainage by Region (Fiscal 2024)

(m³)

Region	Water withdrawal*1			Effluent					Amount consumed*3	Amount recycled
	Third-party water*2	Groundwater	Total	Surface water	Sewerage	Seawater	Groundwater	Total		
Japan	6,224,211	537,391	6,761,602	3,379,046	308,744	1,456,881	0	5,144,671	1,616,931	17,391,150
Asia	776,679	10,401	787,080	31,454	415,808	0	0	447,262	339,818	211,484
China	1,216,448	0	1,216,448	0	981,229	0	0	981,229	235,219	176,987
North and South America	171	0	171	0	171	0	0	171	0	0
Europe	7,763	0	7,763	0	7,418	0	0	7,418	345	0
Total	8,225,272	547,792	8,773,064	3,410,500	1,713,370	1,456,881	0	6,580,751	2,192,313	17,779,621

*1 Surface water, seawater, and produced water was 0.
*2 Industrial-use water and tap water.
*3 Water consumption = Water withdrawal – Effluent.
*4 Under Aqueduct, each region is assigned a water stress score. There are five levels, from rank 1 (low risk) to rank 5 (high risk).
*5 Areas with an Aqueduct water stress score of rank 4 or higher.

■ Volume of New Water Used by Water Stress Rank*4 (Fiscal 2024)



■ Volume of New Water Used in Water Stressed Regions*5 (Fiscal 2024)

(m³)

Region	Third-party water	Ground-water	Surface water	Seawater	Produced water	Total
Japan	34,685	0	0	0	0	34,685
Asia	729,517	0	0	0	0	729,517
China	835,645	0	0	0	0	835,645
North and South America	0	0	0	0	0	0
Europe	0	0	0	0	0	0
Total	1,599,847	0	0	0	0	1,599,847

Environmental Initiatives: Resource Recycling

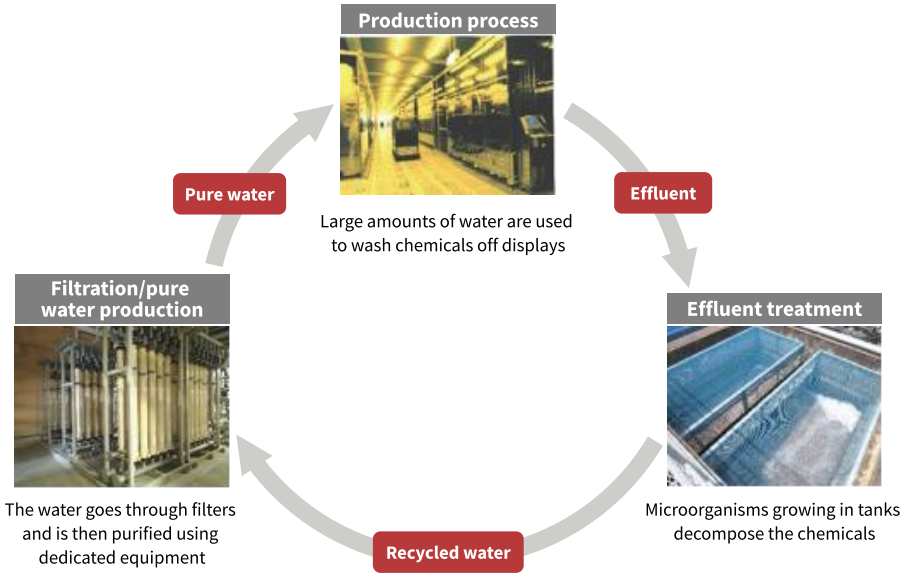
Effectively Using Water Resources

Example

Closed-Loop Water Recycling System

The Mie Plant (Taki District, Mie Prefecture) has adopted a closed-loop water recycling system to repeatedly recycle the large amount of water used for the production of displays. The water discharged from the production process contains chemicals that must not be released from the plant untreated. All of this water is collected and goes through steps such as passing through filters and biofiltration (the natural decomposition of chemicals using microorganisms), before being purified with dedicated equipment. The resulting water is used repeatedly in production.

■ Closed-Loop Water Recycling Flow

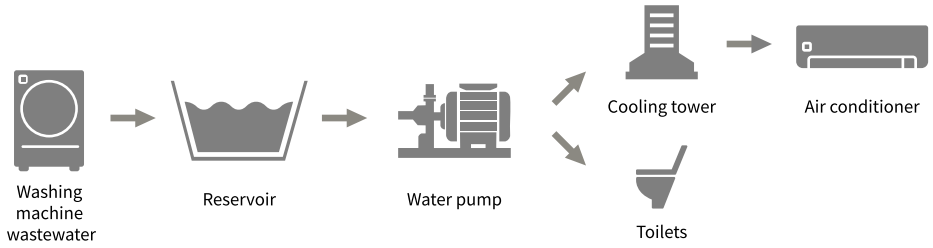


Example

Digital Monitoring of Water Meters and Recycling of Washing Machine Wastewater

SSEC, Sharp's production base in China, improved the efficiency of water resource use through digital monitoring of water meters and recycling of washing machine wastewater. For this, the company was honored as a Shanghai Water-Saving Demonstration Enterprise.
Water meters installed at SSEC connect to a digital monitoring platform. The meter sends water-use data in real time so that it can be confirmed on smartphones and PCs. This system monitors pipes in the entire plant 24-7 and enables immediate detection of water leaks. Furthermore, a proprietary SSEC washing water recycling system also contributes to the company's water savings. In the plant, large volumes of wastewater are generated in trial operation of washing machines. This wastewater is stored, then used as cooling water for air conditioning and as water for flushing toilets.

