

Environmental

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Advancing Our Environmental Vision and Long-Term Environmental Targets

Environmental Governance

Achieving a Decarbonized Society

Achieving a Resource-Efficient Society

▶ Efforts to Achieve a Resource-Efficient Society

Building a Society That Uses Resources Efficiently

Building a Water-Efficient Society

Achieving a Harmonized Society with Nature

Environmental Data

Achieving a Resource-Efficient Society

Efforts to Achieve a Resource-Efficient Society Approach GRI 2-13/2-24/3-3

Environmental issues continue to intensify associated with increased economic and social activities within the conventional linear economy of mass production, mass consumption, and mass disposal. These problems involve resource shortages, water scarcity, tight supply and demand for energy, environmental pollution caused by increasing waste, global warming, and the loss of biodiversity. To solve these problems and create sustainable societies, we must shift away from linear economies to circular economies. Hitachi works together with customers and society to help build a society that uses water and other resources efficiently.

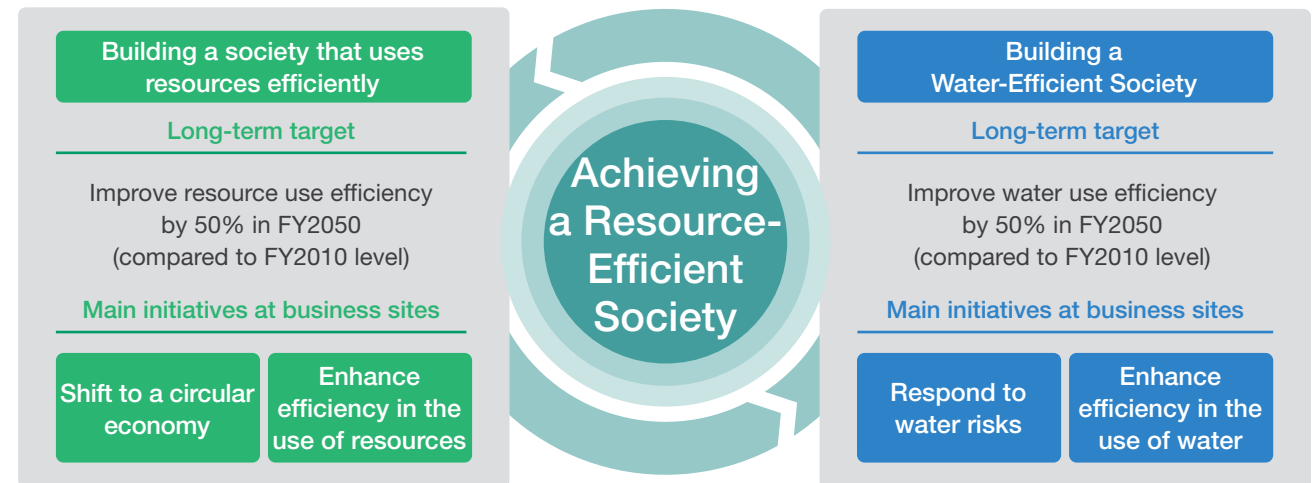
Initiatives in the Value Chain

Hitachi considers the circularity of resources across the value chain to be of key importance. We also believe in the importance of water usage reduction that takes into consideration water risks on a region-by-region basis at each stage of the supply chain. Accordingly, we drive circular-design initiatives and development tools, applications, and services that help facilitate circular economies, and optimize water usage and wastewater treatment in the supply chain, provide water-efficient products and services.

Initiatives at Business Sites

We established a long-term environmental target to improve the efficiency with which water and other resources are used by fiscal 2050. The actual goal is to improve efficiency by 50% compared to fiscal 2010. In addition, we will create higher economic value using fewer resources while pursuing production activities with a lower environmental burden.

▶ Initiatives to Achieve a Resource-Efficient Society



Note: Our response to water risks that take biodiversity into consideration are detailed in *Efforts to Achieve a Society Harmonized With Nature* (P.055).

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Building a Society That Uses Resources Efficiently

GRI 301-1/301-2/301-3

Approach to Transitioning to a Circular Economy

Approach

To help build a society that uses resources efficiently, Hitachi will advance a shift from the conventional linear economy to a circular economy. Therefore, we will focus on how we can continue to use resources and assets in our business activities and reduce waste, or even eliminate waste altogether, using three approaches: innovation in upstream product design, innovation in the product manufacturing process, and innovation of our business model.

