Environment

Environmental Management

Sumitomo Forestry Group's Environmental Management

Sumitomo Forestry Group's Environmental Management

The Sumitomo Forestry Group advocates contributions to the realization of a sustainable society in its Corporate Philosophy.

The Environmental Policy applies to all stages of product life cycle and all business processes from product and service development, design and manufacturing to material procurement, distribution, waste management, supplier and partner selection, new project launches, and mergers and acquisitions, in all businesses of the Sumitomo Forestry Group to promote businesses that contribute to the realization of a sustainable society.

For example, regarding the selection and evaluation of suppliers, a "sustainability procurement survey" is conducted based on our Environmental Policy, and when a new business is started up or a joint venture or acquisition is made, each division performs a risk check from both aspects of the environment and society.

To share and raise awareness of the Environmental Policy among Group employees, it is reflected in employee handbooks, on the website and posters, etc. as well as read at new employee training sessions, ISO 14001 internal environmental auditor training courses and departmental meetings. The Environmental Policy are also posted in meeting rooms, and the environmental approach of the Sumitomo Forestry Group has been shared with business partners.

Sumitomo Forestry Group Code of Conduct applies to not just the Group enterprises but also to the supply chain. The Code of Conduct drives coexistence with the environment and clarifies the approach to advance efforts toward the environment, including all of the business partners of the Sumitomo Forestry Group.

In addition, in 2022, Sumitomo Forestry established Mission TREEING 2030, a long-term vision that integrates a long-term business framework to realize a decarbonized society and Sumitomo Forestry Group's ideal vision, towards 2030 which is also the goal year of the SDGs. We have also unveiled “Mission TREEING 2030 Phase 1” (2022-2024), a three-year Mid-Term Management Plan that will build the groundwork for future growth and decarbonization. As "Further integration of business operations and ESG" is one of the five basic policies, we set Medium-Term Management Plan Sustainability 2024 which includes the sustainability strategy as well as nine newly identified material issues. We will improve our environmental management based on this target.

Click here for related information

Corporate Philosophy and Sustainability Management

New Business Plan Risk Assessment

Sumitomo Forestry Group Environmental Policy

Through our experience nurturing forests since our founding, Sumitomo Forestry Group has learned to appreciate the wonders of wood and the importance of nature. As a corporate entity with a close affinity to nature, we will pursue business activities that balance both environmental and economic interests and contribute to a sustainable society.

1. **Develop business operations centered on wood and forests**
   We will cultivate forests and their ability to preserve and enhance the rich ecosystem to protect biodiversity, actively utilize timber resources and create new corporate value.
2. **Develop and offer environmentally conscious products and services**
   We will develop and sell products and services that are environmentally conscious throughout the entire product lifecycle.
3. **Minimize and improve environmental impact**
   To minimize and improve environmental impact, we will employ procurement practices that prevent environmental pollution and climate change and promote the effective utilization of natural resources.
4. **Ensure strict legal compliance**
   We will adhere to all environmental laws, rules and regulations, global standards, voluntary standards and accords with stakeholders.
5. **Make continual improvements to our environmental management system**
   We will accurately access environment-related risks associated with our business activities and with a mid-to-long-term outlook, set and work to fulfill yearly environment goals. In addition, we will regularly evaluate our environmental management system and make continual improvements.
6. **Promote environmental education**
   We will provide environmental education for all parties involved in Sumitomo Forestry Group's business operations and encourage voluntary environmental efforts.
7. **Pursue active communication**
   We will actively disclose english about our environmental policy and initiatives and pursue activities that convey the wonders of trees and forests and the importance of nature.

President and Representative Director
Toshiro Mitsuyoshi

Environmental Management

Environmental Management Structure

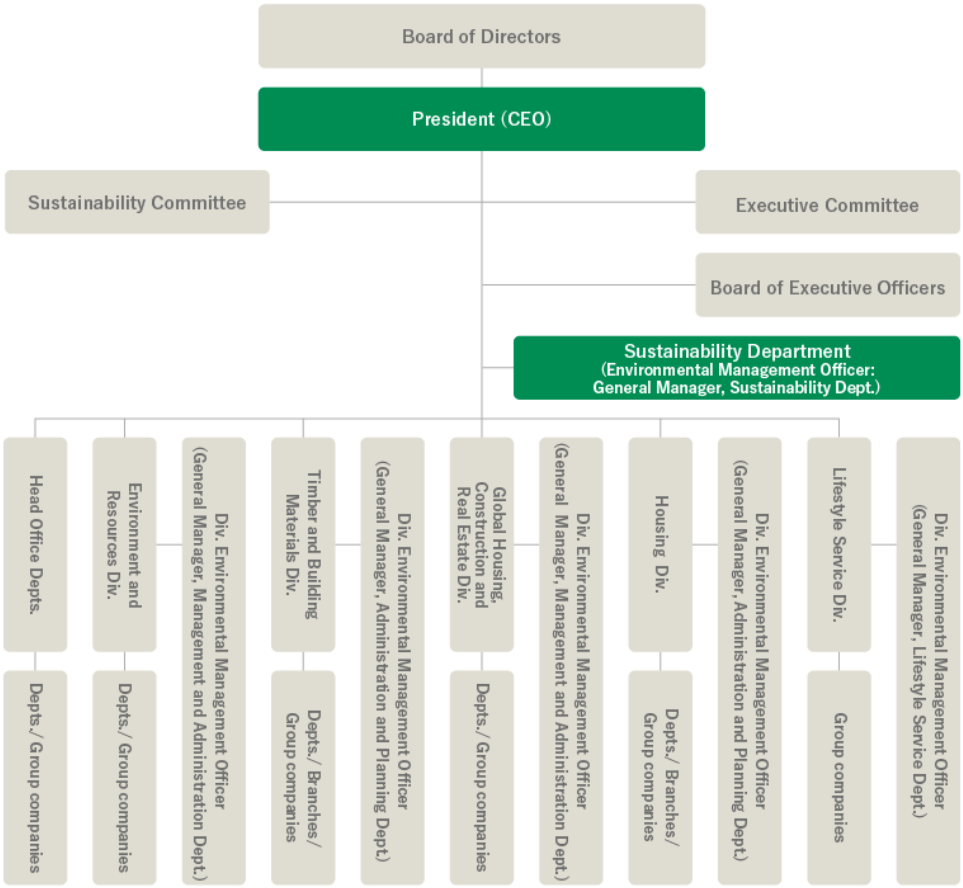
Environmental Management Structure

To ensure that management is practiced in accordance with the Environmental Policy, whose objective is to contribute to the creation of a sustainable society, the Sumitomo Forestry Group has established an environmental management structure with the President of Sumitomo Forestry assuming overall responsibility.

The General Manager of Sustainability Department under the President and Representative Director acts as the Environmental Management Officer to raise the effectiveness of environmental activities by drafting a Sustainability Budget as a quantitative targets for each fiscal year for environmental activities that each department of the Group is advancing and by regularly checking progress in with the Sustainability Committee.

In addition, Sustainability Committee reports its findings to the Board of Directors, and the Board of Directors is involved in monitoring environmental performance.

Environmental Management Structure



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Management of Mid-Term Sustainability Targets

Roles of Environmental Management Personnel

- Group Overall Environmental Representative: President (CEO)
- Group Environmental Management Officer: General Manager, Sustainability Dept.
- Division Environmental Management Officers: General Manager, Administration and Planning Dept. (Timber and Building Materials Div.); General Manager, Administration and Planning Dept. (Housing and Construction Div.); General Manager, Management and Administration Dept. (Overseas Housing and Real Estate Div.); General Manager, Management and Administration Dept. (Environment and Resources Div.)
- Department Environmental Managers: General Managers, presidents of group companies, etc.
- Environmental activity personnel: Environmental promotion personnel

ISO 14001 Certification

Sumitomo Forestry introduced an environmental management system in fiscal 1995 and acquired ISO 14001 certification for its housing operations in fiscal 1997 ahead of other players in the housing industry. Subsequently, other divisions of Sumitomo Forestry also promoted the acquisition of certification, and in fiscal 2002, all divisions of Sumitomo Forestry in Japan had acquired this certification.
The scope of certified Group companies has been extended to businesses that have a large influence on the environment, and today the Group has four certified companies in Japan. Progress is also being made on certification of overseas Group companies, focused on manufacturing companies, with six companies already certified.
The scope of consolidated companies to be certified focuses on companies that are engaged in manufacturing business and other businesses that have a large influence on the environment. In fiscal 2022, the certification rate of consolidated organizations was 94.6% (based on sales).

ISO14001 Certification Rate (Based on Sales)

94.6%

Sumitomo Forestry Group ISO 14001 Certification

Group companies		Date acquired	Date renewed (valid for three years)
Multi-site Certification at Group Companies in Japan	Sumitomo Forestry Co., Ltd. (excl. overseas operations)	August 2002*1	August 2022*1
	Sumitomo Forestry Landscaping Co., Ltd.	November 2002*2	
	Sumitomo Forestry Crest Co., Ltd.	September 2003*2	
	Sumitomo Forestry Home Tech Co., Ltd.	March 2013*2	
	Japan Bio Energy Co., Ltd.	August 2014*2	
Cohnan Kensetsu Inc.		March 2011	March 2020
Kutai Timber Indonesia (KTI)		August 2001	November 2022
Nelson Pine Industries Ltd. (NPIL)		July 2003	July 2022
PT. Rimba Partikel Indonesia (RPI)		October 2005	December 2020
PT. AST Indonesia (ASTI)	The first factory	January 2007	January 2022
	The second factory	January 2022	January 2022
Vina Eco Board Co., Ltd. (VECO)		March 2014	March 2020
Pan Asia Packing (PAP)		April 2017	April 2020

*1 Certification was acquired by individual departments and divisions from 1997 before integrated ISO 14001 certification was acquired for the entire company
*2 Acquired by inclusion in Sumitomo Forestry's integrated certification

Audits by External Certification Bodies

Companies covered by the multi-site integrated ISO 14001 certification in Japan undergo routine reviews conducted once a year by the certification body JIC Quality Assurance Ltd. In fiscal 2022, 74 departments at five companies underwent renewal and transition reviews for the ISO 14001: 2015 (JISQ 14001: 2015).

As a result of these reviews, three nonconformities and 102 observations for improvement advice were identified. On August 4, 2022, the companies under review were approved to sustain their registration after the assessment.

For the three nonconformities, we investigated the root causes, implemented measures to prevent recurrence, and horizontally shared the information, including in other branches. For each of the observations, we examined improvement methods and took individual action. Issues common to all Group companies were shared by the Sustainability Department, and the status of improvement was confirmed through internal environmental audits. The audit was conducted with particular attention to the effectiveness of compliance with environmental laws and regulations, compliance mechanisms, and responding (measures) to deal with matters where targets were not achieved.

Internal Environmental Audits

In addition to reviews conducted by external certification bodies, companies covered by the multi-site ISO 14001 certification periodically carry out internal environmental audits. These audits are implemented by employees who have passed an exam upon completion of an in-house training course taught by third-party instructors to become internal environmental auditors.

Following the amendments of the international standards in September 2015, requiring these courses be taken and passed by all general managers within the scope of the registration in particular enhances understanding about the revisions to these standards and strengthens leadership. As a result, the number of employees certified as internal environmental auditors has reached a cumulative total of 1,611 (as of the end of fiscal 2022).

Internal Environmental Audits were conducted in 115 departments, focusing on departments that were often highlighted in Internal Environmental Audits in fiscal 2020. With respect to observed nonconformities and improvement proposals, the audited department shall take corrective actions and submit a corrective report to the audit department and the Sustainability Department compiled the audit results and reviewed them with the management rank.

Each of our overseas manufacturing companies has acquired the certification and conducts internal environmental audits.

Compliance and Violations of Environmental Laws

The Sumitomo Forestry Group had no significant violations* of any environment-related laws or ordinances in the past five years.

Significant violations in the last five years

0

* Violation with a penalty or punishment of one million yen or more

Environmental Management

Environmental Risk Management

Understanding and Responding to Environmental Risks

The Sumitomo Forestry Group is aware of the risk upon our business activities from environmental changes such as climate change or reduced biodiversity and works to gather related information, analyze this information as necessary as a way to evaluate business risks.

We also determined specific measures as evaluation metrics in each department for risk with the potential to arise in daily operations and report on the progress of those measures to the Risk Management Committee each quarter while the Sustainability Committee formulates measures for risk with the potential to arise in the medium to long term. Risks with the potential to high impact business are reported to the Board of Directors to discuss their countermeasures.

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Risk Management Framework

Climate Change and Biodiversity-related Risks and Strategies

Responding to Natural Disasters

Damage from a major earthquake, windstorm, flood or other natural disaster could result in significant costs arising from restoring operations at facilities, verifying the safety of delivered housing products, delays in the completion and handover of contracted properties, or other events. Such costs could influence Sumitomo Forestry Group's operating results and financial position.

As countermeasures, Sumitomo Forestry promotes the sale of homes built with highly seismic resistant BF construction method as well as the sale of resilience housing equipped with the functionality to sustain living for a certain period of time even if lifelines are cut. Furthermore, we are building a service framework that aims to provide rapid assistance through IoT technology that rapidly grasps the damage during a disaster in real time.

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Adaption to Climate Change

Responding to Changes in the Wood Cultivation and Procurement Regulations

Sumitomo Forestry Group positions wood as its principal material and product. The risk of higher costs is always present as well as the risk of having to change suppliers in the event of regulations being imposed due to the depletion of wood resources or changes to habitats resulting from climate change and the loss of biodiversity.

Therefore, as a means of diversifying the risk of changes in conditions of wood cultivation and wood procurement regulations, wood is imported from more than 20countries. In addition, we have representatives in major countries to gather information. We also conduct factory inspections of suppliers by overseas representatives and head office employees to confirm legal compliance and sustainability. We work to procure legally harvested timber throughout the entire Group in accordance with the Clean Wood Act enacted in May 2017, such as becoming the first company to register in Japan.

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Distribution Business Initiatives

Setting Carbon Pricing Such as Mandatory Emission Reductions

As reduction of greenhouse gases advances globally, there is the possibility that reduction obligations will be imposed upon businesses in countries where the Sumitomo Forestry Group has bases. If Group companies with bases in these countries are unable to meet reduction obligations, they will be required to purchase emission credits, creating the risk of increased business costs.

In regard to Japan, carbon pricing has also been implemented due to the Tax for Climate Change Mitigation measures enforced in October 2012. Achieving targets outlined in the Paris Agreement could result in changes such as higher taxes and new levies and emissions trading, which could influence business activities and costs.
As a countermeasure, Sumitomo Forestry sets greenhouse gas reduction target for each Group company and department and pursues those reductions based on the numerical targets that are drafted each fiscal year.

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Material Issue 2 To realize carbon neutrality by leveraging forests and wood resources

Responding to Energy Supply Shortages

In June 2022, Japan's power crisis has become apparent, as tight supply-demand warning was issued for four consecutive days in the service area of Tokyo Electric Power Company. There is a risk that disruption of power transmission may cause the Sumitomo Forestry Group's exhibition halls and factories to cease operations.

As a countermeasure, Sumitomo Forestry sets greenhouse gas reduction targets for each Group company and department and promotes energy savings while pursuing those reductions based on the numerical targets that are drafted each fiscal year. In addition, solar power generation system is installed on the roofs of exhibition halls and factories responding to energy supply shortages.

Corporate Image Deterioration

Any failure in addressing various risks such as climate change measures and the preservation of biodiversity may be detrimental to the corporate image, directly affecting sales and other performance indicators.

Sumitomo Forestry comprehensively analyzes and addresses risks from environmental, social and governance perspectives in the short to medium and long term through the Risk Management Committee and Sustainability Committee. We also engage in dialogues with our stakeholders as necessary and provide opportunities for these stakeholders to share their opinions with the Sumitomo Forestry Group.

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Risk Management Framework

Responding to Environmental Laws and Regulations

The Sumitomo Forestry Group is striving to reduce and to prevent the manifestation of legal risks such as the disposal of industrial waste, soil and water pollution caused by toxic substances, noise and vibration.

In fiscal 2022, there were no significant violations of any environment-related laws or regulations or any grave environmental incidents.

Processing of Industrial Waste

Construction-related waste makes up the highest percentage of industrial waste that is illegally dumped in Japan. In terms of the breakdown of illegally dumped industrial waste, 87.4%* of the total is construction waste. Viewing the environmental risks presented by the processing of industrial waste as one of the biggest in terms of the potential impact on society and business, the Sumitomo Forestry Group works to ensure that industrial waste is disposed of appropriately.

Specifically, to comply with the Waste Management and Public Cleansing Act and other related laws and regulations, the Group has established a set of industrial waste management regulations covering appropriate disposal, reduction, recycling and reuse of industrial, as well as manufacturing regulations stipulating standards essential for production activities. In keeping with these regulations, voluntary audits of waste manifests and terms of outsourcing agreements with waste processors are carried out twice a year for each Sumitomo Forestry Group company office in Japan emitting industrial waste. If an audit concludes that corrective action is required, appropriate action is taken and it is subsequently confirmed through reports submitted in line with the industrial waste management system that waste is being properly treated.

In addition, industrial waste managers at each office conduct site checks of contractors' waste treatment plants at least once a year. In fiscal 2022, managers from the Housing Division conducted 525 on-site checks at 537 waste treatment plants run by 354 waste treatment contractors. Divisions other than the Housing Division as well as offices of Group companies are being instructed to continue using waste treatment plants which the Housing Division has already inspected.

To be able to determine whether industrial waste is being processed in an appropriate manner, the Group asks waste treatment contractors to employ electronic manifests. All branches of the Housing Division as well as all contractors accepting industrial waste from new housing construction sites have already introduced electronic manifests. In fiscal 2022, 100% of all manifests, including those for housing demolition waste, were electronic.

In conjunction with this, training is also provided for employees who coordinate the processing of industrial waste. In fiscal 2022, around 120 persons participated online training at Group companies in Japan, including newly appointed personnel in charge of industrial waste treatment operations and those responsible for industrial waste management. Furthermore, in April 2020, the Sumitomo Forestry Group created an e-learning program on basic waste management to teach the fundamentals of industrial waste management and built a system for employees to undergo this curriculum via the intranet.

* From the materials announced by the Ministry of the Environment in 2021

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Waste Reduction and Recycling

Soil Contamination

Soil contamination is difficult to discover as contaminants build up and spread underground out of sight. The Sumitomo Forestry Group implements soil contamination countermeasures for land owned or administered by the Group and conducts voluntary soil contamination studies prior to new land purchases in the subdivision business. We are in compliance on land applicable to the Soil Contamination Countermeasures Act.

The Group's domestic built-for-sale housing business conducts independent surveys of land related to brownfields* and has not purchased or sold any land that has not been through soil contamination measures.

* Land that is not used or underutilized significantly compared to its potential value due to the presence or concern of soil contamination

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Project for Soil Purification Technology and Environmental Remediation Aided by Plants

Water Pollution

Water pollution creates the risks of human health being directly affected by contamination of drinking water and of contamination affecting the habitats of organisms living in rivers, lakes and seas. Inspections entrusted to external measurement agencies are conducted once every two months and daily water quality tests are done internally through automatic COD measurement devices for the waste water expelled from waste water processing facilities in the Sumitomo Forestry Crest Imari Plant, which is a specified office under the amended Water Pollution Control Act of Japan, and the inspection results are issued to the local municipals every six months.
In addition, water is also sampled and inspected by the prefecture once a year and by the city three times a year. Through these measures, all inspections found the level of water pollution to be within the statutory limit for wastewater.

In addition, the Tsukuba Research Institute is considered a specified office under the amended Water Pollution Control Act of Japan and therefore, delivers notification of updates to some testing equipment and new installations according to this law. The Institute also conducts water quality inspections once every month through an external measurement agency to monitor those results and issue reports to Tsukuba City once every six months.

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Management of Water Pollutants

Contamination by Hazardous Chemical Substances

Contamination caused by hazardous chemical substances leads to risks of a major impact on human health or the environment and the risk of a disaster. The Sumitomo Forestry Group keeps track of amounts of hazardous chemical substances including volatile organic compounds (VOCs) used and discharged as part of appropriate management, meanwhile making an effort to reduce the use of these chemicals.

The Group takes appropriate action in response to the Air Pollution Control Act. Sumitomo Forestry Crest's Niihama Plant equipped with boilers and Kagoshima and Shizuoka plants equipped with incinerator make regular measurements of emission volumes and concentrations of NOx, SOx and soot and dust, and dioxins, respectively, and monitor that these figures are maintained below the statutory limits.

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Management of Air Pollutants

Noise and Vibrations

The Sumitomo Forestry Group makes an effort to prevent noise and vibrations during housing construction. When complaints about noise or vibrations are received, the circumstances are recorded and the information is shared with the rest of Group to prevent the occurrence of similar incidents.

Sumitomo Forestry Crest confirms that noise levels within the site boundaries of plants are below the statutory limit by taking regular measurements.

No complaints about noise or vibrations having a major impact on the environment were received from local residents during fiscal 2022.

Global Warming (Addressing the Act on Rational Use and Proper Management of Fluorocarbons)

In April 2015, the Fluorocarbons Recovery and Destruction Law came into force for the purpose of promoting drastic measures over the entire lifecycle of chlorofluorocarbons that have a strong greenhouse effect, from manufacture to disposal.

Since April 2020, regulation based on the law have been further strengthened, and the Sumitomo Forestry Group has taken steps to disseminate the details and take appropriate measures.

In addition, as a manager of specified products, we conducted simple and periodic inspections as planned.

In most cases, the Sumitomo Forestry Group leases its offices as tenants in buildings, therefore, it does not own (or manage) that much commercial refrigeration and air-conditioning equipment (air-conditioners, refrigerators, etc.). Some business sites have construction vehicles that fall under the category of "specified products," such as forklifts, etc. equipped with air conditioners. In response to the enactment of this law, we are conducting periodic simple inspections of the equipment that is using fluorocarbons as a coolant as well as executing legal and periodic inspections for devices with compressors that have 7.5kW or higher rated output. Furthermore, Sumitomo Forestry promotes the transition to products that do not use fluorocarbons in accordance with the Law on Promoting Green Purchasing when replacing existing equipment or purchasing new equipment.

Responding to Climate Change

Greenhouse Gas Emissions from Business Activities

Greenhouse Gas Emissions per Scope Based on the GHG Protocol

The Sumitomo Forestry Group has ascertained the volume of its GHG emissions according to different scopes* based on the GHG Protocol, a set of widely used international accounting tools for quantifying GHG emissions. In light of the increasing demand for renewable energy in recent years, the Sumitomo Forestry Group entered the biomass power generation business in 2011. Since starting operations in 2016, the Mombetsu Biomass Electric Power, a consolidated subsidiary company, has significantly increased Scope 1 and Scope 2 emissions of the Group because coal is used as a secondary fuel to ensure smooth operation and maintenance. In fiscal 2022, Scope 1 and 2 emissions were reduced by 4.0% from fiscal 2021 due to a reduction in coal consumption at Mombetsu Biomass Electric Power. When looking by business, our plants in Japan and the power generation business make up 54.0% while our plants overseas compose 32.1%.

In addition, we began calculating Scope 3 in fiscal 2013. We are aware that the impact of category 11 "Emissions during occupancy of sold detached houses" is particularly significant, and we are working to reduce CO_2 emissions during occupancy by promoting ZEH (Net Zero Energy House) in our housing business. The scope of calculation for Scope 3 was expanded from fiscal 2022. After estimating approximately 100% coverage for the Sumitomo Forestry Group's operations in fiscal 2021, the new scope of calculation excludes items with low emissions which are unlikely to have an overall impact. The coverage ratio for the conventional scope of calculation was approximately 85.9% in the fiscal 2021 estimate, and this was raised to approximately 94.4% as a result of the revised scope.

We continue to work to achive the Science Based Targets (SBT) by further reducing greenhouse gas emissions.

* The GHG Protocol requires businesses to disclose their greenhouse gas emissions according to the following categories
  Scope 1: Direct GHG emissions of a company, including emissions from fuel consumption. e.g.: Emissions from the use of gasoline for company vehicles
  Scope 2: Indirect GHG emissions from the generation of purchased electricity and heating. e.g.: Emissions from the use of electricity by offices
  Scope 3: GHG emissions occurring in the supply chain. e.g.: Emissions generated during the use of products sold

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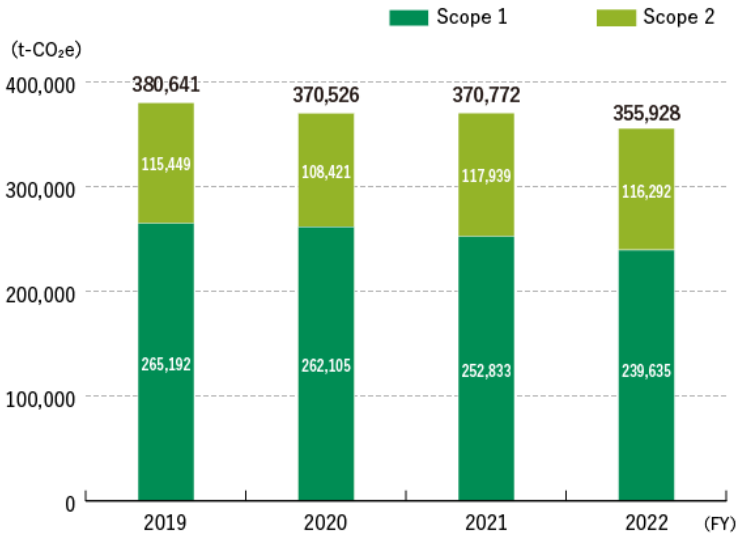
› Establishment and Certification of Science Based Targets (SBT)

› Promotion of Net Zero Energy House (ZEH) Specifications

Scope 1 and Scope 2 CO_2 Emission Trends*1

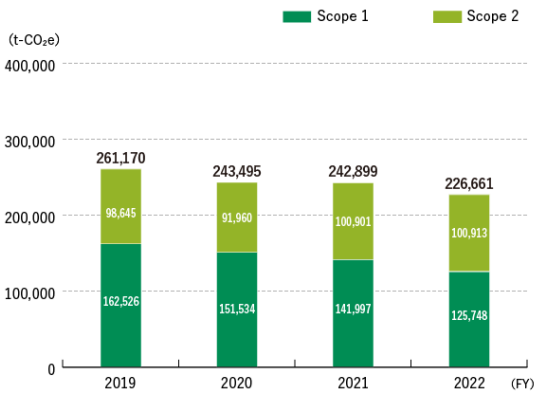


*1 Assured Scope 1 and Scope 2 emissions including power generation projects

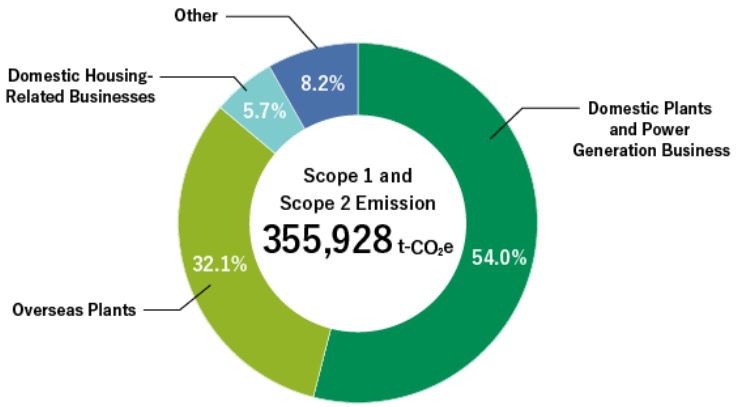
*2 Data collection period for total emissions from fiscal 2020 is January to December of each year, and the emissions counting period for fiscal 2019 is April to March of the following year

The Sumitomo Forestry Group's greenhouse gas emissions are calculated by using heat conversion factor and carbon dioxide emission coefficients stipulated in the Act on Promotion of Global Warming Countermeasures, and the heat conversion factor measured at the biomass power generation plant. The greenhouse gas emission coefficient for biomass combustion is being considered to be changed to the coefficient used in the National Greenhouse Gas Inventory Report of JAPAN (NIR) submitted by the Japanese government under the United Nations Framework Convention on Climate Change (UNFCCC), and to exclude the equity-method affiliates currently included in the scope of calculation; the emissions calculated using this factor are also disclosed for reference.

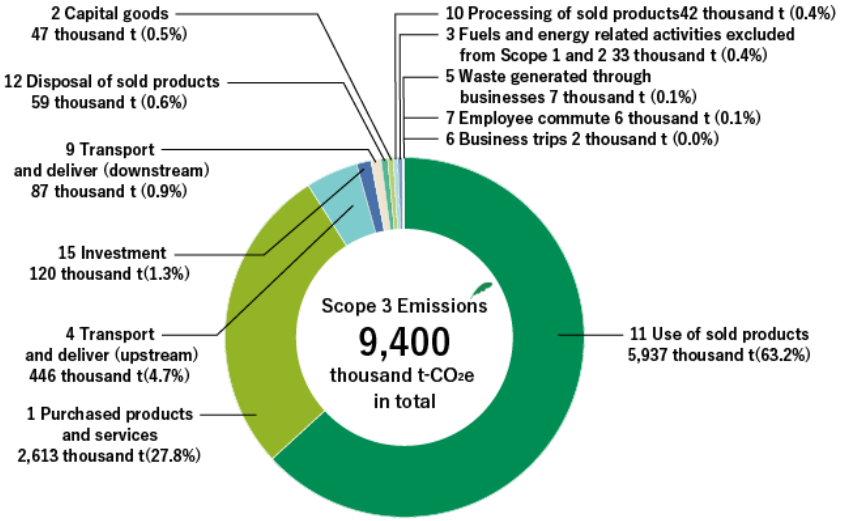
(Reference) Changes in Scope 1 and 2 emissions, calculated using the change in emission coefficient for biomass combustion and excluding equity-method affiliates



Scope 1 and 2 Breakdown by Business (FY2022)



Scope 3 Emissions by Category



Scope 3 Emissions by Category (three years)

(thousand t-CO_2e)

Category	Boundary of Emissions included in the Category	FY2020*2	FY2021*2	FY2022*2	
				Former scope*3	Revised scope*3
1 Purchased products and services*1	Emission from upstream of products and services purchased by Sumitomo Forestry	2,160	2,458	2,613	2,787 (2,780)
2 Capital goods*3	Emissions from upstream of purchased equipment	40	31	47	47
3 Fuels and energy related activities excluded from Scope 1 and 2	Emissions from the upstream of purchased fuels, electricity, heat capacity, and water	33	34	33	33 (32)
4 Transport and deliver (upstream)	Emissions from Sumitomo Forestry distribution from suppliers of purchased products and services in (1) and emissions due to logistics services other than (1) for costs incurred by Sumitomo Forestry	410	432	446	446 (439)
5 Waste generated through businesses	Emissions from waste treatment and its transport	6	6	7	7
6 Business trips*4	Emissions related to business trips of employees such as use of public transportation and accommodation	3	2	2	2
7 Employee commute*5	Emissions from employee commuting	6	6	6	6
8 Leased property (Upstream)	(Emissions from use of upstream leased property such as office building, heavy machinery, vehicles, and facilities are included in Scope 1 or 2)	-	-	-	-
9 Transport and deliver (downstream)	Emissions during transport of products sold	99	96	87	87 (81)
10 Processing of sold products	Emissions from processing of logs into plywood as well asof sold precut processing of sold lumber	41	52	42	42
11 Use of sold products	Emissions during use of detached houses sold	6,580	6,534	5,937	6,816 (6,524)

Category	Boundary of Emissions included in the Category	FY2020*2	FY2021*2	FY2022*2	
				Former scope*3	Revised scope*3
12 Disposal of sold products	Emissions from demolition and disposal of detached houses sold by the Company	55	65	59	59
13 Leased property (downstream)	(Tenants must belong to the Group and the figures are included in Scope 1 and 2 of the Group)	-	-	-	-
14 Franchised	(excluded)	-	-	-	-
15 Investment	Emissions from the investees (based on the Company's proportional share)	115	120	120	120
Total		9,548	9,835	9,400	10,453 (10,139)

*1 The calculation method for Category 1 emissions of Scope 3 was revised to apply Accounting Standards for Revenue Recognition (Corporate Accounting Standard No. 29) as of fiscal 2019 (retroactively reflected in the values for fiscal 2019). In fiscal 2021, the scope of application of the Accounting Standard for Revenue Recognition was reviewed and the method of calculating Scope 3 Category 1 was revised again (values for fiscal 2019 and 2020 were retrospectively adjusted)

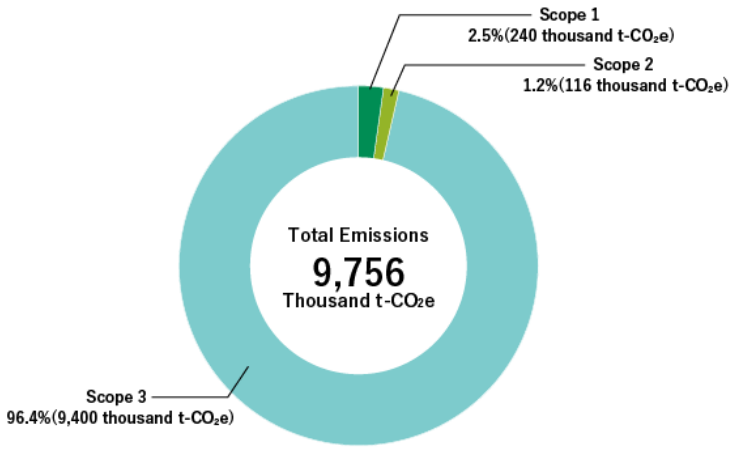
*2 Data collection period for total emissions from fiscal 2020 is January to December of each year, and the emissions counting period for fiscal 2019 is April to March of the following year

*3 Since the scope of calculation was expanded from fiscal 2022, figures calculated within the previous scope and figures calculated by revising the scope are shown together. The greenhouse gas emission coefficient for biomass combustion is changed to the coefficient used in the National Greenhouse Gas Inventory Report of JAPAN (NIR) submitted by the Japanese government under the United Nations Framework Convention on Climate Change (UNFCCC) and to exclude the equity-method affiliates currently included in the scope of calculation. The emissions calculated using this factor are also disclosed for reference, shown in parentheses

*4 From fiscal 2021 onward, a percentage decrease in travel costs was applied to reflect the impact of coronavirus disease (COVID-19) in the calculation

*5 From fiscal 2021 onward, a percentage decrease in attendance was applied to reflect the impact of the COVID-19 in the calculatio

FY2022 Total Greenhouse Gas Emissions Accrued from Corporate Activities



* Data collection period for the total emissions during fiscal 2022 is from January to December 2022

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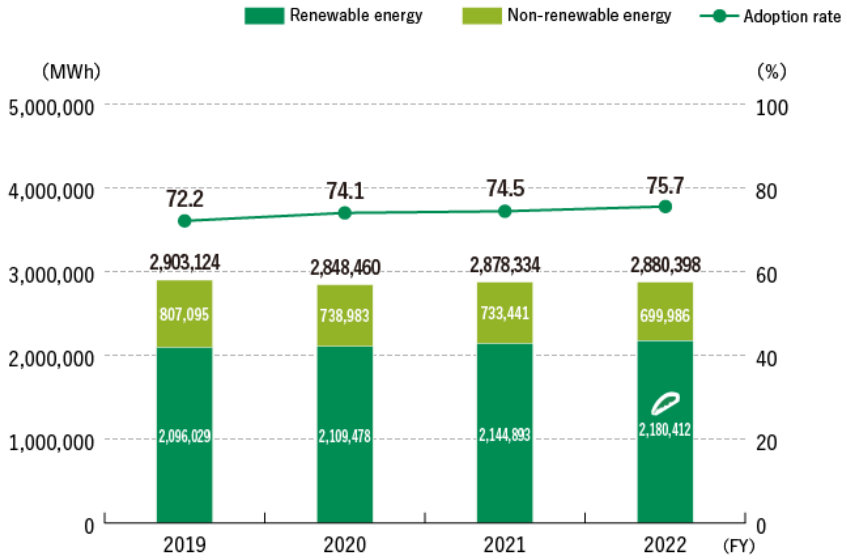
Boundaries and Methods of Greenhouse Gas Emissions Calculation

Energy Used in Business Activities and the Adoption of Renewable Energy

Energy consumption by the Sumitomo Forestry Group in fiscal 2022 was 2,880,398 MWh*, the same level as the previous year. With regard to energy consumption in businesses other than power generation, we are striving to reduce energy consumption through various energy conservation activities. In addition, the adoption rate of renewable energy in fiscal 2022 is 75.7%.

* Energy input in the Balance of Input & Output is calculated in TJ based on the Ministry of the Environment's "Environmental Reporting Guidelines." Both calculated from the same energy use

Energy Consumption and Renewable Energy Usage Trends



* The aggregation period for fiscal 2020 onwards is January to December of each year, and the emissions counting period fiscal 2019 is April to March of the following year

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Aiming for 100% Renewable Energy and Joining the RE100

Reducing Greenhouse Gas Emissions

All business sites of Group companies in Japan disposed of standard settings for gasoline vehicles in fiscal 2019 and have been advancing the introduction of fuel-efficient vehicles. To date, 350 of the 383 company-owned vehicles introduced during 2022 were fuel-efficient vehicles (for an 90.9% adoption rate of fuel-efficient vehicles).

The Group has also worked to reduce power consumption. In the Housing and Construction Division, power consumption has been reduced by moving to a "free address" office system (where personnel are not assigned to fixed desks) to make more efficient use of office space. In addition, the division has also proceeded to install solar power generation systems and LED lighting at its model homes and other business sites.

The Group will continue to reduce greenhouse gas emissions by such means as reducing prolonged working hours and raising awareness among employees.

Reducing greenhouse gas emissions from transportation

Under the revised Act on the Rational Use of Energy in Japan, consigners*1 are required to reduce per-unit energy consumption by an annual average of 1% or more in the medium to long term in relation to the transportation of goods. Sumitomo Forestry, Sumitomo Forestry Crest and Sumitomo Forestry Wood Products fall under the category of "specified consigner" (annual freight transportation volume is 30 million ton-km*2 or more), obligating them to submit reports to the Japanese Government. Sumitomo Forestry therefore sets a target each fiscal year to reduce per-unit energy consumption*3 in transportation by 1% or more compared to the previous year. Sumitomo Forestry Crest and Sumitomo Forestry Wood Products also set targets to reduce per-unit energy consumption compared to the previous year.