■ Flow of Washing Machine Wastewater Recycling



Environmental Initiatives: Safety and Security

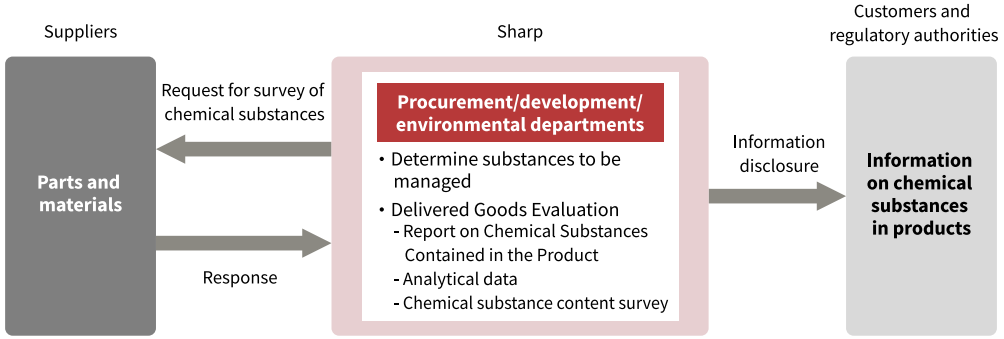
Sharp's Policy on Management of Chemical Substances

Sharp's products are built from a plurality of parts and materials and contain wide-ranging chemical substances. Our production processes at factories also use chemical substances.
Chemical substances are useful for enhancing the performance and quality of products, whereas some of them may have negative effects on the natural environment and human health. Today, regulations to manage chemical substances are implemented in many countries. Some include prohibited or restricted use of specified chemical substances and labeling requirements, and others require the management of information on product content data, reporting of the amounts discharged into the atmosphere and water areas, management of the working environment, and occupational health management.
In accordance with our Basic Environmental Policy of "Creating an Environmentally Conscious Company with Sincerity and Creativity," the Sharp Code of Conduct stipulates the management of chemical substances as follows, on the precondition of compliance with applicable environmental laws, regulations, and regional agreements.

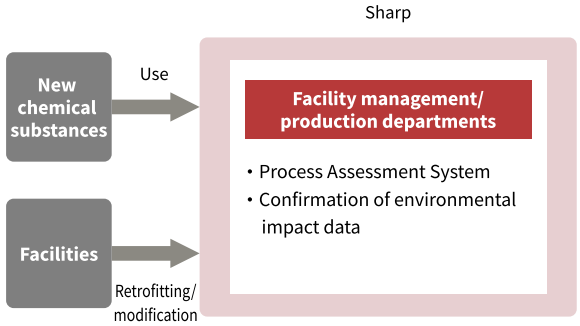
- We will work to compile information related to hazardous substances that might damage the environment or human health, and will not, as a matter of principle, make use of these hazardous substances in our products and services.
- We will ensure proper use and control, and also reduce our consumption of chemical substances in our business activities, including research, development, and manufacturing, at levels meeting or exceeding those stipulated by laws and regulations.

To "properly manage chemicals in order to protect people's health, the natural environment, and ecosystems" is another goal of Sharp. It is a long-term objective set in the SHARP Eco Vision 2050 long-term environmental vision in the safety and security field of action.
As an example of our efforts to manage chemical substances in products, we cooperate with our suppliers to manage information on chemicals contained in components and materials throughout the entire supply chain. For equipment and production at the factory-level, we have a process assessment system in place. This is a preliminary assessment of new chemical substances to be used or equipment retrofitted or modified for handling chemical substances and is performed to check their safety and environmental impact.

■ Chemical Substance Management System in the Product Supply Chain



■ Chemical Substance Management System in Manufacturing



Environmental Initiatives: Safety and Security

Managing Chemical Substances Contained in Products

Target Substances

In order to reduce environmental impacts of its products and to comply with chemical substance regulations in relevant countries, Sharp manages chemical substances contained in its products in accordance with its own management categories that take into account applicable laws and regulations in relevant countries, voluntary standards set by industry groups, and even potential future regulations.

Related information: > Standard Manual for Management of Chemical Substances Contained in Parts and Materials

Report on Chemical Substances Contained in the Product and Analysis Data

In order to ensure compliance with relevant countries' regulations, such as the EU's RoHS Directive*1, which prohibits the use of specific chemical substances in products, Sharp's suppliers submit a Report on Chemical Substances Contained in the Product before delivering new components or materials for the first time. Based on the chemical substance management categories, this report checks the content status of banned substances (both banned substances and substances banned depending on the application) and candidate substances to be banned.

Suppliers must also submit analysis data on the 10 substances*2 regulated under the EU RoHS Directive for confirmation of compliance with the regulatory requirements. Sharp performs annual reviews of these Reports on Chemical Substances Contained in the Product in order to ensure compliance with legal regulations on the prohibition of specific chemical content, which have been increasing in recent years.