① Innovation in Product Design

Through Environmentally Conscious Design Assessments and Life Cycle Assessments for new products that involve design activities, we will reduce waste by standardizing parts, extending service life, utilizing recycled materials, and designing for easy recyclability. To this end, we revised the Hitachi Eco Design Management Guidelines and Hitachi Eco Design Activity Guidelines to reflect the latest international trends. At the same time, we set a clear goal to apply the relevant assessments to all new products involving design activities and to achieve this goal by fiscal 2024.

② Innovation in the Manufacturing Process

We share case studies among divisions to highlight initiatives in this area. Case studies include product and parts manufacturing volume optimization based on an understanding of supply and demand, digitization of design processes for paperless work, the reduction of packaging material usage, the reduction of defective products through quality improvement, and the reduction of chemical substances. Further, we established specific targets for the number of sites achieving the goal of the Zero Waste to Landfill initiative, as well as for

effective utilization rates related to plastic waste. In particular, we initiated activities targeting all manufacturing sites this fiscal year with the aim of achieving Zero Waste to Landfill*1.

*1 Pursued in careful compliance with regulations, conditions, etc., in each country or region

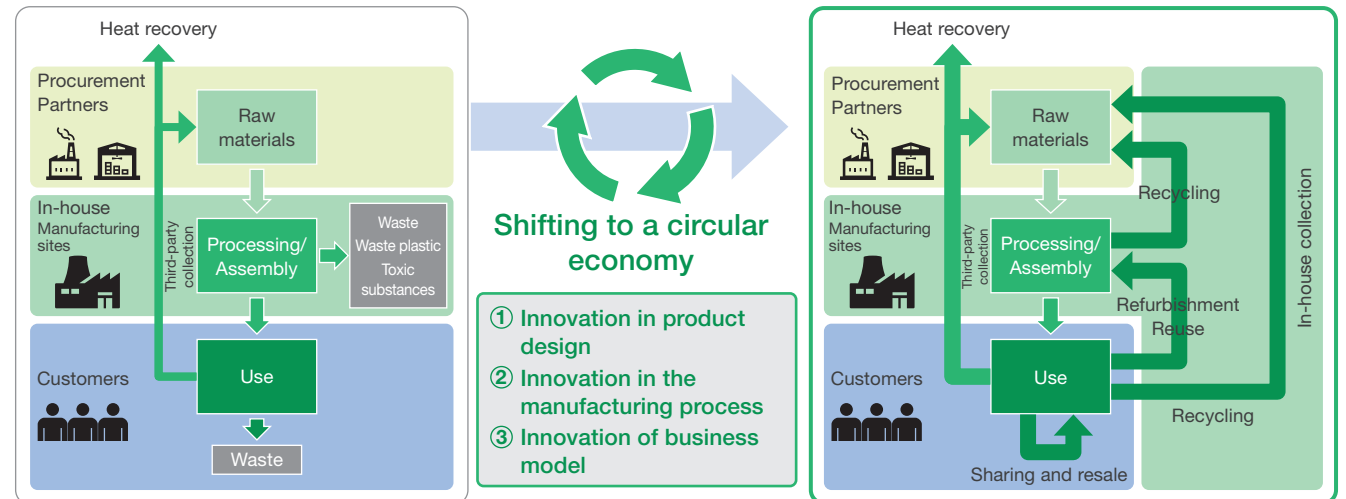
③ Innovation of Business Model

To adapt to a society that is transitioning from goods to experiences, or in other words, from ownership to leasing, we pursue the effective use of resources and assets through leasing, pay-per-use systems, subscriptions, products as a service, reuse, and sharing-based models. At the same time, we collect used products and consider their sale, repair, or

recycling, making continuous efforts to devise strategies for the most efficient utilization of resources and assets. To this end, we share our goals with various stakeholders in the value chain and pursue collaborative creation. Additionally, we pursue research and development involving raw materials, products, tools, applications, and services necessary for our goals, leveraging the advantages of Hitachi's IT × Operational Technology (OT) × Products to support create circular economies not only in our value chain, but in customer activities as well.

■ P.038 Improving the Environmental Performance of Products and Services Through Eco-Design

➤ Approach to Transitioning to a Circular Economy



Note: Hitachi normally refers to suppliers (including vendors and providers) as procurement partners, with whom we build business together on an equal footing.