In fiscal 2021, Sumitomo Forestry's per-unit energy consumption was 96.4% compared to the previous year and Sumitomo Forestry Crest's was 98.2%. Sumitomo Forestry Wood Products was 99.7%.

In the future, we will work with transporters to further reduce CO_2 emissions by improving loading efficiency, modal shift from trucks to rail and ship transport, and waste transport using return trips for building material deliveries.

*1 Cosigners as defined in the Act on the Rational Use of Energy in Japan is someone who transports cargo to carriers for our businesses
*2 Freight transportation volume (ton-kilometers) = freight weight (tons) × distance travelled (km)
*3 Sumitomo Forestry and Sumitomo Forestry Wood Products measure energy consumption per unit of volume handled. Sumitomo Forestry Crest measures energy consumption per unit of net sales

Energy consumption for transportation (FY2021)

	Energy Use (Crude Oil Equivalent)	CO_2 Emissions	Energy Consumption Per Unit
Sumitomo Forestry	1,771kL	4,712t-CO_2	0.00201kL/m^3 (Ratio to Previous FY: 96.4%)
Sumitomo Forestry Crest Co., Ltd.	1,862kL	4,946t-CO_2	0.0000642kL /1,000 Yen (Ratio to Previous FY: 98.2%)
Sumitomo Forestry Wood Products Co., Ltd.	1,877kL	5,033t-CO_2	0.000669kL/m^3 (Ratio to Previous FY: 99.7%)

Establishment of an Efficient Delivery

Sumitomo Forestry is reducing the CO_2 emissions in its transportation processes by bringing together materials for Sumitomo Forestry Homes from multiple manufacturers momentarily at relay centers in approximately 30 locations throughout Japan with a system to consolidate and transport shipments.

Home Eco Logistics takes on logistics operations for the Sumitomo Forestry Group with the housing business at the core and also actively puts forward proposals for efficient logistics operations to material manufacturers, housing builders, housing construction companies and building material distributors. There are approximately 80 logistics contractors as of December 2022, excluding the Sumitomo Forestry Group. We also provide logistics support through a delivery matching system that directly connects shippers with drivers and carriers via the web, improving the efficiency of delivery request operations and providing emergency delivery services. As of December 2022, approximately 180 companies are using this service.

In the future, we will actively strive in cooperative distribution through multiple companies because of insufficient shipment capacity forecast due to a decrease in the amount of new housing construction.

Modal Shift in Tree Transportation

In March 2022, Sumitomo Forestry Landscaping, in collaboration with Nippon Freight Railway Company, Kawasaki Kinkai Kisen Kaisha, Ltd. and Nippon Express Co., Ltd. started full-scale operation of "Green Delivery Service®." "Green Delivery Service®" is a tree delivery service that aims for decarbonization by modal shifting from trucks to railroads and ships for trunk line transportation. In fiscal 2022, we made three round-trip tree deliveries from Kagoshima to the Tokyo metropolitan area. We plan to continue to promote delivery by railway, as well as tree delivery by ship.

"Green Delivery Service®" transportation by railway


Scene of tree delivery

Responding to Climate Change

Boundaries and Methods of Greenhouse Gas Emissions Calculation

The data collection period for fiscal 2022 is from January to December 2022.

Boundary of Greenhouse Gas Emissions (Organizational Range)

Unless otherwise noted, the greenhouse gas emissions presented in this report are for domestic and foreign consolidated subsidiaries and affiliates with substantial influence on management decision-making. Furthermore, the boundaries of calculating the greenhouse gas emissions by scope are as shown below.

- Scope 1, 2 and 3
- Domestic and foreign consolidated subsidiaries and affiliates with substantial influence on management decision-making.

* In fiscal 2017, the boundary for Scope 3 which previously included only emissions in Japan was expanded to include the entire Sumitomo Forestry Group. From fiscal2022, the scope will be expanded to include projects that were not previously included in the calculation

Click here for related information

> List of Applicable Companies

Types of Greenhouse Gases Subject to Data Collection

The types of greenhouse gases collected for this report are carbon dioxide, methane and dinitrogen oxide. Moreover, hydrofluorocarbons are not subject to data collection if in trace amounts (less than 1%).

Scope 1 Emissions

The greenhouse gas emissions both inside and outside of Japan are calculated by using heat conversion factor and carbon dioxide emission coefficients stipulated in the Act on Promotion of Global Warming Countermeasures, and the heat conversion factor measured at the biomass power generation plant.

The waste used for energy at manufacturing plants (wood waste and waste plastics) and wood pellets are also converted to amount of heat, and the greenhouse gas emissions (CO_2e) are calculated using the CH_4 and N_2O emission coefficients stipulated in the Act on Promotion of Global Warming Countermeasures.

The greenhouse gases emission coefficient for biomass combustion is being considered to be changed to the coefficient used in the National Greenhouse Gas Inventory Report of JAPAN (NIR) submitted by the Japanese government under the United Nations Framework Convention on Climate Change (UNFCCC), and the emissions calculated using this factor are also disclosed for reference.

Scope 2 Emissions

The greenhouse gas emissions caused by use of purchased electricity in Japan are calculated by the carbon dioxide emission coefficient for each power provider stipulated in the Act on Promotion of Global Warming Countermeasures. In addition, the performance of January to December 2022 is calculated using the emission coefficient for each power provider for submission in 2023.

The greenhouse gas emissions due to the use of purchased heat are calculated by the emission coefficient stipulated in the Act on Promotion of Global Warming Countermeasures.

The greenhouse gas emissions caused by use of purchased electricity overseas in fiscal 2022 are calculated by the latest emission coefficient (2020) of each country according to the IEA Emission Factors 2022 issued by the International Energy Agency (IEA). However, Canyon Creek Cabinet Company in the United States uses market-based emission coefficient.

Click here for related information

Ministry of the Environment
Calculation and Reporting of Greenhouse Gases (in Japanese)

Scope 3 Emissions

Category 1. Purchased goods and services

■ Portion of outside contracts during construction of wooden detached houses

∑ (energy use during on-site construction per home × emissions coefficient by energy source) × Portion of outside contracts used in houses completed in the current fiscal year

■ Purchased products

∑ (Quantity and amount (excluding tax) of procured product or sales × Emissions per weight or per price)
Overseas companies handling housing sales: Sales per unit of housing in Japan is calculated and multiplied to the sales of each overseas company.
Domestic companies handling timber and building materials: Sales per unit of timber and building materials in the Timber and Building Materials Business is calculated and multiplied to the sales of each affiliate company.

Furthermore, following the early adoption of Accounting Standards for Revenue Recognition, emission calculations have been excluded from fiscal 2019 for any sales of the Timber and Building Materials Division recognized as revenue made only from fees when arranging goods or services provided through another interested party.

[2022 Expansion Scope]

■ Products purchased for apartments and medium to large scale buildings, and the portion of outside contracts during construction

Σ(Total floor area of apartments and medium/large scale buildings x Emission intensity per floor area))

■ Products purchased for custom-built detached houses

Σ (Quantity and amount (excluding tax) of procured product or sales × Emissions per weight or per price)

■ Portion of outside contracts during construction for remodeling, housing exteriors construction, and other construction work

Σ (Outsourcing cost (excluding tax) x emission intensity per amount))

■ Portion of outside contracts for forestry business

Σ (Domestic harvest volume x Intensity per harvest volume) + Σ (Overseas harvest volume x Intensity per harvest volume by country)

Category 2. Capital goods

∑ (Capital goods procurement value by all Group companies (excluding tax) × Per unit emissions by industrial division)

Category 3. Fuel- and energy-related activities (not included in scope 1 or scope 2)

■ Procurement

∑ (Energy and water use × Per unit emissions of energy source)

■ Transport from retailers

* The target of calculations is the use on operational sites such as plants

∑ (Energy use (weight conversion) × Estimated transport distance × Per unit use of fuel in ton-kilometers × emissions coefficient)

* Calculation based on transportation scenario

Category 4. Upstream transportation and distribution

■ Transport in Japan

∑ (Amount procured by each plant ×Estimated transport distance ×Per unit use of fuel in ton-kilometers × emissions coefficient)

Emissions related to owner shipments (value to report based on the energy saving law; however, this excludes waste transport)

* Waste transport is included in Category 5

■ Transport by sea

∑ (Amount of import products procured × Distance to transport by sea from the country of procurement × Per unit emissions of ship transport)

Category 5. Waste generated in operations

∑ (Amount of emissions by type of waste × Per unit emissions by the type of waste or processing method)

Category 6. Business travel

Number of employees of all Group companies × Per unit emissions during business trips

Category 7. Employee commuting

■ Type of transportation: Train/bus

Number of employees of all Group companies × Per unit emissions during commute

* Per unit emissions during commute: Calculated from the emissions during commute of Group companies in Japan

■ Type of transportation: Automobile

Number of employees of all Group companies × Per unit emissions during commute by automobiles

* Per unit emissions during commute: Calculated by dividing the costs of commuting by automobiles by average unit price of gasoline of that fiscal year, and then multiplying the emission coefficient of burning gasoline
* Emissions during commute using employee-owned vehicles is included in Scope 1

Category 9. Downstream transportation and distribution

■ Wood yard pick up such as the plywood or fiberboard that is sold

∑ (Sales volume × Estimated transport distance × Per unit fuel use in ton-kilometer × emissions coefficient)

* Calculation based on transportation scenario

Category 10. Processing of sold products

■ Plywood work and Precut factories

∑ (Sales volume of log and timber × Per unit emissions during processing)

* Per unit is based on the LCA procurement implemented in the past by the company

Category 11. Use of sold products

■ Emissions during habitability

∑ (Annual energy use per household × Emissions coefficient by energy source) × Years of residence period × Number of houses completed by construction method and region for fiscal year

* Emissions related to renovations are omitted because there is a possibility to count a portion of Scope 1 and Scope 2 emissions twice for affiliate companies engaged in the renovations business (Sumitomo Forestry Home Tech)
* Energy use per household (electricity/city gas) :

In Japan : Calculated by using the Building Research Institute's energy consumption performance calculator program
Overseas: Average of dividing amount of fuel and electricity used per state released by the government by number of households

[2022 Expansion Scope]

Σ (Total floor area of medium/large scale buildings x Years of residence period x Emission intensity per floor area)

Σ (Total floor area per apartment x Emissions coefficient per floor area) x Years of residence period x Number of houses completed by type in the current fiscal year

∑ (Annual energy use per detached house × Emissions coefficient by energy source) × Years of residence period × Number of houses completed in the current fiscal year by region

Σ (Annual energy consumption of gas appliances installed during remodeling x Emission coefficient x Useful life)

Category 12. End-of-life treatment of sold products

■ Emissions during demolition

∑ (Fuel use during demolition per household × Emissions coefficient by fuel type) × Number of houses completed for the current fiscal year

* Fuel use during demolition per household (diesel/gasoline):
Estimated based on sample surveys conducted by Sumitomo Forestry related to the fuel use in model house demolition in 2006

■ Emissions during disposal (including transport)

∑(Amount of waste during demolition per household × Per unit emissions by volume reduction rate , disposal rate , recycling rate for each type of waste × Per unit emissions by type of waste or processing method) × Number of houses completed in the current fiscal year

* Amount of waste during demolition per household:
The amount of waste produced during demolition annually by Sumitomo Forestry Group for fiscal 2006 is calculated by converting the equivalent building weight of the standard plan (floor area:147m^2) of Sumitomo Forestry for fiscal 2010

Category 15. Investments

∑ (Scope 1 and 2 emissions from companies the Group invests × Equity interest of Sumitomo Forestry Group)

* Scope 1 and 2 emissions are the public values from the company the group invests or the values released in the Act on Promotion of Global Warming Countermeasures

Responding to Climate Change

Mitigation of Climate Change

Approach to Use 100% Renewable Energy

In order to achieve 100% renewable energy for the electricity for Sumitomo Forestry Group's operations, we are utilizing Sumirin Denki, which we started in 2019. We are also planning to install solar power generation systems in our factories both in Japan and overseas. Furthermore, we will consider a diverse range of procurement methods that take advantage of programs in each country we operate while aiming to use 100% renewable energy.

Utilizing Sumirin Denki Solar Power Generation for Domestic Electricity Use

Sumitomo Forestry started the "Sumirin Denki" service in November 2019 for owners of Sumitomo Forestry and Sumitomo Forestry Home Tech's homes. The service offers surplus electricity purchase and power supply agency sales for owners whose solar power generation purchase period expires under the feed-in tariff (FIT) for renewable energy.

We are working to allocate this "Sumirin Denki" to the electricity used by Sumitomo Forestry Group in Japan. We promote the RE100 initiative by utilizing the surplus solar power purchased from the owners with "Sumirin Denki" at our offices and model homes. As of December 2022, the number of contracts was 3,061, an increase of 1,522 from fiscal 2021. In addition, from 2021, we have been supplying electricity purchased from owners to model homes in Kinki area (38 model homes covered as of December 2022). In the future, we will accelerate the promotion of the "Sumirin Denki" services to the owners and aim to allocate the renewable energy in all areas in 2023.

Expanding the Use of Renewable Energy at Manufacturing Plants

As Sumitomo Forestry Group, our manufacturing facilities account for about 34% of our total greenhouse gas emissions. To achieve RE100, it is vital that we conserve energy and expand the use of renewable energy in our factories.

Exterior view of the Kashima Factory

In September 2020, Sumitomo Forestry Crest Kashima Plant, which manufactures interior materials for houses, introduced solar power generation under the PPA (Power Purchase Agreement) model*. We purchased non-fossil certificates with tracking for electricity not generated by solar power, and Kashima and Imari plants have achieved RE100 and Shizuoka plant RE50 as of December 2022. These initiatives contributed to a reduction of 1,803 t-CO_2 emissions in fiscal 2022. Sumitomo Forestry Group's overseas factories also promote introduction of the solar power generation, and we plan to procure renewable energy and aim to reduce greenhouse gas emissions.

Both in Japan and overseas, Sumitomo Forestry Group is considering the installation and expansion of solar power panels in our manufacturing sites in an ongoing effort to increase the ratio of renewable energy.

* A system whereby a host loans out factory rooftop space to a power generation company to install solar power generation panels and then purchases the electricity generated from these panels for its own use

Overseas Sites Initiatives

Nelson Pine Industries (NPIL), which manufactures and sells MDF (medium density fiberboard), single plate, and LVL (laminated veneer lumber) in New Zealand uses the most electricity in the Sumitomo Forestry Group. In New Zealand, a high ratio of power composition is from hydropower, geothermal power and other forms of renewable energy, and was approximately 80% as of 2021. The New Zealand government has set out a goal for 100% renewable energy by 2035, and NPIL expects to have 100% renewable energy by that time.

With the momentum for implementing renewable energy growing in Southeast Asia, we are considering the installation of solar power generation systems at our other manufacturing sites in Indonesia and Vietnam. In the United States and Australia where we are primarily involved in the housing business, we plan to steadily transition to renewable energy thanks to the ability to procure renewable energy at low cost and the issuance of sufficient renewable energy certificates.

Promotion of the Renewable Energy Business

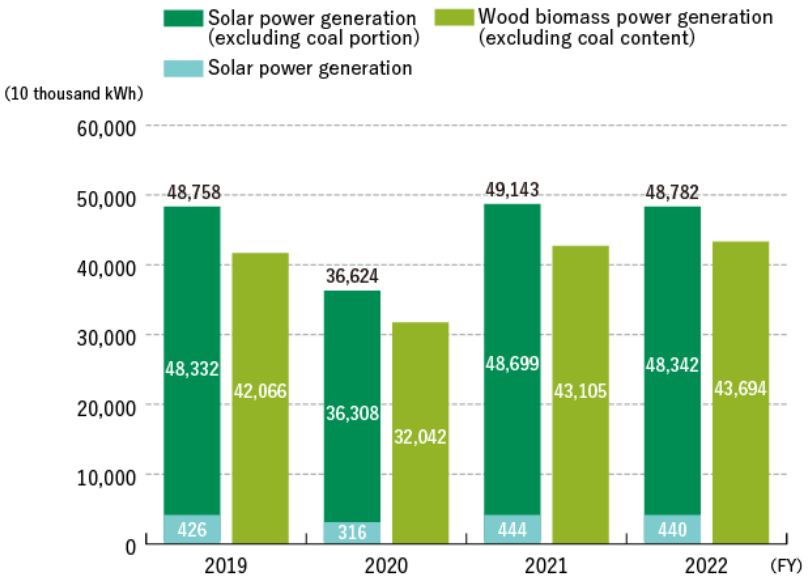
The Sumitomo Forestry Group is advancing renewable energy generation businesses, including solar power generation as well as biomass power generation that chips and uses scrap construction wood in addition to unused forest resources and other such materials as fuel. In 2022, the total amount of electricity generated was 487.82 million kWh (including from coal) MWh, a decrease of 0.7% from 2021.

Effect of CO_2 emission reduction through power generation in fiscal 2022

71,227 t-CO_2e

* CO_2 emission reductions compared to the electricity purchased from power companies. These emissions are calculated using the CO_2 emission coefficients of mainly Hokkaido Electric Power and Tohoku Electric Power.

Trends in the Amount of Renewable Energy Generation*1*2



*1 The amount of electricity generated by wood biomass power generation is only from Sumitomo Forestry's consolidated subsidiaries

*2 The aggregation period for fiscal 2021 and onwards is from January to December of each year, the aggregation period for fiscal 2020 is from April to December, and the aggregation period for fiscal 2019 is from April to March 2020

Wood Biomass Power Generation Business

The Sumitomo Forestry Group operates wood biomass power generation facilities that are fueled by recycled chips primarily using leftover from construction as raw materials, wood not suitable as a building material, and thinning leftover in forests and other unused forest resource.

Mombetsu Biomass Electric Power

Hachinohe Biomass Electric Power

The CO_2 emitted by burning wood does not contribute to CO_2 in the atmosphere as part of the life cycle of the trees because the CO_2 in the atmosphere is absorbed through photosynthesis as the trees grow (concept of carbon neutrality). Therefore, the Group has been engaged in wood biomass power generation as a type of business that contributes greatly to the advancement of forestry, such as the effective use of wood, mitigation of CO_2 emission and furthermore, the maintenance of local forest environments.

In February 2011, the Sumitomo Forestry Group entered this sector with the operation of the urban-oriented Kawasaki Biomass Electric Power (generation capacity: 33 MW), which primarily uses scrap construction wood as fuel. The Mombetsu Biomass Electric Power Co., Ltd. with a power generation scale of 50 MW utilizing unused wood from domestic forests as its main fuels commenced operation in December 2016, the 6.2 MW Tomakomai Biomass Power Co., Ltd. in April 2017, and 12.4 MW Hachinohe Biomass Electric Power Co., Ltd. in April 2018, and the 75MW Kanda Biomass Energy K.K. in June 2021, respectively.

When the 75 MW Morinomiyako Biomass Energy commences business operation in November 2023, the total power generation scale of the wood biomass power generation plants where the Sumitomo Forestry Group is involved will be approximately 251.6 MW, which is equivalent to electricity supply for approximately 555,000 households.

Drawing on past experience in the wood biomass power generation business, the Group will continue to expand renewable energy business operations suited to local conditions and other requirements.

Sumitomo Forestry Group's wood biomass power generation business

Title	Location	Power generation capacity	Start of operations	Main features
Kawasaki Biomass Power Generation Business (Joint investment with Sumitomo Joint Electric Power Co., Ltd. and Fuluhashi EPO Corporation)	Kanagawa Prefecture Kawasaki City	33MW	February 2011	• Largest biomass power generation facility in Japan that primarily burns scrap wood as fuel • Utilizes recycled chips produced from construction debris and waste pallets from Tokyo and surrounding suburbs, as well as pruned branches • Equipped with environmental mechanisms, such as flue gas desulfurization equipment, an exhaust gas denitrizer and a bag filter, the urban-sourced biomass power generation plant clears Kawasaki City's strict environmental standards
Mombetsu Biomass Electric Power Business* (Joint investment with Sumitomo Joint Electric Power Co., Ltd.)	Hokkaido Mombetsu City	50MW	December 2016	• Unused wood and forest material is primarily procured from within a 75km radius of the power plant and turned into chips at an adjacent plant before being used as fuel. • Palm kernel shell, plus some coal is also partially used as an auxiliary fuel
Tomakomai Biomass Power Generation Business (Joint investment with Mitsui & Co., Ltd., Iwakura Corporation and Hokkaido Gas Co., Ltd.)	Hokkaido Tomakomai City	6.2MW	April 2017	• All of the fuels are from unused forest resource in Hokkaido.
Hachinohe Biomass Power Generation Business (Joint investment with Sumitomo Osaka Cement Co., Ltd. and East Japan Railway Company)	Aomori Prefecture Hachinohe City	12.4MW	April 2018	• Unused forest resource from forestlands in the Sanpachi-Kamikita-Shimokita region of Aomori Prefecture, timber offcuts, and railway forest thinnings from the nearby railway lines will be used as the main source of fuel • Some palm kernel shell will be used

Title	Location	Power generation capacity	Start of operations	Main features
Kanda Biomass Power Generation Business A joint capital venture between RENOVA Inc., Kyuden Mirai Energy Co. Inc., and Mihara Group K.K.	Fukuoka Prefecture Miyako District	75MW	June 2021	• Fuel uses thinnings and unused forest resource from northern Kyushu in addition to American pellets and Indonesian palm kernel shell
Morinomiyako Biomass Energy Generation Business Joint venture with RENOVA Inc., United Corporation, Mizuho Leasing Company, Limited and RenoDa Partners G.K.	Miyagi Prefecture Sendai City	75MW	November 2023	• Fuel uses pellets produced mainly in North America and palm kernel shell from Indonesia and Malaysia

* A consolidated subsidiary of Sumitomo Forestry

Solar Power Generation Business

Sumitomo Forestry owns a solar power generation facility that can generates 3.4 MW in Kashima City, Ibaraki Prefecture.

For some solar panel mounts, we have adopted original wooden mounts mainly made of domestically produced cedar wood to reduce the environmental load of power generation facilities and expand the use of wood.

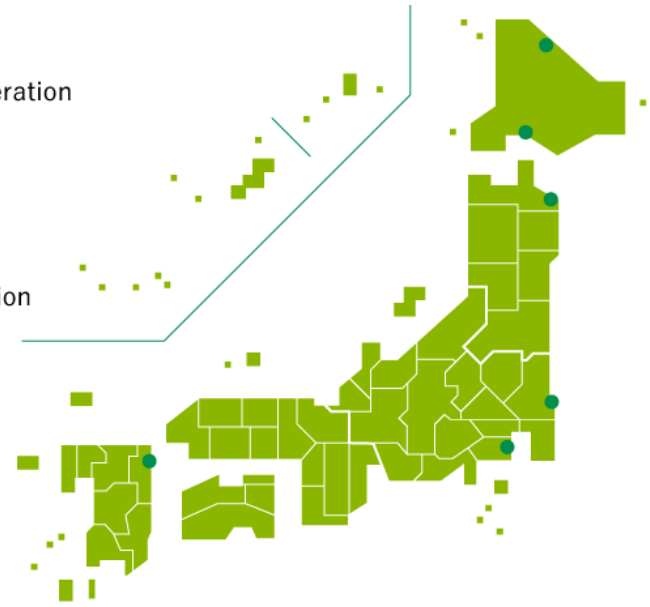
In fiscal 2022, the combined output of power generation was 4,400,000kWh.

Solar panels and environmentally conscious wooden frames

Power plant location for renewable energy business

Biomass power generation
251.6MW

Solar power generation
3.4MW



Kyushu region		Kanto・Chuetsu・Chubu region		Hokkaido・Tohoku region	
Kanda	75.0MW	Kashima	3.4MW	Mombetsu	50.0MW
		Kawasaki	33.0MW	Tomakomai	6.2MW
				Hachinohe	12.4MW

Promoting the Use of Unused Forest Resource

Unused forest resource is left-over wood not suitable as a building material or wood from thinning in forests. Although demand for pulp for papermaking has been sluggish, wood biomass power generation plants are operating in each area and the demand for wood biomass is growing following the adoption of the Feed-in Tariff for Renewable Energy law (FIT). By using unused forest resource, we can expect an effective increase in the value of forests while also promoting renewable energy. In fiscal 2022, the Group used 370,000 tons of unused forest resource at its power plants. We will continue to work on building up systems for the efficient, stable collection of unused forest resource.

Amount of unused forest resource from domestic forest (2022)

370,000tons

Unused forest resource

Promotion of Net Zero Energy House (ZEH) Specifications

The household sector in Japan still has high level emission of CO_2 although the trend has slowed down. In the Plan for Global Warming Countermeasures and the Sixth Strategic Energy Plan approved by the Cabinet in October 2021, the Japanese government declared that “the government will raise energy conservation standards in stages and raise inducement standards and top-runner standards for Housing and Construction to ensure the level of energy conservation performance of ZEH and ZEB standards[*1] for new Housing and Construction to be built in fiscal 2030 and after”, and "the government will ensure the level of energy conservation of ZEH and ZEB standards for the stock average of housing and buildings by 2050".

ZEH is a scheme for housing to provide less than zero annual net primary energy consumption by combining equipment to generate energy such as high thermal insulation efficiency, energy-saving equipment, and solar energy creation.

Percentage of orders for ZEH type houses out of new custom-built detached housings[*3] (FY 2022)

77.2%

This standard responds to many of the Sustainable Development Goals, including not only Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all and Goal 13: Take urgent action to combat climate change and its impacts but also Goal 3: Ensure healthy lives and promote well-being for all at all ages and Goal 12: Ensure sustainable consumption and production patterns. The standardization of ZEH will contribute to building a sustainable society.

Sumitomo Forestry has long used "wood," which are renewable natural resources and absorb and fix CO_2 in the process of growth, as the principal structural members, and adopted a unique design method, "Ryoonbo," that utilizes the blessings of nature such as the wind and the sun and provided housing where people can live comfortably throughout the year. The Company's expertise in utilizing these unique characteristics of wood and blessings of nature together with its technologies for the reduction of energy consumption, such as improvements in thermal insulation as well as the adoption of energy-saving equipment, and its technologies for the smart use of energy, such as equipment for generating and storing energy and HEMS*2.

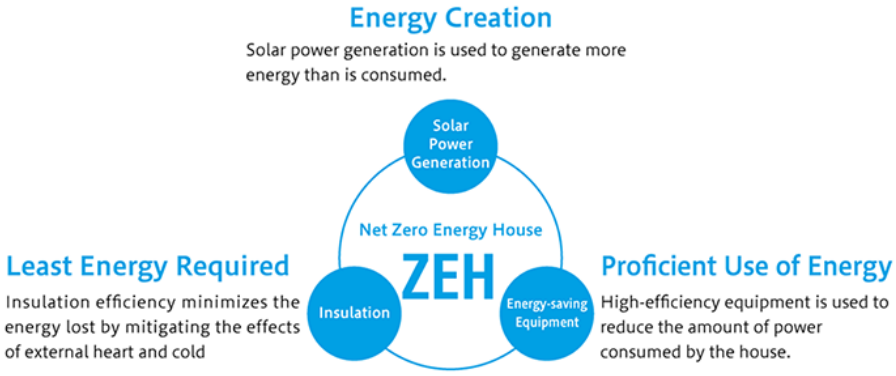
The Mid-Term Sustainability Targets has set a target for the ZEH order ratio for newly built custom-built homes, which increased by 9.8 percentage points from the previous fiscal year to 77.2% in fiscal 2022.

With respect to new custom-built detached houses, we will promote the spread of ZEH with the basic specifications of further strengthening heat insulation performance of buildings and its openings and installing a solar power generation system.

*1 Compliant with reinforced hull standards and 20% reduction from the current energy conservation standards excluding renewable energy

*2 Home Energy Management System. A system whereby residents can visualize the amounts of energy they generate and use

*3 Including Nearly ZEH, Small ZEH Oriented, Heavy Snow ZEH Oriented



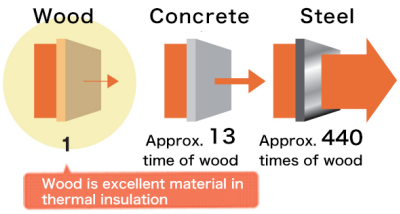
Click here for related information

› "Ryoonbo" Design Method (in Japanese)

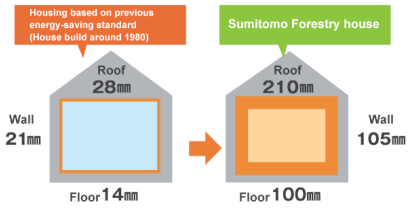
› Management of Key Issue 2

Wooden Houses with Superior Insulation

If the thermal conductivity of wood is 1, the thermal conductivity of concrete would be almost 13 and steal upwards of 440. Wood as a material is a superior insulator to mitigate the transfer of heat. In addition, Sumitomo Forestry uses high-performance 24K glass wool thermal insulator (high-end product) based on its own unique standards.



Comparison of Materials by Thermal Conductivity



Unique Standards of Thermal Insulators of Sumitomo Forestry

Adoption of "360° TRIPLE Insulation Standards"

Sumitomo Forestry has adopted 360° TRIPLE Insulation as a standard that enhances the insulation efficiency of new custom-built detached houses (excluding fireproof specifications). In addition to offering high-performance thermal insulation materials, the standard provides all-around insulation for buildings as a whole from structural members to windows with high thermal performance to realize affordable yet comfortable lifestyles.

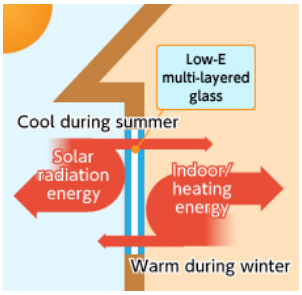
360° TRIPLE Insulation creates a living space that stays cool in the summer, warm in the winter and increases energy-saving performance. This insulation option, as a standard, corresponds to 5 stars, which is the highest rank of the Building-Housing Energy-efficiency Labeling System (BELS)* promoted by the government, as a standard.

Sumitomo Forestry applies for BELS for all of new custom-build detached houses. BELS is a labeling system with which a third party evaluation organization evaluates and certifies the energy efficiency of new and existing structures using an index indicating the energy performance and asset value of each building. Our initiative strives to make Sumitomo Forestry the first major housing manufacturer to have every building BELS-certified. In fiscal 2022, the BELS certification rate (at the start of construction of the main unit) was 98.4%. Sumitomo Forestry homes enhancing insulation efficiency deliver assured safety and comfort proven by the BELS certification.

* BELS is one third-party evaluation system based on the Building-Housing Energy-Efficiency Labeling Guidelines (evaluation standards on labeling of the energy consumption performance for buildings) defined by the Ministry of Land, Infrastructure, Transport and Tourism. This certification is run by the Association for Housing Performance Evaluation & Labeling. The system objectively evaluates energy efficiency to display a five-tier star rating. BELS stands for the Building-Housing Energy-efficiency Labeling System

Adoption of Glass with Superior Heat Insulation Properties

Windows cause the greatest loss of heat in living spaces. Shielding interior spaces from heat in the summer and preventing heat from escaping in the winter is vital. As windows cause the largest heat loss, Sumitomo Forestry uses low-E multi-layered glass with argon gas inside. Argon gas is injected between the multi-layers of glass to mitigate heat transfer to the air while the panes are coated with special metal film. The superior thermal insulation and insulation properties shield interior spaces from heat in the summer and prevent heat from escaping in the winter.



Insulation using low-E multi-layered glass

Click here for related information

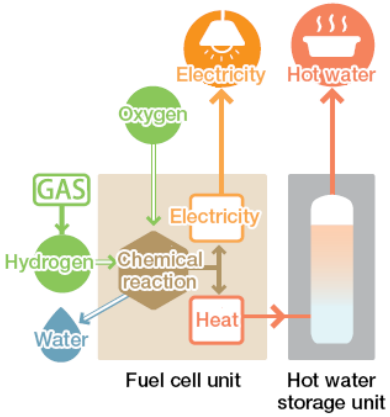
Thermal Insulation of Sumitomo Forestry houses (in Japanese)

Double Power Generation

Sumitomo Forestry recommends the installation of storage battery for family use, in addition to solar power generation system. Double power generation can generate the necessary electricity for daily life in the home. Furthermore, Home Energy Management Systems (HEMS) realize zero energy house (ZEH specifications) by proficiently managing energy consumption throughout the home.

Ene-Farm + Solar power generation system

Water heaters that also generate electricity



Heat and water are generated during the generation of electricity. That generated heat is not wasted and is collected to be used for making hot water and heating floors, greatly improving the efficiency of primary energy usage.

Combining solar power generation system and Ene-Farm further reduces utility costs and CO_2 emissions compared to using just either one. It can be more economical by using electricity generated by Ene-Farm during the day when use of electricity is low and selling excess electricity generated by solar power generation system.

Trends in Installation Rates of Environmentally-conscious Equipment (based on number of houses)*1*2

	FY2019	FY2020	FY2021	FY2022
Solar power generation systems	56%	57%	68.9%	78.1%
Ene-Farm units	36%	27%	25.5%	20.5%
Eco One*3	17%	15%	19.4%	24.4%
Environmentally conscious equipment installation rate	75%	70%	78.2%	84.6%

*1 The aggregation period of fiscal 2020 is from April 2020 to December 2020

*2 The aggregation period of fiscal 2019 is from April to March of the following year

*3 Hybrid electric and gas hot water and central heating systems

Launched Life Cycle Carbon Minus Housing

In April 2022, we began sales of our environmental flagship model, the "life cycle carbon minus housing," which makes full use of superior insulation efficiency, high-performance equipment, and energy creation devices such as large-capacity solar power generation systems.

LCCM housing model home (Yonago model home)

LCCM housing is a house that reduces CO_2 emissions during construction, occupancy, and demolition, and also generate renewable energy using solar power generation, etc., to achieve negative CO_2 emissions over their entire life cycle. Sumitomo Forestry's LCCM housing is a wooden house, which has little CO_2 emissions from raw material procurement to construction, and reduces more CO_2 by using domestic timber as the main body of the structural framework that utilizes renewable biomass fuel in the timber drying process. In addition, Sumitomo Forestry's proprietary Big Frame (BF) construction method allows for flexible adaptation to future changes in floor plans, and the building achieves life cycle carbon minus by reducing total CO_2 emissions during construction, renovation, and demolition*, utilizing renewable energy from solar power generation, and devising a design that controls light and heat. The strong structural framework fixes approximately 20% more carbon than traditional construction methods, contributing to a decarbonized society through long-term carbon fixation.

Furthermore, in October 2022, we have started to make proposals based on the "Environmental Contribution Presentation Sheet" for houses that nurture forests. The "amount of carbon storage" and "area equivalent to reforestation" at the design stage can be calculated for each residence to visualize the environmental contribution.

* Calculated using the LCCM housing basic requirement ($LCCO_2$) compliance assessment tool created by Japan Sustainable Building Consortium

Converting All Apartments to ZEH

Sumitomo Forestry is promoting ZEH-M ("Net Zero Energy Mansion")*1 in all of its Forest Maison apartments to achieve a comfortable indoor environments and significant energy efficiency performance. All buildings will be certified as ZEH-M, with specifications corresponding to the highest rank of five stars of the Building-Housing Energy-efficiency Labeling System (BELS) promoted by the Japanese government. We will also promote the installation of solar power generation systems to reduce CO_2 emissions during daily life.


ZEH Mansion case study

Forest Maison's ZEH Mansion will be designed to meet or exceed the ZEH-M Oriented standard, which aims to reduce primary energy consumption by 20% or more*2 for the entire building, including common areas, by significantly improving the insulation efficiency and maintaining comfortable indoor environments through the introduction of highly efficient equipment systems.

*1 Acronym for Net Zero Energy House Mansion. An apartment house that improves the insulation and energy efficiency performance, generates energy through solar power generation, etc., and achieve a "zero" balance of primary energy consumption (air conditioning, hot water supply, lighting, ventilation) per year.
ZEH standards for multi-family housing set by the government, which are classified into four categories according to the primary energy consumption reduction rate: "ZEH-M," "Nearly ZEH-M," "ZEH-M Ready," and "ZEH-M Oriented"
*2 Comparison with the standard primary energy consumption for "heating," "cooling," "ventilation," "lighting," and "hot water" according to the 2016 Energy Efficiency Standards

Renovating to Improve Function and Asset Value

Sumitomo Forestry Home Tech promotes renovations from energy-saving point of view. We propose the installation of energy-efficient equipment alongside better insulation efficiency as well as new life styles that decrease the energy consumed in daily life, realize reductions to the environmental impact, and decrease lifetime heating and lighting costs. The insulation renovations can also mitigate health risks from heat shock.

In recent years, the need for safe and secure housing has been increasing due to concerns over intermittent earthquakes, and we are actively promoting seismic resistance and structural reinforcement work.

We actively strive to bring about excellent long-term housing in existing properties as well as long-term excellent extension and alteration standards by improving the performance in thermal efficiency, energy-savings and seismic retrofitting.

FY2022 result

Sumitomo Forestry Home Tech has set the goal of "improving the rate of orders for environmentally conscious renovations" in Mid-Term Sustainability Targets 2024 with fiscal 2024 as target year.

In fiscal 2022, we aimed for a total order ratio of 70 % for the four works of seismic construction, structural reinforcement work, heat insulation renovations, and smart material installation on general housing (other than owners of Sumitomo Forestry homes), and the actual result was 64.6%.
On the other hand, we aimed for a total order ratio of 65% for the four works of seismic construction, exterior work, heat insulation renovations, and smart material installation on Sumitomo Forestry homes, and the actual result was 60.7%.

In addition to actively proposing these types of work through the seismic damper campaign and other means, we have been sharing the benefits of resilience renovation using solar power plus battery storage (iedenchi-NX) with owners of Sumitomo Forestry homes equipped with solar power generation systems in terms of smart material*. We are also proposing environmentally conscious products from the viewpoint of in-house power generation and consumption to owners who are facing the termination of FIT duration with the rising cost of utilities.

Needs for Environmentally-conscious renovations will continue to grow in the future in order to ready properties for potential natural disasters.

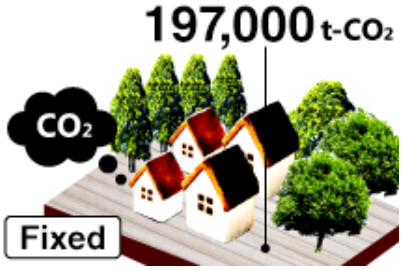
* Solar power generation systems, storage batteries, Ene-Farm units, etc.