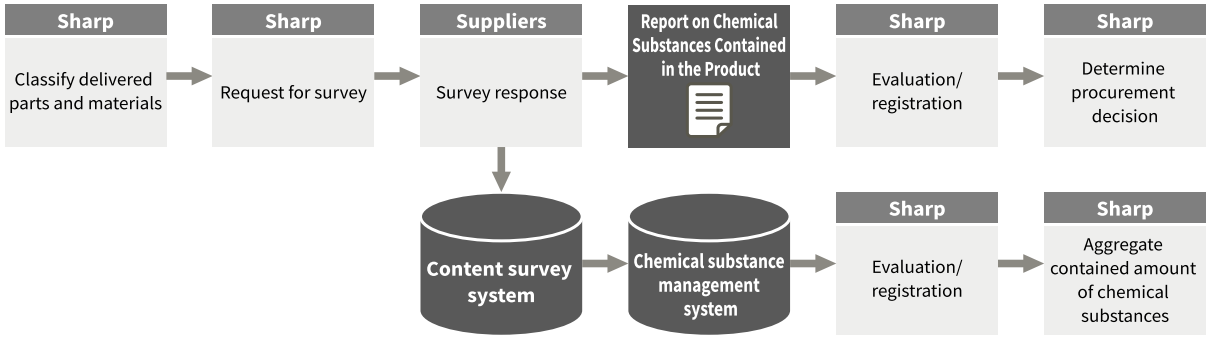
Chemical Substance Content Survey

In order to comply with legal regulations, including the EU REACH regulation*3, that oblige companies to communicate and disclose information on chemical substances contained in their products, Sharp conducts IT system-driven chemical substance content surveys. For information collection, Sharp utilizes chemSHERPA*4, an information sharing scheme compliant with the IEC 62474*5 international standard.

■ Chemical Substance Management Categories

Category	Description	Remarks
Banned substances	Substances that cannot be used for any purpose	● Substances whose inclusion in products is currently regulated or is expected to be regulated in the future under laws and regulations and on environmental labels in Japan or overseas ● Substances that Sharp regulates on its own initiative in advance of global trends because it is widely known that their environmental impact is high and alternative substances exist
Substances banned depending on the application	Substances regarded as banned by Sharp depending on the application (excluded applications)	
Candidate substances to be banned	Substances that are candidates for being banned; substances to be substituted if contained in products	● Substances expected to be banned in the near future under laws and regulations in Japan or overseas ● Substances that Sharp may ban in the future, depending on trends in laws and regulations, but that cannot be categorized as a Sharp banned substance at present because safety thresholds, ban dates, regulated applications (excluded applications), etc. have not been determined under laws and regulations
Managed substances	Substances for which it is necessary to ascertain whether the specified substance is present, the amount contained, and so on	● Substances for which disclosure of information on their usage status in products is required, or is expected to be required in the future, under laws and regulations and on environmental labels in Japan or overseas ● Substances for which customers have requested, or for which there is a possibility of being requested, that their usage status information in products be disclosed

■ Process for Managing Chemical Substances Contained in Products



*1 An EU directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
*2 Lead, mercury, cadmium, hexavalent chromium, PBB, PBDE, DEHP, BBP, DBP, and DIBP
*3 A regulation covering the registration, evaluation, authorization, and restriction of chemical substances.
*4 An information sharing scheme developed under the leadership of the Japanese Ministry of Economy, Trade and Industry for the purpose of efficiently communicating information on chemical substances in products over the entire supply chain.
*5 An international standard on the procedures and details of information sharing in the supply chain for products and components in the electrical and electronics industry containing chemical substances.

Environmental Initiatives: Safety and Security

Effective Management of Chemical Substances Used at Factories and Their Risk Management

Sharp strives to minimize the risk of environmental pollution and accidents associated with chemical substances and to properly meet chemical substance regulations. To this end, Sharp controls chemical substances used at, and released from, its production bases by implementing the process assessment system and the monitoring and risk management of chemical substances. To minimize the environmental impact and ensure occupational safety, workers handling chemical substances go through regular education and training. They also receive regular health checks.

Process Assessment System

The process assessment system is Sharp's in-house system for preliminarily assessing the hazards, safety measures, and other factors of chemical substances. This assessment applies when a new chemical substance is to be introduced or when the procedure for handling chemical substances needs to be changed, for example. The system ensures that chemical substances are properly managed at all stages from procurement to disposal and that safety measures are implemented for the equipment handling them. It is designed to review the appropriate disposal of waste chemical substances, the proper treatment of exhaust gas and wastewater, and safety procedures for workers handling chemical substances, and to evaluate and determine the conditions for the safe use of chemical substances.
Chemical substances are grouped into four categories according to their gravity of impact on safety/health, hazard/explosion, and environmental conservation: legally banned substances, sensitive substances, managed substances, and registered substances. An appropriate management level is assigned to each category.

■ Chemical Substance Management Categories under the Process Assessment System

Category	Description
Legally banned substances	Chemical substances that are banned for production, etc. under laws and regulations. Substitutes for them need to be searched for.
Sensitive substances	Chemical substances that are not legally banned but are banned by Sharp for use due to their high levels of toxicity (acute toxicity/carcinogenicity) or hazards (explosiveness/flammability). Substitutes for them need to be searched for.
Managed substances	Chemical substances that have toxicity (corrosiveness/irritancy), hazards (combustibility/spontaneous combustibility), or other concerns but may be used under adequate control.
Registered substances	Chemical substances that have limited toxicity or hazards and thus may be used under specified control.

Monitoring and Risk Management of Chemical Substances

Sharp has established voluntary standards that are stricter than either the regulatory requirements or the levels agreed upon with local communities for chemical substances used at its production bases. These standards ensure the comprehensive monitoring and management of the target chemical substances released and transferred, as well as the concentrations and emissions of air and water pollutants.