Environmental

Environmental

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Environmental Governance

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Efforts to Achieve a Resource-Efficient Society

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Environmental Data

Management of Waste and Valuables Generated at Business Sites

Activities

We collect environmental load data for waste and valuables*1 generated at the business sites using the Environmental Data Collection System (Eco-DS) to manage centrally the volumes of waste and valuables generated and exported by type. For hazardous waste, in particular, we ensure thorough compliance with laws and regulations, and engage in proper disposal within the Group.

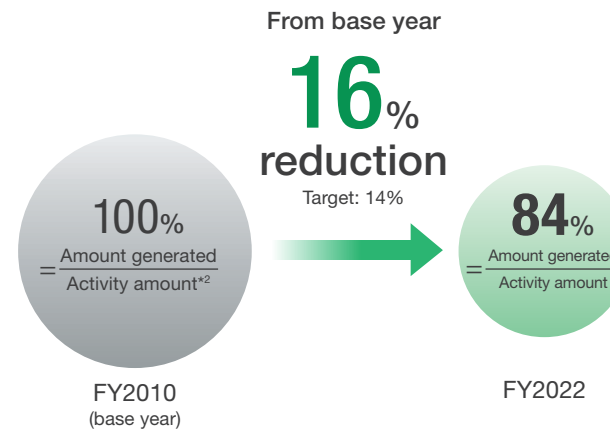
For fiscal 2022, which was the first year of the Environmental Action Plan for 2024 (fiscal 2022–2024), we established a 14% per-unit reduction target (compared with a base year of fiscal 2010) for waste and valuables generated. We outperformed this target by achieving a reduction of 16%.

We reduced the amount of waste and valuables generated by 70 kt, or 23%, compared to the base year. We accomplished this result by installing recycling facilities within our business sites, as well as through closed-loop recycling, whereby byproducts and scrap from the production process are reused as resources by other business sites, while packing and cushioning materials for transportation are used repeatedly.

*1 Waste and valuables: Materials generated through business activities. Each country has a legal definition of waste, and in Japan, the term refers to refuse, bulky refuse, ashes, sludge, excreta, waste oil, waste acid and alkali, carcasses, and other filthy and unnecessary matter, which are in a solid or liquid state according to the Waste Management and Public Cleansing Law. Valuables, meanwhile, are those materials left over after business activities other than waste, and can be sold or transferred free of charge to other parties as items of value.

Environmental Action Plan for 2024 Management Values

Reduction Rate in Waste and Valuables Generation*1 per Unit (Hitachi Group)



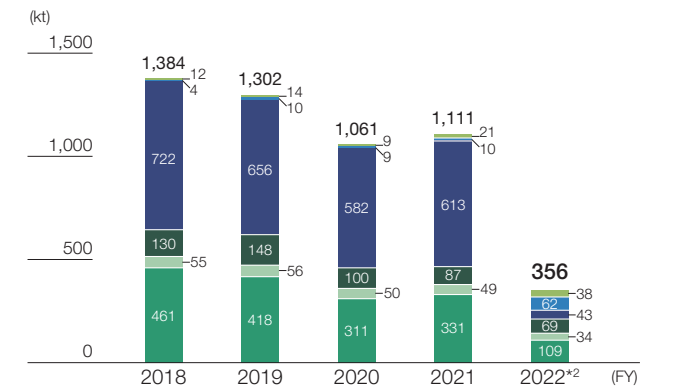
*1 Amount of waste and valuables generated from the production process.

*2 Activity amount is a value closely related to waste and valuables generation at each business site (for example, output, sales, and production weight).

GRI 306-1/306-2/306-3

Waste and Valuables Generation*1 (Hitachi Group)

Japan China ASEAN, India, and other Asian regions North America Europe Other regions



*1 Waste and valuables: Through fiscal 2021, this volume was the amount of waste and valuables generated by major business sites. Beginning in fiscal 2022, this volume is the total amount of waste and valuables generated in the manufacturing processes of all business sites and the amount generated at offices other than manufacturing processes.

*2 Beginning in fiscal 2022, the report above includes waste and valuables generated by an energy-related company and auto parts companies in fiscal 2022. Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.