Click here for related information

› Management of Key Issue 2

Carbon Stock in the Housing and Construction Business

Trees retain CO_2 as carbon even after they are turned into products. Constructing wooden houses can therefore be likened to building forests in the city. The total domestic carbon stocks* in timber that was used in the housing and construction business in fiscal 2022 reached 197,000 t-CO_2. Sumitomo Forestry Group is contributing to a decarbonized society by increasing carbon stock in forests and cities.



Carbon stock of the timber used in the housing and construction business in Japan in fiscal 2022

* CO_2 fixation is calculated by categorizing the actual amounts of timber used per tree species for custom-built detached house, rental housing, spec homes, Construction Business, and calculating carbon content from the specific gravity of each tree species

Sales of Environmentally-conscious Housing Overseas

Henry Properties of Australia has been a driving force in efforts to improve energy-saving performance in the Australian housing industry, such as setting the five stars of the energy-saving performance standard Energy Rating*1 as its own standard specifications ahead of other companies. Efforts toward the environment accelerated further after joining the Sumitomo Forestry Group in 2008. Henley Properties conducted a variety of initiatives to reduce the environmental impact, including the development of the first zero emission house*2 for the general consumer as a major home builder company in the country.


Houses with solar panels

In August 2022, we became the first major Australian builder to install solar panels as standard equipment on all custom-built detached houses. The energy generated by solar power generation will be used to meet the energy needs of daily life, and all-electric appliances is standard, enabling up to 75% reduction in utility costs, thus reducing "CO_2 emissions in life" by up to 100%.

*1 An evaluation metric of the energy burden for heating and cooling the inside of a building in Australia. Insulation, windows, the type, size and orientation of the building, and the climatic zone are all items included in this metric. Currently, a six-star rating is the standard specification.

*2 Environmentally-conscious housing expected to have an energy-saving effect of more than 70% compared to conventional housing.

Visualization of CO_2

Research & Development

In order to clarify the value of wood constructions and wood materials, and to contribute to the realization of a decarbonized society by further enhancing their value, Sumitomo Forestry is engaged in research and development to establish data preparation and calculation methods that will make it easier to compare CO_2 emissions by building structure type and evaluate the carbon storage capacity of wood at the building planning stage.

In addition, "Tsukuba Research Institute New Research Building" was completed in 2019. By using an air conditioning system that uses wood pellets, which are renewable energy fuel and energy creation using solar panels on the roof and natural energy such as daylight and natural ventilation, we have achieved a reduction in CO_2 emissions during operation and aim to further reduction by continuing to verify the effectiveness.

Estimating Carbon Storage in Wooden Buildings

Tokyo University of Agriculture and Technology has published a study in the open access journal Scientific Reports on a method for estimating carbon storage in wooden buildings constructed by the private sector over the past 50 years.

At the 17th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP17) held in 2011, it was agreed* that changes in carbon stocks within Harvested Wood Products (HWP) should be accounted for as greenhouse gases absorption or emissions by each country. HWP are important for climate change mitigation because they continue to store carbon after they are harvested from the forest.

In order to make effective use of HWP, it is first necessary to accurately determine their carbon storage. This study focused on wooden buildings, which store the most carbon of all HWP applications, and examined methods for estimating HWP carbon storage in buildings constructed by companies.

Building data was provided by Sumitomo Forestry, and both parties jointly verified the estimation method. The results of this research will allow us to understand and estimate the carbon storage capacity of wooden buildings with greater accuracy. In addition, Sumitomo Forestry's wooden houses have been shown to store carbon over the long period of time.

* In the second commitment period of the Kyoto Protocol, the rule to evaluate and account for changes in the carbon content of HWP (carbon storage effect) is permitted. The HWP calculation rules apply to "wood," "wood panels," and "paper" produced from cultivated forests under "forest management" in Japan

Visualization of CO_2 Emissions During Construction

In August 2022, Sumitomo Forestry began selling the Japanese language “One Click LCA”, software that visualizes CO_2 emissions and other data from buildings, as the sole distributor in Japan.

“One Click LCA" is used in 130 countries, mainly in Europe, and is compatible with international ISO standards and more than 50 green building certifications worldwide. CO_2 emissions during procurement of materials for construction, processing, transportation, construction work, renovation, and disposal (CO_2 emissions during construction) can be calculated precisely.

It is reported that the construction sector accounts for about 37%*1 of global CO_2 emissions. About 70% of these are CO_2 emissions from living (operational carbon) and the remaining 30% are CO_2 emissions from building (embodied carbon). CO_2 emissions from living spaces have been reduced through the spread of ZEH and ZEB, and the urgent issue going forward is to reduce CO_2 emissions from construction.

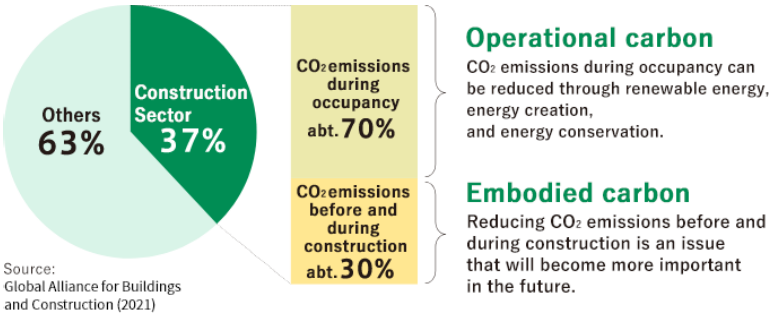
In February 2023, Sumitomo Forestry launched a project to promote acquisition of the environmental labeling system EPD*2 for timber and building materials manufacturers and a "One Click LCA" calculation contract business for developers, general contractors, and design firms.

Through the promotion of One Click LCA, we will continue to promote carbon neutral design in the Japanese construction industry.

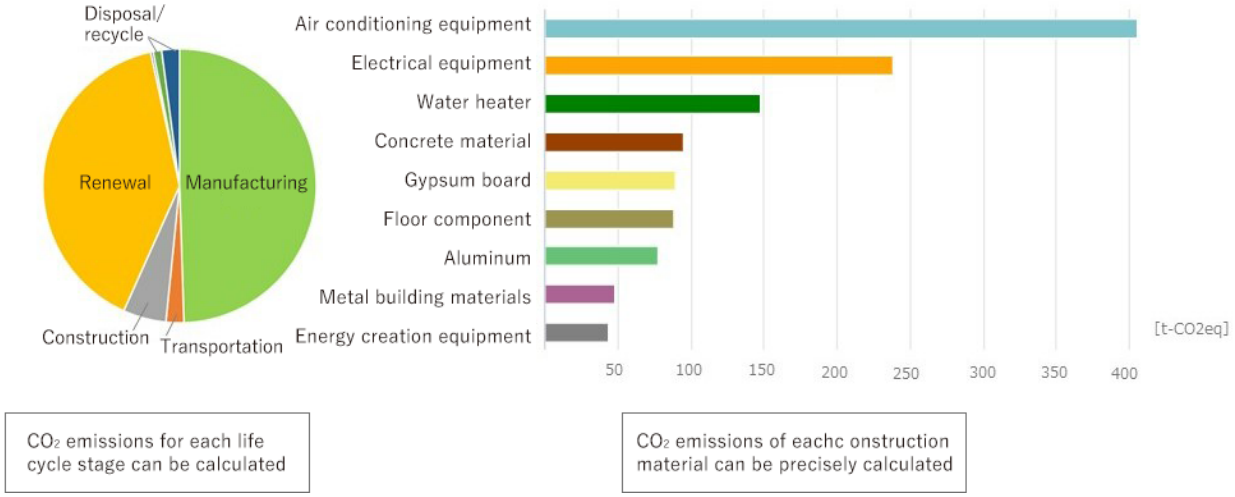
*1 Source: Global Alliance for Building and Construction (2021)

*2 ISO-compliant environmental labeling system that visualizes CO_2 emissions over the entire product life cycle, from resource extraction to disposal.

Global CO_2 Emission Rates by Industry



Example of calculation with "One Click LCA"



* Source: The above graph is the result of our own calculations using "One Click LCA" based on the data published in the "Fiscal 2007 Report on the CO_2 Reduction Demonstration Work for the Promotion of Wood Use and Energy Saving" released by the Forestry Agency in March 2008.

Visualization in Investment

Sumitomo Forestry is considering the introduction of internal carbon pricing in order to use greenhouse gas emissions as one of the criteria when deciding whether or not to invest in a project. We aim to begin operations in July 2023.

Investment in Japan Green Investment Corp. for Carbon Neutrality

Sumitomo Forestry has invested in Japan Green Investment Corp. for Carbon Neutrality (JICN), which was established in October 2022 based on the Act on Promotion of Global Warming Countermeasures.

JICN develops fund business with capital from government fiscal investment and loans and private investment, and encourages private companies to invest in decarbonization by investing in and financing projects that contribute to decarbonization. The Sumitomo Forestry Group supports the purpose of JICN's activities and has decided to invest in JICN because the Group believes that the growth of the decarbonization-related market will lead to expanded business opportunities. We will also accumulate information and knowledge on advanced cases in the decarbonization field supported by JICN in order to create future business opportunities for our Group.

Responding to Climate Change

Adaption to Climate Change

Basic Policy

In recent years, large-scale natural disasters such as earthquakes, tsunamis and typhoons have increased and are causing significant economic damages, ultimately threatening our society and living.

By providing safe and reliable housing, Sumitomo Forestry wants to contribute to protecting people's lives and lifestyles.

Building Internal Systems to Adapt to Climate Change

Initiatives of the Disaster Prevention Department

Disaster Recovery Guidelines were put in place in the Housing Division and measures and action guidelines for operations were defined to quickly and accurately respond to damages from natural disasters to our home owners as they become more prevalent due to climate change. As one of the measures, the Disaster Prevention Department,established in 2020, has instructed each branch and Group companies to implement disaster prevention measures on a regular basis. In the event of an emergency, we will direct relevant departments and affiliates and work to minimize the damage caused by disasters.

In 2022, we cooperated with the disaster-stricken branch office in the Fukushima prefecture offshore earthquake with a maximum seismic intensity of upper 6 in March and contacted the home owners to inquire their safety while inspecting the damaged houses to support the prompt recovery. In addition, in response to the flood damage in Shizuoka Prefecture caused by Typhoon TALAS, the Disaster Prevention Department gave instructions to the branches in the disaster stricken area and provided disaster response stockpiles and on-site survey support to facilitate emergency responses.

IoT Utilization for Disaster Recovery Support

Issues in Promptly Grasping the Disaster Situation

While Japan has experienced many earthquakes, in recent years, climate change has made natural disasters more severe with intense rainstorms, typhoons and other natural disasters causing extensive and frequent damage. In monetary terms, the total cost of damage caused by natural disasters in Japan from 1991 to 2018 reached $446.63 billion*.

The bigger the disaster, the longer the recovery efforts, and it now takes more time to assess the situation as well. For the Kumamoto earthquake that occurred in April 2016, it took about one and a half months for the government to conduct emergency safety assessment of buildings aimed to prevent secondary disasters. Disaster victims expressed their anxieties as "it takes too much time to get the information we need", which highlights one of the biggest hurdles in speedy recovery efforts.

* Created by The Small and Medium Enterprise Agency using the Centre for Research on the Epidemiology of Disasters database (EM-DAT)

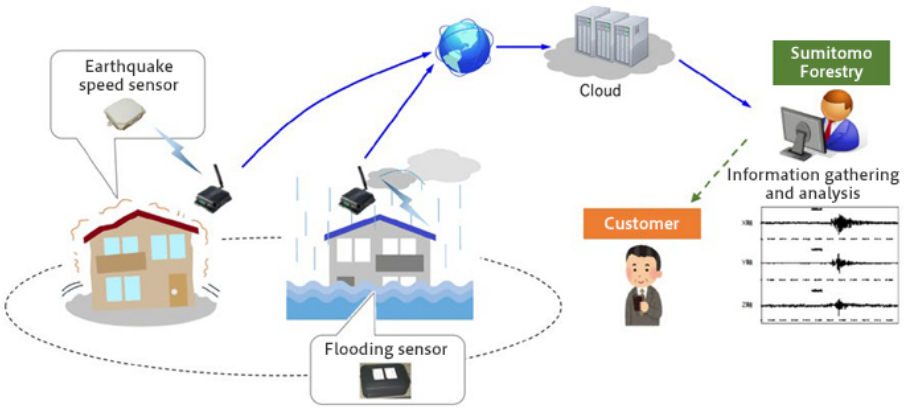
Quickly Gathering Data About Damaged Homes Using Sensing Technologies

Sumitomo Forestry is responding to such issues by developing services that promote quick recovery after disasters. Since 2017, we have been working on proving test of an IoT service that utilizes the analysis technology using sensor to measures, collects, and analyzes the condition of buildings. We place several sensors throughout a house to acquire data, such as the magnitude of an earthquake's tremors, flooding or other conditions, and gather this data through a network to analyze. At our Tsukuba Research Institute, we combine this data with the vast amount of seismic resistance data of wooden houses to facilitate high-precision analysis.


A sensor installed inside a wall of a house

By December 2022, the program has been deployed in 94 locations nationwide, and data is being collected on an ongoing basis. We also studied the use of the data, such as using the obtained data for prompt loss appraisals in cooperation with non-life insurance companies. In fiscal 2023, we will continue to study the practical application of this new service to protect the safety and security of our customers in the event of a disaster.

Overview of How Data Is Collected

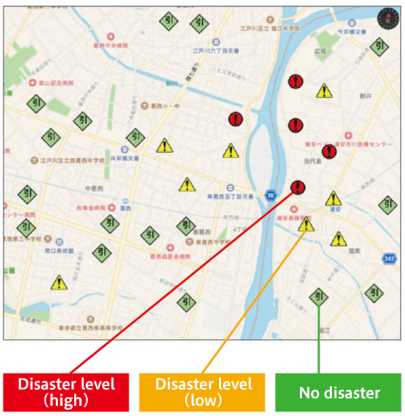


Supporting the Speedy Recovery of Home Owners and Regions Affected by Disasters

If sensors installed in homes can be used remotely to determine the level of damage, we will be able to more quickly grasp, report and respond to the situation and arrange for repairs or other work to provide our customers the support they need. As engineers would no longer have to check each and every house on site, it would resolve the problem of taking too much time and can even be used for areas made inaccessible after a major disaster.

In addition, by utilizing this gathered data in different ways, we can develop new services that would give more people a sense of security. For example, we could collaborate with casualty insurance companies to provide quick damage assessments necessary for insurance benefits, which would help people rebuild their lives more quickly.

In addition, we could provide data to customers and local municipalities for emergency risk assessments that would help prevent secondary disasters. Furthermore, our data analysis results could promote development of technologies that enhance earthquake resistance and durability.



One example of how gathered data can be utilized

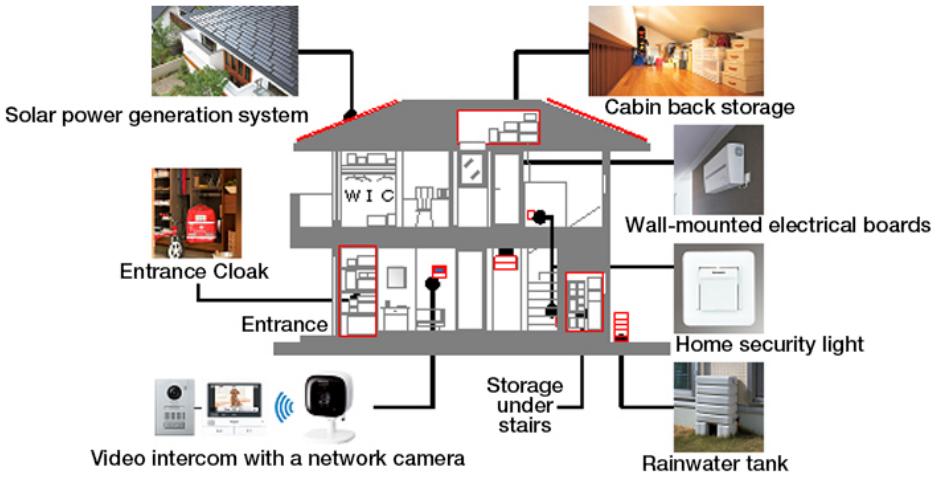
Housing Sales Adapted to Climate Change

"Sumitomo Forestry Homes" Resistant to Various Disasters

Sumitomo Forestry's wooden houses are characterized by their unique BF construction method. The construction method uses the principal structural members, which are about five times thicker than a regular pillar and fixed with strong metal, and has high seismic and wind resistance. In the seismic resistance experiment with a full-scale model of a three-story house, we have confirmed that it withstands the same level of the Great East Japan Earthquake and aftershocks that repeatedly strike. In addition, our houses can withstand winds of 88m/second, much higher than Typhoon Faxai (highest wind speed: 57.5m/second) that hit the Tokyo metropolitan area in 2019. Furthermore, in terms of fire resistance, the standard specifications are compatible with "houses with a semi-fireproof structure under the ministerial ordinance".

We ensure the safety of residents with our proprietary BF construction method that boasts outstanding strength, and with attached facilities such as a solar power generation system and rainwater tank, etc., and satisfying stockpile space which enable to live for a certain period of time until restoration even when the lifeline is interrupted. By selecting a video door phone with a network camera, residents are able to check the situation of their houses remotely in the event of a disaster. In addition, securing of stockpile space is useful for organizing belongings in the daily life, and the original built-in furniture ensures safety by preventing falls in the event of an earthquake, and can also make the room a harmonious and organized space.

Housing Using the BF Construction Method Stands Up to Disasters and Enhances Daily Comfort



The Thinking Behind Taking Evacuation living at Home

Many people who come through a large-scale disaster often find themselves falling ill due to the stress of living in an evacuation shelter even if they survived the disaster. It may also take days to restore lifelines such as electricity and water.

To solve these problems, there is a tactic called "evacuation living at home", using one's home as an evacuation site.

Sumitomo Forestry provides various readiness based on the seismic resistant BF construction method and ZEH performance. The high insulation efficiency of the ZEH specifications enables an energy-saving living, while securing electricity of solar power generation systems, household fuel cells, storage battery systems, etc. In addition, it supports "evacuation living at home" with various resilience-compatible specifications such as a slate roof that can handle strong winds, a short circuit fire alarm that prevents fires from a short circuit, a home security light that can also be used as a flashlight in the event of a power outage, a rainwater storage tank that can be used as domestic water when water is cut off.

Strengthening of Resilience

Sumitomo Forestry Homes have continued to demonstrate further resilience against unprecedented natural disasters with technologies leveraging the properties of wood and performance backed by a wide range of testing. Our recommended settings are with resilient materials to allow residents easier living at home after disaster strikes.

The Three Keys of Strengthening Resilience

- Seismic Resistant BF Construction Method
- Ministerial ordinance on semi-fireproof houses for fire resistance (prevents catching fire from outside or spreading fires inside rooms with wall and ceiling materials that have high fire resistance as well as a fire-stop structure)
- Roof construction with specifications to stand up to strong winds and sleeves with basal tunnels for disasters are set to ensure readiness against unprecedented disasters for its "strong rain and wind resistance".

In 2020, we included the specifications below as part of our recommendations to improve resilience performance.

- Rainwater Tank
- Slate roofs with specifications for strong winds
- Drain sleeves with basal tunnels for disaster (allows for initial recovery by putting in place a sleeve to drain water pooling in the foundation in case of below floor and above floor level flood)
- Home security lights (night lights to use as security lights during power outages, or can be removed and used as portable lights in an emergency)
- Short circuit fire alarms (sounds an alarm to alert residents of an abnormality in the event of a short circuit)

We will continue to provide safer Sumitomo Forestry Homes for home owners to feel peace of mind.

Proof testing for adaptation to climate change

Start "proof of concept on advanced green infrastructure"

Due to the climate change, heat island phenomenon in urban areas and flood damage caused by torrential rain have become social issues. The development of the green infrastructure that utilizes the functions of nature is expected to be one of the solutions, but in the coastal areas, chloride damage to plants and fallen trees due to strong winds swirling up seawater are occurring frequently. To address these issues, we began demonstration experiment in October 2021 using a garden vegetation tray with a water reservoir developed for use in the rooftop greening field. This experiment was adopted for the Demonstration Experiment on Yumeshima Island, the site of the Expo 2025 Osaka, Kansai, Japan.

Demonstration experiment

Utilizing the results of this verification, we plan to work to solve social issues through advanced green infrastructure technology, while enabling coexistence with nature in urban areas and coastal areas. We will contribute to the realization of a decarbonized society by realizing a Timberized Eco City with wooden structure and abundant greenery.

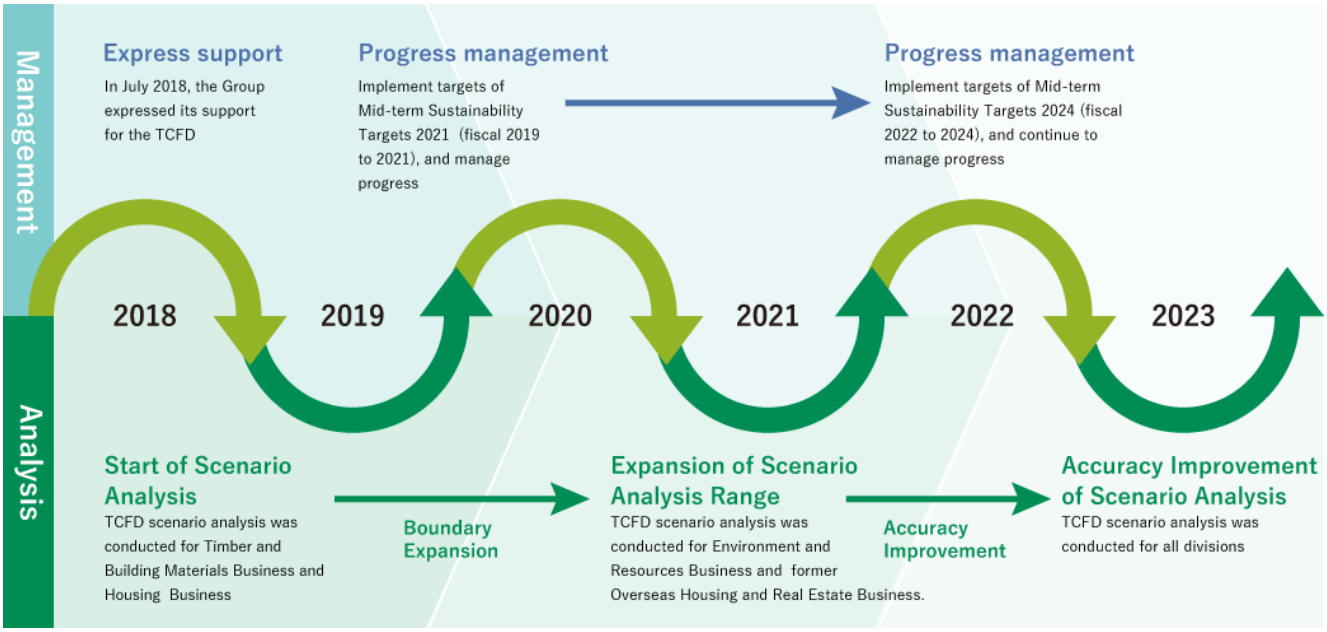
Responding to Climate Change

Responding to TCFD

Express its support of the TCFD recommendations

In July 2018, Sumitomo Forestry Group recognized the risks and opportunities associated with climate change and expressed its support for the recommendations from TCFD (Task Force on Climate-related Financial Disclosures) established by the Financial Stability Board. In the same year, we conducted an initial scenario analysis for the Timber and Building Materials Business and the Housing Business based on the TCFD recommendations, assessing the risks and opportunities that climate change issues pose to society and our businesses, as well as the resilience of our strategies, and in the following year 2019, we began disclosing information with reference to the framework recommended by the TCFD. In 2021, the analysis was implemented for the Environment and Resources Business and former Overseas Housing and Real Estate Business, and furthermore, in 2022, the analysis was conducted across the entire Group, covering all businesses in the Group. In cooperation among each division and the headquarters departments analysis were conducted and countermeasures across businesses were examined. We will continue to work on improving the level of scenario analysis in the Sumitomo Forestry Group.

Sumitomo Forestry Group Disclosure of TCFD Scenario Analysis



Click here for related information

Material issue 9 To establish a robust business structure

Governance

The Sumitomo Forestry Group promotes the response to issue of climate change centered on the Sustainability Committee, similarly as other ESG challenges. The Sustainability Committee, chaired by the President and composed of members made up of executive officers, also appointed as directors and each divisional manager, formulates and promotes initiatives for medium to long-term ESG challenges related to the sustainability of the Sumitomo Forestry Group in addition to analyzing risks and opportunities, conducting progress management of the Mid-Term Sustainability Targets, which incorporate business strategies toward achieving the SDGs, including monitoring of implementation and effectiveness of the Our Group's Values and Code of Conduct. It also reports all proceedings at committee meetings to the Board of Directors.

In February 2022, Sumitomo Forestry revised of the Executive Remuneration System in order to further integrate business with ESG. We have included remuneration linked to rate of achievement of sustainability indicators during Executive Remuneration. In the event that Sumitomo Forestry fails to meet its long-term greenhouse gases emissions reduction target based on Science Based Targets (SBT), amount of remuneration paid will be reduced from the regular stock remuneration amount in accordance with the degree of target performance.

Click here for related information

> Sustainability Committee

> Executive Remuneration

Strategy

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) states unequivocally that human activity causes climate change, that it causes extreme weather and increases the frequency of occurrence, and that greenhouse gases emissions are strongly related to changes in ice sheets and sea levels. In light of this, society's expectations of the CO_2 absorption and carbon storage functions of forests, the carbon stock and CO_2 emissions reduction from wood products and wooden construction, and the unused forest resource for biomass power generation. Sumitomo Forestry Group contributes to the realization of a decarbonized society, by effectively utilizing forest resources, which are renewable natural capital, and providing "shared benefit" through forest management, manufacturing and distribution of timber and building materials, and wooden construction and renewable energy businesses.

2In February 2022, we unveiled Mission TREEING 2030, our long-term vision for decarbonization. As one of our business policies in Mission TREEING 2030, we set "promoting decarbonization and circular bioeconomy to maximize the value of forests and trees" and contribute to the decarbonization of society through our business by promoting the benefits of forests and wood resources in all areas in Japan and abroad, such as CO_2 absorption, storage, and reduction. As for the first phase of our long-term vision Mission TREEING 2030, we have announced a three-year Mission TREEING 2030 Phase 1 (2022-2024) of Mid-Term Management Plan, which provides the groundwork for our future growth and contribution to decarbonization. One of our five basic policies is "Further integration of business operations and ESG".

Risk Management

Sumitomo Forestry Group has established the Risk Management Committee, which is chaired by the President and CEO and consists of all other executive officers. The Sustainability Committee, which is chaired by the President and CEO, composed of executive officers concurrently serving as directors, and the divisional managers of each business unit. Each of these committees meets four times a year, and each department decides on specific countermeasures and evaluation indicators for risks that may arise in the short term in daily operations, and reports progress to the Risk Management Committee on a quarterly basis. The Sustainability Committee discusses social, environmental, and governance medium and long-term risks, including climate change comprehensively for the entire value chain.

Click here for related information

Risk Management Framework

Metrics and Targets

Sumitomo Forestry Group has formulated long-term targets related to climate change and is promoting initiatives while incorporating them into its annual planning. In 2017, the Group declared its intention to formulate SBTs and formulated new Group-wide greenhouse gases emissions reduction target, which were approved as SBTs in July 2018. In September 2021, we submitted an application to the SBT Initiative secretariat to enhance our Scope 1 and 2 greenhouse gases emissions reduction target for 2030 from the previous 21% to 54.6% reduction, which is in line with a 1.5°C reduction in order to expedite our initiatives. Furthermore, we joined RE100, an international initiative aiming for 100% renewable energy for electricity consumption, in March 2020. We are accelerating our initiatives to cut greenhouse gases emissions toward achieving the goal of using 100% renewable energy for electricity used in the Group's business activities and fuel for power generation in our power generation business by 2040. According to the Mid-Term Sustainability Targets (2022-2024) announced in February 2022, each division will set its own target for the ratio of renewable energy procurement and take necessary budgetary measures, including capital investment, to steadily promote initiatives toward achieving RE100.

Click here for related information

Progress Towards the SBT

Progress Towards the RE100 Goal

Mid-Term Sustainability Targets and Material Issues

TCFD Scenario Analysis

Identifying and Evaluating Risks and Opportunities

Based on the results of scenario analyses conducted in the past by division, the Sumitomo Forestry Group conducted this analysis from a company-wide, cross-sectional perspective, covering all divisions in 2022: Timber and Building Materials; Housing; Global Housing, Construction, and Real Estate; Environment and Resources; and Lifestyle Services. We considered the situation in 2030 using two scenarios: the 4°C scenario, in which no further progress is made in tackling climate change, and the 1.5/2°C scenario, in which progress is made in transitioning the society toward decarbonization.

The relevant departments and each division of our company collaborated to identify risks and opportunities of each division, conducted financial impact assessments, and discussed countermeasures for items that were identified as significant risks and

opportunities. In addition, the five divisions jointly discussed countermeasures to address cross-cutting issues that affect multiple divisions.

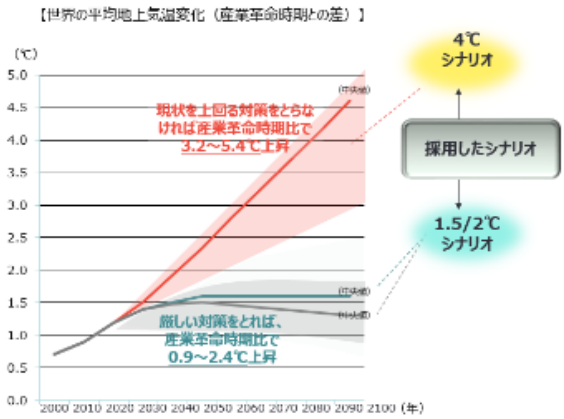
We will closely examine cross-sectional countermeasures in cooperation with related departments to reflect them in the next medium-term management plan and other business plans to be launched in 2025, or when necessary adding to the existing targets. In the future, we will further increase the accuracy of our scenario analyses, while moving forward with the creation of business strategies for the resilience that will see us through into an uncertain future.

Assumptions for Scenario Analysis

In conducting scenario analysis, we used the following two scenarios from the International Energy Agency (IEA) and the United Nations Intergovernmental Panel on Climate Change (IPCC).

Setting scenario		4℃ scenario	1.5/2℃ scenario
Social image		A scenario where the status quo is maintained, economic development is prioritized, and global temperature rise and its effects continue to worsen	A scenario in which society as a whole takes a major turn toward decarbonization and succeeds in limiting temperature increases
Reference scenario	For transition risks	Stated Policies Scenario (IEA)	Sustainable Development Scenario (IEA) Net Zero Emissions by 2050 (IEA)
	For physical risks	SSP5-8.5 (IPCC)	SSP1-2.6 (IPCC) SP1-1.9 (IPCC)
Risks & opportunities		Physical risks and opportunities are likely to become apparent	Transition risks and opportunities are likely to become apparent

Source: Compiled from IPCC AR5, AR6, SR1.5, IEA WEO 2020, Net Zero Emission by 2050



Source: IPCC, SR1.5, etc.

Scenario Analysis Results by Division

The scenario analysis was first conducted for each business unit. The leading matters are as follows.

In Timber and Building Materials Business, while there is concern that procurement costs will rise due to policies related to forest protection, demand for domestic wood is expected to increase due to the market's orientation for decarbonization. In Domestic Housing Business, there are concerns about a shift away from wooden constructions due to a growing preference for robust buildings as a result of more severe weather disasters, but the market for environmentally conscious housing is expected to grow further, depending on trends in decarbonization policies and ESG investment.

In Global Housing, Construction and Real Estate Business, in addition to matters common to the domestic housing business, medium- to large-scale construction using wood, a renewable material, is gaining prominence due to progress in ESG investment. While this trend is expected to accelerate, there is a risk of brand value abandonment and stock price slump if compliance with environmental regulations is delayed.

In Environment and Resources Business, rising temperatures and other physical risks will have a significant impact on business, but commercial opportunities for forestry fund and forest-derived biomass fuels are expected to expand.

While there are concerns that rising temperatures and other factors will lead to a decline in the number of users of owned facilities in Lifestyle Services Business, it is expected that customers' preference to decarbonize and their desire for safety and security in the face of more severe disasters will lead to an increase in the number of users.

	Transition Risks	Physical Risks	Opportunities
Timber and Building Materials Business	・Cost increase due to introduction of carbon tax and stricter environmental regulations ・Logging tax in accordance with the strengthening of forest protection policy ・Increased wood procurement costs due to higher reforestation costs	・Decrease in sales due to reduction in area where forestry is permitted, decrease in wood procurement volume as a result of stricter forest protection policies ・Decrease in value of wood and sales of timber and building materials due to growing preference for more robust buildings as a result of more severe disasters	・Increase in demand for renovation to environmentally conscious housing due to stricter environmental regulations, and increase in sales of timber and building materials ・Increase in sales of timber and building materials due to development of processing technology for materials for environmentally conscious housing and medium- to large-scale buildings

	Transition Risks	Physical Risks	Opportunities
Housing Business	・In the short term, technological development costs and construction costs for LCCM housing* and medium- to large-scale buildings will increase. ・In the long term, the value of wood will decline due to the development of decarbonization technologies for steel, concrete, and other building materials, and sales of wooden buildings will decline.	・Decrease in sales of timber and building materials due to growing preference for more robust buildings as a result of more severe disasters	・Increasing demand and sales of LCCM (Life-Cycle Carbon Minus) homes in response to growing decarbonization orientation ・Sales increase due to entry into growing markets such as environmentally conscious multi-family housing due to customer preferences, policy changes, etc.
Global Housing, Construction and Real Estate Business	・Cost increase due to introduction of carbon tax and stricter environmental regulations ・Brand value loss due to delay in complying with environmental regulations, stock price slump, and sales decline	・Increased material procurement costs due to construction damage, extended construction time, and supply chain disruptions caused by severe disasters ・Intensifying competition to secure development sites due to a shift in demand to areas with less risk of disasters	・Increasing demand for environmentally conscious housing in response to the growing trend toward decarbonization ・Expansion of the market for medium- to large-scale wooden constructions in response to ESG demand from investors and financial institutions
Environment and Resources Business	・Cost increase due to introduction of carbon tax and stricter environmental regulations ・Decrease in wood production due to stricter forest protection policies ・Increased cost of installing energy-efficient heavy equipment due to stricter environmental regulations ・Increased operating costs because of soaring prices of fuel	・Increased forest road networks damage and road repair costs due to changes in precipitation and weather patterns ・Increased forest fires due to higher average temperatures, increased wood procurement and reforestation costs	・Increased demand for logs and wood due to customers' preference for decarbonization ・Increase in gain on sale of forestry fund credits due to expansion of credit market ・Increased demand for renewable energy due to strengthened decarbonization policies, and increased sales of biomass-derived energy business

	Transition Risks	Physical Risks	Opportunities
Lifestyle Services Business	・Decrease in sales of gasoline card business due to shift from gasoline to electric vehicles	・Increase in costs for renovation of owned facilities and BCP response due to the severity of disasters ・Decrease in customers using owned facilities due to rising temperatures and increased costs for safety considerations	・Increase in insurance subscribers, shorter policy periods, more frequent renewals, and sales due to more severe disasters ・Increase in the number of Sumirin Denki subscribers due to customers' preference for renewable energy ・Customer acquisition by responding to customers' desire for decarbonization and for safety and security in the face of increasingly severe natural disasters

* LCCM housing: houses that reduce CO_2 emissions during construction, occupancy, and demolition, and also generate renewable energy using solar power generation, etc., to achieve negative CO_2 emissions over their entire life cycle

Cross-organizational Financial Impact Analysis Scoping All Divisions

Among the risks and opportunities identified through the business-by-business analysis below are affecting, more than one business and have particularly large financial impacts. The increasing operating costs associated with the introduction of the carbon tax, environmental regulations, and the intensification of weather-related disasters will affect Timber and Building Materials Business and all divisions, while the growing preferences of customers for decarbonization will present opportunities for Environment and Resources Business and all divisions.