Environmental Initiatives: Safety and Security

Release and Transfer of PRTR-Listed Substances

Sharp monitors and reports the release and transfer of chemical substances covered by the Japanese PRTR*1 Act. Of these PRTR chemicals, 24 were handled in Japan and five overseas*2 in quantities of 500 kg or more by one or more plants during fiscal 2024.

*1 PRTR: Pollutant Release and Transfer Register. A system that mandates the collection and dissemination of information, such as the amount of harmful chemicals discharged and transferred.
*2 Sharp defines target substances based on laws in Japan.

■ PRTR Data for Japan (Fiscal 2024)

(kg)

PRTR No.	Chemical	Amount Handled	Amount Discharged			Amount Transferred		Amount Consumed		Amount Removed
			Into Atmosphere	Into Public Water Areas	Into Soil	Into Sewerage	Into Waste, etc.	Contained in Products	Recycled	
1	Zinc compounds (water-soluble)	1,683	0	0	0	0	1,436	0	247	0
20	2-Aminoethanol	979,764	695	0	0	0	30,159	0	845,775	103,135
44	Indium and its compounds	22,272	0	0	0	0	3,873	2,324	16,075	0
80	Xylene	3,840	19	0	0	0	0	0	0	3,821
83	Cumene	560	0	0	0	0	10	0	550	0
135	2-methoxyethyl acetate	104,000	625	0	0	0	0	0	80,790	22,585
232	N, N-dimethylformamide	30,774	0	0	0	0	0	0	0	30,774
272	Copper salts (water-soluble, except complex salts)	57,413	0	0	0	0	44,074	11,024	1,450	865
343	Pyrocatechol (also called catechol)	2,585	0	0	0	0	2,585	0	0	0
374	Hydrogen fluoride and its water-soluble salts	619,677	1,932	0	0	378	356,340	0	35,101	225,926
401	1,2,4-benzenetricarboxylic 1,2-anhydride	1,636	0	0	0	0	495	856	285	0
405	Boron compounds	4,536	21	0	0	0	4,091	73	351	0
412	Manganese and its compounds	20,595	0	0	0	0	442	20,153	0	0
438	Methylnaphthalene	9,868	45	0	0	0	0	9,823	0	0
453	Molybdenum and its compounds	12,190	0	0	0	0	3,274	366	8,550	0
594	Ethylene glycol monobutyl ether	16,910	1,381	0	0	0	4,847	0	86	10,596
627	Diethylene glycol monobutyl ether	1,329,410	1,983	0	0	0	1,909	0	759,495	566,023
665	Cerium and its compounds	977	0	0	0	0	977	0	0	0
674	Tetrahydrofuran	6,075	469	0	0	0	1,506	0	0	4,100
677	Tetramethylammonium hydroxide	1,943,430	202	0	0	0	326,547	0	1,370,031	246,650
691	Trimethylbenzene	23,183	37	0	0	0	269	0	15,554	7,323
746	N-Methyl-2-pyrrolidone	124,198	2,595	0	0	0	8,836	0	85,193	27,574
751	2-(2-Methoxyethoxy)ethanol	4,498,117	923	0	0	0	6,382	0	2,882,296	1,608,516
752	1-Methoxy-2-(2-methoxyethoxy)ethane	14,901	0	0	0	0	11,533	1,828	1,540	0
Total		9,828,594	10,927	0	0	378	809,585	46,447	6,103,369	2,857,888

Environmental Initiatives: Safety and Security

Release and Transfer of PRTR-Listed Substances

■ Overseas PRTR Data (Fiscal 2024)

(kg)

PRTR No.	Chemical	Amount Handled	Amount Discharged			Amount Transferred		Amount Consumed		Amount Removed
			Into Atmosphere	Into Public Water Areas	Into Soil	Into Sewerage	Into Waste, etc.	Contained in Products	Recycled	
82	Silver and its water-soluble compounds	1,057	0	0	0	0	155	902	0	0
300	Toluene	7,933	7,933	0	0	0	0	0	0	0
591	Ethylcyclohexane	585	410	0	0	0	175	0	0	0
392	N-hexane	50,314	50,314	0	0	0	0	0	0	0
448	Methylenebis(4,1-phenylene) diisocyanate	1,488,652	0	0	0	0	28,190	1,460,462	0	0
Total		1,548,541	58,657	0	0	0	28,520	1,461,364	0	0

Environmental Initiatives: Safety and Security

Managing Environmental Load into Air and Water Areas

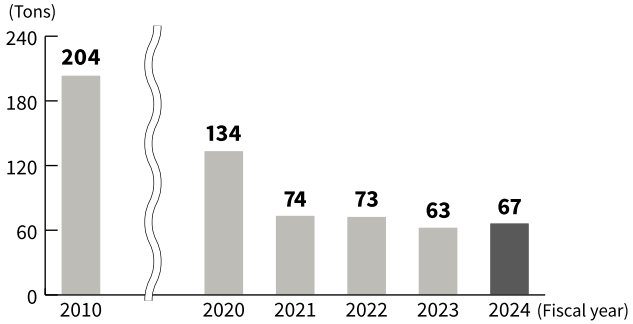
Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ VOC emissions into the atmosphere: 204 tons or less (fiscal 2010 levels)	■ VOC emissions into the atmosphere: 67 tons	★★	■ VOC emissions into the atmosphere: 204 tons or less (fiscal 2010 levels)

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

Reducing VOCs

Sharp strives to reduce the volatile organic compounds (VOCs) it emits. It has set a target of keeping VOCs released into the atmosphere to no higher than fiscal 2010 levels (based on a voluntary action plan by the Japanese electrical and electronics industry). Fiscal 2024 VOC emissions were 67 tons, lower than the amount emitted in fiscal 2010 (204 tons), thus achieving the target.
Sharp is reducing VOCs with the installation of highly efficient abatement facilities in LCD production sites, a major source of VOC emissions.