P.063 Environmental Load from Operations

Case Studies of Efficient Use of Resources

<https://www.hitachi.com/environment/casestudy/index.html#case04>

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Number of Sites Achieving the Goal of the Zero Waste to Landfill Initiative

Activities

Materiality

We pursue activities to achieve the goals of the Zero Waste to Landfill*¹ initiative, which seeks to minimize landfill disposal for the ongoing, sustainable utilization of resources. This fiscal year, we set specific targets for the number of manufacturing sites to achieve zero landfill waste, and we are stepping up efforts to accelerate this initiative. In fiscal 2022, 199 of the sites covered by our activities achieved zero landfill waste.

Environmental Action Plan for 2024 Management Values

Number of sites achieving zero landfill waste

199 business sites
(58% achievement)

FY2022 target:
90 business sites (approx. 25%)

Note: All manufacturing sites are covered

*1 Zero Waste to Landfill goal: Defined as a final disposal rate (landfill disposal/waste and valuables) of less than 0.5% in any given fiscal year in the Hitachi Group. Pursued in assumed conformance with regulations, conditions, etc.

Effective Utilization Rate of Plastic Waste

Activities

We began strengthening our activities in fiscal 2022 toward achieving a 100% effective utilization*¹ rate of waste plastics throughout the entire Hitachi Group by fiscal 2030. In fiscal 2022, we set an effective utilization rate target of 77% and achieved 88%. To improve the effective utilization rate, we are implementing measures that include design changes for equipment and products that do not generate waste, digitization of operations for paperless work, reduction of waste through yield improvements, in-house reuse, sorting and accumulation waste to enhance value, and recycling measures through detailed sorting.

Environmental Action Plan for 2024 Management Values

Effective utilization rate of plastic waste

88% achievement

FY2022 target: 77%

Hitachi Global Life Solutions, whose plastic consumption accounts for around 70% of the Hitachi Group's total, uses recycled plastic in parts for washing machines and refrigerators and packing materials for ceiling lights. The company procures recycled plastic materials produced within the Hitachi Group, such as plastic parts recovered from end-of-life home appliances and plastic containers, and also uses recycled plastics sourced from other materials manufacturers.

While large components in washing machines (enclosure bases in the lower parts of units, etc.) were previously made using a mixture of new and recycled materials, the company shifted to almost 100% recycled plastics, achieved by solving technical problems and procurement issues.

Hitachi Global Life Solutions works to recycle four categories of end-of-life home appliances (air conditioners, TVs, refrigerators/freezers, and washing machines/dryers) at 19 recycling plants as part of cooperative efforts among five companies*² in response to the 2001 Act on Recycling of Specified Home Appliances. A total of 91.3 kt of recyclable materials*³ were recovered in fiscal 2022, of which approximately 81.9 kt were recycled. By product type, the recycling rate for refrigerators and freezers was 80% exceeding the legal requirement of 70% by 10 percentage points, and for washing machines and dryers it was 94% exceeding the legal requirement of 82% by 12 percentage points.

*1 Effective utilization encompasses material recycling, chemical recycling, and thermal recovery. Pursued in assumed conformance with regulations, conditions, etc.

*2 Hitachi Global Life Solutions, Sharp Corporation, Sony Corporation, Fujitsu General Limited, and Mitsubishi Electric Corporation.

*3 Parts and materials recovered from four categories of end-of-life home appliances (air conditioners, TVs, refrigerators/freezers, and washing machines/dryers) and recycled through in-house use, sale, or transfer free of charge to other entities for use. Data values are aggregated from Hitachi Global Life Solutions and Johnson Controls-Hitachi Air Conditioning.

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Environmental Governance

Achieving a Decarbonized Society

Achieving a Resource-Efficient Society

Efforts to Achieve a Resource-Efficient Society

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Building a Water-Efficient Society

Achieving a Harmonized Society with Nature

Environmental Data

Building a Water-Efficient Society

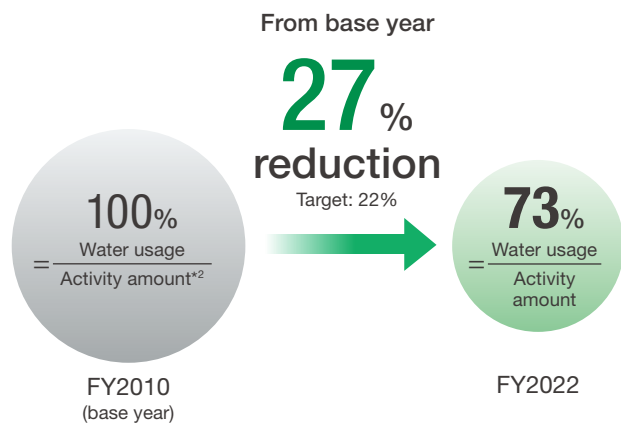
Management of Water Use at Business Sites