		Factors	Factors of Particular Impact*	Related Business
Transition Risks	Policies and Regulations	Introduction of Carbon Pricing	[Risks] ・ Increase in business costs due to the introduction of carbon tax imposition and emission trading system (Timber and Building Materials, Environment and Resources)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate, Environment and Resources, Lifestyle Services
		Forest conservation policies	[Risks] ・Increase in wood procurement costs due to payment of logging tax, logging fees, etc. (Timber and Building Materials, Environment and Resources) ・Increase in domestic wood costs due to the shift of reforestation costs as a result of mandatory reforestation, etc. (Timber and Building Materials)	・ Timber and Building Materials, Environment and Resources
		Introduction of environmental regulations	[Risks] ・Governments implement regulations on the use of used vehicles, which will increase the cost of introducing heavy equipment and trucks (Environment and Resources) [Opportunities] ・Sales increase due to the growing demand for environmentally conscious housing retrofits in response to stricter regulations on buildings (Housing) ・Increase in sales due to increased demand for environmental certifications/low-carbon housing in response to stricter regulations on buildings (Global)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate, Environment and Resources, Lifestyle Services

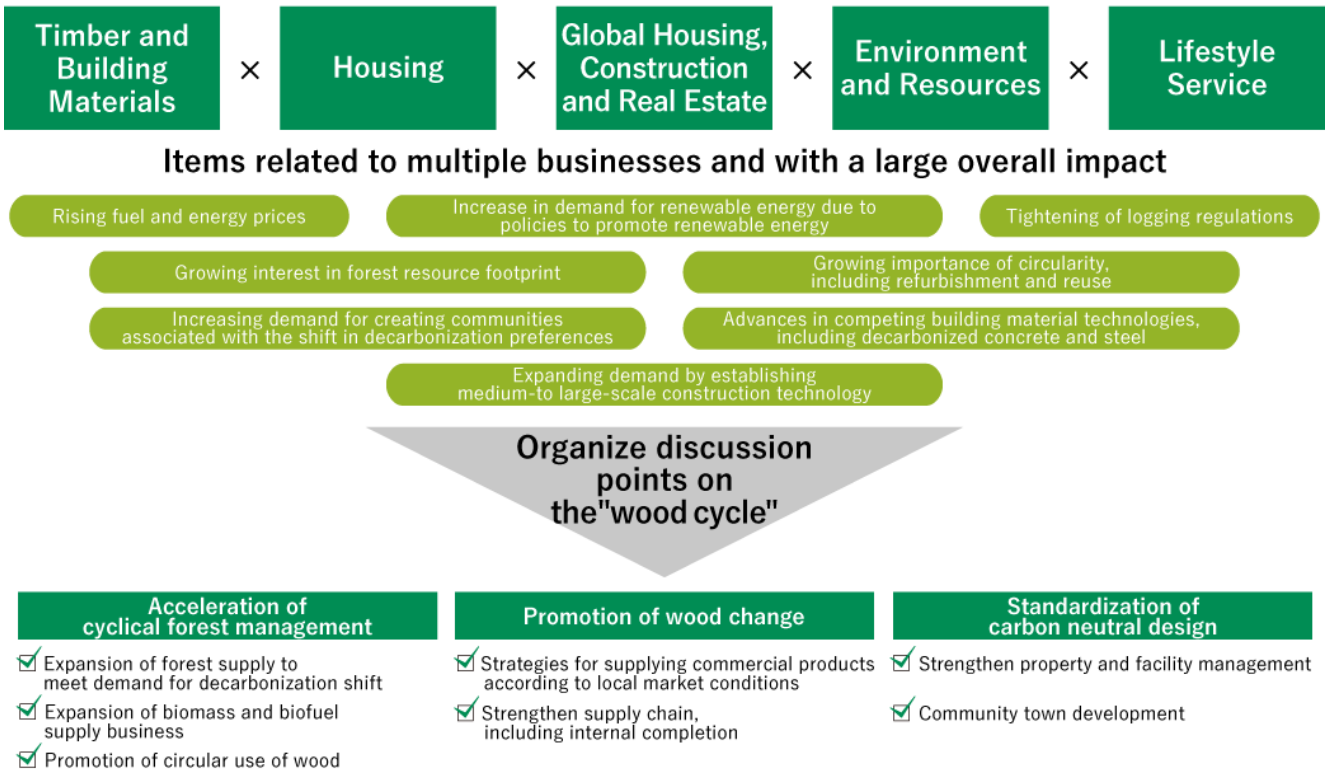
		Factors	Factors of Particular Impact*	Related Business
	Market	Shift in customer orientation toward decarbonized products	[Opportunities] ・Increase in sales due to increased demand/use of domestic wood by utilizing wood industrial complex and laminated engineered wood plants (Timber and Building Materials) ・Increase in sales due to higher unit prices for logs and wood, associated with increased demand for renewable raw materials and products (Environment and Resources)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate, Environment and Resources, Lifestyle Services
		Increased cost of raw materials	[Risks] ・Increase in raw material costs due to higher energy costs (Timber and Building Materials)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate
	Technology	Advances in next-generation technologies	[Risks] ・Decrease in sales due to lower demand for wood as a result of progress in research and development of decarbonization of steel materials and concrete, which are competitors of wood (Timber and Building Materials)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate, Environment and Resources
Physical Risks	Acute	Intensifying weather disasters	[Risks] ・Decrease in sales due to increased demand for robust buildings using building materials other than wood and decreased disruption for wooden buildings (Housing) ・Cost increase due to higher purchase prices caused by supply chain damage (Global)	・Timber and Building Materials, Housing, Global Housing, Construction and Real Estate, Environment and Resources, Lifestyle Services

* The amount of impact 10% or more of each division's ordinary income

Cross-organizational Issues Related to All Divisions and Countermeasures to Address Them

Addressing financial impacts across multiple businesses requires a company-wide approach. In addition to climate change, we have also identified cross-organizational issues that need to be strategically addressed in light of international trends and future market forecasts toward the realization of a sustainable society, including natural losses, human rights issues, and changing customer preferences. In considering countermeasures to address this issue, we pursued the creation of opportunities in the wood cycle, keeping in mind the three pillars of decarbonization initiatives in the wood cycle, namely "forests," "wood," and "construction," as stated in Mission TREEING2030.

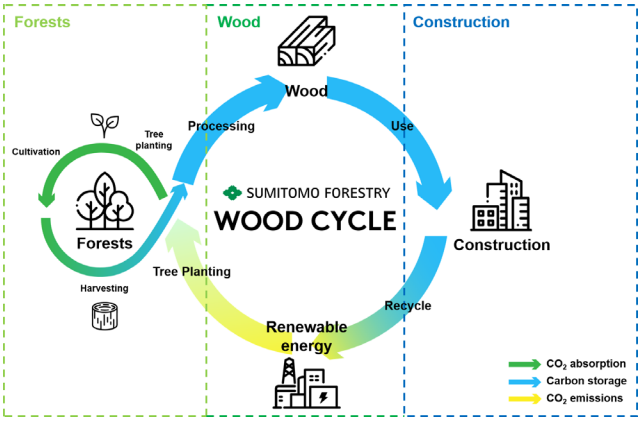
Relationship Between Cross-organizational Issues/Countermeasures and the Wood Cycle



Proposed countermeasures identified through joint discussions with all divisions

Items corresponding “wood cycle”		Cross-organizatioal issues	Countermeasures
Energy	Forest	Expansion of forest supply to meet demand for decarbonization shift	・Development of tree species and forests in response to the decarbonization shift, such as fuel wood and high-strength wood ・Development of supply and demand for local production for local consumption (secure and consolidate mountain owners)
	Wood	Expansion of biomass and biofuel supply business	・Expand applications for wood chips and pellets that can be disposed of or used for biorefinery/SAF fuel by utilizing abundant forest resources and wood technology (considering development of wood-based SAF and challenging a demonstration plant)

Items corresponding "wood cycle"		Cross-organizatioal issues	Countermeasures
Materials	Wood	Strategies for supplying commercial products according to local market conditions	・In order to standardize decarbonized design for medium- to large-scale buildings, on the basis of implementation and participation in planning activities, define the strategies of each region, select/cultivate company-owned forests, and develop commercial materials
	Wood and Construction	Promotion of circular use of wood	・New product design from the perspective of improving the scope and possibility of wood reuse at the time of demolition while lengthening the wood life cycle, and expanding the scope of reuse of demolition materials outside of the Kawasaki Chip Plant (biomass)
Construction	Construction	Property Management (PM) Facility Management (FM)	・Expanding the stock-type business as building management to reduce GHG emissions after construction, from the viewpoint of building contracting
	Construction	Community townhouse development	・Seeking environmentally conscious demands from other axis than wood superiority
Overall	Forest, Wood and Construction	Strengthen supply chain, including internal completion	・Upstream: the allocation of company-owned forests to be determined in consideration of the position of the forestry fund in the resource strategy, as well as supply chain efficiency ・Midstream: study and design the location and routing of production and distribution sites in accordance with upstream and downstream supply chain requirements ・Downstream: establish supply chain requirements by type of new construction, renovation/remodeling, etc., of houses, and coordinate with other departments



Responding to Climate Change

Participation and Sponsorship to Climate Change-Related Initiatives

Express its support of the TCFD recommendations

Click here for related information

Express its support of the TCFD recommendations

Establishment and Certification of Science Based Targets (SBT)

As the impact of climate change becomes more urgent globally, companies are being asked to reduce their emissions of greenhouse gases. The Sumitomo Forestry Group has established Group-wide greenhouse gases reduction targets (Scope 1, 2, and 3) for the target year of 2030 and the targets were approved as SBT in July 2018. In order to accelerate our decarbonization efforts, we have raised our greenhouse gases reduction targets (Scope 1 and 2) from 21% to 54.6%, which aligns with the 1.5°C target, with a view to achieving net zero emissions by 2050. The target is set in the medium-term management plan that starts in 2022. In order to ensure the implementation of these efforts, we also formulated a transition plan through 2030 to achieve the 2030 target and realize a carbon-neutral society by 2050.

The Sumitomo Forestry Group is striving to reduce greenhouse gas emissions and taking measures to mitigate climate change for achieving SBT such as thorough energy saving activities and promotion of renewable energy use.

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Sumitomo Forestry Group's SBT

2℃ target (SBT approved)

- Scope 1&2: 21% reduction of greenhouse gas emissions compared to 2017 (base year) by 2030.
- Scope 3: 16% reduction of total greenhouse gas emissions from Category 1 and Category 11 compared to 2017 (base year) by 2030.

1.5℃ target (SBT application pending)

- Scope 1&2: 54.6% reduction of greenhouse gas emissions compared to 2017 (base year) by 2030.
- Scope 3: 16% reduction of total greenhouse gas emissions from Category 1 and Category 11 compared to 2017 (base year) by 2030.

Achievement of 2030 targets (Scope 1 and 2: down 54.6% by 2030 compared to 2017) and path to carbon neutrality*1 (summary version)

Items	Measures (Greenhouse Gases Reduction Items)	Greenhouse Gases Emissions Reduction Rate	Impact on profit/loss*2 (million yen / year)	Note
Measures to achieve 54.6% reduction compared to 2017	**Electricity from renewable energy sources (RE100); excluding New Zealand**	▲26.9%	▲95	The profit/loss impact is calculated as when everything is procured with renewable energy certificates (price fluctuates depending on the time of year, required quantity, etc.)
	Priority 1: Installation of solar power generation equipment			Installation at own facility, including PPA model
	Priority 2: Purchase of RE100 compliant electricity			Procurement through Sumirin Denki in Japan
	Priority 3: Purchase of renewable energy certificates			

Items	Measures (Greenhouse Gases Reduction Items)	Greenhouse Gases Emissions Reduction Rate	Impact on profit/loss*2 (million yen / year)	Note
Measures to achieve 54.6% reduction compared to 2017	**Reduction of coal co-firing rate for Mombetsu Biomass Electric Power (10% to 0%)**	▲10.2% ～ ▲25.8%	+20～ ▲181	
	Introduction of electric vehicles in company-owned vehicles in Japan (powered by RE100-compatible electricity)	▲2.8%	258	The profit/loss impact is the only difference between increased electricity consumption and reduced gasoline and diesel fuel consumption. Excluding vehicle price increases and the cost of installing recharging facilities.
	Introduction of electric vehicles for sales personnel's private cars for sales use (in Japan) (powered by RE100-compatible electricity)	▲0.3%	22	Assuming a 30% adoption rate in 2030 to achieve the Japanese government's goal of 100% electric vehicles in new car sales by 2035.
	Subtotal	▲40.0% ～ ▲55.6%	+4～+205	With coal co-firing rate at Mombetsu Biomass Electric Power 10%: down 40.0% (additional 14.6 reduction required); 0%: down 55.6% (target achieved with 1.0 % in excess)
Additional measures to achieve the 2030 target or to become carbon neutral	**Reduction of coal co-firing rate for Mombetsu Biomass Electric Power (10% to 0%): additional reduction**	▲15.6% ～ ▲0%		
	Electrification of energy other than electricity (RE100 compatible electricity), etc.	▲9.2%		
	Manufacturing plants, etc.: equipment, heavy machinery, vesseles, boilers, backup power sources, etc.	▲4.4%		
	Introduction of electric vehicles for sales personnel's private cars for sales use: 100%	▲1.7%		

Items	Measures (Greenhouse Gases Reduction Items)	Greenhouse Gases Emissions Reduction Rate	Impact on profit/loss*2 (million yen / year)	Note
Additional measures to achieve the 2030 target or to become carbon neutral	Heating of offices and exhibition halls, and laboratory experiments, etc.	▲0.9%		
	Introduction of electric vehicles in company-owned vehicles (overseas)	▲0.8%		
	Use of natural gas in nursing homes	▲0.7%		
	Forestry Business: Heavy equipment, motor boats, fuel for power generation, etc.	▲0.5%		
	Biomass power generation/start at power generation	▲0.2%		
	Biomass power generation/wood fuel (dinitrogen monoxide, methane)	▲31.6%		Consideration of creating new credits using BECCS*3, offsetting by forests, etc.
	Manufacturing facilities/biomass boilers, etc. (dinitrogen monoxide, methane)	▲1.2%		Same as above
	New Zealand (country) electricity RE100 conversion	▲2.4%		Target: to be achieved in 2035
	Performance and business growth			In principle, increase will be absorbed by each division unit, since business conditions nor scale (emission volume) are unknown.
	Emission trading			Consider trading of emission credits based on achievement of SBT lines at division unit level, if necessary.
	Subtotal	▲60.0% ～ ▲44.4%		
	Total	▲100%		

*1 Transition plan formulated by Sumitomo Forestry to achieve the fiscal 2030 target set in the Medium-Term Management Plan.

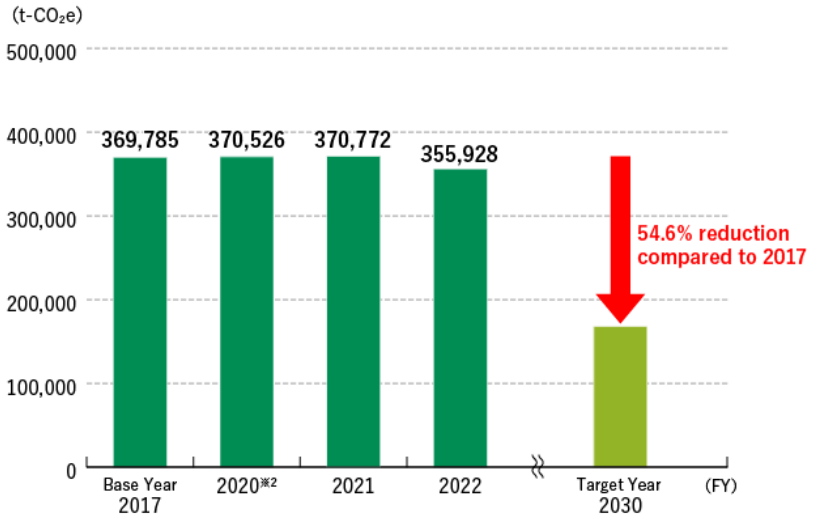
*2 Impact on profit/loss excludes personnel and other indirect expenses.

*3 Bioenergy with Carbon Capture and Storage. Technology to capture CO_2 emitted during the use of biomass fuels and store it underground.

Progress Towards the SBT

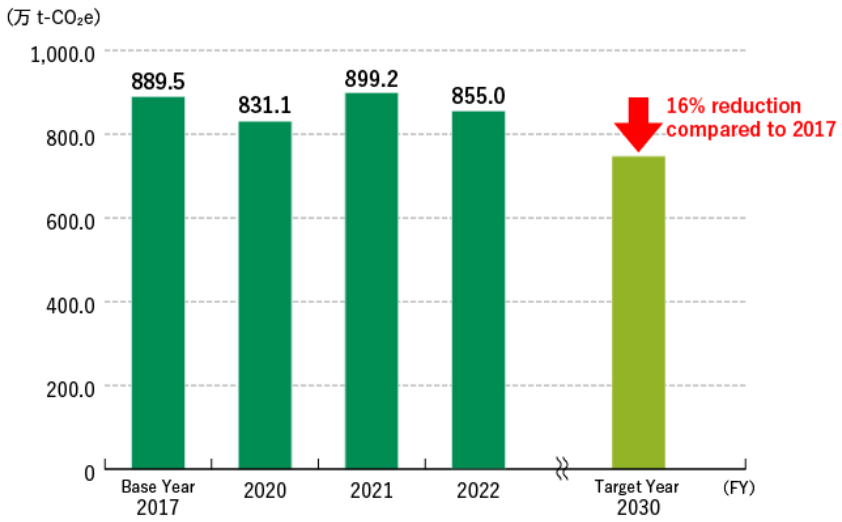
In fiscal 2022, Scope 1 and 2 emissions decreased by 4.0% from fiscal 2021 due to a reduction in coal consumption at the Mombetsu Biomass Electric Power. Scope 3 emissions decreased 4.9% from fiscal 2021 due to a decrease in the number of units sold and delivered in the overseas housing, construction, and real estate business, and an increase in the ZEH sales ratio in the housing business.

Progress toward our science-based reduction target: Scope 1 and 2



Progress toward our science-based reduction target: Scope 3 (Category 1 and 11)

16% reduction of total greenhouse gas emissions from Category 1 and 11 compared to 2017 by 2030



*1 The calculation method for Category 1 emissions of Scope 3 was revised to apply Accounting Standards for Revenue Recognition (Corporate Accounting Standard No. 29) as of fiscal 2019.

*2 Data collection period for the total emissions is from January to December of each year since fiscal 2020.

Click here for related information

〉 Management of Material Issue 2

Participation in Race to Zero

Race to Zero is an international campaign calling on companies, municipalities, investors, universities, and other nongovernmental actors around the world to commit to halving their emissions by 2030 and achieving virtually zero greenhouse gas emissions by 2050, and to take immediate action to achieve this goal.

Sumitomo Forestry participated in the Race to Zero through Business Ambition for 1.5°C in September 2021, ahead of the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) held in Glasgow, UK.
By signing the Business Ambition for 1.5°C, we are declaring our commitment to net zero by 2050, and our participation in Race to Zero was announced at COP26, held in October through November 2021.

Aiming for 100% Renewable Energy and Joining the RE100

The Sumitomo Forestry Group positions the realization of carbon neutrality by leveraging forests and wood resources as one material issue that needs to be addressed and strives to engage in energy-saving activities and use of renewable energy. As part of these initiatives, we joined the international RE100* initiative that aims for 100% of electricity used to be from renewable energy in March 2020 to accelerate our efforts to reduce greenhouse gases.

By 2040, we aim to utilize 100% renewable energy for the electricity used for our Group business activities and for the fuel for our power generation operations.

* RE100 is an international initiative run jointly by The Climate Group, a global environmental NGO, and the CDP. As of February 2023, 397 companies worldwide are members, of which 77 companies are Japanese.

Progress Towards the RE100 Goal

In fiscal 2022, amount of renewable energy introduced in the electricity used in Sumitomo Forestry Group's business activities resulted in 17.5% of the total amount of electricity used by the entire Group, such as solar panels installed in model homes and for private use of power generated by biomass power generation plants (including adjacent wood chip manufacturing plants for fuel), etc. This is an increase of 0.3 percentage points from fiscal 2021. In addition, ratio of biomass-derived fuel to the fuel consumption of the power generation business is 89.7% (calorific value conversion).

In the Mid-Term Sustainability Targets 2024 announced in February 2022, we have set a goal of reaching 100% renewable energy for our business operation by 2030 for the part achievable on our own, and the target for fiscal 2024 is 35.1%.

Renewable energy consumption rate within the power consumption of the entire group (FY 2022)

17.5%

* Excluding offices and other facilities located in New Zealand, where the national government is aiming for RE100 in 2035 (with actual achievement of 3.9% in fiscal 2022).

Endorsement of the GX League Concept

In order for Japan to achieve carbon neutrality in 2050 and contribute to global carbon neutrality while enhancing industrial competitiveness, it is important for companies and others to lead the transformation of the entire economic and social system (GX: Green Transformation), including stakeholders other than themselves.

In February 2022, the Ministry of Economy, Trade and Industry (METI) announced the "GX League Basic Concept". The GX League is a forum for companies that are taking on the GX challenges and aiming to achieve sustainable growth in the present and future society to collaborate with a group of companies, government, and academia that are making similar efforts. It will be fully operational in fiscal 2023 as a framework for a group of companies with ambitious carbon reduction targets to voluntarily trade emissions to meet their targets while investing in emissions reductions.
Sumitomo Forestry endorsed this "GX League Basic Concept" in April 2022. In addition, we are participating in the GX League, which was established in April 2023 based on the same concept.

Click here for related information

> Participation and Sponsorship of Initiatives

Responding to Climate Change

Green Building Initiatives

Green Building Initiatives

The Sumitomo Forestry Group is developing medium- to large-scale wooden constructions in order to achieve net zero carbon emissions and realize a decarbonized society.

In addition to the environmental performance of the project, such as the carbon storage effects of wood, we are promoting a design that takes into consideration the convenient location, health of employees, and comfort of work. The company aims to obtain environmental certifications related to green buildings such as LEED*1 and WELL*2, a health-conscious office certification, to provide offices with high social and environmental added value.

*1 An environmental performance evaluation system for buildings and site use developed and operated by The US Green Building Council (USGBC)

*2 WELL Building Standard. A building evaluation system that focuses on people's health and comfort. The functions that affect wellbeing are certified in four levels based on the scores obtained after a documentary and on-site audit based on 10 concepts

Environmentally Conscious Office Development Project in the United Kingdom

In February 2022, Sumitomo Forestry formed a joint venture with the U.K. real estate developer Bywater Properties Limited to participate in a six-story wooden environmentally conscious office development project in London.

The estimated CO_2 emissions of the project during the procurement of raw materials, processing, transportation, construction, renovation, and disposal (embodied carbon) is approximately 543 kg CO_2e/ per unit floor area (m^2). The property is expected to achieve a reduction of approximately 28% by 2025, five years ahead of the 2030 target of 750 kg CO_2e/m^2 set by the Royal Institute of British Architects (RIBA*1), making it a pioneering initiative in the United Kingdom. We are also working to reduce CO_2 emissions during building use (operational carbon) by designing buildings to energy conservation and energy creation specifications and combining this with the use of renewable energy.

The project plans to obtain the highest level of BREEAM*2 environmental certification, WELL health-conscious office certification, and WIRED SCORE *3 smart building certification.

Sumitomo Forestry will continue to deepen the knowledge of advanced environmental measures and develop medium- to large-scale wooden constructions overseas in order to realize a decarbonized society.

*1 Royal Institute of British Architects. An association of leading British architects. Developing guidelines for setting, designing, and evaluating sustainability in architecture, and other activities

*2 BRE Environmental Assessment Method. A method for evaluating the environmental performance of buildings, developed in 1990 by Building Research Establishment (BRE) and Energy and Environment (ECD), an energy and environment consultant

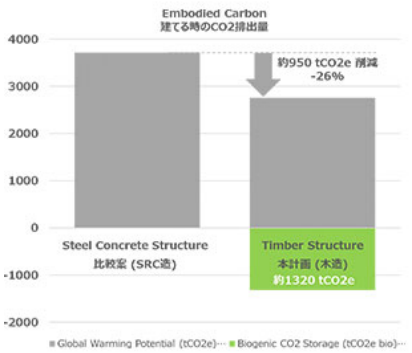
*3 An evaluation system that ranks internet connectivity in real estate. It has been introduced in 36 countries and is evaluated based on indicators such as comfort and stability of Internet connection and usage environment

ESG-Conscious Office Development Project in Georgia, the United States

Crescent, a wholly owned subsidiary of Sumitomo Forestry, has decided with Daibiru USA, LLC to develop ESG-conscious offices near Atlanta, Georgia in December 2022.

A new three-story wooden office building and parking lot building will be constructed, and two existing school and gymnasium buildings will be converted to offices. CO_2 emissions are reduced through renovation and reuse of existing buildings compared to demolition and new construction. The company also aims to obtain LEED environmental certification and Fitwel* wellness certification, and will provide socially and environmentally added value offices to ESG-conscious tenants.

* A system developed by the General Services Administration (GSA) and the Centers for Disease Control and Prevention (CDC) to evaluate and certify the health and working environment of building users



ESG-Conscious Office Development Project in Texas, the United States

In December 2022, Sumitomo Forestry, together with Iino Kaiun and Kumagai Gumi, participated in the development of a seven-story wooden ESG-conscious office building near Dallas, Texas, in the United States. These three companies will establish a special purpose company (SPC) with Crow Holdings, a leading developer in the United States, to construct a large-scale wooden office building of mass timber construction*1.

According to estimates using the "One Click LCA*2" software that can visualize CO_2 emissions, the CO_2 emissions when built compared to the RC structure can be reduced by about 2,600 tons, and the wood used for the building materials fixes about 3,800 tons of carbon*3. The use of mass timber will streamline work at the construction site and shorten the construction time compared to RC construction.

The company also aims to obtain LEED environmental certification and Fitwel*4 wellness certification, and will provide socially and environmentally added value offices to ESG-conscious tenants.

*1 Architecture using engineered wood, which is a relatively high-mass material made from multiple pieces of wood
*2 Software for which Sumitomo Forestry has concluded a sole agency agreement in Japan. CO_2 emissions during procurement of raw materials for construction, processing, transportation, construction, renovation, and disposal (CO_2 emissions during construction) can be calculated precisely
*3 CO_2 emissions during constructing the office and parking lot building were estimated. Major structural components such as framing, curtain wall, and foundation were evaluated based on construction drawings. Carbon storage amount is estimated for office building
*4 A system developed by the General Services Administration (GSA) and the Centers for Disease Control and Prevention (CDC) to evaluate and certify the health and working environment of building users

Participated in the 15-story Wooden Office Development Project, which is the Tallest Building in Melbourne, Australia

Sumitomo Forestry, together with NTT Urban Development Corporation, has launched initiatives to realize net zero carbon buildings*1 through Hines, a leading global developer.

The project that will serve as a stepping stone to this goal is a large-scale wooden office to be constructed in Collinwood, a suburb of Melbourne, Australia. The building is a mixed structure of RC and wood with 15 floors above ground and two floors below (all floors above the 6th floor to be made of wood), and is expected to be the tallest*2 wooden office building in Melbourne, Australia. Construction is scheduled for completion in 2023.

Through this project, in addition to achieving the highest level of Green Star environmental certification in Australia (6 stars), we aim to obtain Net Zero Carbon certification based on the Carbon Neutral Standard for Building, an Australian standard. We also estimate that approximately 4,000 m^3 of wood will be used in the structural frame, fixing approximately 3,000 tons of carbon (on a CO_2 basis). Including this fixed amount, the CO_2 (Embodied Carbon) emitted during the construction of the building (in the process of raw material procurement, manufacturing, construction, demolition, etc.) is equivalent to a reduction of approximately 40% compared to the case where the entire structure is made of RC (reinforced concrete).

This project combines the effective use of wood with its carbon storage function with energy conservation, energy creation, and renewable energy features of the building, as stated by the WGBC*3.

This is an advanced development that brings forward the goal of zero operational carbon in all new buildings by 2030 by seven years.

*1 The building is designed to save or create energy, and CO_2 (operational carbon) emissions from building use are reduced to virtually zero through a combination of renewable energy use and offsets using carbon credits

*2 Based on research by Wood Solutions, an organization affiliated with the Australian Government (as of June 2021)

*3 WGBC: World Green Building Council, a member of the UN Global Compact and a global action network of about 70 green building councils around the world

Sustainable Forest Management

Sustainable Forest Management

Basic Policy

In addition to supply function of producing wood, forests have diverse public benefits such as water source recharge, prevention of landslides, CO_2 absorption and fixation as a countermeasure to global warming, preservation of biodiversity, and recreation.

The Sumitomo Forestry Group advances sustainable forest management both in Japan and overseas to ensure that wood resources will be available in perpetuity while preserving these public benefits of forests. Sumitomo Forestry Group's Business is also promoting the acquisition of SGEC forest management certification, which is mutually certifiable with FSC forest management certification and PEFC forest management certification in Japan and overseas, in its upstream forest management, midstream wood distribution and manufacturing, and downstream wooden construction.

In our domestic forestry business, we will pursue profitability through wood production in Company-owned forests, while at the same time practicing sustainable forest management that ensures legality and takes biodiversity and local culture into consideration, and obtain and maintain 100%* forest certification in forests subject to certification.

* Except for land leased to Kawanokita Development and surrounding forests.

As for the overseas forestry acquisition, below are the guiding principles for selection when obtaining new forests areas.

1. Forests areas that have good relationships with surrounding villages and local communities.
2. Forest areas where HCVA*1, HCSA*2 and and FPIC*3 can be implemented, no environmental problems were identified in the past, and environmental risks can be eliminated.
3. Forest areas where third-party forest certification can be obtained (FSC®-FM is preferable and FSC-CW and PEFC certification are acceptable as well).
   (FSC-C113957)

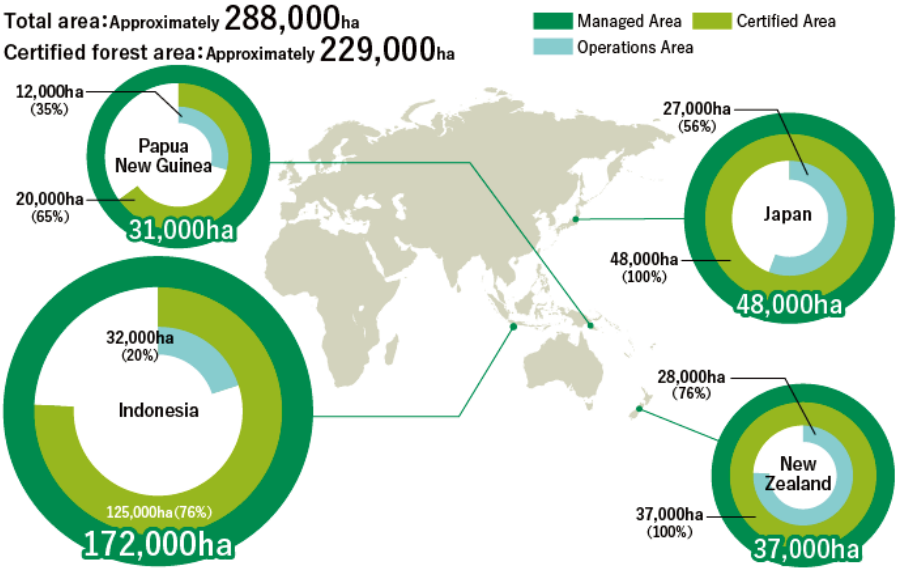
*1 SGEC-FM (Trademark License No. SGEC/31-21-1057), PEFC-FM (Trademark License No. PEFC/31-21-1057)
*2 High Conservation Value Assessment: inspection and assessment to establish conservation policies for areas specified as having high conservation value, such as rare flora and fauna habitat.
*3 High Carbon Shock Assessment: inspection and assessment to specify and restrict development in areas with high carbon absorption volumes so that the volume of carbon retained by forests does not decline when forest land is converted to other uses.
*4 Free Prior Informed Consent: Prior sharing of information and consensus formation with indigenous people and others in cases where there is likelihood that operations could impact the lands, territories or resources of indigenous people.

Click here for related information

Sumitomo Forestry Group Human Rights Policy

Forest Management and Wood Usage

Forest management, certification, and operations area in FY2022



Company owned forests in Shikoku

Planted forest in New Zealand

Planted forest in Papua New Guinea

Planted forest in Indonesia

Area of Forest Managed and Owned by the Sumitomo Forestry Group

As of December 31, 2022

Country	Managed Area (ha)	Certified Area (ha)	Operations Area (ha)	Forest certification system*1	Certification Number	Certification Issuing Body	Afforestation Area for Social Forestry※3 (ha)
Japan	**47,989**	**47,736**	**27,161**	-	-	-	**0**
Sumitomo Forestry	47,965	47,736	27,161	SGEC	JAFTA-010	Japan Forest Technology Association (JAFTA)	0
Indonesia	**171,776**	**124,890**	**32,493**	-	-	-	**9,896**
PT. Mayangkara Tanaman Industri (MTI)	104,664	74,870	10,534	PHPL*2	015.4/EQC-PHPL/IX/2018	PT. Equality Indonesia	0
PT. Wana Subur Lestari (WSL)	40,750	40,750	11,451	PHPL*2	10-PHPL-006	PT Almasentra Sertifikasi	0
PT. Kubu Mulia Forestry (KMF)	9,270	9,270	5,688	PHPL*2	IMS-SPHPL-009	PT Inti Multima Sertifikasi	0
PT. BINA OVIVIPARI SEMESTA (BIOS)	9,738	0	0	-	-	-	-
PT. Kutai Timber Indonesia (KTI)	7,302	0	4,771	-	-	-	7,144
Koperasi Serba Usaha Alas Mandiri KTI (KAM KTI)	0	0	0	-	-	-	1,005*4
Koperasi Bromo Mandiri KTI (KBM KTI)	0	0	0	-	-	-	1,330*5

Country	Managed Area (ha)	Certified Area (ha)	Operations Area (ha)	Forest certification system*1	Certification Number	Certification Issuing Body	Afforestation Area for Social Forestry※3 (ha)
PT. Rimba Partikel Indonesia (RPI)	52	0	49	-	-	-	417
Vietnam	**0**	**0**	**0**	-	-	-	**827**
Vina Eco Board Co., Ltd.	0	0	0	-	-	-	827
Papua New Guinea	**31,260**	**19,920**	**11,618**	-	-	-	**0**
Open Bay Timber Ltd. (OBT)	31,260	12,854	11,618	FSC®	NC-FM/COC-005600	Preferred by Nature	0
		7,066		FSC®	NC-CW/FM-003093	Prefferd by Nature	
New Zealand	**36,565**	**36,565**	**28,144**	-	-	-	**0**
Tasman Pine Forests Ltd. (TPF)	36,565	36,565	28,144	FSC®	SGS-FM/COC-010806	SGS South Africa (Pty) Ltd	0
Total	287,590	229,111	99,416	-	-	-	10,723

*1 Forest Management (FM) certification authenticates sustainable forest management by having a third-party inspect based on objective indicators with focus on: (1) compliance with laws and system frameworks, (2) forest ecosystem and biodiversity maintenance and conservation, (3) respect for rights of indigenous people and local communities, (4) maintenance and enhancement of forest productivity.

*2 Pengelolaan Hvtan Produksi Lestari (PHPL) is an Indonesian certification of sustainable production forest maintenance.

*3 Area of planted forest was calculated using the actual number of seedlings distributed and the number of seedlings planted per hectare. (The number of trees planted per hectare is planned annually for each tree species)

*4 [Forest certification system] FSC® [Certification number] SA-FM/COC-002083 [Certification body] Soil Association

*5 [Forest certification system] FSC® [Certification number] SA-FM/COC-005493 [Certification body] Soil Association

Seedling Farming and Cultivation: A First Step Toward Sustainable Forest Management

Securing superior seedlings is a crucial first step toward sustainable forest management. Stable production of superior seedlings enables appropriate forest establishment. Sumitomo Forestry was the first to modernize seedling production. We are contributing to the sustainability of forest resources and active resource production through efforts such as the construction of greenhouse-type cultivation facilities with proper environmental management. In Japan, in fiscal 2019, we opened our sixth production facility in Minamiaizu Town, Fukushima Prefecture, which is capable of producing 1.9 million seedlings per year and supplying them to our own company-owned forests as well as to national forests and privately-owned forests throughout Japan. Overseas, in Indonesia and Papua New Guinea, we produce our own seedlings for planting. Our sustainable forest management garden vegetation, cultivates, harvests, and reforestation in New Zealand and every other region where we do business.

Cultivation: Preserving the Public Benefits of Forests Through Appropriate Management

The Sumitomo Forestry Group manages a total of approximately 48,000 hectares of company-owned forests in Japan and a total of around 240,000 hectares of company-owned planted forest area overseas. We strive to maintain and improve the forest's public benefits by implementing appropriate management for forest growth in these forests, such as afforestation, clear underbush, pruning, and thinning.

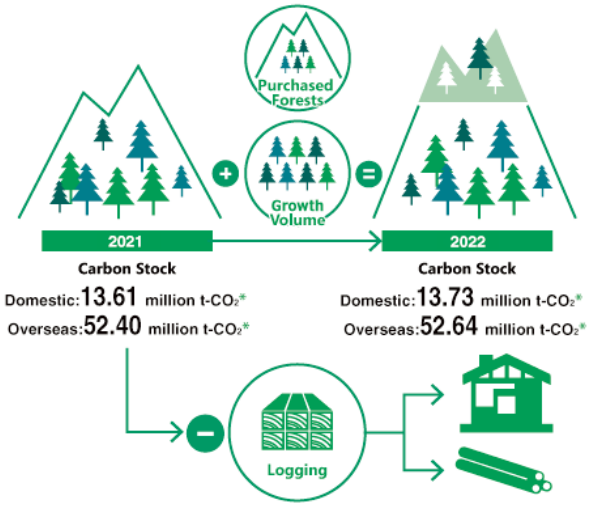
Carbon stocks* of company-owned forests in Japan at the end of fiscal 2022 were 13.73 million t-CO_2 (+120,000t-CO_2 from the previous fiscal year). Carbon stocks at overseas planted forests were 52.64 million t-CO_2 (+250,000t-CO_2).

* Formula to Calculate Carbon Stock

Stem volume per hectare of forest × biomass expansion factor × (1 + ratio of underground area to aboveground area) × volume density × carbon content ×CO_2 conversion factor

Parameters such as Stem volume and expansion factor are based on own plot data for domestic forests, WSL, and MTI, while OBT and TPF refer to standard values of each country, etc. For protected forests in overseas forests, carbon fixation is assumed to be zero for non-forested and low accumulation areas such as rivers, lakes, roads, etc., and degraded forests in WSLs and MTI.

Carbon Stock of Forests in Japan and Overseas



Logging and Transport: Supplying Raw Materials for Wood Products Through Systematic Logging

The Sumitomo Forestry Group logged approximately 60,000 m^3 of trees in Japan and approximately 970,000 m^3 of trees overseas in fiscal 2022 in forests it owns or manages based on long-term logging plans. Harvested wood are milled and processed before finally reaching the market as products such as housing and furniture. In the case of wood turned into structural members for housing, the products are used for several decades. Even after being dismantled or at the end of their product life, wooden construction and timber and wood products can be reused as fiberboard or other wood materials in construction or as raw material for making paper, and all that time it will continue to retain CO_2. The CO_2 released when wood is ultimately burned as a wood fuel is what has been absorbed from the atmosphere as trees grow, and therefore it does not represent an increase in CO_2 in the atmosphere over the life cycle of the tree.

Click here for related information

Carbon Stock in the Housing and Construction Business

Reforestation: Preparing for the Next Cycle

Harvesting and using wood alone will lead to a diminishing of forest resources that will be used to produce wood products. The Sumitomo Forestry Group therefore promotes sustainable forest management by always planting new trees after logging.

In fiscal 2022, we planted forests on 184 hectares in Japan, and on 5,818 hectares overseas. The newly planted trees will absorb CO_2 during their growth and retain it as carbon.