■ VOC Emissions into the Atmosphere

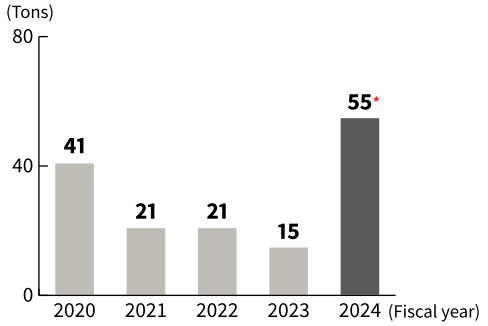


Managing Environmental Load into Air and Water Areas

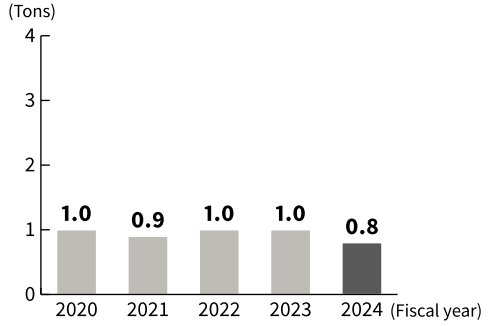
Sharp properly manages pollutants that affect air and water quality by establishing voluntary standards that are stricter than those set forth in laws and regulations and stricter than those agreed upon with local communities. It also actively conducts risk communication with local communities.

Atmospheric Emissions in Japan

■ NOx Emissions



■ SOx Emissions



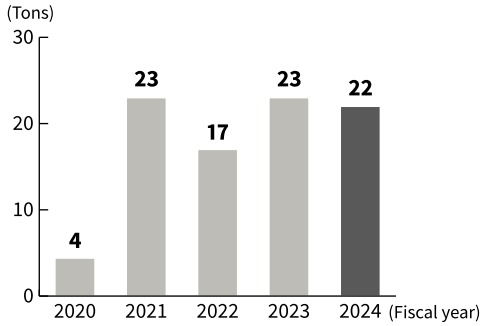
*Although emissions increased at some sites due to a change in the operation of NOx treatment equipment, Sharp still abided by pollution control agreements.

Environmental Initiatives: Safety and Security

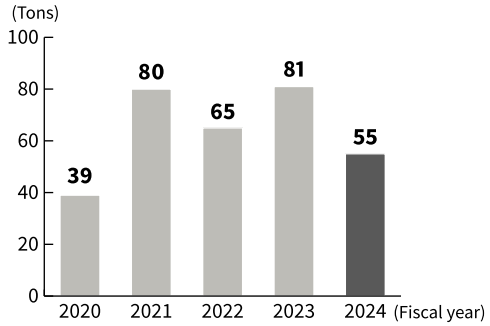
Managing Environmental Load into Air and Water Areas

Emissions into Water Areas in Japan

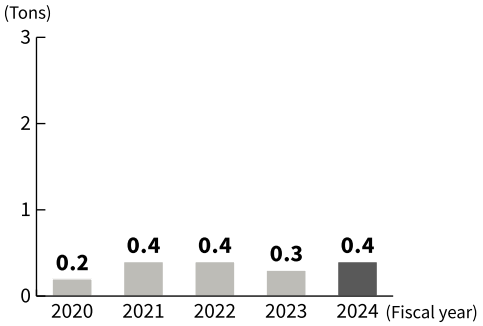
■ COD (Chemical Oxygen Demand)



■ Nitrogen Pollutant Load



■ Phosphorous Pollutant Load



Risk Management of Soil and Groundwater Pollution

Sharp has established and is appropriately applying in-house standards to minimize the risk of environmental pollution and accidents caused by chemical substances. It also strives to prevent such incidents from occurring by taking multi-layered leakage prevention measures at facilities that handle chemical substances. For plants where chlorine solvent contamination was found in the past, Sharp regularly notifies local government authorities and others of the cleanup progress.

Example

Analyzing Plant Wastewater Samples

The Nara Plant in Yamatokoriyama, Nara Prefecture, conducts its own monthly voluntary checks on plant wastewater. It also works with the Yamatokoriyama city government to analyze wastewater four times a year, as part of its risk communication activities. Each party conducts its own analysis, before sharing their results and exchanging insights. This process gives Sharp the opportunity to build strong relationships with everyone involved.

Wastewater sampling and analyses

Environmental Initiatives: Biodiversity Protection

Protecting Biodiversity

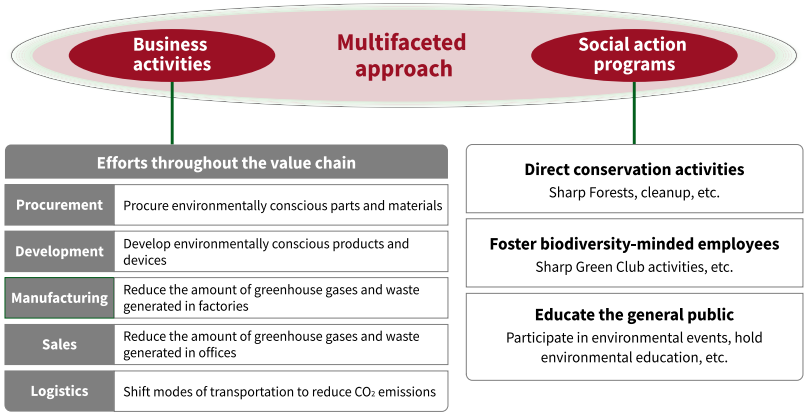
Fiscal 2024 Objectives	Fiscal 2024 Achievements	Self-Evaluation	Priority Objectives for Fiscal 2025
■ Have employees take the lead in carrying out environmental conservation activities together with the local community and, thereby, contribute to achieving 30by30*1	■ Total number of participants in environmental conservation activities: 9,602 (including family members), total number of activities: 733 (in Japan)	★★	■ Actively carry out environmental conservation activities, both in Japan and overseas, with the aim of achieving 30by30 on a global scale