Activities **Materiality**

For fiscal 2022, the first year of the Environmental Action Plan for 2024 (fiscal 2022–2024), we set a target reduction of 22% (compared with a base year of fiscal 2010) in water use per unit for manufacturing process and general daily usage in manufacturing sites. We improved on this target with a reduction of 27%. We reduced the volume of water used by 11 million m³, equivalent to a reduction of 45% compared with the base year. Our measures to reduce water usage included more stringent management of water intake using flowmeters, installing water pipes above ground for better leakage control, recirculating cooling water, and reusing purified waste water.

Environmental Action Plan for 2024 Management Values

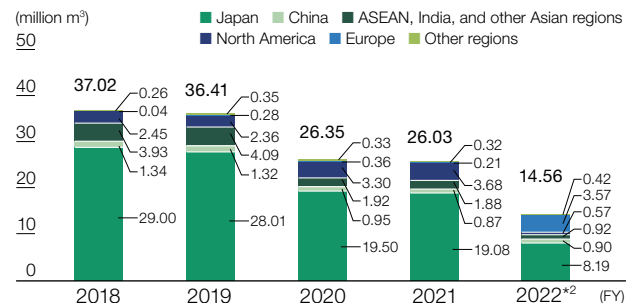
Reduction in Water Usage*1 per unit (Hitachi Group)



*1 Total amount of water used in manufacturing process and general daily usage at manufacturing sites.

*2 Activity amount is a value closely related to water use at each business site (for example, output, sales, and production weight).

Water Usage*1 (Hitachi Group)



*1 Total volume of water used in manufacturing processes and general daily usage at manufacturing sites and in general daily usage at locations other than manufacturing sites.

*2 The water usage of an energy-related company included in the scope of consolidation since fiscal 2020 is included in the figures above beginning fiscal 2022. The water usage for fiscal 2022 by auto parts companies included in the scope of consolidation since fiscal 2020 is not included in the figures above, but amounted to 412 million m³. The total water usage was decreased significantly due to the deconsolidation of the materials- and construction machinery companies.

P.063 Environmental Load from Operations

Case Studies of Improving Water Use Efficiency

<https://www.hitachi.com/environment/casestudy/index.html#case03>

Products and Services That Contribute to Resolving Water Issues

Activities

Hitachi is a comprehensive water services provider that has built a solid track record of experience and expertise in operational technology (OT), products, and services in the sector. We contribute to the effective use of limited water resources by addressing the many issues facing our customers in the water and sewage treatment business. We achieve these results by leveraging a combination of our IT, extensive experience, and considerable expertise in a variety of fields. A recent example includes our joint venture with Mizu Mirai Hiroshima Corporation, which was awarded a contract by Hiroshima Prefecture to build a

wide-area monitoring and control system for nine prefectural water treatment plants. This project involves designing and building a system that monitors and operates facilities centrally via a common cloud-based platform. The system handles data from different systems with different specifications supplied by various vendors, as well as data from software that utilizes Hitachi's digital technology. This project will contribute to wide-area control and management and as digitization (DX) in the water industry.

Hitachi's Water-related Products and Services

Activity field	Products or services (implementation to date)
Creating water resources	Wastewater recycling systems Seawater desalination systems
Developing water infrastructure	Water and sewage treatment, etc. (over 200 sites in about 40 countries and regions) Water purification plants (approximately 700 plants in Japan) Sewage treatment plants (approximately 900 plants in Japan) Comprehensive digital solutions for water and sewage treatment operators
Integrated flood control measures	Flood forecasting and simulation technology related to evacuations and emergencies

We are also engaged in verification tests and joint research with national and local governments, companies, and other organizations in various countries to establish new technologies and systems for the water business. These joint activities include recent work with Higashine City, Yamagata Prefecture, on integrated flood control measures. The actual research involved technologies for real-time flood forecasting and for simulating evacuations and emergencies. We also demonstrated the effectiveness of the technologies that were part of this research. In addition, we began joint research with Water Agency Inc., whose business includes water and sewage treatment operations, to develop a practical AI/IoT-based sludge-reduction service for sewage treatment plants.

Water Environment Solutions

https://www.hitachi.com/businesses/infrastructure/product_site/water_environment/index.html