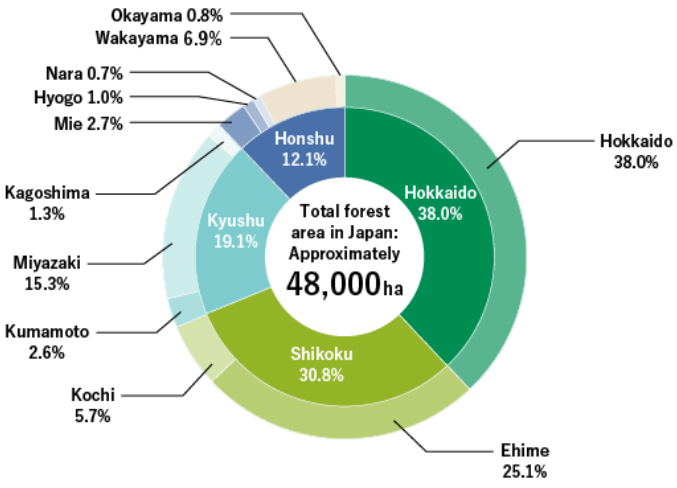
Sustainable Forest Management

Protecting Domestic Forest Resources

Basic Policy

In recent years, there has been concern in Japan that the deterioration of planted forests such as Japanese cedar and Japanese cypress throughout the country is impairing public benefit of forests, such as water source recharge. It is said that the profitability of the forestry industry has deteriorated due to low lumber prices, which has made it impossible to properly care for the forests, such as by thinning. In order to prevent further devastation of forests by revitalizing the forestry industry, the government of Japan has set a goal of raising wood self-sufficiency rate to roughly 50% by 2025. Sumitomo Forestry will contribute to the Japanese government's goal by expanding the area of managed forests, introducing smart forestry, propagating fast-growing trees, developing afforestation and silviculture technologies, expanding its container nursery business, and promoting solution businesses that utilize ICT.

Breakdown of Company-Owned Forests (as of December 31, 2022)



Preserving and Increasing Forest Resources Through Management of Company-Owned Forests

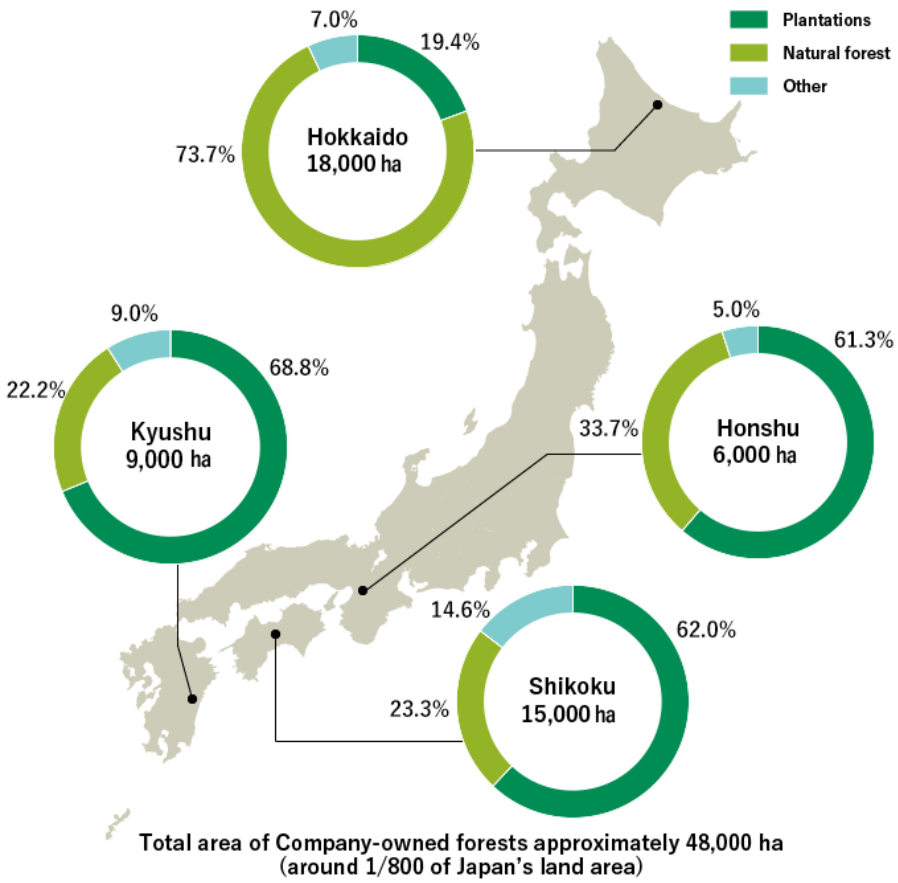
The Sumitomo Forestry Group owns a total of approximately 48,000 ha (about 1/800 of the national land area) of forest land area. Company-owned forests are categorized as either "working forests", where the production of wood is the priority, or "conservation forests", where environmental conservation is the focus.

Sumitomo Forestry acquired a forestry certification from Japan's Sustainable Green Ecosystem Council (SGEC) *1 for all company-owned forests*2 in 2006 and third-party evaluations have confirmed that the forests are being properly managed, including with regard to measures to conserve biodiversity. New forest purchases after the acquisition of the forest certification have each been under evaluation for certification and our certification rate is 100%.

Forest operations include appropriate thinning, which helps to preserve and increase forest resources, while taking into consideration the surrounding environment including the ecosystem. Sumitomo Forestry also aims for highly productive management of its forests based on operational plans that follow the principle of performing the appropriate management for the appropriate tree species on the suited land.

*1 Japan's own forestry certification system through which forest management is verified as sustainable by third parties. Certification is based on seven criteria that include the preservation of biodiversity and the conservation and maintenance of soil and water resources. Due to the June 2016 approval of mutual recognition of the PEFC*3 international forest certification system, international recognition has increased.
*2 The forests owned by Sumitomo Forestry exclude the lands leased to Kawanokita Development Co., Ltd., which is a Group company responsible for operating a golf course, and the surrounding forest. Newly purchased forests are excluded because they underwent expanded inspections during the subsequent fiscal year.
*3 The Programme for the Endorsement of Forest Certification Schemes is an international NGO that mutually authenticates certification standards created in each country and region as criteria to be shared internationally. 55 forest certification schemes are members of PEFC, of which 48 are mutually certified (as of the end of December 2022).

Distribution and Area of Company-Owned Forests (as of December 31, 2022)



Forest Revitalization Initiatives

Seedling Production for Regional Revitalization

An Increasing number of municipalities are working to foster forest resources that are not yet effectively utilized and to revitalize the forestry industry as one part of regional revitalization measures. Furthermore, the area of reforestation after clear cutting is increasing as the coniferous trees planted after World War II have entered the harvest season. It is desirable to establish a stable supply system for seedlings, but it is expected that the supply will become insufficient in the future due to a decrease in the number of growers.

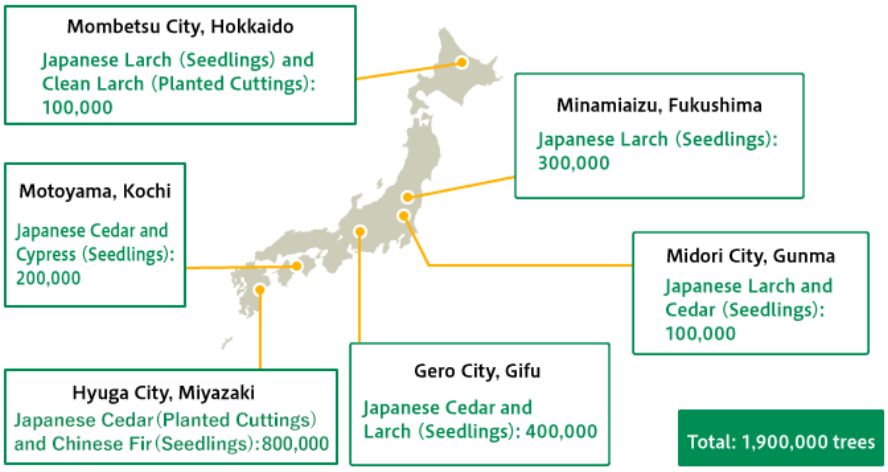
Sumitomo Forestry was one of the first companies to modernize containerized nursery seedlings production and began operating facility-based nursery tree production establishments by utilizing its own research and development of production technology. By controlling temperature and humidity in the facilities, we are able to produce seedlings year-round, dramatically increasing production per unit area compared to conventional open-air seedling cultivation. We are also linking to local municipalities to contribute to the revitalization of the region by establishing greenhouses with local employment as well as the development and standardization of new technology related to seedlings cultivation.

Cultivating Sumitomo Forestry Seedlings Throughout Japan

We opened a facility-based nursery seedlings production establishment in Hyuga City, Miyazaki Prefecture in 2012, followed by another facility in Mombetsu City, Hokkaido. We opened production facilities in Gero City, Gifu Prefecture in fiscal 2016, Motoyama Town, Kochi Prefecture in fiscal 2017, Midori City, Gunma Prefecture in fiscal 2018, and Minamiaizu Town, Fukushima Prefecture in fiscal 2019. Currently, we have a system capable of producing 1.9 million seedlings per year nationwide.

In addition to seedlings production at our own facilities, in fiscal 2020 we began outsourcing production in Gifu Prefecture, and in fiscal 2021 Sumitomo Forestry provided technical assistance in Nichinan Town, Tottori Prefecture. In fiscal2022, we increased the number of seedlings consigned for production and strengthened our system for stable supply of seedlings.

Sumitomo Forestry's seedlings production systems



Efforts in Fast-Growing Trees

Sumitomo Forestry has begun efforts in fast-growing tree forests that are gaining more attention in recent years. Fast-growing trees are those that grow faster than Japanese cedar and Japanese cypress and can be harvested in a shorter felling season, and include China fir, bead trees, and willow trees.


Chinese fir

The Hyuga Forestry Office is conducting test plantings of China fir in company-owned forests in Kumamoto and Miyazaki prefectures. This test monitors aspects that include the reduction in weeding and a growth comparison with Japanese cedar through growth surveys and other research to examine the potential as a new tree species for garden vegetation.
In addition, the Environment and Resources Division and the Tsukuba Research Institute are cooperating to test the planting of fast-growing broadleaf trees suitable for fuel material.

Development of a Forestry Transport Drone

Workers are currently carrying seedlings weighing roughly 10 kg on their back when planting Japanese cedar, Japanese cypress and other tree species. Particularly in Japan, the terrain is quite hilly and places a huge physical burden on workers, which makes it difficult to secure a labor force.


Forestry transport drone 'morito'

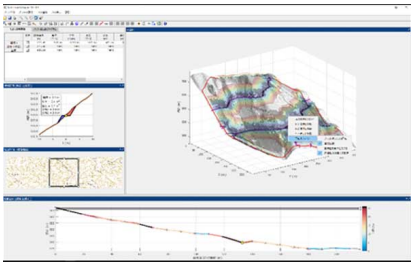
That is why Sumitomo Forestry has been advancing the development of drones to transport these seedlings jointly with drone manufacturers and distribution companies that have proven themselves in the agricultural field. Repetitive proof-of-concept tests were conducted in company-owned forests by flying drones safely over complex terrain and in harsh weather to ensure safe drone flight and reliable unloading of seedlings. Based on these tests and various improvements, sales of the Morito Forestry Drone to transport seedlings began throughout Japan in fiscal 2020.

In the course of our sales activities, we have learned that there is a growing need in the field to transport not only seedlings, but also heavy materials such as those used to prevent damage by animals, which has been on the rise in recent years. Therefore, we made improvements with a view to transporting forestry materials, and upgraded the machine to be able to transport heavy materials in fiscal 2022. The maximum loading capacity is now 25 kg, up from 8 kg in the previous model.

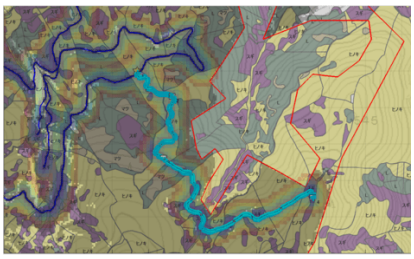
FRD Forestry Roadway Design Support System

Current Status of Strip Road Design in Japan

Forests in Japan often have insufficient forest roads or strip roads in place which prevent smooth management of forests and transport of the wood that is harvested. Currently, when constructing forest roads or strip roads, lines are drawn by hand over a paper topographical map before visiting the site to see if that plan for the road network can be executed according to the proposed alignment. This process of examination is usually done over and over again. The reality is that the process of creating the line drawn plans and checking and verifying on site relies heavily on personal intuition and experience, and takes a great deal of time and labor.



Automatic Design Screen (Image)



Forest road design to avoid dangerous places (in red frame)

Forestry road networks design using FRD

This software takes advantage of precise topographical data obtained from aerial laser and other measurements to design forestry road networks such as forest roads and strip roads. The main feature is a function for automatic design able to automatically create the line drawings by inputting the site of departure and destination in the operation screen. This feature creates line drawn plans that can be maintained at low cost based on parameters, including requirements such as longitudinal slope and the curvature radius, width, and operation costs specified in advance. In addition, we have devised a way for software to recognize dangerous terrain. This software packs the right features necessary for the job, such as allowing the design of safety lines that are less likely to break and safer, avoiding potential collapse and other circumstances when creating a plan. The on-site exploration of the line drawn plans for roadways designed in the software offers efficient on-site verification. In 2022, a new version was developed and new features were added, including the calculation of harvestable wood volume from the designed strip road.

Spreading the Use of the Winch-Assist Type Forestry Work Equipment

Sumitomo Forestry used a grant from the Forestry Agency in fiscal 2022 to improve the Tether winch-assist forestry machinery developed jointly with Nippon Caterpillar LLC and Sun-earth Inc. and conducted demonstrations of the equipment in Hokkaido, Saitama, Yamanashi and Kumamoto.

Work using Tether

The Tether is forestry machinery that assists heavy equipment for logging and hauling out on sloping terrain, pulling the heavy equipment by wire to maintain a stable posture of the heavy equipment. Forestry operations using heavy machinery will be possible on slopes where heavy machinery could not be used previously, which is expected to improve security and productivity.

We will continue to use the machine to improve the safety of forestry operations on sloping terrain and to realize environmentally conscious forestry.

Improvement and Diffusion of Remote Clear Underbush Cutters

In collaboration with the Japan Federation of Forestry Cooperative Associations and the Norinchukin Bank, we are conducting demonstration tests of remote clear underbush cutters for the forestry industry.

Work view of remote clear underbush cutters

The remote type clear underbush cutters reduces the workload of clearing the ground and cutting the undergrowth at the time of planting, and improves work safety by replacing the conventional hand-held type clear underbush cutters. With the aim of promoting reforestation and securing forestry workers, in fiscal 2022, we conducted demonstration experiments, including improvements to underbush cutters, in forests across Japan and exhibited at forestry-related exhibitions.

Sustainable Forest Management

Forest Management Overseas

Basic Policy

With growing interest in the SDGs and other sustainable initiatives, Sumitomo Forestry Group is expanding its forestry business in consideration of local communities and the environment. The Group contributes to a stable supply of wood and regional economic development while maintaining the wider environment through management of "Economic Forests" which are planted forests for wood production, the preservation of "Protected Forests", which are responsible for ecosystem conservation and CO_2 absorption and fixation, and coexistence with surrounding "Local Communities".

Overseas Managed Afforestation Area (unit: ha)

Country	Name of Forestry Business	Managed Area	Operations Area	Afforestation Area in FY2022	Logged Area in FY2022
Indonesia	PT. Mayangkara Tanaman Industri (MTI)	104,664	10,534	2,037	1,627
	PT. Wana Subur Lestari (WSL)	40,750	11,451	2,313	2,001
	PT. Kubu Mulia Forestri (KMF)	9,270	5,688	168	785
	PT. Kutai Timber Indonesia (KTI)	7,302	4,771	1,217	117
	PT. BINA OVIVIPARI SEMESTA (BIOS)	9,738	0	0	0
	Subtotal	171,724	32,444	5,735	4,530
Papua New Guinea	Open Bay Timber Ltd. (OBT)	31,260	11,618	415	298
New Zealand	Tasman Pine Forests Ltd. (TPF)	36,565	28,144	839	794
Total		239,549	72,206	6,989	5,622

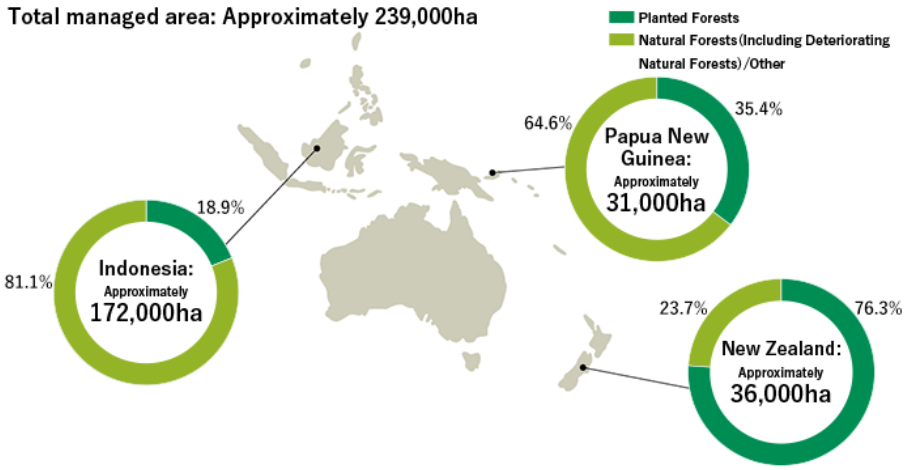
* Subsidiary of Sumitomo Forestry Group from December 2022

Forest Management Overseas

The Sumitomo Forestry Group is expanding three approaches to conducting forestry business; industrial tree plantation, environmental reforestation, and social forestry. The purpose of industrial tree plantation is to produce wood and increase the supply of afforestation wood (raw material). By zoning its managed land appropriately, the Group aims to achieve both the conservation of valuable ecosystems and the development of local communities through forestry business.

In addition, the Group also conducts environmental reforestation, planting trees for environmental conservation. It aims to contribute to environmental conservation through the expansion of forested areas and the fulfillment of the ecosystem services function of forests, by actively planting trees on land where natural regeneration would otherwise be difficult. The Group has also been engaged in "social forestry" which shares the economic benefits of afforestation with local communities while enlisting the cooperation of local residents.

Distribution and Area of Overseas Planted Forests (as of December 31, 2022)



Forest Certification and Sustainable Forestry Business

Of an approximately 31,000-hectare planted forest owned and managed by Papua New Guinea's Open Bay Timber (OBT), about two-thirds, or 20,000 hectares, has received FSC® forest certification*. After harvest, the company ensures afforestation is carried out, and in fiscal 2022, 415 hectares of trees were planted.

The entire area of approximately 37,000 hectares managed by Tasman Pine Forests Ltd. (TPF) in New Zealand has been FSC®-FM certified. In fiscal 2022, TPF implemented 839 hectares of afforestation.

We will continue to practice sustainable forest management that lays basis for communities and environment to function in harmony.

* OBT: CW certification FSC-C019117, FM certification FSC-C103694, TPF: FM certification FSC-C132002

Forestry Business in West Kalimantan, Indonesia (Industrial Tree Plantation)

Sumitomo Forestry has been undertaking large-scale forestry business operations at Mayankara Tanaman Industri (MTI) and Wana Subul Lestari (WSL) since 2010, after receiving "Permission to Utilize Industrial Plantation Forest Products*1" from Indonesia's Ministry of Environment and Forestry.
In addition, since 2020, we have started a reforestation project at Kubu Mulia Forestry (KMF), which is close to WSL and MTI.

Background

The project covers areas in which forest degradation has advanced due to commercial harvesting from the 1960s to the mid-1990s in addition to repeated illegal logging and slash-and-burn farming practices.
In these types of lands, we not only engage in economic forest management but also take responsibility to protect forests with high conservation value. We also believe this business is very significant in providing an economic infrastructure to local communities from the perspective of ESG.

The land used in these operations locates in tropical peatlands which play an extremely vital role in the carbon and water cycle on a global scale.

Sustainable Forest Management

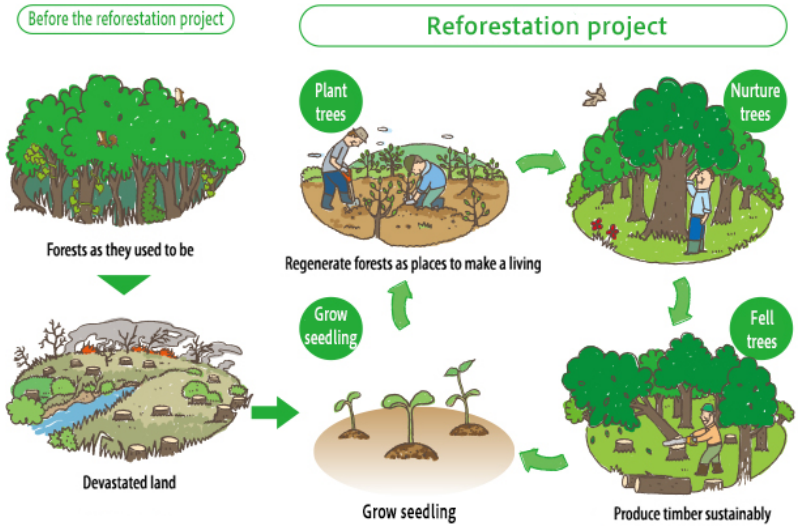
We launched these operations by conducting topographical surveys, and boring tests to understand the peat distribution, over five years. We also entered into an advisory agreement with the International Finance Corporation (IFC), the World Bank's group institute, in 2012. In accordance with the concept of High Conservation Values Forests (HCVF)*2, Sumitomo Forestry conducted assessments on its operational properties with the IFC and investigated whether the property use plan is implemented as stated and adequate consideration is made for biodiversity and livelihood of local residents. The reports of the investigation results were audited by a third-party organization, and valuable comments made by stakeholders on the report were adapted in the business plan. Our Group also held public hearings in 2013 where stakeholders such as local residents, companies in the communities, academics, NGOs, and government officers were invited to share the results of the investigations.

Our employees' unified and efforts have succeeded in building a unique peatland management model that stabilizes the underground water level throughout one year. Stabilization of the underground water level reduces greenhouse gas emissions and forest fires, while maintaining proper hydrological cycles, thereby making a significant contribution to climate change mitigation. Our peatland management model has been highly praised worldwide.
These and surrounding areas also isolate ecosystems where rare plant and animal species live in an island-like shape. To prevent this type of isolation, Sumitomo Forestry Group works together with neighboring local business proprietors to preserve the entirety of the ecosystem.

Sumitomo Forestry Group captures tropical peatlands and the ecosystems living throughout the peatlands as one type of important natural capital. In the future, businesses achieving a balance between industrial tree plantations and environmental protection will enhance value as natural capital and help resolve global issues.

*1 Issued by the Indonesian government, this is a business license to engage in industrial tree plantation operations in Indonesia.

*2 In considering the value of forests, it goes beyond their value as absorbers of greenhouse gases, outlining methods of extracting each one of the many aspects of value forests contain. These aspects include their value as habitats of rare, endangered animal species, as water resources, as providers of essential natural services such as soil erosion control, and as land that has an intimate relationship with the lifestyles and cultures of local communities.



Click here for related information

Biodiversity Conservation in Planted Forests Overseas

History of Enhancing the Value of Natural Capital

2017	• Entered into a Memorandum of Understanding (MOU) with the Indonesian Ministry of Environment and Forestry for a pilot project that aims to examine unique water level management technologies to sustainably manage peatlands and establish peatland management models in Indonesia. The term of this project is set for five years. The project is conducted with the cooperation of the Ministry of the Environment and Forestry as well as the Peatland Restoration Agency. • The peatland management technology from this project was introduced as an example of excellent, leading-edge peat management at the November 2017 United Nations Climate Change Conference (COP23) held in Bonn, Germany.
2018	• In 2018, the Group formulated a grievance mechanism with the help of the IFC. Together with the University of Indonesia, we also conducted a social survey of operational and surrounding areas on a three-year plan. • We reported on peatland management technology at the December 2018 United Nations Climate Change Conference (COP24) held in Poland.
2019	• We announced initiatives related to WSL peatland management and forestry business at The Seventh Tokyo International Conference on African Development (TICAD7) held in Yokohama in August. We introduced that tropical peatland forest not only acts as the lungs of the Earth but also a heart that circulates water around the globe. • We also announced a peatland management system that prevents fires at a side event of the United Nations Climate Action Summit held in New York in September. • At the United Nations Climate Change Conference (COP25) held in Madrid in December, we presented water management technologies and the preservation of rare species.

2020	• The Global Landscape Forum held by the United Nations Environment Programme introduced the Sumitomo Forestry peatland management concept to not only address the issue of carbon emissions in peatland management but also consider forest, agricultural and food shortage issues as a main theme. • We contributed essays about the expertise in peatland management which we have cultivated thus far and took charge of organizing the technical peatland management guidebook published by the International Peat Society (April 2021). • Sumitomo Forestry also launched a counsel together with the IDH - The Sustainable Trade Initiative, an international organization, to improve assessment methods of natural capital and enhance added value.
2021	• We gave presentations at the Japan Pavilion, Indonesia Pavilion, and Peat Pavilion at the 26th Conference of the Parties (COP26) of the United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow in November.
2022	• At the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) held in Egypt in November, we made a presentation at the Japan Pavilion and introduced technologies that could help solve the problem of underestimated forest and peatland loss in tropical countries and our approach to maximizing the value of natural capital.

Forest Fire Prevention Measures at Each Work Site

Indonesia

Conventionally, reforestation in peatlands* was done by managing the water level with drainage to push water out of the soil. However, while drainage-type water level management works well for plants, it has dried out the land, decomposing organic matter in peat soils and releasing greenhouse gases, as well as leading to large peat fires that are difficult to extinguish.

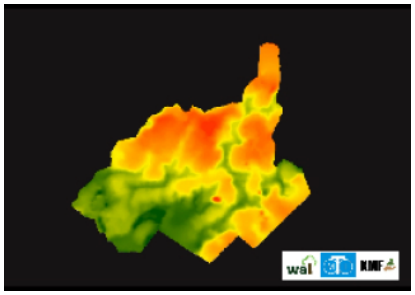
WSL and MTI, on the other hand, manage stored water levels based on precise surveys and peat studies. This maintains a water level that allows plants to grow and also prevents the land from drying out.

Real-time measurements of peat thickness have shown that peat thickness has not decreased in the long term as a result of previous efforts. In other words, it reduces peat-related greenhouse gas emissions while also helping to avoid fires.

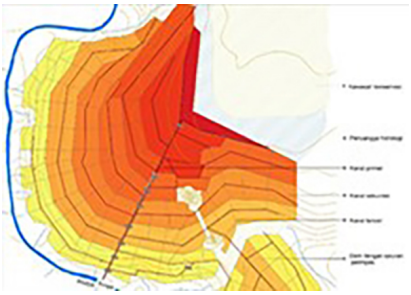
The Sumitomo Forestry Group has also continued to develop the infrastructure technology necessary to manage peatlands since launching the business. The concept is simple, low cost and easy maintainability, which aims to establish management technology that can be broadly expanded in rainforest peatlands throughout Indonesia and the rest of the world. As an alternative means to carry out massive amounts of surveys, we are striving to develop technology using drones and AI.

Regions where peatlands thrive, such as the Amazon, the Congo Basin, and Indonesia, have the most rainfall throughout the world. The soil of peatlands is made up of 80% to 90% water. Tropical forests and peatlands act as a pipeline dispersing water into the air from a large amount of rainwater accumulated in the ground during the monsoon season through evaporation. The tremendous evaporation from these rainforests and peatlands has the potential to act as a necessary water cycle function at global scale. The collapse of the world's water cycle will result in abnormal weather and adversely impact agriculture, which will cause even greater food shortage issues. Sumitomo Forestry advocated the importance of proper tropical forest and peatland management because these regions act as the heart of the Earth circulating water throughout the planet at our presentation at The Seventh Tokyo International Conference on African Development (TICAD7) held in Yokohama in August 2019.

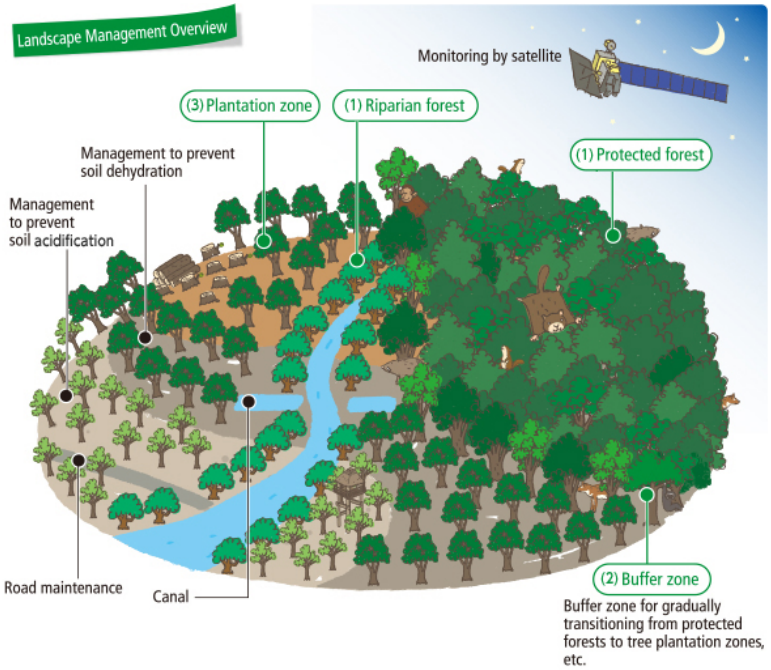
* Characteristics of the peat soil found in the peat swamps is known to emit enormous amounts of greenhouse gases, typically carbon dioxide and methane gas, if the soil was inappropriately exploited. Owing to joint researches by Japanese and Indonesian academic institutes, our operations take into consideration minimizing greenhouse gas emissions that accrue as the peaty soil dissolves during exploitations.



Landscape management of forestry business designed based on detailed data



Monitoring the water level in peatlands



Papua New Guinea

Open Bay Timber (OBT) keeps track of the fire hazard levels by analyzing temperature, rainfall, and humidity every day, as well as by preparing firebreaks and organizing forest residues to prevent the spread of fire on the planted forest. In areas with a high risk of fire, patrols of work sites are increased from once to twice a day to meticulously check for signs of fire. In 2022, there was one incident caused by a fire that jumped from an adjacent property, but countermeasures were strengthened by conducting educational activities for local residents regarding fire handling. We will work together with the community to reduce the number of fires to zero.

New Zealand

TPF is working with Fire and Emergency New Zealand (FENZ), local municipalities, neighboring forestry associations and other relevant agencies to continuously conduct awareness-raising activities about fire in the local community in addition to taking other proactive fire prevention measures. Specific measures include setting up a Fire Index bulletin board that shows the fire risk level, distribution of leaflets to evoke caution in the local community, the creation of a system to always have fire-fighting helicopters on standby when the risk of fire is high, stockpiling of fire extinguishing agent, appropriate placement and management of water ponds, focused pruning of wood edges to prevent the spread of fires, fire-fighting equipment acquisition and training, conducting patrols, and preparation of forest roads. On days with a significantly high risk of fire, we also implement a wide range of regulations from time restrictions for harvesting work to rules on when people have recreational access to the mountains. We have had no cases of forest fires under our management in 2022 thanks to these initiatives.

Sustainable Forest Management

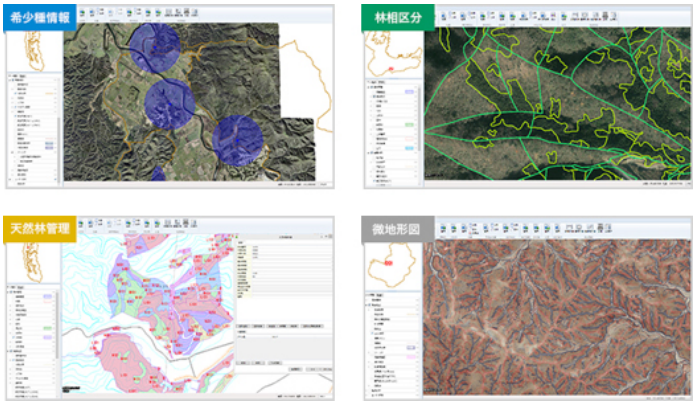
Afforestation Consultancy

Domestic Case Example

Supporting Municipalities in Introducing Forestry ICT Platforms

While quantitative forest resources are analyzed through aerial surveys and forest resource data systems are prepared in some advancing areas, many of the forests in Japan do not have sufficient forest resource information. Sumitomo Forestry built the Forestry ICT Platform together with AS Locus Corporation as a measure to address this situation. The Forestry ICT Platform is a holistic system with a wide range of functionality related to advance forest resource information as well as forests and forestry that has been provided to municipalities throughout Japan and organizations in the forestry business since fiscal 2013. The key distinctive feature of this platform is that it is provided in regionally customized form, with a variety of forest and forestry-related data and functions optimized for local characteristics. We have supported 19 municipalities with the platform as of the end of fiscal 2022.

Forestry ICT Platforms



Supporting the Creation of a Forest and Forestry Master Plan for Itoshima City, Fukuoka Prefecture

Sumitomo Forestry is providing consulting in planning of forest maintenance and forestry development conducted by local municipalities by taking advantage of its wealth of knowledge in forest management cultivated in company-owned forests over a long period of time. As part of these efforts, we supported the creation of a Forest and Forestry Master Plan in Itoshima City, Fukuoka Prefecture as an initiative to use local forest resource since January 2016.

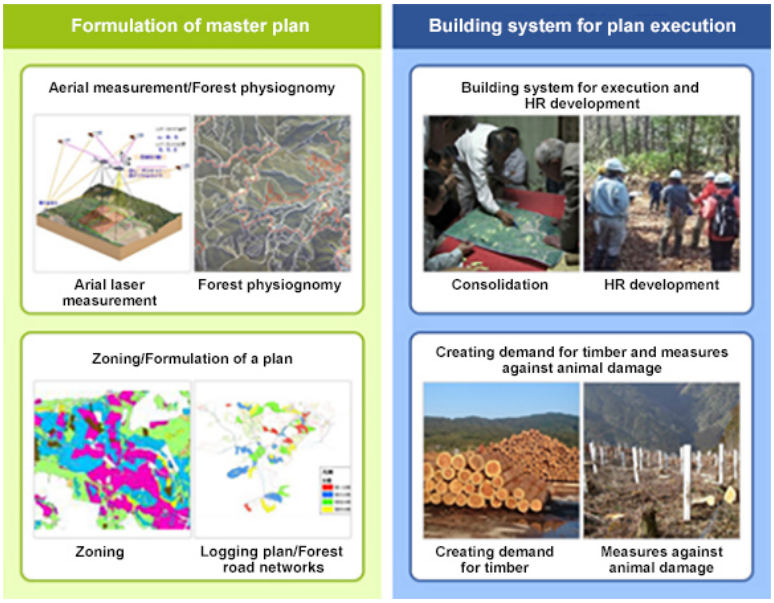
Positioning of the Master Plan

The Forest and Forestry Master Plan is the foundation for measures related to proper forest maintenance and effective use of locally produced wood in Itoshima, which is positioned as the basic plan under which businesses are to build supply chains for city use of wood that takes advantage of ICT promoted by Itoshima.

Creation of Master Plan

For methods to create this master plan, we are zoning areas that consider attributes such as the growth rate and accessibility of forests as well as the environmental conservation functions after grasping the amount of forest resources within the city limits through aerial laser measurement. Sumitomo Forestry formulated a harvesting plan and a plan for forest road networks that would be optimal to haul wood cultivated in the forest out by defining policies for conducting operations in the forest for each zone. Moreover, we also examined the systems to build to execute measures in line with this master plan.

The Forestry Agency's model project for regions with initiatives for making forestry a growth industry is currently being used to assist in the development of a framework for implementing the plan, and we will provide an assistance so that this master plan will contribute to regional forestry promotion.



Comprehensive Partnership Agreement to Turn Forestry to a Growth Industry with Nagato City, Yamaguchi Prefecture

Sumitomo Forestry entered into a comprehensive partnership agreement to turn forestry and timber industry to a growth industry with Nagato City, Yamaguchi Prefecture in September 2019 for the purpose of promoting development of the forest and timber industry in Nagato City in order to revitalize the local economy.

Past Initiatives

In April 2017, the Forestry Agency selected Nagato City was selected as a region to turn forestry and timber industry to a growth industry by the Forestry Agency and has worked toward that goal. The Nagato City launched a committee to promote turning forestry and timber industry to a growth industry with various subcommittees to conduct repeated assessments through local representatives and experts toward revitalization of forestry. As a result, Nagato City and other local relevant bodies took the lead in establishing Refore Nagato in July 2020 as a general incorporated association to handle local forest management.

Effects of the Comprehensive Partnership Agreement

The partnership agreement between Sumitomo Forestry and Nagato City aims to increase local production of logs, secure and train forestry workers, and expand wood demand. By treating the forests throughout Nagato City as a single entity, we will also execute efficient forest maintenance and promote sustainable forest management to further turn forestry to a growth industry.

In 2022, we conducted on-site proof of concept, surveys, and proposals to support the establishment of an intra-regional supply chain for locally produced wood, on expanding material production, and insuring demand for lumber through the use of smart technology and other means.

Partnership Agreement Overview

- Promote harvest and replanting
- Stably produce and use container seedlings
- Develop and standardize container seedling production technology and train business operators
- Establish and manage organizations central to forest management
- Identify the quantity of forest resources and the intention of forest owners
- Adopt and effectively utilize ICT in forestry and wood industries
- Adopt and effectively utilize forestry machinery in forest
- Take advantage of business approaches that heighten motivation of forest owners and forestry businesses
- Secure human resources and support their retention in forestry and wood industries
- Build a cooperative supply chain with local city sawmills and other forestry businesses
- Drive demand for locally produced wood both inside and outside of the city

Comprehensive Partnership Agreement with Nishiawakura Village, Okayama Prefecture and Sumitomo Mitsui Trust Bank

Sumitomo Forestry entered into a comprehensive partnership agreement with Nishiawakura Village, Okayama Prefecture and Sumitomo Mitsui Trust Bank in August 2020 to promote regional redevelopment measures with focus on the forest industry.

Partnership Agreement Scheme

This partnership agreement assigns roles to each of the three parties. Sumitomo Mitsui Trust Bank is entrusted by forest owners through forest trust agreements while Sumitomo Forestry provides management support as a forestry expert from driving efficiency in forest management procedures and operations handled by firms specializing in forest to marketing and promotion of wood. Nishiawakura Village offers support from a governmental stance and deliberates on building road network, forest information and other infrastructure.