Self-evaluation: ★★★ Achieved more than targeted / ★★ Achieved as targeted / ★ Achieved to some extent

Biodiversity Protection through Business and Social Action Programs

While Sharp's business activities impact biodiversity, the company also benefits from the resources that biodiversity provides. That is why the Sharp Group is carrying out a multifaceted approach in which it protects biodiversity through business activities and social action programs at worldwide bases.

■ Sharp's Efforts for Protecting Biodiversity



*1 The goal, pledged at the 2021 G7 Summit, is to halt and reverse biodiversity loss ("nature positive") by 2030, aiming to effectively conserve more than 30% of the country's land and marine areas as healthy ecosystems.
*2 JEMA (Japan Electrical Manufacturers' Association), JEITA (Japan Electronics and Information Technology Industries Association), CIAJ (Communications and Information Network Association of Japan), JBMIA (Japan Business Machine and Information System Industries Association)
*3 A location recognized by the Ministry of the Environment as contributing to the conservation of biodiversity.

In its business activities, Sharp aims to be nature positive by 2030, halting and reversing the loss of nature. As part of this, since fiscal 2024, Sharp has participated in the Taskforce on Nature-related Financial Disclosures (TNFD) Forum and is preparing to disclose information based on the TNFD framework. Sharp also participates in the Biodiversity Working Group of the Environmental Strategy Liaison Committee created by Japan's four major electrical and electronic industry associations*2. Sharp is using the "Map of the Relationship between Electrical and Electronics Business and Biodiversity Ver. 3.0," created by the working group, to implement the LEAP approach (an assessment step for disclosure recommended by the TNFD) at its business sites. Going forward, Sharp will expand the scope of the LEAP approach to its supply chain, clarify the significant dependencies and impacts of its business activities, and consider specific actions to achieve nature-positive sustainability.

As part of its social action programs, Sharp has established branches of the Sharp Green Club (SGC), a joint labor–management volunteer organization, at its major business locations in Japan. SGC works to conserve *satoyama* (areas between foothills and arable land), Ramsar Convention wetlands, and the environment surrounding Sharp business sites. In fiscal 2024, 733 such activities took place. These involved 9,602 volunteers, including Sharp executives, employees, and their family members.

Also, the Tenri Kofun Sharp Forest at the Tenri Plant (Nara Prefecture) and the SGC Asuka Forest at the Katsuragi Plant (Nara Prefecture) are undergoing review for registration as nationally certified sustainably managed natural sites*3, which is the next step following Sharp's participation in June 2024 in the 30by30*1 Alliance for Biodiversity headed up by Japan's Ministry of the Environment.

Overseas, too, Sharp held tree-planting and other such activities as part of a corporate social responsibility program. This way, the entire Sharp Group is making efforts to preserve the world's ecosystems.

Environmental Initiatives: Biodiversity Protection

Protecting Biodiversity

Example

Toward Registration as Ministry of the Environment-Certified Sustainably Managed Natural Sites

Since 2003, Sharp has established the Sharp Green Club (SGC), a joint labor–management volunteer organization, at its major business locations in Japan, as part of its efforts to preserve ecosystems where diverse flora and fauna coexist. SGC not only cleans and greens the areas around Sharp factories and offices but also takes part in activities organized by local governments and other organizations.

Through the Sharp Forest project, SGC groups work to protect *satoyama*. This involves afforestation efforts conducted by volunteers in five locations*1 around Japan that seeks to use forest cultivation as a means of fostering an understanding of the relationship, as well as deepening the connection, between forests, wildlife, and humanity and to foster greater global environmental mindedness.

In addition to these long-standing activities, and in response to the recent rise in international expectations for biodiversity conservation, Sharp, along with five affiliated companies*2, has joined the 30by30 *3 Alliance for Biodiversity, led by the Ministry of the Environment. To facilitate the achievement of 30by30, Sharp has established a Biodiversity Subcommittee under its Sustainability Committee*4. This subcommittee works with members involved in the Sharp Forest activities mentioned above for the goal of getting these forest sites registered as sustainably managed natural sites*5 certified by the Ministry of the Environment. As of August 2025, the Tenri Kofun Sharp Forest*6 at the Tenri Plant and the SGC Asuka Forest*7 at the Katsuragi Plant are undergoing review by the Environmental Restoration and Conservation Agency. Additionally, Sharp is aiming to have the Taki Sharp Forest*8 at the Mie Plant and the Sharp Green Club Kameyama Biotope*9 at the Kameyama Plant certified around March 2026.