Initiatives to Resolve Issues

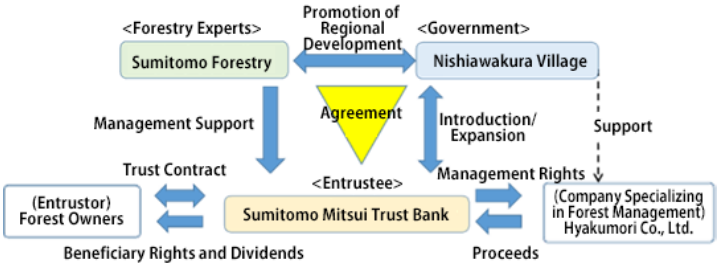
Japan's forestry is currently in the midst of a period of utilization of its abundant forest resources while at the same time facing the challenges: wood prices have fallen to one-fourth of their peak levels, forest owners have less motivation, and there is a shortage of forest management and forestry workers. To resolve these issues, a trend of outsourcing forest management to local municipalities and motivated forest management companies has begun. Forest trusts are one of these measures. We will expand the forest trust initiatives both inside and outside Nishiawakura Village with our two partners by leveraging each of our individual strengths. The Sumitomo Forestry Group will contribute to work to promote regional revitalization founded in forestry.

In 2022, we conducted research, analysis, and recommendations to Nishiawakura Village and Hyakumori Corporation, a company specializing in forest management, with respect to improving operational productivity and reducing distribution costs.

Specific Items of the Partnership Agreement

1. Items on Forestry and Regional Development Emphasizing Forestry Underway in Nishiawakura Village
   (1) Provide forest information to forest owners and enhance the efficiency of forest management through the use of forest information
   (2) Promote cyclical forest management friendly to the environment and improve the supply capabilities and increase demand for wood produced in the village
   (3) Create a new service industry using forests (including special-use forest products)
2. Items on Business and Management of Forestry Businesses in Nishiawakura Village
   (1) Improve various services for forest owners in forestry businesses
   (2) Lower costs of forest management and forestry and facilitate effective marketing of materials for forestry businesses
   (3) Strengthen the management structure of forestry businesses
3. Items on the Introduction and Expansion of Forest Trusts
   (1) Identify problems and investigate solutions to expanding forest Trusts
   (2) Standardize forest management and forest management procedures through the use of forest Trusts
   (3) Effectively use wood produced from forests related to forest Trusts
   (4) Promote the expansion of forest trusts to other regions

Partnership Agreement Scheme



Improvement of Forest Value Through Visualization of CO_2 Absorption

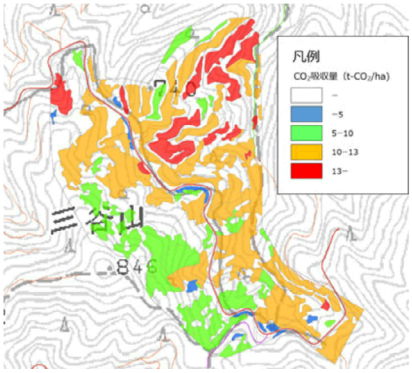
Background of Visualization

Appropriate forest management is required to realize regional revitalization based on forest resources. However, an increasing number of forests remain unutilized due to a decline in forest owners' awareness of management issues and the high cost of forest management and maintenance.

Sumitomo Forestry, together with Nippon Telegraph and Telephone West Corporation and others, conducted a joint verification experiment in Maniwa City, Okayama Prefecture, aiming to increase the value of forests through the creation of high-quality carbon credits, so as to improve forest value and achieve sustainable forest management in the future, thus realizing the visualization of CO_2 absorption.

Details of Initiatives

Forest information was digitized through interviews with forest operators, on-site plot surveys, and analysis of data acquired from drone photography, to build a cost simulation model for forest management and calculate forest CO_2 absorption. This model will enable appropriate forest management and wood production by identifying forest management costs in advance, which is an issue in forests in various regions. The project also aims to generate carbon credits based on the CO_2 absorption data obtained from the demonstration.



Visualization: Area distribution of CO_2 absorption

Overseas Case Example

Corporate needs for forest management are diverse. In recent years, a considerable number of companies have been conducting forest conservation and planting activities in developing countries to mitigate the impact on forests in overseas countries and regions where they engage in business activities, and to otherwise fulfill their corporate social responsibilities.

Drawing on its knowledge of forest management in Japan and overseas, Sumitomo Forestry implements its consulting business for the restoration of degraded forests in tropical regions, the rehabilitation of biodiversity, and for the protection and cultivation of forests that takes into account local communities.

Wildlife Conservation Forest Restoration and Regeneration Business

Mitsui Sumitomo Insurance Co., Ltd. has been involved since 2005 in efforts to restore the devastated forests in the Paliyan Wildlife Sanctuary (Gunung Kidul Regency in the Special Region of Yogyakarta) in Indonesia. Sumitomo Forestry has provided associated consulting services.

During the first phase of activities to March 2011, around 300,000 trees were planted on 350 hectares of land. As a second phase of activities since April 2011, Sumitomo Forestry has been organizing agricultural societies to improve the livelihoods of the local people, providing support for an agricultural guidance program aimed at improving the livelihoods of local residents, the establishment of an inclusive organization to examine ways of managing protected forests, and an environmental education program in cooperation with local schools. As a third phase of activities since April 2016, we have been supporting additional planting in areas with few trees in protected forests as well as social forestry through local communities around protected forests. We are also growing seedlings to distribute as social forestry. It is now in its fourth phase and activities and support are ongoing. In recognition of these activities, in September 2020, Mitsui Sumitomo Insurance Co., Ltd. received the Nature Conservation Award (business entity element category) from the government of Indonesia.

As part of this project, the Company has also opened the doors to its planted forest, seminar house and other related facilities in a positive effort to make information on its experiences and know-how on forest restoration available to the public.

Local Agricultural Society Members Cultivating Seedlings to Distribute as Social Forestry


Distributing seedlings to local residents

Toward the Commercialization of "Tropical Peatland Consulting" and "Quality Carbon Credits"

Sumitomo Forestry and IHI Corporation established NeXT FOREST in February 2023, a joint venture for "Forest Management Consulting Business" and "Development of the Sustainable Business that Optimizes the Value of Natural Capital". NeXT FOREST provides consultancy services for the appropriate management of tropical peatlands, and the creation and sale of high-quality carbon credits*1 through the appropriate assessment of the value of natural capital, such as carbon stocks in forests and soils.

Sumitomo Forestry's major strengths include forest management technologies it has created in Japan and abroad, as well as the tropical peatland management technologies it has developed in Indonesia and the data it has accumulated on the ground. IHI Group's strengths lie in its satellite data utilization technology, weather observation and forecasting technology, which it has developed over many years of space research. By combing strengths of the two companies, we are aiming to establish a way for extensively disseminating tropical peatland management technology across the world, and to start a consulting business. We will also develop a method for precisely evaluating and monitoring amount of CO_2 absorbed by vast forests. In addition to the value of carbon absorption as a measure against climate change, we will also aim to create "High-quality Carbon Credits" by adding value as "Natural Capital*2" such as biodiversity and water cycle conservation, as well as contribute to local communities.

*1 A tradable Greenhouse Gases Emissions Reduction Certificate. Emissions are considered as credits when dispersed within enterprises or globally, and the trade unit is 1t-CO_2.

*2 For example, trees absorb CO_2 and provide clean water, and nature as a stock (capital) that provides valuable services.

Sustainable Forest Management

Reforestation Activities Contributing to the Society

Reforestation Activities Contributing to the Society

Distribution of Free Seedlings and Buy Back Guarantee of Logs

The manufacturing subsidiary PT. Kutai Timber Indonesia (KTI) in Indonesia and the manufacturing subsidiary Vina Eco Board Co., Ltd. (VECO) in Vietnam distribute seedlings free of charge to local residents with the guarantee that they will buy the logs as raw material at market prices after growth. In 2015, KTI's aforementioned operations were recognized by the Indonesia Ministry of Environment and Forestry and awarded the Minister's Prize for contributing to local communities by generating stable income while protecting communal societies as well as environments.

Local KTI staff celebrate the Minister's Prize

Number of Seedlings Given to Local Communities

Company Name	FY2022 result
KTI	380,000 trees
VECO	500,000 trees

Promoting Certification of Forests Together With Local Communities

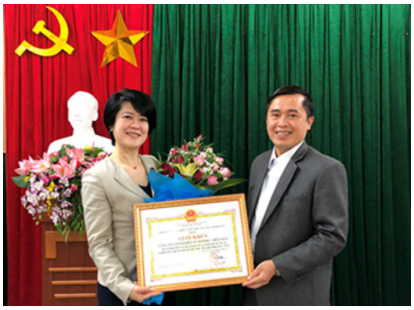
KTI organized Koperasi Serba Usaha Alas Mandiri KTI (KAM KTI)*, which is a community forestation cooperative association. In 2008, 152 hectares of planted forest were FSC®-FM certified, and in 2017, 206 hectares of Koperasi Bromo Mandiri KTI (KBM KTI)*, another forestation cooperative, received the same certification. As of 2022, KAM-KTI has expanded to 1,005 hectares and KBM-KTI to 1,330 hectares, with logs supplied to KTI. The area of certified forest has reached a total of 2,335 hectares. These certified forests will strengthen the manufacture and sale of products with high environmental value based on a growing supply of certified timber.

View of Planted Forest

* KAM KTI: FSC-C023796, KBM KTI: FSC-C133562

Contributing to Reforestation in Collaboration with Governments

Since 2013, Sumitomo Forestry has teamed up with the Japan International Cooperation Agency (JICA) to engage in forest management activities with Dien Bien Province in Vietnam, including forest conservation and forestation in deforested areas. Our comprehensive support has also included livelihood assistance to help reduce excessive dependency on forests. Among Vietnam's poorest areas, Dien Bien has suffered severe forest depletion due to practices by local residents such as expansion of farmland and burning of fields. Given its importance as the location of a hydroelectric generator dam and sources of water crucial for all of Vietnam, however, we assist with a portion of the support that JICA provides to the province, such as the formation of organizations to protect forests, conservation activities, forestation, fruit tree and vegetable cultivation support, as well as helping to provide feed for fish and livestock. This project ended in fiscal 2020, and Sumitomo Forestry supported it for approximately seven years. Our work, such as providing a total of roughly 45,000 seedlings to the local people, contributed to the revitalization and conservation of forests in the region, including about 29 ha of reforestation across six sites.



Award ceremony

In Dien Bien Province, where open livestock grazing has been the local custom, the resulting damage to planted tree seedlings has become an issue as it prevents them from taking root and growing. Sumitomo Forestry is therefore promoting a forestation model that introduces the use of protective barriers. The seedling survival rate has increased compared to previous forestation models, thus confirming the effectiveness of the forestation model using protective barriers. The results have been acknowledged by the provincial Rural Agricultural Development Bureau, and received an award in October 2018.

Utilization of Sustainable Forest Resources

Utilization of Sustainable Forest Resources

Timber and Building Materials Business Initiatives

Promotion for Sales of KIKORIN-PLYWOOD

Sumitomo Forestry Group has set a target for the percentage of procurement of imported wood board products, such as plywood, that are made of certified forest timber and planted forest wood, and has been working to expand sales of these products. Among these products, JAS Plywood that uses 50% or more FSC-certified or PEFC-certified timber and sustainable planted forest wood is marketed as "KIKORIN-PLYWOOD," and some of its revenue is invested in forestry business implemented in Indonesia. This product made using 50% or more certified timber or planted forest wood, was praised as being environmentally conscious. It received an encouragement prize in the 1st EcoPro Awards* on September 2018. From fiscal 2021, the definition of "KIKORIN-PLYWOOD" has aligned with Sumitomo Forestry Group's Wood Procurement Standards as "plywood using 100% of sustainable certified timber," and we will strive to further expand sales. Sales performance in fiscal 2022 (January to December) under new definition are 298,692 m^3.

KIKORIN-PLYWOOD

エコプロアワード 2018
EcoPro Awards

* Hosted by the Japan Environmental Management Association for Industry. It was established in fiscal 2004 in order to help further develop and spread the use of Japanese eco-products by broadly communicating information about eco-products among current and prospective clients while also supporting the efforts of the relevant suppliers. The EcoProducts Awards were renovated in fiscal 2018, now presented as the EcoPro Awards

Utilization of Japanese Timber

Due to economic development and population growth in China and other emerging countries, demand for wood overseas is expected to increase over the long term. In Japan, the public and private sectors are working together to increase the self-sufficiency rate of domestic timber in order to achieve carbon neutrality and a decarbonized society by 2050.

Against this backdrop, the Sumitomo Forestry Group is working to increase the volume of domestic timber logs handled by utilizing its ports of loading and unloading. Specifically, in addition to exporting logs, we are increasing opportunities to sell them to domestic sawmills, plywood mills, biomass power generation plants, and paper mills by domestic vessels*.
In fiscal 2022, we handled 218 thousand m^3 (118 thousand m^3 for export and 100 thousand m^3 for domestic sales), an increase of 9% over the previous year. In this way, we aim to increase the volume of domestic timber logs handled while keeping a close eye on changing market demands both domestically and internationally.

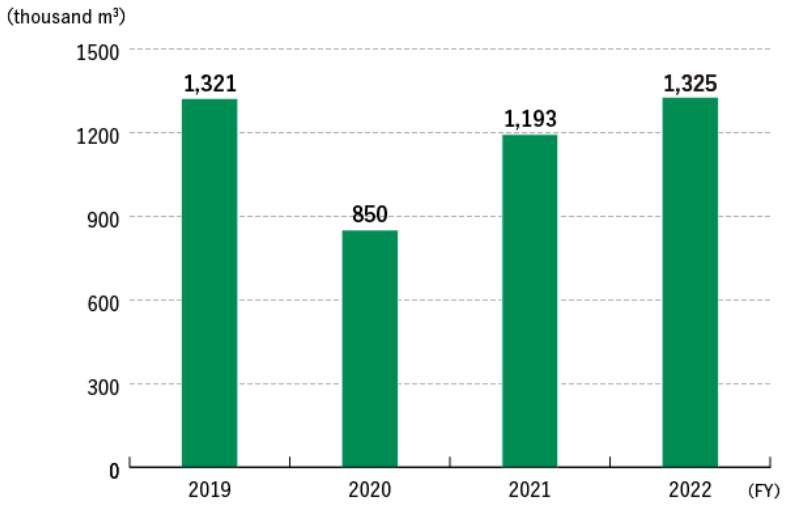
Although the Group still faces the effects of global inflation, rising interest rates, and economic stagnation in the major timber markets of the USA and China in fiscal 2023, we aim to increase overall handling volume by responding to domestic demand in a timely manner with domestic vessels, while keeping a close eye on exports to the rapidly changing Chinese market by sharing information more closely within the Group.

* Transportation between ports in Japan

Exporting Japanese Timber

Regarding the export volume of Sumitomo Forestry Group's domestic timber logs, the first half of fiscal 2022 saw a steady increase due to the return of demand for housing exteriors products such as fences for the USA market. In the second half of the year, however, export volumes grew at a sluggish pace due to the deteriorating real estate market in China and the economic turmoil and infection spreading due to the tightening and opening of the zero-COVID policy. As a result, the export volume of domestic timber logs in fiscal 2022 was 118 thousand m^3, a 16.9% decrease from fiscal 2021.

Handling Results of Japanese Timber*



* The number of logs and lumber handled. The aggregation period after fiscal 2021 is from January to December 2021 of each year, the aggregation period for fiscal 2020 is from April to December, and the aggregation period for fiscal 2019 is from April to March of the following year

Initiatives to Promote the Use of Domestic Timber in Kyushu

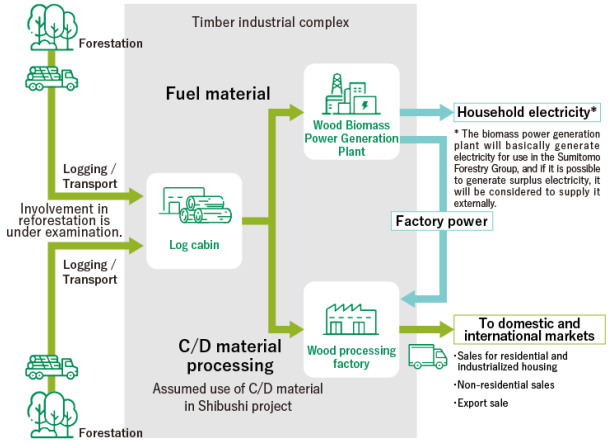
In February 2022, Sumitomo Forestry concluded a basic location agreement with Shibushi City, Kagoshima Prefecture, regarding business verification in the city. This Shibushi project is the first step toward the establishment of a timber industrial complex, which is Sumitomo Forestry's concept for promoting wood change.

In 2020, wood shortages and soaring prices – in other words, a wood shock, occurred globally due to increased demand for housing construction in the United States and a container shortage caused by the spread of coronavirus disease (COVID-19). Japan, which relies on imports for approximately 60% of its timber supply, is greatly affected by imports in terms of both price and volume, making the promotion of the use of domestic timber a national challenge. In order to promote the use of domestic timber, it is necessary to establish a stable supply system that will ensure business profitability for everyone from forestry workers to timber manufacturers, processors, and builders.

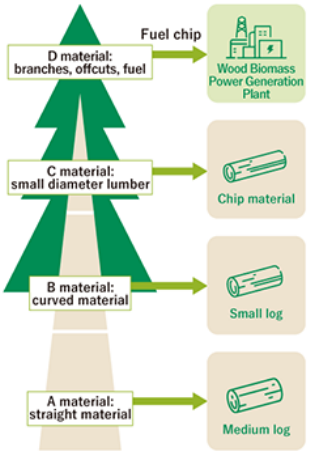
In order to solve these issues, Sumitomo Forestry is considering the construction of a new plant to process low-grade timber*, which is currently exported as logs from the Port of Shibushi, into added value products, aiming for a stable supply to the domestic market and export of products from the Port of Shibushi to Asia and North America, as well as the construction of biomass power generation plant.

By establishing a timber industrial complex based on the cascade use of domestic timber, Sumitomo Forestry will raise productivity of its timber manufacturing and ensure a stable supply of timber products, thereby strengthening its price competitiveness. In addition, we will promote the creation of employment opportunities for forestry workers by increasing the added value of wood, the use of domestic timber, and contribute to decarbonization by increasing the period of carbon storage.

* Timber that cannot be used for lumber or plywood due to size, crook, knots, rottenness, etc. and is exported.



Shibushi project overview



Flow of the cascade use

Promoting the Use of Certified Timber

The most important aspect of selling certified timber is managing the procurement of certified timber separately from other types of timber. With CoC certification, we are able to guarantee that timber and other products are from certified forests and sell them to our customers, because we are inspected by a third party.

Click here for related information

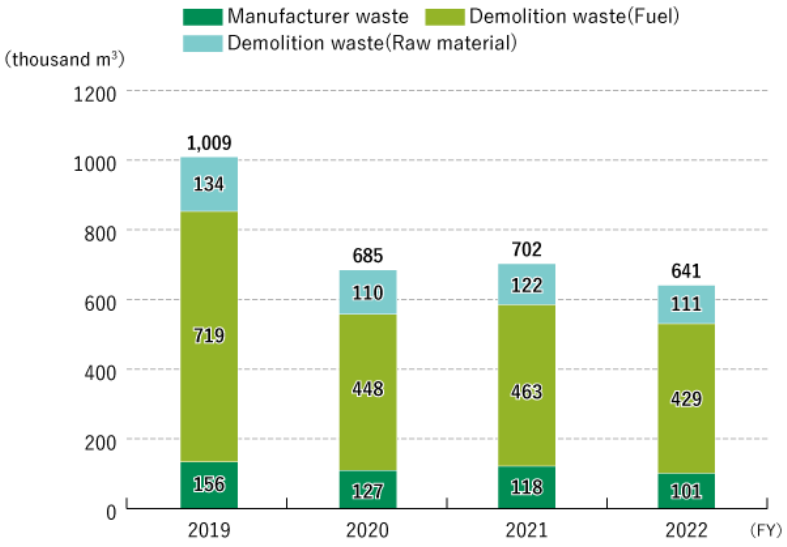
Distribution Business Initiatives

Recycling of Wood Resources into Chips

The Sumitomo Forestry Group contributes to resource recycling through its wood chip operations, whereby offcuts generated during the wood milling process and wood waste from new housing construction and demolition sites are turned into wood chips to be used as a raw material for products such as paper and particle board, and also as a fuel for power-generating boilers or other equipment.

As demand for the supply of fuel for biomass power generation continues to rise, we aim to further expand the handled volume of fuel applications by using not only offcuts and wood waste but also thinnings and other unused forest resource.

Handling Volume of Wood Chips*



* The aggregation period for fiscal 2020 onwards is January to December of each year, and the aggregation period fiscal 2019 is April to March of the following year.

Click here for related information

Promotion of renewable energy business

Medium to Large-Scale Wooden Construction Business Initiatives

Sumitomo Forestry has been engaging in forest management for more than 330 years. In addition, we create living spaces which take advantage of wood through our expertise in the various properties of wood worldwide. The development of a truly broad scope of experience, knowledge and technology promotes the Construction (Timber Solutions) Business specialized in proposing wooden non-residential medium- to large-scale construction. Trees absorb CO_2 from the atmosphere through photosynthesis and continue to fix it as carbon even after being harvested as wood products, so expanding the use of wood in this way will contribute to building a decarbonized society. In recent years, in 2017, Sumitomo Forestry formed a business and capital alliance with Kumagai Gumi, which has a large number of construction achievements in the civil engineering and building business fields in Japan and abroad. In 2021, we integrated Cohnan Kensetsu Inc. into the Group, which has expertise in steel/reinforced concrete construction and management of construction. Combining their expertise with Sumitomo Forestry's wooden constructions and interior/exterior use of wood technologies, we will expand into medium- to large-scale wooden constructions and other non-residential fields. The MOCCA (Timber solutions) business will also contribute even more to the realization of a sustainable society in harmony with the environment and economy by sharing a culture of wood and revitalizing forestry.

Medium- to large-scale Wooden Constructions Brand "with TREE"

In 2021, Sumitomo Forestry and Kumagai Gumi launched the "with TREE," a brand of medium- to large-scale wooden constructions. The concept is "architecture good for both the environment and your health." We provide new value created by "wood" in urban architecture and promote MOCCA (Timber Solutions) business in medium- to large-scale constructions. The project will combine Sumitomo Forestry's knowledge of forests and wood with Kumagai Gumi's knowledge of steel frame, RC, and large-scale construction to strengthen the cooperative framework. We have launched this brand as an initiative in the field of medium- to large-scale wooden constructions, which has been the mainstay of our collaboration since the business and capital alliance in 2017, and we will propose to enhance "environmental value" and "health value" from material procurement to construction and consulting.

Initiative Examples

Construction of "with TREE" Started in Sapporo

In June 2022, Sumitomo Forestry and Kumagai Gumi began construction of a fire-resistant wooden building with 10 stories above ground and 1 below (KAGA Project) in Sapporo, the first "with TREE" brand of medium- to large-scale wooden construction. As of December 2022, construction has been completed. The upper floors will be made of hybrid laminated engineered wood, and Hokkaido Japanese larch will be used as cladding for pillars and beams to help revitalize the domestic forestry industry. Trees absorb CO_2 from the atmosphere through photosynthesis and continue to fix it as carbon even after being harvested as wood products. Sumitomo Forestry will contribute to the realization of a decarbonized society through woodification and use of wood of medium- and large-scale buildings.

Exterior view of KAGA Project under construction

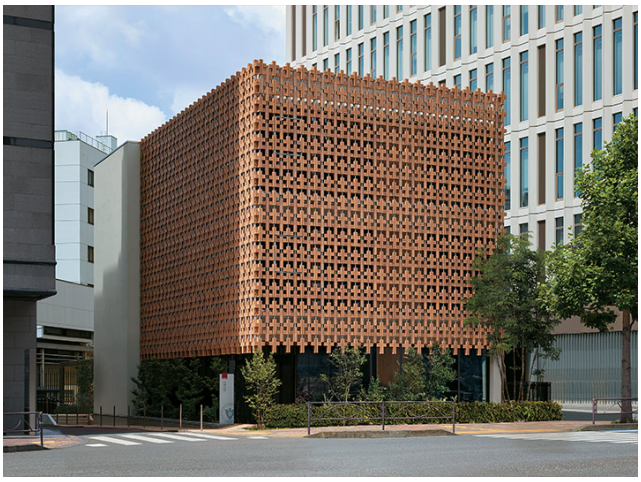
Building No. 15, Yotsuya Campus, Sophia University Completed

Building No. 15, Yotsuya Campus, Sophia University, designed and constructed by Sumitomo Forestry, was completed in June 2022.

The three-story wooden, fire-resistant structure reduces CO_2 emissions during the manufacture of materials for the structural framework compared to similar facilities built with general reinforced concrete or with steel frames*1 by 15% and 20% respectively. The structural framework uses 111.85 m^3 of wood and stores about 84 tons of carbon (on a CO_2 basis), equivalent to the carbon storage of about 280 trees*2 of 40-year old Japanese cedar. This facility will lead to the "transform cities into forests," contributing to the achievement of the SDGs and the realization of a decarbonized society.
In January 2023, the facility received an Encouragement Prize at the Wood City TOKYO Model Architecture Award.

*1 The number of members of the facility's structural framework was calculated based on structural calculations when the facility's structural framework was made of reinforced concrete and steel, and the results were compared with the respective CO_2 emissions calculations

*2 Forestry Agency's guidelines for calculation and indication of carbon storage of wood used for buildings Calculated with reference to Forestry Agency website



Exterior view of Building No. 15

Interior view of Building No. 15

Click here for related information

External Recognition

Wooden Post Office with CLT

Sumitomo Forestry constructed Maruyama Post Office (Minamiboso City, Chiba Prefecture), the first post office in Japan to utilize cross-laminated timber (CLT)*1. Maruyama Post Office is the first of the environmentally sound post offices ("+ (Plus) Eco Post Offices") promoted by the Japan Post Group, which aims to achieve carbon neutrality, and opened in March 2022.
The exterior walls are made of "yakisugi*2" cedar wood produced in Chiba Prefecture. The building is loved by the community for its yakisugi production with local children as a workshop event.
In addition to utilizing "wood" as a recyclable resource, we have also installed a private power generation system using solar power.
The facility took home the Encouragement Award (Review Committee Chair Award) at the Japan Wood Design Award 2022.

*1 Cross-laminated timber. Thick panels made by laminating long planks of wood in alternating lengths and widths, providing superior strength and thermal insulation.
*2 A "burnt cedar board" is a wood board whose surface is burnt and carbonized. Its carbonized layer is fireproof, antiseptic, and termite-proof.


Exterior view of Maruyama Post Office


Produced Yakisugi

Click here for related information

External Recognition

Wooden Construction in Rest Area

The Izumiotsu rest area dedicated to large vehicles in Osaka Prefecture, constructed by Cohnan Kensetsu Inc., was completed in April 2022. This rest area is the first wooden structure of its kind built by Hanshin Expressway Company Limited, utilizing the former tollgate of the main line on the No. 4 Wangan Route of Hanshin Expressway.
The wood used for the structural framework is 58m^3 which is equivalent to about 47 tons of carbon storage (on a CO_2 basis). In addition, the walls are made of solid local Senshu Japanese cedar wood bricks and planks as interior finishing materials.


Exterior view

In the construction process, BIM* was utilized to enable all parties involved to share data on all members, joints, and joint angles between members of the frame, which have different 3D coordinates and angles. By visualizing and sharing each construction step from temporary construction planning, we are able to improve productivity and quality, as well as reduce material waste and environmental impact.

* Building Information Modeling. A system that reproduces a three-dimensional model (BIM model) of a building on a computer that is identical to the reality and uses it to create a better building. Workflow that creates 3D models with BIM tools and utilizes accumulated information from design to construction and maintenance to improve operational efficiency and generate innovation in architectural design.

Interior view

Research and development aimed at realizing a decarbonized society

The Sumitomo Forestry Group announced its W350 Plan in 2018 and Mission TREEING 2030 in 2022. In order to contribute to the achievement of Sumitomo Forestry's goal of decarbonization and the realization of a circular bioeconomy not only through housing and construction, but also through various upstream and downstream business activities centered on "wood", Tsukuba Research Institute will promote research and development with the aim of realizing a Timberized Eco City that turns cities into forests through various future technologies, including innovative construction technologies, new wood materials and new tree species.

Image of "Timberized Eco City" (Created by Tsukuba Research Institute)

By implementing the results of our research and development into society, we will revitalize the forestry industry with increased demand of wood and mitigate climate change with increased CO_2 fixation, etc.; thus, we will contribute to invigorate the community and to realize coexistence with the global environment.

Partially Implementing the Results of R&D

One of the new technologies developed by Tsukuba Research Institute, a hybrid laminated engineered wood perforated beam*, of one-hour fire-resistant structure, has been adopted for the KAGA Project, which is under construction by a joint venture between Sumitomo Forestry and Kumagai Gumi.

The KAGA project is using hybrid laminated engineered wood on the 7th through 10th floors, and by using Hokkaido Japanese larch for the timber, the project is helping to revitalize the domestic forestry industry. The beams are made of hybrid laminated engineered wood perforated beams, which allow pipes to penetrate directly through the beams, thus ensuring a higher ceiling height than conventional hybrid laminated engineered wood beams, and increasing the degree of design freedom. It also eliminates the need to install bulky materials for equipment piping, leading to lower overall construction costs and expanded versatility.

The wood used for the facility's structural framework is 39.9 m^3 , with about 31.8 tons of carbon storage (on a CO_2 basis). This is equivalent to the amount of CO_2 absorbed by a Japanese larch forest approximately 7.2 times the size of the planned site (139.05 m^2). These facilities will transform the city into a forest and help create a decarbonized society.

* The new certification was jointly obtained by adding the beam penetration technology developed by Sumitomo Forestry to the one-hour fire-resistant certified beams of hybrid laminated engineered wood for which Japan Laminated Wood Products Association has obtained ministerial certification.

Biodiversity Conservation

Policies and Targets for Biodiversity Conservation

Declaration of Biodiversity and Biodiversity Action Guidelines

Sumitomo Forestry established its policy on Biodiversity Conservation in Company-owned Forests in Japan in fiscal 2006, and its Wood Procurement Philosophy and Policy in fiscal 2007. The Company also revised its Environmental Policies in fiscal 2007 to incorporate biodiversity considerations. Then in March 2012, the Sumitomo Forestry Group established its Declaration of Biodiversity, setting out the Sumitomo Forestry Group's understanding of and stance on biodiversity; Biodiversity Action Guidelines, specifying an internal set of guidelines; and Biodiversity Long-Term Targets as specific goals of activity.

In July 2015, the Group initiated the Sumitomo Forestry Group Environmental Policy, bringing together the Environmental Philosophy*, the Environmental Policies, the Sumitomo Forestry Group Declaration of Biodiversity, and the Sumitomo Forestry Group's Biodiversity Action Guidelines. Therefore, the efforts in biodiversity are also operated based on the policies integrated in the Sumitomo Forestry Group Environmental Policy.

* The Sumitomo Forestry Group formulated the Environmental Philosophy in 1994 and the Environmental Policies in 2000

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Sumitomo Forestry Group Environmental Policy

Company Structure for Biodiversity Conservation

In accordance with our environmental management structure, the Representative Director and President is the person in charge of Sumitomo Forestry Group's biodiversity conservation initiatives, and the Executive Officer in charge of the Sustainability and the General Manager of the Sustainability Department manage Sumitomo Forestry Group company activities.

Commitment to Protected Areas

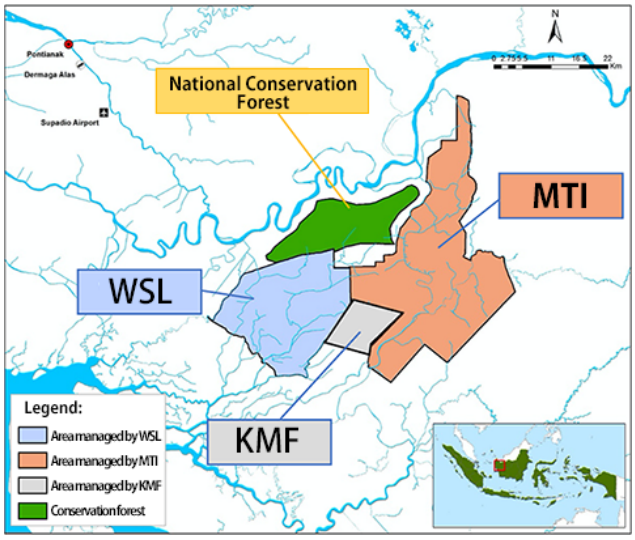
To manufacture and secure wood resources, Sumitomo Forestry Group owns or manages many forests both in Japan and overseas. None of these forests is located in areas designated as world heritage sites. Furthermore, we have not and will not operate in areas designated as world natural heritage sites. Regardless of land ownership, national parks in Japan, which has a small land area, operate under the Regional Natural Park System and many national parks include private property. A portion of Sumitomo Forestry's Company-owned forests are located inside national park areas, and as is the case for other areas designated as protected forests etc., we operate in strict compliance with all legal regulations.

Furthermore, in terms of risk assessment, in areas determined to be important from a biodiversity perspective, we not only strictly adhere to all legal regulations, but also work to mitigate our impact through reevaluation, minimization, revitalization, offsetting and other efforts.

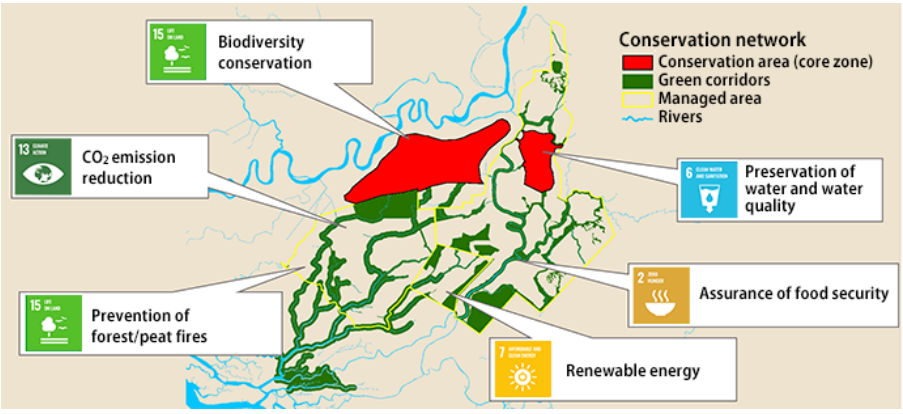
Zoning Management According to Forest Purpose

The borders of these lands set by the government do not always match the boundaries of the ecosystem. The Indonesian subsidiaries PT. Wana Subur Lestari (WSL), PT. Mayangkara Tanaman Industri (MTI), and Kubu Mulia Forestry (KMF) conducted thorough animal and plant surveys that included conservation forest neighboring areas under governmental management before defining preservation areas and business areas. WSL and MTI also worked with local organizations to build a conservation network that defines a net of green corridors to prevent closed off islands which would isolate the regions where orangutans, long-nose monkeys and other rare flora and fauna live.

Forest Management Area in Indonesia



Conservation Network



Evaluation of Initiatives by Stakeholders

The concept and specific initiatives of the Conservation Network proposed by WSL and MTI are attracting attention at home and abroad as a rare world wide initiative. At the 25th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP25) in Madrid, Spain in 2019, we presented as a representative of the private sector at the Indonesia Pavilion and were highly appreciated by international organization representatives, researchers, and NGOs. We also presented our technical approach to the challenges surrounding tropical forests and our initiatives at COP27 in Sharm El Sheikh, Egypt in 2022.

In addition, in our urban landscaping business, we are striving to improve the quality of our greening efforts through third-party certification by actively encouraging our customers to register for "Ikimono Kyosei Jigyousho®" certification set by the Association for Business Innovation in Harmony with Nature and Community (ABINC) or the Social and Environmental Green Evaluation System (SEGES) green certification implemented by the Organization for Landscape and Urban Green Infrastructure.

Taskforce on Nature-related Financial Disclosures (TNFD) /LEAP Initiatives

Changes in biodiversity and the natural environment affect corporate performance in various ways. The TNFD was established in June 2021 by Global Canopy, the United Nations Development Programme (UNDP), the United Nations Environment Programme Finance Initiative (UNEP FI), WWF, and others to examine a framework for each company to disclose information on biodiversity and other natural capital. Several draft versions of the information disclosure beta framework have been released, with final recommendations expected in September 2023.

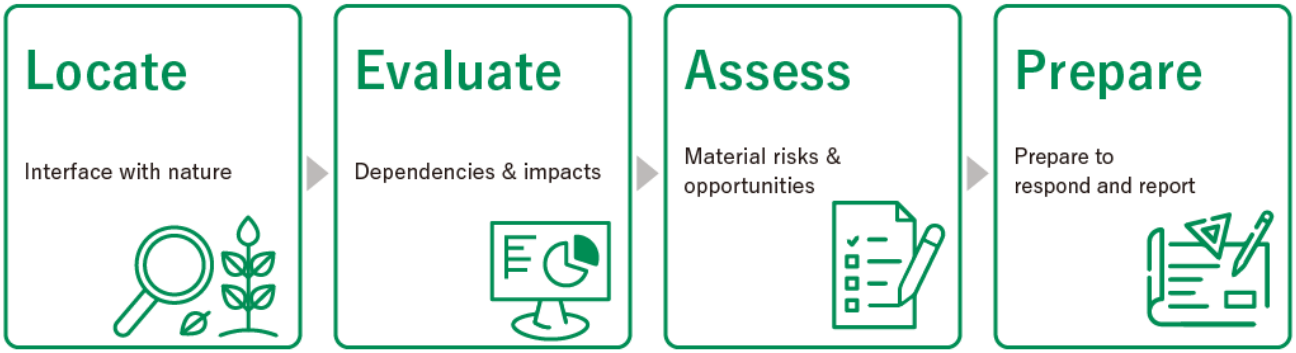
The Sumitomo Forestry Group has been closely following the development of initiatives related to biodiversity and the natural environment, including signing on to the Business for Nature " Call to Action" in September 2020. As of February 2022, we participate in the TNFD Forum, a collective of stakeholders who support TNFD discussions, and we are working on information collection on TNFD through various domestic and international networks.

In conjunction with the information disclosure framework, the TNFD recommends the LEAP* approach, a method for analyzing and assessing a company's dependence on and impact on nature, as well as risks and opportunities. The Sumitomo Forestry Group first took this LEAP approach on a trial basis in preparation for future TNFD disclosures.

* It stands for Locate, Evaluate, Assess, and Prepare and is composed of four phases: Locating the interface with nature (L), Evaluating dependencies and impacts (E), Assessing material risks and opportunities (A), and Preparing to respond and report (P)

Interaction between Business and Biodiversity

The Sumitomo Forestry Group is engaged in the distribution business, which purchases and sells wood from Japan and overseas; the wood building materials manufacturing business in Japan and overseas; the construction and sale of detached houses in Japan, the United States, and Australia; the development of multi-family housing and commercial and mixed use complexes; and medium- to large-scale construction projects. In looking at the supply chain as a whole within these Sumitomo Forestry Group businesses, we decided to go forward with the trial of the LEAP approach with respect to our wood procurement business, which depends on and has impact on biodiversity and natural capital in the most extensive and significant volumes around the world.



Analysis with LEAP Approach

Locate	
L1: Business footprint	The Timber and Building Materials Business sector is involved in the global distribution, manufacturing, and sales of timber and building materials.
L2: Nature interface	When we looked over our business, we identified that we have particular interfaces with forests.
L3: Prioritization according to the integrity and importance of relevant ecosystems	Guiding Question: Eight regions with significant wood imports (British Columbia, Canada; Tasman and Nelson, New Zealand; West Kalimantan, Central Kalimantan, East Java, and Central Java, Indonesia; and Sarawak, Malaysia) were identified as priority regions because they have particular contacts with forests.
L4: Identification of priority nature-risk locations by sector, business unit or value chain	We identified the sector as one that procures wood with a large volume of wood handled.

Evaluate	
E1: Identification of relevant environmental assets and ecosystem services by priority location	We procure wood from about 20 countries.
E2: Identification of dependencies and impacts by priority location	According to the WWF Biodiversity Risk Filter, the following items are considered particularly risky for industries related to forest products. (1) Water scarcity (2) forest productivity and distance to markets (3) soil conditions (4) landslides (5) wildfire hazard (6) extreme heat (7) tropical cyclones (8) land, freshwater, and sea use change (9) tree cover loss(10) protected / conserved areas In addition, we examined the extent and causes of deforestation in each region over the past 20 years via Global Forest Watch.
E3: Dependency Analysis	Risk assessments were conducted in the above 8 regions. (WWF Biodiversity Risk Filter and Global Forest Watch)
E4: Impact Analysis	Risk assessments were conducted in the above 8 regions. (WWF Biodiversity Risk Filter and Global Forest Watch)

Risk Assessment by Region

(1) Canada (British Columbia)

In this region, deforestation has been caused by forestry business and forest fire over the past 20 years, resulting in a deforestation rate of 2% to 0.5% per hectare over the past 20 years. Bordering the Pacific Ocean to the west and the Rocky Mountains to the east, the region has many protected and conserved areas and is at high risk with respect to wood availability and landslides.

(2) New Zealand (Tasman and Nelson regions)

In these regions, deforestation in forestry business has been significant, with the deforestation rate per hectare over the past 20 years ranging from 2% to 0.5% in the Tasman region. However, with some forests restored in the Nelson region, the overall increase of 0.5% to 2% has been noted. The risk of landslides is high in this lush area dotted with national parks.

(3) Indonesia

・West Kalimantan

In this equatorial region, tropical rainforests are widespread. However, deforestation caused by large-scale land conversion to farmland has been significant, resulting in a deforestation rate of 5% to 2% per hectare over the past 20 years. Because of its largely undeveloped nature, the area has limited access to wood and is susceptible to landslides and extreme heat.

・Central Kalimantan

In this equatorial region, tropical rainforests are widespread. As in West Kalimantan, deforestation caused by large-scale land conversion to farmland has been significant, resulting in a deforestation rate of 5 % to 2% per hectare over the past 20 years. Because of its largely undeveloped nature, the area has limited access to wood and is susceptible to landslides and extreme heat.

・**East Java**

In this region, there has been a lot of forest harvested due to large-scale land conversion to farmland and forestry, and although reforestation has been observed in some areas, the deforestation rate per hectare over the past 20 years has ranged from 5% to 2%. The area has a high risk of forest fire and water scarcity.

・**Central Java**

In this region, deforestation has been often caused by urbanization and forestry business, resulting in a deforestation rate of 2% to 0.5% per hectare over the past 20 years. The area is dotted with volcanoes and has a high risk of fires and landslides.

(4) Malaysia

・**Sarawak**

Deforestation caused by large-scale land conversion to farmland and forestry business has been significant, resulting in a deforestation rate of 5% to 2% per hectare over the past 20 years. Because of its largely undeveloped nature, the area has limited access to wood and is susceptible to landslides.

Evaluation Indicators of WWF Biodiversity Risk Filter

Indicator name	Nature	Description
Scarcity of water	Dependency	It means whether freshwater resources are abundant or scarce
Forest productivity and distance to market	Dependency	The amount of wood supply feasible and the availability of wood
Soil condition	Dependency	Based on soil organic carbon (SOC) content
Landslides	Dependency	It assesses the potential threat of landslides caused by rainfall and earthquakes
Wildfire Hazard	Dependency	It assesses the potential threat of forest fire due to weather conditions
Extreme heat	Dependency	It assesses the threat of extreme heat during a 5-year replication period
Tropical cyclones	Dependency	It evaluates the maximum wind speed (mph) that can be expected in a 50-year cycle
Land, freshwater, and sea use change	Impacts	Measures pressures on the marine environment from direct human impacts such as agricultural expansion, river fragmentation, and shipping
Tree cover loss	Impacts	It measures forest canopy loss
Protected / conserved areas	Impacts	Indicates protection and conservation areas that overlap with the assessment unit

Global Forest Watch Indicators of Forest Increase/Decrease

Tree cover gain	It identifies areas of increased trees under cover
Tree cover loss	It identifies areas of decreased trees under cover
Net changes in tree cover	It identifies the net increase/decrease in the number of trees under cover
Tree cover loss by dominant driver	Indicates dominant factors and their extent with respect to loss of trees under cover.

Countermeasures against Risks

The Sumitomo Forestry Group is addressing sustainability issues, including biodiversity conservation, in its wood procurement.

Major Movements

(2005) Established "Wood Procurement Standards"
(2007) Established "Wood Procurement Philosophy and Policy"
(2015) Revised "Wood Procurement Philosophy and Policy" to "Sumitomo Forestry Group Procurement Policy"
(2017) Established "Sumitomo Forestry Group Code of Conduct"
May 2019 Formulated "Wood Procurement Action Plan"
End of 2021 Achieved 100% handling ratio of timber and wood products from sustainable forests in direct imported wood, etc.

The Sumitomo Forestry Group has established its own wood procurement standards and conducts due diligence from the perspectives of compliance, respect for human rights, labor practices, biodiversity conservation, and impact on local communities. The Wood Procurement Committee conducts risk assessments from the perspective of sustainability, and by reconsidering contracts with suppliers that do not meet this standard, we have achieved a 100% sustainable timber and wood products procurement rate by the end of fiscal 2021(97.8% for the full year) . In fiscal 2022, we maintain 100% for the full year.

Actions for Biodiversity Conservation

In order to coexist in harmony with nature, the Sumitomo Forestry Group is implementing various initiatives to achieve Nature Positive, which aims to reduce the loss of nature to zero and to turn it into a recovery. We have organized those activities in accordance with the framework of actions to achieve nature positivity recommended by SBT for Nature, as follows.

Source: Science Based Targets Network, 2020. "Science-Based Targets for Nature: Initial Guidance for Business Executive Summary

	Basic Policy	Initiatives and Commitments
Avoidance	The Sumitomo Forestry Group has formulated the Sumitomo Forestry Group Procurement Policy and Wood Procurement Management Regulations, and procures sustainable timber and wood products that conform to these policies, avoiding the use of problematic timber and wood products. In our forestry business, we manage forests separately as "working forests" for wood production and "conservation forests" for environmental conservation, avoiding business in areas where biodiversity is to be preserved. In company-owned forests in Japan, the company has also created the Riparian Forest Management Manual to ensure restricted operations in areas around bodies of water that are rich in biodiversity.	・Annual Sustainability Procurement Survey in supply chain ・Wood Procurement Committees are held four times a year ・Certification acquisition rate of incoming PKS (100% in FY2024 target) ・Securing ratio of conservation forests in company-owned forests (more than 30% in FY2024 target) ・Prepared the Sumitomo Forestry Red Data Book and Riparian Forest Management Manual, and implemented appropriate management and conservation.
Reduction	By promoting the recycling of wood, we aim to reduce resource consumption and increase efficiency, thereby realizing a circular bioeconomy and reducing the burden on nature. In our forestry business, we advance sustainable forest management to ensure that wood resources will be available in perpetuity while preserving public benefits of forests, including biodiversity conservation.	・Final disposal of industrial waste (reduction rate compared to FY2021: 5.4%; reduction planned for FY2024) ・Recycling rate at new housing construction sites (FY2021 result: 95.1% against FY2024 plan: 98.0%) ・Recycling rate of waste at manufacturing plants (FY2021 results: overseas 98.5%, domestic 99.1% against FY2024 plan: 99.0%/99.0%) ・Unused resources (biomass use) handling volume (planned for FY2024:19,202 m^3) ・Domestic and overseas forest certified area (FY2021 actual 221,971 ha against FY2024 plan 242,493 ha) ・Maintaining 100% SGEC certified area (company-owned forests in Japan)

	Basic Policy	Initiatives and Commitments
Restoration and reproduction	We are engaged in activities to restore and regenerate biodiversity that has been lost or threatened with loss, in our core business of urban and residential landscaping business and in social contribution activities that utilize management resources cultivated through our business activities.	・Increase in the number of native tree species sold (465,000 in FY2021 against 500,000 planned for FY2024), and promotion of "Harmonic Plants® " that sets guidelines for the selection of tree species, mainly native species, according to the target sites for afforestation ・Promote acquisition of ABINC certification for urban landscaping business, etc. ・Mt. Fuji Manabi no Mori project to restore 30ha of typhoon-damaged national forest at the foot of Mt. Fuji ・Carried out the Oku-Matsushima Nature Restoration Volunteer Program, a tree-planting activity to restore the tsunami-devastated coastal area at the time of the Great East Japan Earthquake.
Reform	We participate in and communicate our opinions on the activities of domestic and international rulemaking, industry associations, and related organizations regarding nature and biodiversity, and support the activities of NGOs and other organizations.	・Participated in TNFD Forum ・Joined the WBCSD Forest Solutions Group and got involved in the process of developing the Nature Positive Roadmap, etc. ・Signing of the commitment of Business for Nature's "Call to Action" and "COP15 Business Statement for Mandatory Assessment and Disclosure ・Participation as a pilot company in the development of new guidelines for GHG protocols to calculate GHG removals and emissions from biological and soil-based sources ・Participation in the 30by30 Alliance led by the Ministry of the Environment ・Served as vice-chairperson of the Keidanren Committee on Nature Conservation and joined the Japan Business Initiative for Biodiversity (JBIB).

Support of Related Initiatives and Cooperation with Organizations

Sumitomo Forestry participates in many organizations that are actively involved in biodiversity conservation. In the Keidanren Committee on Nature Conservation, the chairperson of Sumitomo Forestry serves as vice-chairperson and sends members to the planning subcommittee, which is responsible for its operation. In June 2020, Sumitomo Forestry committed to the Keidanren Declaration of Biodiversity and Action Policy (Revised Edition) proposed by the Keidanren Declaration on Biodiversity Initiative. We also participate in the Japan Business Initiative for Biodiversity (JBIB) and conduct joint research on corporate biodiversity initiatives in subcommittee meetings.

In addition, Sumitomo Forestry Landscaping is striving to the registration of "Ikimono Kyozon Jigyousho®" certification for Sustainable Business Sites promoted by the Association for Business Innovation in harmony with Nature and Community (ABINC) and the SEGES Green Certification promoted by the Organization for Landscape and urban Green Infrastructure for properties undertaken with the environmental greening business. Moreover, the Chief Corporate Advisor of Sumitomo Forestry acts as the chairman of the Organization for Landscape and Urban Green Infrastructure.

Click here for related information

Japan Business Initiative for Biodiversity (JBIB)

Participation in Drafting the Guidelines for Private Sector Engagement in Biodiversity

The Ministry of the Environment drafted the Guidelines for Private Sector Engagement in Biodiversity (Ver. 1) in 2009 for business proprietors as a means to advance biodiversity conservation and sustainable use with recognition that corporate activities play a vital role in those efforts. Sumitomo Forestry was involved in drafting these guidelines as a member of the investigative committee.

The Guidelines for Private Sector Engagement in Biodiversity brings together basic information and approaches necessary to conserve biodiversity and reduce loss in a way that is easy for private sector organizations not yet addressing biodiversity issues to understand while also offering a means for business proprietors already engaged in efforts to play an even more effective role.

In December 2017, the second version was released in light of growing interests and expectations about conserving biodiversity driven by the SDGs and other international targets. These guidelines presented the sustainable wood procurement of Sumitomo Forestry as one excellent example initiative.

Click here for related information

Guidelines for Private Sector Engagement in Biodiversity (Second Edition)

Signing of Commitment to the Business for Nature's Call to Action

Business for Nature is a global business coalition founded in July 2019 for the purpose of bringing together the voices of business and conservation organizations and forward-thinking companies as one to amplify their call to governments. In May 2020, the Coalition devised a Call to Action to encourage the adoption of legislation to reverse nature loss in this decade when formulating the Post-2020 Global Biodiversity Framework. Sumitomo Forestry signed its commitment to the Call to Action in September 2020.

Click here for related information

Business for Nature "Full list of Call to Action signatories"

Biodiversity Conservation

Biodiversity Conservation in Company-Owned Forests in Japan and Planted Forests Overseas

Biodiversity Conservation in Company-Owned Forests in Japan

Our Policy on Biodiversity Conservation applies to the company-owned forests in Japan. We conserve "diversity of ecosystems" through proper management of conservation areas and consideration of forest continuity, "diversity of species" through protection of rare plants and animals, and "genetic diversity" through maintenance of wildlife populations. In keeping with these policies, forests are subject to appropriate zoning and management according to certain criteria, such as the increment of trees. We also strive to prepare an endangered species list and a waterside forest management manual, and check for rare species when clear-cutting and opening work roads.

Policy on Biodiversity Conservation in Company-Owned Forests in Japan (Excerpt) (June 2006)

1. **Diversity of ecosystems**
   We will properly manage strictly protected areas designated under the Natural Parks Law of the Japanese government and other legislation in a manner stipulated by the law. In other areas, we will ensure continuity of forests by limiting the area of forest harvested, particularly when clear cutting is conducted.
2. **Diversity of species**
   We will work to prevent a decline in the number of species existing in natural forests by refraining from expansive planting projects and other extreme activities involving the replacement of species that would have a major impact on existing ecosystems. We will also give the utmost consideration to the protection of rare flora and fauna in all operations, making reference to the Sumitomo Forestry Red Data Book.
3. **Genetic diversity**
   Genetic variation and the maintenance of populations to support them will become issues in the future. However, analysis is complicated and therefore we will closely watch monitoring activities carried out by government and public institutions and their findings.

Creation of the Sumitomo Forestry Red Data Book

Sumitomo Forestry creates a Sumitomo Forestry Red Data Book listing flora and fauna at threat of extinction which may exist in company-owned forests and distributes it to employees and contractors involved in forest management. By carrying the book with them during operations, personnel can refer to the opinions of specialists when they come across flora and fauna included in the book and take action. While using the latest version of this book, we will continually advance measures focused on biodiversity and update the content of the text as necessary.

Sumitomo Forestry Red Data Book

Creation of the Riparian Forest Management Manual

The company has also created the Riparian Forest Management Manual to ensure the appropriate management and preservation of areas around bodies of water that are rich in biodiversity.

Wildlife Monitoring Surveys

Sumitomo Forestry monitored wildlife inhabiting company-owned forests. Surveys were conducted in four areas— Mombetsu (Hokkaido), Niihama (Shikoku), Hyuga (Kyushu) and Kinki region (Honshu). The results were used to create basic reference materials relating to biodiversity and to ascertain the impact of forestry on the surrounding environment over the long-term.

The results of the nine surveys showed that the number of population and species of mammals and birds change during the gradual transition of small clear-cut areas to forest, indicating that biodiversity is maintained by forestry.

While a number of species decline temporarily, small size of clear-cut areas have been shown to distribute places suitable for umbrella species* such as hawks and land appropriate for hunting in a mosaic shape in addition to realizing a favorable environment for life such as the species above to thrive.

In the future, we will consider monitoring results to date as we work to properly sustain functions such as maintaining environmental conservation and biodiversity in company-owned forests.

* Consumers at the top of the food chain, the ecological pyramid structure in the area

Species of Mammals and Birds Confirmed by Past Surveys

	Managed Area		Verified mammal and avian species								
	(ha)		2008	2009	2010	2011	2012	2013	2014	2015	2016
Company-owned forests in Shikoku	14,782	Mammals	14				11				10
		Birds	31				34				24
Company-owned forests in Kyushu	9,182	Mammals		11				12			
		Birds		33				29			
Company-owned forests in Hokkaido	18,199	Mammals			10				9		
		Birds			38				40		
Company-owned forests in Honshu * 2013 acquisitions in Okayama, Hyogo, and Mie * 2015 additional acquisitions in Wakayama	5,804	Mammals				12				(Wakayama)10 (Hyogo)6	
		Birds				25				(Wakayama)29 (Hyogo)21	
Total	47,967										

* Conducted in two areas in 2015; Wakayama and Hyogo

Japanese deer confirmed in Niihama (Shikoku) forests in fiscal 2016

Japanese monkeys confirmed in Niihama (Shikoku) forests in fiscal 2016

Appropriate Control of the Deer Population

In recent years, the increasing numbers of wild deers throughout Japan has raised concerns about feeding damage on young leaves and bark, and other harm to forestry in addition to soil runoff and the loss of biodiversity caused by the animals eating herbaceous plant on the forest floor, which decreases the variety of vegetation.

Sumitomo Forestry Group captures and exterminates deer and installs tree shelters and protective nets that protect planted trees to control feeding damage and prompt the growth of healthy forests.
Properly controlling the deer population contributes to comprehensive forest management of next generation through sustainable forest growth, biodiversity conservation by sustaining diverse vegetation on the forest floor, and prevention of local disasters by preventing soil runoff.

Biodiversity Conservation in Planted Forests Overseas

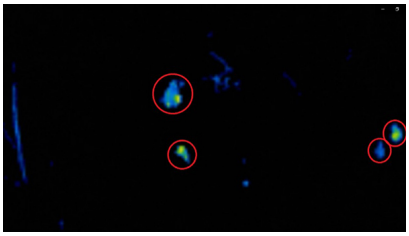
Wana Subur Lestari (WSL), Mayangkara Tanaman Industri (MTI) and Kubu Mulia Forestry (KMF) Initiatives

More than half of living species throughout the world live in rainforests, which are said to be the treasure troves of life. However, rainforests are slowly disappearing today due to a variety of issues from disordered development and illegal logging to forest fires. Sumitomo Forestry Group subsidiary companies PT. Wana Subur Lestari (WSL) , PT. Mayangkara Tanaman Industri (MTI) and Kubu Mulia Forestry (KMF) conduct operations balancing working forests and environmental conservation in the West Kalimantan province of Indonesia.

List of Aquatic Creatures Discovered Through the Survey

Each operation begins with detailed measurements and surveys to determine conservation areas, buffer zones and forestation areas. Conservation areas are subject to regular animal and plant surveys. In addition to population monitoring of orangutans and proboscis monkeys, which are rare animals, studies are conducted on fruit-bearing trees, their source of food.

Observations in the dark for the numerous animals active in the early morning or late at night require proficient skills. Sumitomo Forestry is attempting to directly observe proboscis monkeys and orangutans in the early morning and night by setting up automatic photography using camera traps or drones equipped with heat sensors.
Camera traps installed in conservation areas photographed 31 species and 494 animals in 2022.


Direct Observation of Animals Using Heat Sensors

We photographed an adult orangutan with its child for the first time in fiscal 2019 and confirmed a higher population than in surrounding areas in fiscal 2020. These results verify the growing orangutan population.

Orangutan observed in MTI's conservation area (photo taken May 2022)

Peatlands store a tremendous amount of water. Sumitomo forestry surveys not only ecosystems on land but also in aquatic habitats due to concerns about the impact of our operations on rivers. In the lower basin of an area managed by WSL, we have discovered a habitat of Irrawaddy dolphins, which are designated as an endangered species. Examples of monitoring surveys of aquatic creatures in rainforest peatlands are few and far between. These Sumitomo Forestry surveys are pioneering the work worldwide.

Tasman Pine Forests (TPF) Initiatives

Sumitomo Forestry strives to protect Kea (Large Parrot Species), which isa parrot unique to the South Island of New Zealand. Kea is the only parrot in the world to live in mountainous areas, and it is considered one of the smartest birds on the planet. It is a bird that is protected as an endangered species (about 5,000 birds throughout New Zealand), and adored by the people. It has been confirmed that nesting is carried out in the drainage clay pipe in the forest of TPF. In cooperation with the Kea Conservation Trust, we strived to set up traps and fences around the area to protect eggs from natural enemies. As a result, it has been confirmed that one chick has successfully hatched in 2021. In October 2022, three chicks were found to have hatched in the TPF forest. We will continue to make efforts so that the birds can leave the nest in the future.

Kea (Large Parrot Species)

Chicks found in TPF forests

Click here for related information

New Zealand Department of Conservation Homepage

Biodiversity Conservation

Contributions to Eco Cities Through Greening

Basic Policy

The use of as many plants as possible which are native to the region in property development is a growing trend as society shifts toward a goal to co-exist with nature.

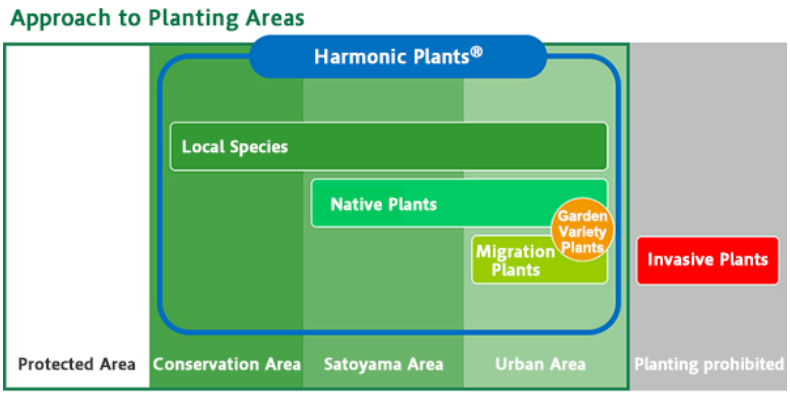
In the midst of these trends, Sumitomo Forestry Landscaping has defined Harmonic Plants® guidelines for selecting plants species based on greening areas with the concept that using indigenous and local species in greening plans is in the best interest of natural revitalization. The Company has been promoting this model up until now.

There are plants that have grown in Japan since long ago (native plants) and plants that have come to Japan from abroad (migration plants) for trees. Among these migration plants, there are species that will overrun areas where native plants live due to their characteristics, which endanger the biodiversity of the region (invasive plants*).

Garden vegetation plans are separated into four areas that take into account the conservation level (protected areas, conservation areas, satoyama areas, urban areas) to select plant species based on these areas. For example, in urban areas when building gardens for residences, the colorfulness is represented by selecting a balance of greening plants from non-invasive migration plants around a main selection of native plants, including garden variety plants. In addition, the Group has in place a policy of not using invasive plants that clearly have an adverse impact on local ecosystems and a division responsible for coordinating technology at Sumitomo Forestry Landscaping Co., Ltd. checks that such species are not used.

* Specified alien species and alien species requiring caution as stipulated by the Invasive Alien Species Act

Approach to Planting Areas



Contributions to Property Development

Forest Garden Hadano Receives the First ABINC Certification As a Detached Housing Complex

Sumitomo Forestry strives in the residential property development business by providing roughly 350 high-quality single-family spec homes each year through technical expertise accumulated in new custom-built housing and landscaping businesses. We develop long-lasting properties by taking advantage of nature with the goal of realizing a sustainable and prosperous society.

Property Design of Forest Garden Hadano

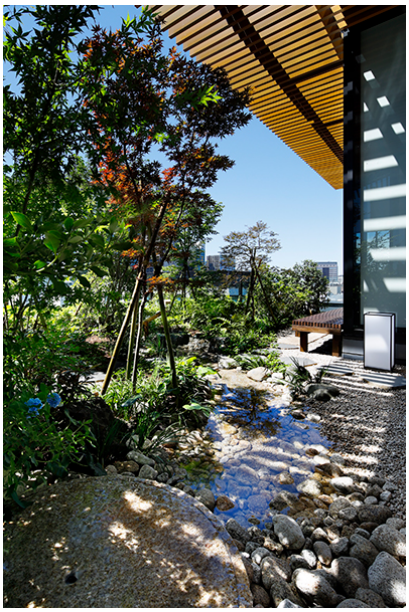
Forest Garden Hadano, a detached housing complex in Hadano City, Kanagawa Prefecture, received the first ABINC (Association for Business Innovation in harmony with Nature and Community) certification under the detached housing complex and city area category in 2018. The ABINC certification system certifies results of biodiversity preservation activities of companies to promote coexistence of nature and people. The certification began the certification of office buildings and commercial facilities from 2014 and has expanded its scope to include housing complexes and factories. Furthermore, detached housing complex and city area category and logistic facilities have been newly added.

The property design of Forest Garden Hadano is green property that coexists with life. It realizes rich greenery through the use of local tree species and Harmonic Plants®. Consideration toward sustainable circulation of water utilizing spring water was one of the major factors of receiving the certification.

A High-Rise Japanese Garden That Conveys the Beauty of Nature and Harmony

Hotel Yaenomidori Tokyo opened in the Yaesu Hatchobori area of Tokyo in 2020. The hotel's concept is to present the multiple aspects of Japan's beauty. On the very top floor is a Japanese garden for guests to experience a spiritual, Japanese-style, sophisticated calm despite being in the middle of the Tokyo business district. By using Shishiodoshi (water-filled bamboo tubes that clack against stones when emptied to frighten the wild) away, water basins and other waterscape devices, by planting trees that respond to the change in seasons, Sumitomo Forestry Landscaping carefully designed and constructed a space that conveyed the beauty of nature and Japanese culture through the five senses.

It harnessed its experience and technology to secure trees both below and above ground, to consider load limits of high-rise buildings, and to commit to planting native species.



A High-Rise Japanese Garden

UR Urban Renaissance Agency Tokiwadaira Danchi with SEGES First Accreditation for 'Sodateru-Green'

The SEGES (Social and Environmental Green Evaluation System) (Sponsored by: Organization for Landscape and Urban Green Infastruction) has certified the green space in the UR Tokiwadaira Urban Renaissance Agency's Tokiwadaira Danchi as an Excellent Stage 2 green space in the category of "Sodateru-green", which evaluates green spaces that contribute to society and the environment. This is the first green certification for residential areas.

In August 2020, the independent administrative Urban Renaissance Agency and Sumitomo Forestry signed a "Research Agreement on Effective Utilization of Residential Outdoor Space with Environmental Certification System", and have been conducting research on effective outdoor space utilization in apartment complexes. Tokiwadaira Danchi's green space was certified as Excellent Stage 2 in the SEGES "Sodateru-green" category in April 2021.

UR and Sumitomo Forestry are studying methods to utilize the rich green space that has been fostered over the years and has become a natural asset for the community, using the SEGES evaluation.

We aim to accomplish a town development in harmony with nature, where diverse generations can continue to live actively and safely, by utilizing the results of the research and supporting local activities and communication among residents of the complex.

the green space of Tokiwadaira Danchi

Related SDGs

Minister of Land, Infrastructure, Transport and Tourism Award at the National Urban Greenery Fair Hokkaido

In the garden exhibition contest held within the 39th National Urban Greenery Fair Hokkaido in 2022, a work exhibited by Sumitomo Forestry and designed and supervised by Sumitomo Forestry Landscaping, the "Glamping Garden for Living with the Comfort of the Forest", received the highest award, Minister of Land, Infrastructure, Transport and Tourism Award and the Gold Award.


Award-winning work

The award-winning entry was recognized for its ability to design the spaces and its high level of technical skill in utilizing wood and plants. The work also takes the local community and the environment into consideration through local production for local consumption and decarbonization, such as the use of Abies sachalinensis from Hokkaido for the post and beam of the framework, as well as the transportation of major trees by rail. In particular, rail transport of trees has reduced CO_2 emissions by about 80 % compared to transport by truck. Modal shift, which is a shift to a transport method with a smaller environmental impact, is expected not only to realize a decarbonized society, but also to address various social issues, such as the shortage of driver personnel.

Received the Minister of Land, Infrastructure, Transport and Tourism Award in the Housing Townscape Contest

Sumitomo Forestry Landscaping's Forest Garden Hadano and Queen Forest Nagareyama Ootakanomori won the Minister of Land, Infrastructure, Transport and Tourism Award and the Townscape Award, respectively, in the 16th Housing Townscape Contest in FY 2020.

The Foundation for Promotion of Housing Production's "Housing Townscape Contest" aims to promote districts and groups that have achieved a desirable townscape via the efforts of local inhabitants, especially residents, in maintaining and managing their homes. One project got the Minister of Land, Infrastructure, Transport and Tourism Award, and four projects obtained the Residential Townscape Award, two of which were awarded to Sumitomo Forestry Landscaping-constructed properties, out of the many entries received in the competition this year.

This is a result of Sumitomo Forestry Landscaping's contribution to attractive town planning that takes advantages of local characteristics. Sumitomo Forestry Landscaping will continue to expand its business to realize the goal of "Creation of a complete town."

* Sumitomo Forestry Landscaping did not receive the award directly, but applied through the local community association or the management association

Education for Biodiversity Conservation

Publish of an Illustrated Guide to Home Trees Revised Edition

A total of 46,000 copies of Sumitomo Forestry Landscaping's “An Illustrated Guide to Home Trees” have been printed since the first edition published in 2013, with two revisions afterwards.

The revised edition I was published in March 2017, following the establishment of the Invasive Alien Species List by the Ministry of the Environment and the Ministry of Agriculture, Forestry and Fisheries, and taking into account further impacts on the ecosystem. We also restructured Sumitomo Forestry Landscaping's own criteria for invasive species.

The revised edition II was published in March 2021 with partially altered content in response to the modification to the Plant Variety Protection and Seed Act and the addition of original varieties, and contains 508 species, including six original varieties.

(1) Revision of descriptions in response to the revision of the Plant Variety Protection and Seedling Law

The "Variety Registration Number" and other information were added to the original trees for sale and the trees registered as varieties in the illustrated book in compliance with the modification of the Seed and Seedling Law, as registered varieties are now obliged to be labeled.

(2) SDGs (Sustainable Development Goals) initiatives were added

Through its green business, Sumitomo Forestry Landscaping Co., Ltd. is implementing initiatives in line with the SDGs, such as protecting biodiversity through the concept of "Harmonic Plants" in the consideration of sustainability, and creating comfort, enjoyment, and beauty in society by constructing homes and communities that harness the "Power of Greenery". We are putting these initiatives into action. These initiatives have been included in this revision.

Recognition of Contributions to Environmental Consciousness

Sumitomo Forestry Landscaping has begun assessing carbon storage by trees in residential gardens as part of its efforts towards a decarbonized society. Trees play an important role towards a decarbonized society as they can absorb CO_2 during their growth and continue to fix it as carbon.

Combined with Harmonic Plants®, a guiding principle of Sumitomo Forestry Landscaping, the aim is to create gardens that take into account local biodiversity, while also looking at the environment of the entire planet.

At Sumitomo Forestry's model house in Yonago, plantings were mainly of native species in accordance with the Harmonic Plants® guidelines. As a model case for LCCM housing, carbon storage in gardening was also assessed.

The amount of carbon storage was calculated for trees, wooden decks and wooden fences as materials that can be used for carbon fixation in gardening. The garden at the Yonago model house fixes approximately 6.2 tonnes of CO_2 equivalent (equivalent to the carbon storage of about 21 trees of 40-year-old cedars in an planted forest).

In the future, the system will be developed to enable simpler assessment, and preparations will also be made to enable recognition of the fixed volume that increases as properly managed trees grow.

Yonago model house

Click here for related information

Promotion of Net Zero Energy House (ZEH)
Specifications

Overseas Landscaping Businesses

Expansion into the Landscape Business in Australia

In 2022, Sumitomo Forestry acquired Regal Innovations, a landscape business* in Australia, as a subsidiary. The company is also involved in leading development and construction projects in urban Sydney, and accelerates efforts to address environmental issues through the creation of landscapes in harmony with nature in the design and construction of commercial areas, public facility housing exteriors, green zones and parks. When creating spaces, not only are plants, wood, stone and soil used, but also rainwater circulation and techniques for restoring and preserving vegetation are incorporated. Technological exchange between Japan and Australia has also begun, including the sharing of garden vegetation and green space management know-how by Sumitomo Forestry Landscaping, and design proposals for landscape design. In the future, we will combine this with our housing, construction and real estate business to promote more environmentally sound development in Australia and other countries.

*Landscaping projects collectively, including housing exterior works in residential areas and urban and infrastructure developments

Barangaroo District Park area, Sydney

Darling Harbour area undergoing redevelopment

Design Collaboration in Australian Subdivisions

In North Melbourne, Australia, we are leveraging our expertise in a design partnership with Tract Landscape, a local landscape design firm, for the Annadale estate project (1,087 total lots for sale), which is a joint residential development project between Sumitomo Forestry and NTT Urban Development.

Nature Play Equipment Using Natural Stone (First Stage of the Annadale Estate Project Park)

In this design partnership that began in 2017, Sumitomo Forestry Group proposed a concept, Growing Wellness Life & The Five Sense, for the basic design of Tract. Tract highly evaluated this proposal as a fantastic reference because a story is not usually incorporated into standard design plans in Australia and playground equipment using natural stone and logs was employed to better the motor skills of the children as well as the vegetation plans. The Sumitomo Forestry Group proposed basic concepts even in the second stage of park planning conducted thereafter and completed the basic design founded upon this idea in November 2020. In 2021, Sumitomo Forestry also collaborated on concept proposals and drafting work for a local government public park project in Sydney.

Green zones in Australia are imperative to raise the value of the estate development and pursue the creation of efficiently green open spaces. The Sumitomo Forestry Group has just begun our efforts in the overseas landscaping business, but will continue to further these businesses in the future with the aim of creating beautiful and comfortable spaces loved by residents overseas.

Concept Proposal for the Second Stage of the Annadale Estate Project Park


Completed Project

Resource Recycling Initiatives

Waste Reduction and Recycling

Basic Policy

The Sumitomo Forestry Group makes efforts in attaining zero emissions and reducing industrial waste generated, at the same time as promoting reuse and recycling for each operational process in accordance with the Sumitomo Forestry Group Environmental Policies in order to build a sustainable and recycling-oriented society. Our priority is to realize a circular bioeconomy by leveraging forests and wood resources, and we are promoting initiatives to reduce environmental impact, such as protecting resources by advocating for recycling and zero emissions. The Sumitomo Forestry Group has also established measures in each of its divisions to achieve these priority targets. We will check the progress of the plan each fiscal year, and by fiscal 2024, the final year of the Medium-Term Management Plan, we aim to reduce the Group's total final processing amount by 5.4% from the fiscal 2021 level, to 19,905 tons.

Click here for related information

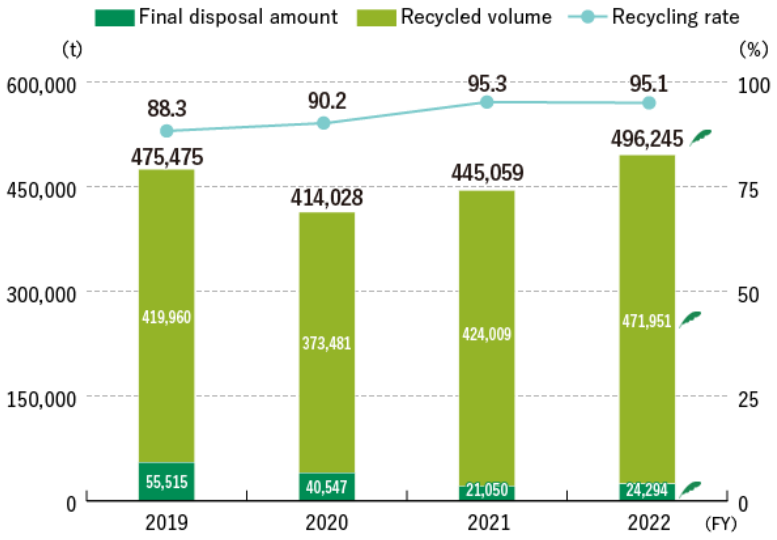
Material Issue 3 To realize a circular bioeconomy by leveraging forests and wood resources

Initiatives to Achieve Zero Emissions

The Sumitomo Forestry Group defines achievement of zero emissions as a recycling rate of 98% or more using no simple incineration or landfill for all industrial waste produced by each business site. Based on this definition, domestic manufacturing facilities achieved zero emissions in fiscal 2009 while new housing construction sites achieved zero emissions in metropolitan areas in fiscal 2012. Our overseas manufacturing plants achieved zero emissions in fiscal 2020.

In addition, we aim to achieve zero emissions through more detailed management by dividing them into seven categories of new housing construction sites, domestic manufacturing plants, power generation business, remodeling and renovation business, lifestyle services business, etc., overseas manufacturing plants, and demolition work sites in consideration of status of business activities and waste generated. Continuing from last year, we achieved zero emissions at our domestic and overseas manufacturing plants and power generation plants in fiscal 2022.

Trends in Waste Generated and Recycling Rate*1*2



*1 Figures for Cohnan Kensetsu Inc. are included from fiscal 2022

*2 Data collection period for emissions from fiscal 2020 is January to December of each year, and the emissions counting period for fiscal 2019 is April to March 2020

Initiatives for Knowledge Acquisition of Waste Managers

The Sumitomo Forestry Group is taking steps to acquire knowledge so that each person in charge can properly deal with industrial waste generated at construction sites as well as waste generated at offices.