Collecting fallen leaves for compost at the SGC Asuka Forest

Bamboo lilies of Tenri Kofun Sharp Forest

*1 Tenri Plant (Nara Prefecture), Katsuragi Plant (Nara Prefecture), Hiroshima Plant (Higashihiroshima City), Mie Plant (Taki District, Mie Prefecture), Kameyama Plant (Mie Prefecture)
*2 Sharp Energy Solutions Corporation, Sharp Jusda Logistics Corporation, Sharp Display Manufacturing Corporation, Sharp Tokusen Industry Co., Ltd., Sharp Electronics Sales Okinawa Corporation
*3 The goal, pledged at the 2021 G7 Summit, is to halt and reverse biodiversity loss (“nature positive”) by 2030, aiming to effectively conserve more than 30% of the country’s land and marine areas as healthy ecosystems.
*4 See page 011.
*5 See page 068.
*6 Based on the concept of environmental conservation at historical heritage sites, cultivation and conservation of rare, wild bamboo lilies is being undertaken on the ancient burial mounds within this forest.
*7 With the goal of preserving the landscape and forest, the area is divided between fruit tree areas, forest areas, and bamboo grove areas. Efforts are being made to restore historical landscapes, such as former rice terraces.
*8 Based on the concept of forest conservation and landscape improvement, a section of the Fureai no Mori forest in Taki Town is being maintained.
*9 A place for employees to relax and a breeding ground for the endangered yaritanago fish (*Tanakia lanceolata*).

Environmental Initiatives: Biodiversity Protection

Protecting Biodiversity

Example

Planting Rice with Local Volunteers to Help Preserve Farmland

In the Kurumagawa district of Taki Town, the growing abandonment of farmland has become a serious concern. Since 2012, the Mie Plant has been working to prevent this land from becoming degraded. As part of these efforts, the Sharp Green Club Mie is partnering with the Kurumagawa Satoyama Fanclub—a group of local volunteers—to help preserve and revitalize the area.

In May 2024, 15 Sharp employees and their family members participated in rice planting. Later, 17 of them took part in weeding in June and harvesting in September.

Planting rice by hand

Using cage wheels to remove weeds

Harvesting rice by hand

Example

Earth Day Community Cleanup

In recognition of Earth Day 2024*, SECL—Sharp's Canadian subsidiary—hosted a community park cleanup in Mississauga, Ontario, where the company is based. As part of our ongoing commitment to environmental stewardship and community engagement, more than 30 employees volunteered their time to help preserve the park's natural ecosystem. This initiative not only supported local conservation efforts but also reflected our dedication to fostering stronger connections with the communities in which we operate.

SECL team members volunteering at the Earth Day park cleanup

SECL employees with collected waste during the Earth Day park cleanup

* Earth Day was proposed in 1970 by U.S. Senator Gaylord Nelson. He declared April 22 as "Earth Day" to raise awareness about the importance of clean air and water resources. Every year on April 22, people around the world take part in events to show their concern for the planet and support environmental protection.

Environmental Initiatives: Biodiversity Protection

Protecting Biodiversity

Example

Participating in a School Greening Program

Sharp's Indonesian production and sales base, SEID, and production base, SSI, participate in the School Go Green project. This is a CSR initiative involving 36 companies in the Karawang International Industrial City (KIIC)*.

In November 2024, the Yapercik KIIC Vocational School received a donation of 221 saplings of a protected species and a rare fruit species. This supported conservation efforts in Teragadesa (Tegallalang Village), Bali, while aiding the Karawang Regency government in West Java.

In a commemorative tree-planting event, SEID planted *Jati Belanda* (known as "teak" in Japan), a large deciduous tree, while SSI planted *Matoa* (known as "banryugan" in Japan), a large evergreen tree.

Sharp also ran workshops on composting. Participants learned how to make solid and liquid compost from food waste and fallen leaves, and they explored the role of microorganisms in the process.

*KIIC is Indonesia's largest industrial estate, located in Karawang Regency in central West Java Province.

SEID's sapling donation

SEID staff members plant a *Jati Belanda*

SSI's donation of a sapling

An SSI employee plants a *Matoa*

Environmental Initiatives: Overview of Environmental Impact

Material Balance

Sharp gathers data to gain an overview of the burden its business activities place on the environment. Measured items include the consumption of energy and materials in business activities, the emissions of greenhouse gases, and the generation of waste. Sharp then uses these values to reduce its environmental burden.
Coverage: Sharp Corporation production sites and production subsidiaries in Japan and overseas

■ Input

Item				Unit	Fiscal Year 2024
Procurement, R&D, product manufacture	Energy			TJ*1	15,740
		Electricity		Million kWh	1,490
		Renewable energy*2		Million kWh	367
		City gas		Million m³	51
		LPG, LNG		Tons	3,587
		Heavy oil, kerosene, gas oil, gasoline		Kl	1,650
		Hot water, cold water, steam		TJ	422
	PFCs purchased			Tons	1,085
	Water resources			Million m³	26.5
		Water withdrawal		Million m³	8.7
			Third-party water*3	Million m³	8.2
			Groundwater	Million m³	0.5
		Water reused		Million m³	17.8
	Chemical substances handled (PRTR-listed)			Tons	11,377
	Chemical substances handled (VOCs)			Tons	2,316
	Materials consumed*4			Thousand tons	531
Logistics	Energy consumed (vehicle fuel)*5			TJ	140
Product use	Energy consumed (electricity)*6			Million kWh	3,540

Greenhouse gases | Water | Chemicals | Resources

■ Output

Item				Unit	Fiscal Year 2024
Procurement, R&D, product manufacture	Greenhouse gases			Thousand tons CO_2	820
		CO_2		Thousand tons CO_2	682
		Gases other than CO_2 (converted into amounts of CO_2)		Thousand tons CO_2	138
			HFC	Thousand tons CO_2	4
			PFC	Thousand tons CO_2	67
			SF_6	Thousand tons CO_2	57
			NF_3	Thousand tons CO_2	11
	Effluent			Million m³	6.6
		Public water areas		Million m³	4.9
		Sewerage		Million m³	1.7
	Chemical substances released and handled (PRTR-listed)			t	908
	Chemical substances released and handled (VOCs)			t	67
	Atmosphere*5	NOx emissions		t	55
		SOx emissions		t	1
	Water areas*5	COD (chemical oxygen demand)		t	22
		Nitrogen pollutant load		t	55
		Phosphorous pollutant load		t	0.4
	Waste, etc.			Thousand tons	75
		Final landfill disposal		Thousand tons	0.2
Logistics	CO_2 emissions*5			Thousand tons CO_2	10
Product use	CO_2 emissions*6			Thousand tons CO_2	19,337

■ Recycle

Item		Unit	Fiscal Year 2024
Amount recycled*5	Home appliances (4 kinds)	Thousand tons	69
	Copiers/MFPs	Thousand tons	1.8
	PCs	Tons	5
Disposal after recycling*5		Thousand tons	10

*1 TJ (terajoule) = 10^{12}J.
*2 Amount of solar power generated; amount of green power certificates purchased.
*3 Industrial-use water and tap water.
*4 Total weight of product shipments and waste, etc. (estimate).
*5 In Japan.
*6 Annual energy used and amount of CO_2 emitted by major products sold in the reporting year (estimate).

Environmental Initiatives: Overview of Environmental Impact

Calculation Standards for Environmental Performance Data

The environmental performance data are calculated based on the following calculation standards.

■ Input

Environmental Performance Indicators		Calculation Method
Procurement, R&D, product manufacture	Energy consumed	Calculated based on the Act on Rationalizing Energy Use and the Japanese Ministry of the Environment's Greenhouse Gas Emission Calculation and Reporting Manual
	PFCs purchased	HFCs, PFCs, sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) purchased annually
	Water resources consumed	Consumption and recycled use of water purchased from third parties (industrial-use water, tap water) and groundwater
	Chemical substances handled (PRTR-listed)	Among the substances covered under the PRTR Law, the total amount of substances handled annually at each plant in quantities of 500 kg or more
	Chemical substances handled (VOCs)	Among the 20 types of volatile organic compounds (VOCs) specified by Japan's four major electrical and electronic industry associations, the total amount of substances handled annually at each plant in quantities of 1 metric ton or more
	Materials consumed	Total weight of major products* sold in the reporting year (estimate), plus waste, etc. generated
Logistics	Energy consumed	Revised ton-km method
Product use	Energy consumed	Estimate of annual energy used by major products* sold in the reporting year. Calculation based on each product's annual energy consumption rate (using a heat input per unit of 8.64 MJ/kWh).

* Flat-panel TVs, air conditioners, refrigerators/freezers, washing machines/dryers, air purifiers, Plasmacluster Ion generators, microwave ovens, copiers/MFPs, solar cells.

■ Output

Environmental Performance Indicators		Calculation Method
Procurement, R&D, product manufacture	Greenhouse gas emissions	● CO_2 emissions from purchased electricity Japan: Using CO_2 emission coefficient by electric power company (adjusted) published by Japan's Ministry of the Environment and the Ministry of Economy, Trade, and Industry Overseas: Using emission coefficients published in the environmental reports, etc. of electric power companies, or emission coefficients published in the IEA Emissions Factors ● CO_2 emissions from consumed fuel Using emission coefficient published in the Ministry of the Environment's Greenhouse Gas Emission Calculation and Reporting Manual ● Greenhouse gases other than CO_2 Using global warming potential published in the 5th Assessment Report by the Intergovernmental Panel on Climate Change (IPCC)
	Drainage	Annual drainage into public water areas and sewer system
	Chemical substances released and transferred (PRTR-listed)	Among the substances covered under the PRTR Law, the total amount of substances (handled annually at one or more plant in quantities of 500 kg or more) that were released and transferred
	Chemical substances released (VOCs)	Among the 20 types of volatile organic compounds (VOCs) specified by Japan's four major electrical and electronic industry associations, the total amount of substances (handled annually at each plant in quantities of 1 metric ton or more) that were released and transferred
	NOx emissions	Annual emissions
	SOx emissions	Annual emissions
	COD (chemical oxygen demand)	Drainage into public water areas
	Nitrogen pollutant load	Drainage into public water areas
	Phosphorous pollutant load	Drainage into public water areas
	Waste, etc.	Industrial waste + general office waste + valuable resources recovered
	Final landfill disposal	Final landfill disposal of industrial waste + final landfill disposal of general office waste
Logistics	CO_2 emissions	Revised ton-km method
Product use	CO_2 emissions	Amount of CO_2 emitted by major products* sold in the reporting year, based on their energy consumption (estimate)

Environmental Initiatives: Overview of Environmental Impact

Calculation Standards for Environmental Performance Data

Recycle

Environmental Performance Indicators		Calculation Method
Disposal, recycling	Home appliances (4 kinds)*	Amount of used home appliances (4 kinds) recycled
	Copiers/MFPs	Amount of recycled copiers and MFPs
	PCs	Amount of recycled PCs
	Disposal after recycling	[Weight of 4 kinds of home appliances, PCs, and copiers/MFPs collected] – [Weight recycled into new products or materials, or reused]

* TVs (CRT TVs, flat-panel TVs), air conditioners, refrigerators/freezers, washing machines/dryers.