The Housing Division has launched a new e-learning course titled "Key Points for Construction Waste Management," which all managers in charge of production departments at branches must take. In response to stricter regulations on asbestos, we have also established an e-learning course on "Preliminary Investigation of Asbestos" and "Waste Management Basics" to promote the acquisition of knowledge on waste generated from offices. In addition, Sumitomo Forestry distributes a monthly "Safety, Environment and Quality Inspection Department Information" to its branches to keep them up-to-date on the latest information, and also provides guidance and education to construction subcontractors and demolition companies.

Formulating Standards to Handle Plastics

Plastics spread throughout society quickly and brought convenience and other benefits to our lives. However, the reuse and material recycling rate of plastics is still low in the world, compared to other materials. Pollution problems caused by plastics waste flowing into our oceans have become a global issue. The Sumitomo Forestry Group set measures to respond to the issue of plastics in August 2019, and it has been raising awareness in all relevant departments. We are looking into any and all alternatives to plastic goods for novelty item, stationary supplies and even packaging. We have put in place various initiatives from using cans instead of plastic bottles for vending machines and drinks stored at the company unless for a special reason, such as disaster prevention, to not passing out drinks in plastic bottles during meetings. We have also reflected and revised measures for handling plastics in the "Sumitomo Forestry Group Green Purchasing Guidelines".

Compliance with the Plastic Resource Circulation Act

On April 1, 2022, the Plastic Resource Circulation Act came into effect.

This act is designed to promote plastic resource recycling efforts (3R+Renewable) by all entities involved in the design, manufacturing, sale, and supply of plastic products, as well as the discharge, collection, and recycling of waste.

For "high-volume emitting businesses" that emitted 250 tons or more in the previous fiscal year, information on the status of target achievement must also be included and disclosed on the internet or other media (applicable to Sumitomo Forestry, Sumitomo Forestry Home Tech, and Sumitomo Forestry Crest).

Status of Target Initiatives and Measures in Target Divisions

Division	Project	Indicators for Evaluation	FY12/21 (Results)	FY12/22 (Results)	FY12/23 (Estimated)
Sumitomo Forestry (Housing)	Emission suppression	Plastic waste emissions (t)	-	Calculation	Consideration of reduction methods
	Recycling	Continue to promote recycling into solid fuel (RPF), etc.			
	Measure	Emission suppression by studying specific reduction methods, and continue to promote recycling into solid fuels (RPF) and other forms of recycling.			
Sumitomo Forestry Home Tech	Emission suppression	Emissions per unit of completed construction	0.020t/million yen	0.0297t/million yen	Reduced from the previous fiscal year
	Recycling	Recycling rate	85.3%	81.6%	Reduced from the previous fiscal year
	Measure	Regarding the suppression of occurrence, we will discuss the reduction of plastic packing materials from suppliers, and work on the use of on-site reuse of protection materials. As for emission suppression, we will work to change the intermediate treatment contractors with low recycling rates through discussions.			
Sumitomo Forestry Crest	Emission suppression	Plastic waste emissions (t)	226.8t	235.9t	225.2t
	Recycling	Amount of plastic waste landfilled (t)	5.6t	2.8t	1.6t
	Measure	As for emission suppression, we will work on to reduce the volume of packing for solid floor spacers, replacement of foam protection materials with paper materials, and the replacement of air cushions.			

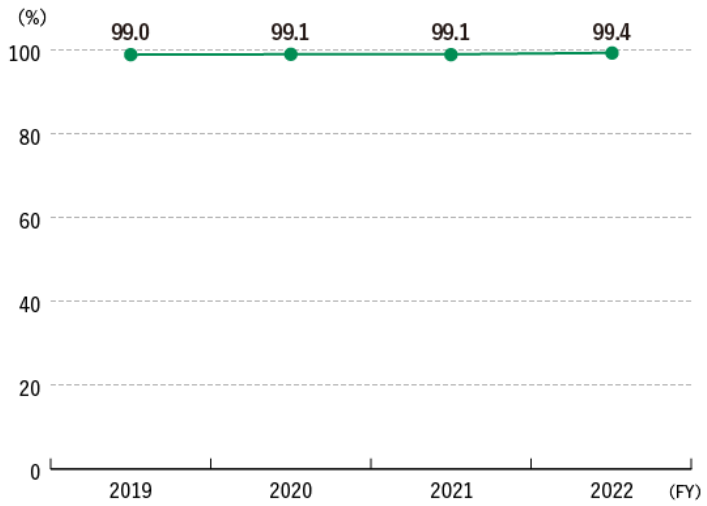
Resource Recycling Initiatives

Manufacturing Business Initiatives

Initiatives at Domestic Manufacturing Facilities

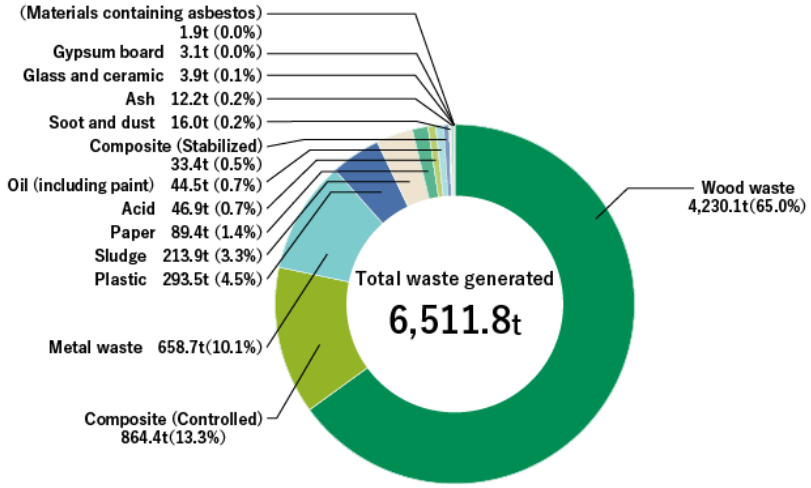
The Sumitomo Forestry Group is making ongoing efforts to reduce waste emissions, for example by tightening the sorting of industrial waste at each manufacturing plant, promoting its effective use as resources without simple incineration (thermal use), and selling it for a profit. The Sumitomo Forestry Group managed to achieve a recycling rate of 99.4% against the target of 99.5% in fiscal 2022. Zero emissions (recycling rate of 98% or more) were achieved at offices of Sumitomo Forestry Crest, Sumitomo Forestry Landscaping and Agro-Products division.

Recycling Rate at Domestic Manufacturing Plants*
(Sumitomo Forestry Crest, the Agro-Products division of Sumitomo Forestry Landscaping, Japan Bio Energy, Okhotsk Bio Energy, Michinoku Bio Energy)



* Aggregation period for emissions after fiscal 2020 is from January to December of each year, and aggregation period for emissions before fiscal 2019 is from April of each year to March of the following year.

Breakdown of Waste Generated at Domestic Manufacturing Plants (FY2022)



Initiatives at Overseas Manufacturing Plants

Seven major overseas manufacturing plants* are promoting zero emissions. Offcuts generated at plywood and building materials mills is reused as raw material for wooden board mills, and at wooden board mills, waste wood from the manufacturing process is reused as fuel for heat sources in the drying and thermal pressing processes. We also promote zero-emission activities by making effective use of all types of wood waste, such as using the offcuts generated at our wooden mills for novelty goods.

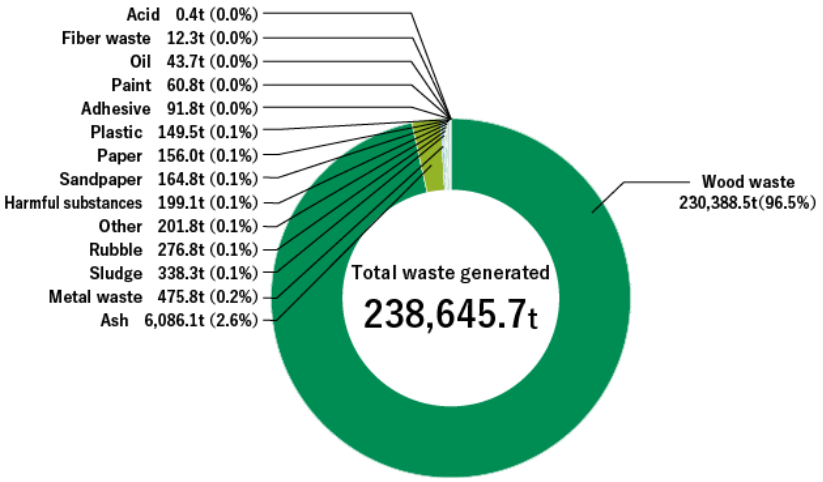
The recycling rate in fiscal 2022 achieved zero emissions at 98.0% against our target of 98.0%.

* Indonesia: PT. Kutai Timber Indonesia, PT. Rimba Partikel Indonesia, and PT. AST Indonesia
New Zealand: Nelson Pine Industries Ltd.
Vietnam: Vina Eco Board Co., Ltd.
United States: Canyon Creek Cabinet Company


Recycling by sorting waste


Recycling by sorting waste manufacturing as raw materials for novelty goods

Breakdown of Waste Generated at Overseas Manufacturing Plants (FY2022)



Japan Bio Energy Recognized as Superior Industrial Waste Disposal Operator

Japan Bio Energy, which manufactures and sells wood biomass chips, has been recognized as a superior industrial waste disposal operator since May 2016 by Kawasaki City.

The system to recognize superior industrial waste disposal operators evaluates and certifies superior industrial waste disposal operators through the prefecture or city. In order to receive this recognition, the business must satisfy a full set of criteria including legal compliance, business transparency, efforts in environmental conscious, and a healthy financial strength. The validity of certification in industrial waste disposal is extended from five to seven years by receiving recognition through this system. The current waste disposal business permit expires in April 2023, so the renewal of the certification as superior operator will be implemented in conjunction with the renewal of the permit.

Click here for related information

› Waste Reduction and Recycling

Resource Recycling Initiatives

Housing Business Initiatives

Efforts at New Housing Construction Sites

Reduction Rate of Industrial Waste Generated at New Housing Construction Sites

From 2014, Sumitomo Forestry has launched a "waste reduction working" by personnel in charge of product development, material procurement, production control, and environment department, and has devised and implemented many measures to reduce waste at new construction sites.

We discovered two-thirds of all our waste is made up of wood waste, gypsum board and cardboard from detailed data about the waste that is produced aggregated from the industrial waste management system used under this inter-region certification, which has been in operation since 2012. We have worked to reduce waste by concentrating on these three primary forms of waste.

The Mid-Term Sustainability Targets of the Sumitomo Forestry Group set a target of reducing the amount of industrial waste generated per building from new housing construction sites to 2,511 kg/building by fiscal 2024. In fiscal 2021, we began to use pre-cut roofing slates and Kizure Panels at our branches and offices nationwide, and this has gradually had a positive effect on reducing industrial waste emissions. In fiscal 2022, the operation of pre-cut of the Kizure Panels and roof slates took root, resulting in a steady decrease in industrial waste emissions to 2,585 kg/building, exceeding the fiscal 2022 target of 2,709 kg/building.

With respect to Kizure Panels and roof slate material, they are expected to reduce 80kg/building and 170 kg/building respectively. We have also started to pre-cut siding in some areas and are gradually expanding this to others. Since the weight of waste from siding is 550 kg per building, we expect to further reduce industrial waste emissions through expanded operation in the future.

In addition, at construction sites, we aim to reduce industrial waste emissions by 2.5% from the actual emissions in fiscal 2022 by promoting the use of reusable protection materials and ordering appropriate quantities of construction materials to prevent the generation of surplus materials, etc.

Reduction Rate of Industrial Waste Generated at New Housing Construction Sites (Per Household)

	Total Emissions (kg)	Reduction Rate (Compared to Baseline)
FY2017 (Baseline)	3,325	-
FY2020 result	2,977	▲10%
FY2021 result	2,736	▲18%
FY2022 result	2,585	▲22%

Initiative for Recycling of Industrial Waste Generated at New Housing Construction Sites

Sumitomo Forestry meticulously sorts waste produced on new housing construction sites. We will raise awareness through mediums such as posters including specific waste information to make sorting of the 11 categories of waste easier. We have also engaged in efforts to reuse rather than dispose of wood base and packing materials used when transporting precut structural and other materials.

Posters About Sorting Industrial Waste

In fiscal 2022, the operation of pre-cutting of Kizure Panels and roof slates progressed, and the generation of industrial waste of wood waste and slates, which used to be recycled, decreased, and this affected the recycling rate that it declined and stagnated at 94.3%, compared to the recycling rate target of 98%.

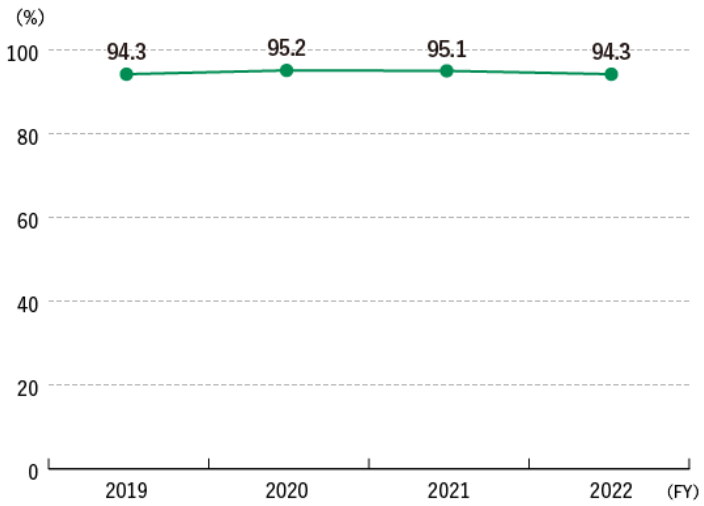
Currently, the Sumitomo Forestry Group sets a goal of achieving 98.0% waste recycling rate for new housing construction sites by fiscal 2024 as part of the Mid-Term Sustainability Targets.

In fiscal 2023, we will reduce composite waste and improve the recycling rate by further enforcing separation of waste on site. We will also work to expand the adoption of new recycling treatment plants.

Waste Recycling Rate at New Housing Construction Sites

	Recycling Rate
FY2017 (Baseline)	92.5%
FY2019 result	94.3%
FY2020 result	95.2%
FY2021 results	95.1%
FY2022 results	94.3%

Recycling Rate at New Housing Construction Sites* (Housing Division, Construction Business Sub-Division, Sumitomo Forestry Landscaping, Sumitomo Forestry Home Engineering)



* Data collection period for total emissions from fiscal 2020 is January to December of each year, and the emissions counting period for fiscal 2019 is April to March of the following year.

Acquisition of the Inter-Region Recovery and Recycling Certification by the Ministry of Environment

Sumitomo Forestry has been certified by the Ministry of the Environment under Inter-Region Recovery and Recycling Certification. This certification makes it possible for non-industrial waste companies to transport industrial waste, and we have built our own industrial waste recycling system.

Our industrial waste management system for new housing construction sites helps contribute to the rationalization of waste disposal by using returning transportation for collecting waste while also securing traceability by applying bar codes to waste and collecting accurate data about the volume of waste generated.

Operations at the Metropolitan Area Recycling Center

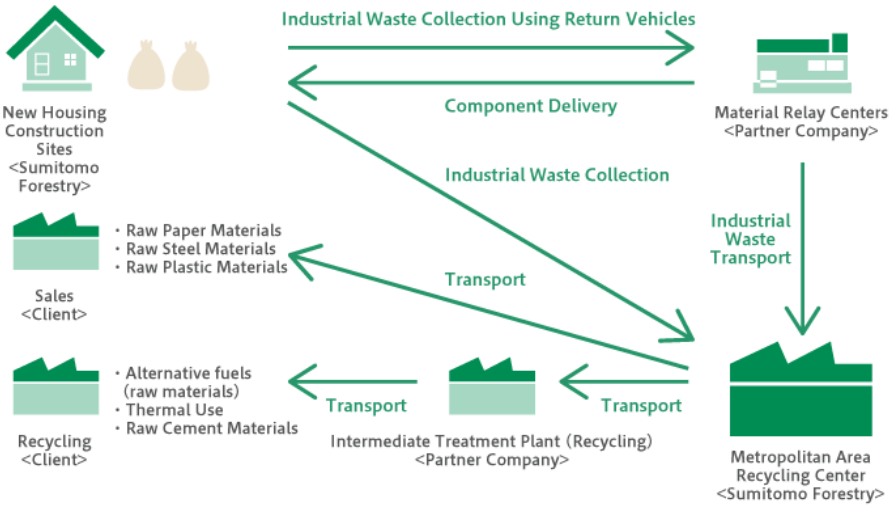
Sumitomo Forestry has used the acquisition of the inter-region recovery and recycling certification to establish the Metropolitan Area Recycling Center in Kazo, Saitama Prefecture for advanced sorting and data collection. The Metropolitan Area Recycling Center has been collecting and processing waste produced by new housing construction sites of the metropolitan and five prefectures of Kanto (Metropolitan Tokyo, Kanagawa, Saitama, Ibaraki, Tochigi, and Gunma prefectures).

Metropolitan Area Recycling Center

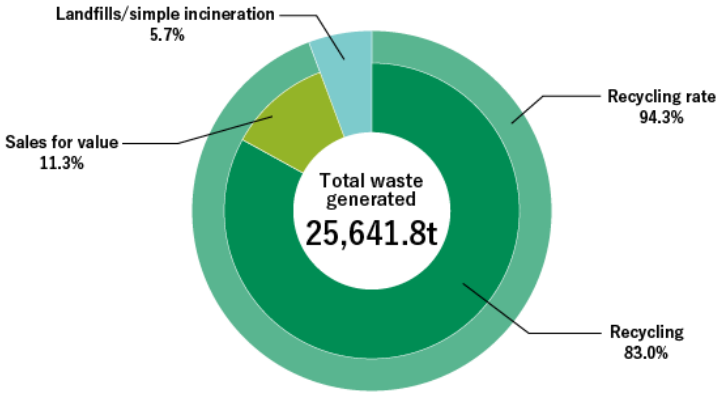
The Metropolitan Area Resource Recovery Center collects detailed data regarding waste generation conditions and trends by specification, construction contractor, and region, and utilizes the data in product development, material procurement, and production management departments for use in waste reduction initiatives.

This initiative works to expand operation under the certification even in regions outside the metropolitan area. Currently, the system is in operation at branches except in the San-in area. In the same way data is collected by the Metropolitan Area Recycling Center, we can also gather data on the level of waste produced throughout Japan. The analysis of this data helps us reduce waste because we can discover trends in the amount and type of waste according to building specifications and construction conditions in each region.

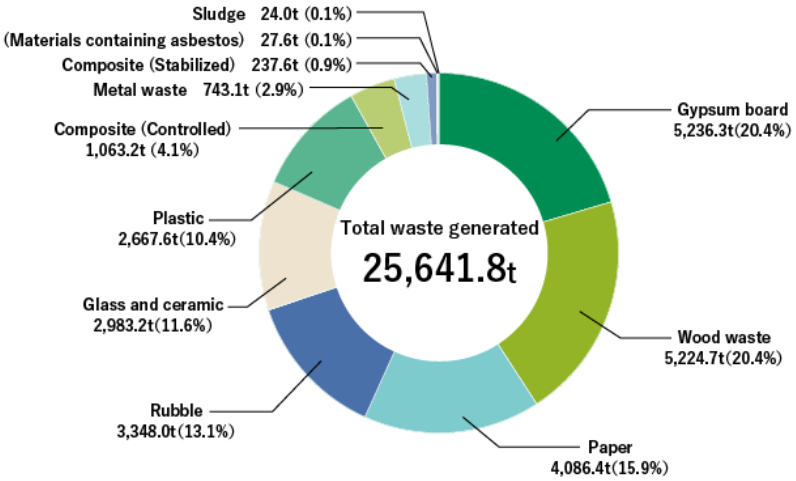
Flow of Industrial Waste Collection Using the Inter-Region Recovery and Recycling Certification



Breakdown of Waste Generated by Disposal Process for New Housing Construction Sites (FY2022)
(Housing Division, Construction Business Sub-Division, Sumitomo Forestry Landscaping, Sumitomo Forestry Home Engineering)



Breakdown of Waste Generated at New Housing Construction Sites (FY2022)
(Housing Division, Construction Business Sub-Division, Sumitomo Forestry Landscaping, Sumitomo Forestry Home Engineering)



Efforts at Demolition Housing Sites

Sumitomo Forestry was promoting resource recycling even before the enactment of the Construction Material Recycling Law implemented in 2002 by ensuring that materials were properly sorted during demolition prior to the construction of a new house and that waste remained sorted for processing afterwards. Since the enactment in 2002, the Company has recycled the items required under the Law (wood waste, concrete, etc.), sorting them at the sites where the waste is generated. In recent years, demolition work of housing built using construction materials containing asbestos has increased, and revised law related to asbestos were also enacted in 2020. Sumitomo Forestry especially strives for uncompromising compliance to removal method, processing guidance and management of construction materials containing asbestos.

The recycling rate for concrete was almost 100% in fiscal 2022, as it was the previous year. We also maintain a high recycling rate for wood waste by removing extraneous matter.

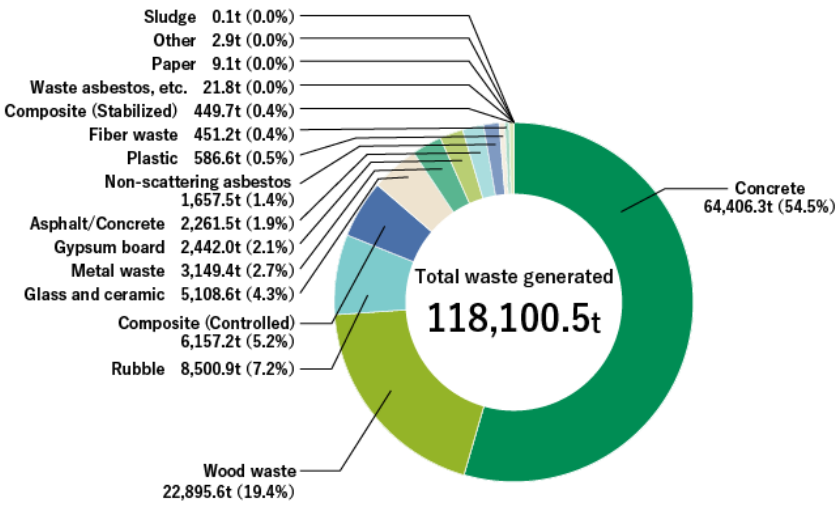
Waste Management for Demolition Work

We are strengthening management by building a system able to confirm the type, quantity and packaging of waste to transport from demolition work sites using mobile phones and smartphones which is adopted by our demolition partners.

Recycling rate at housing demolition sites

94.4%

Breakdown of Demolition Waste Generated (FY2022)*



Launch of Industrial Waste Management Centers

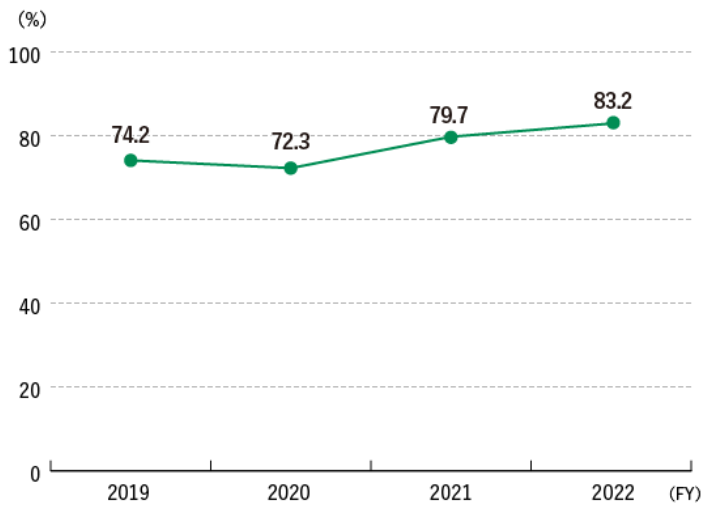
Sumitomo Forestry opened three industrial waste management centers throughout Japan in fiscal 2021. We will work to eliminate industrial waste risks nationwide through unified and highly accurate management by personnel specializing in industrial waste management operations. These management processes include precise process confirmations and deadline management from electronic manifest registration of industrial waste produced throughout Japan through the final disposal obligations of the entity producing the emissions. These management practices strictly adhere to laws and regulations, such as checking information registered in the electronic manifest against the outsourcing contract and updates to outsourcing contracts.

Remodeling and Renovation Business Initiatives

We are working to reduce waste generated on remodeling and renovation sites by using reusable protective materials. Sumitomo Forestry Home Tech recycles wood waste materials generated at its renovation sites.
Our Group also strives to effectively use resources, such as the initiative to operate a material recycling route to reclaim wood waste from metropolitan areas as raw materials for particle board that started in fiscal 2014. In the three major metropolitan areas with the most emissions, we have established construction departments to supervise the entire area and provide guidance and education on overall industrial waste management and ways to improve their recycling rate. In addition, we will provide focused guidance and education to sites with low recycling rates, strengthen sorting, and promote outsourcing to disposal sites with high recycling capacity.

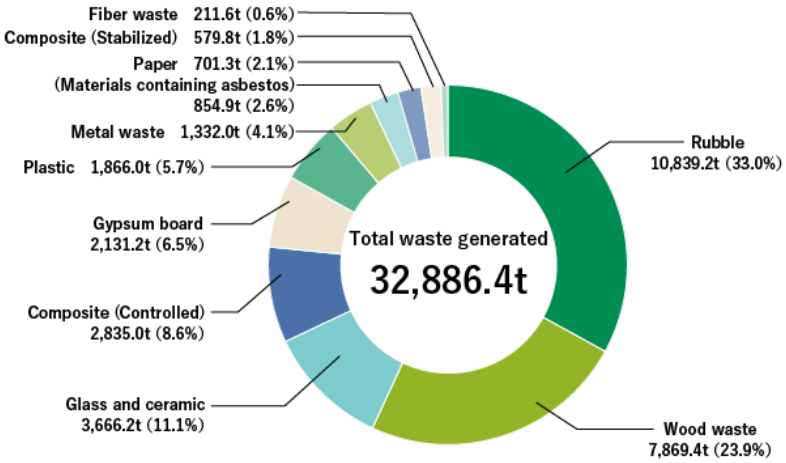
Guidance on on-site sorting and enhanced sorting at disposal sites resulted in a recycling rate of 83.2% in fiscal 2022

Trends in Recycling Rates in the Renovation Business[*1*2]



*1 Includes Sumitomo Forestry Home Tech renovation sites but excludes hard-to-recycle debris and asbestos
*2 Data collection period for total emissions from fiscal 2020 is January to December of each year, and the emissions counting period for fiscal 2019 is April to March of the following year

Breakdown of Waste Generated at Renovation Business Operations (FY2022) (Sumitomo Forestry Home Tech)



Work with Construction Contractors

Sumitomo Forestry publishes monthly safety, environment and quality inspection information that includes information and topics about safety and the environment to help avoid industrial waste-related risks by repeatedly raising awareness at branches and construction contractors.

Education for New Construction and Demolition Contractors

Sumitomo Forestry provides education to new construction contractors and conducts comprehension tests about industrial waste. Demolition contractors report about industrial waste to each office and branch from the start of demolition work to its completion as a construction management record according to a manual. Each office and branch verifies these construction management records and provides guidance for corrective actions if any inconsistencies are found.

Click here for related information

About symbol for Independent assurance

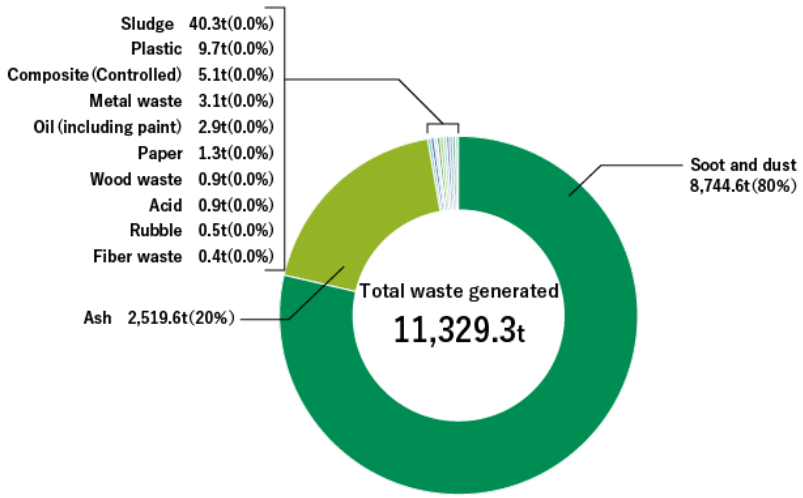
Resource Recycling Initiatives

Power Generation Business Initiatives

Power Generation Business Initiatives

In power generation business operations, incineration ash emitted by biomass boilers is blended with quicklime for reuse primarily as a forest roadbed material. In fiscal 2018, it was manufactured under the product name Rovander, and received approval as a Hokkaido Government-certified Recycled Product. We also achieved zero emissions (recycling rate of 98% or more) for the first time in the power generation business. In fiscal 2022, the recycling rate was 99.0%, achieving zero emissions for the second year in a row.

Breakdown of Waste Generated at Power Generation Business Operations (FY2022)
(Mombetsu Biomass Electric Power, Hachinohe Biomass Electric Power)



Click here for related information

Waste Reduction and Recycling

Maintenance of Forest Roads, etc. Using Rovander Foundation Filler Made with Incineration Ash

At Mombetsu Biomass Electric Power, incinerator ash emitted by the biomass boiler is used to manufacture foundation fill material (product name "Rovander") for forest roads. This environmentally-conscious product is aimed at building a cyclical operation in which the amount of waste is controlled, reducing environmental impact by helping maintain forests using a by-product of power generated with forest resources.

In addition, Rovander has been recognized as meeting environmental safety standards, and is a Hokkaido Government-certified Recycled Product.

Road Laid with Rovander Wood from Log Storage

北海道認定リサイクル製品

The Hokkaido Government-certified Recycled Product mark

Resource Recycling Initiatives

Other Business Initiatives

Other Business Initiatives

At waste-generating locations of enterprises such as Lifestyle Services Business, Distribution Business, Renovation Business and Research Institutes, initiatives to reduce amounts of waste generated are implemented at a department level.

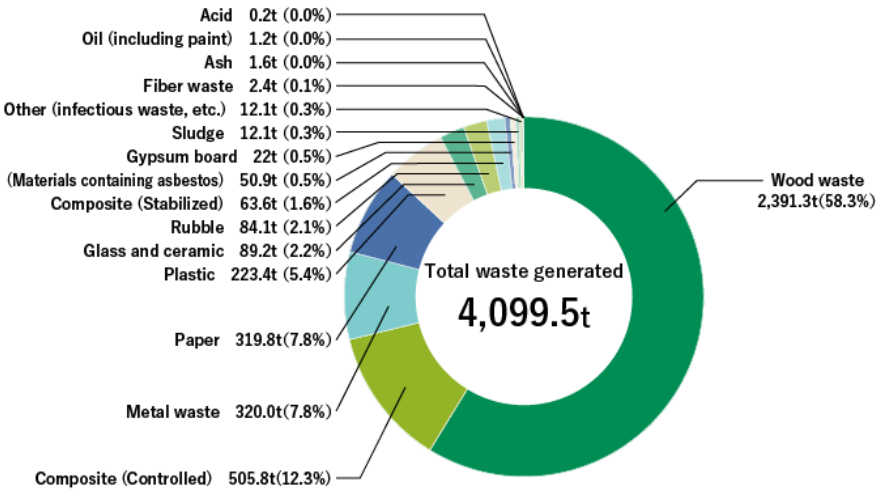
Lifestyle Services Business Initiatives

In the Lifestyle Services Business, we are promoting initiatives to reduce industrial waste in each of our diverse service offerings, such as nursing care facilities, hotels, and golf courses.
For example, Kawanokita Development, which operates the Takinomiya Country Club golf course in Niihama City, Ehime Prefecture, has eliminated plastic toothbrushes and razor blades, as well as plastic straws in favor of paper straws, in an effort to comply with the new plastic law.

Research Institute Initiatives

Sumitomo Forestry's Tsukuba Research Institute generates a variety of waste materials as a result of various tests. The majority of the waste consists of wood, and is reused as particle board raw material and fuel for biomass power generation. In addition, the chemical substances used in the experiment are outsourced to specialized dealers in industrial waste treatment to prevent leakage to the outer environment, where they, including the hazardous ones, will be treated according to their properties and rendered harmless. The residue is recycled as raw materials for cement, etc.

Breakdown of Waste Emissions from Other Business* (FY2022)



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Initiatives for resource recycling

Pollution Prevention

Pollution Prevention

Management of Chemical Substances

Management of Chemical Substances at Plants in Japan

The Sumitomo Forestry Group manages hazardous chemical substances at each of three relevant Sumitomo Forestry Crest plants (Kashima Plant, Niihama Plant, Imari Plant) in accordance with the Pollutant Release and Transfer Register Law in Japan.

Management Table of Chemical Substances at Plants in Japan (FY2022)

Applicable Company	Applicable Department	Substance No	Name of Chemical Substance	Total Use (kg/year)	Total Released (kg/year)				Total Transferred (kg/year)		Conversion into Products (kg)
					Air	Water	Soil	Landfill Disposal	Sewerage	Outside Plant Premises	
Sumitomo Forestry Crest	Kashima Plant	186	Methylene chloride (dichloromethane)	3,930	2,838	0	0	0	0	1,092	0
		448	Methylenebis (4,1- phenylene) diisocyanate	1,120	0	0	0	0	0	18	0
	Subtotal			5,050	2,838	0	0	0	0	1,110	0
	Niihama Plant	186	Methylene chloride (dichloromethane)	3,965	2,897					1,068	0
	Subtotal			3,965	2,897	0	0	0	0	1,068	0
	Imari Plant	4	Acrylic acid and water-soluble salts	11,069	0	0	0	0	0	0	11,069
		7	n-Butyl acrylate	12,270	0	0	0	0	0	34	12,236
		84	Glyoxal	3,091	0	0	0	0	0	6	3,085
		134	Vinyl acetate	1,988,395	2,338	97	0	0	0	49	1,985,911
		349	Phenol	63,000	0	0	0	0	0	24	62,976
		395	The water-soluble salts of peroxy disulfuric	3,008	0	0	0	0	0	8	3,001
		407	Poly (Oxyethylene) = Alkylether (alkyl group: C12～C15)	4,181	0	23	0	0	0	12	4,146
		411	Formaldehyde	142,161	43	0	0	0	0	370	141,748
		448	Methylenebis (4,1- phenylene) diisocyanate	9,496	0	0	0	0	0	49	9,447
	Subtotal			2,236,671	2,381	120	0	0	0	552	2,233,618
Total				2,245,686	8,116	120	0	0	0	2,730	2,233,618

Management of Chemical Substances at Plants Overseas

Chemical substances, including adhesives and coatings, in the table below are managed at overseas plants in accordance with the management regulations for chemical substances in each country.

Management Table of Chemical Substances at Plants Overseas (FY2022)

Applicable Company	Country	Name of Chemical Substance	Total Use(t/year)	Total Released (t/year)		Total Transferred(t/year)
				Air	Waters, etc.	Waste Processing
KTI	Indonesia	Adhesives at MA, UA, etc.	18,312	-	-	46
ASTI	Indonesia	Styrene, xylene, solvents	320	-	14	27
RPI	Indonesia	Isocyanate/Formaldehyde	574	-	-	0
SRP	Indonesia	Curing agents, paints, dyes, etc.	171	-	-	8
NPIL	New Zealand	Curing agents, paints, dyes, etc.	347	-	-	0
VECO	Vietnam	Isocyanate/Formaldehyde, etc.	477	-	-	0
CCC	United States of America	MEK, alcohols, etc.	341	329	-	12
PAP	Thailand	Adhesives, Colorants	1	-	-	0.3
Total			20,543	329	14	93

Management of Air Pollutants

Management of Air Pollutants at Plants in Japan

The Sumitomo Forestry Group periodically conducts atmospheric emission concentration tests for dioxins, NOx, SOx, and smoke dust for each relevant plant at Sumitomo Forestry Crest (Kashima Plant, Shizuoka Plant, and Niihama Plant), the Shinshiro Plant at Sumitomo Forestry Landscaping, and at the Mombetsu and Hachinohe Biomass Electric Power in accordance with the Air Pollution Control Act as well as local regulations. In fiscal 2022, emissions concentration testing results were all within the relevant standard values.

Management Table of Air Pollutants at Plants in Japan (FY2022)

Applicable Company	Applicable Department	Measured Substances	Unit	(Baseline)	Measured Concentration	Emissions to the Air（mg-TEQ）
Sumitomo Forestry Crest	Kashima Plant	Dioxin	ng-TEQ/m^3	5	0.05	1.6
	Shizuoka Plant	Dioxin	ng-TEQ/m^3	5	0.83	-

Applicable Company	Applicable Department	Measured Substances	Emissions to the Air(kg/year)	Unit	(Baseline)	Measured Concentration	Dry gas flow rate (Nm^3/h)
Sumitomo Forestry Crest	Niihama Plant (Wood Waste Boiler)	Sulfur oxides (SOx)	252	ppm	0.47	0.05	8,740
		Nitrogen oxides (NOx)	1,437	ppm	350	41	8,740
		Soot and dust	56.3	g/Nm^3	0.3	0.005	8,740
	Imari Plant	Sulfur oxides (SOx)	845	ppm	-	- * There are no standards on the measurement frequency because this is a small-size once-through boiler.	-
The Agro-Products division of Sumitomo Forestry Landscaping	Shinshiro Plant	Sulfur oxides (SOx)	24.24	ppm	0.49	Less than 1.2	7,600
		Nitrogen oxides (NOx)	711.22	ppm	200	49	7,600
		Soot and dust	141.36	g/Nm^3	0.2	0.02	7,600
Mombetsu Biomass Power Plant		Sulfur oxides (SOx)	65,396	ppm	373	3.5	189,000
		Nitrogen oxides (NOx)	244,308	ppm	250	81.3	189,000
		Soot and dust	7,761	g/Nm^3	0.1	0.012	189,000
Hachinohe Biomass Power Generation Plant		Sulfur oxides (SOx)	673	ppm	32.3	0.03	58,000
		Nitrogen oxides (NOx)	76,602	ppm	250	66.0	58,000
		Soot and dust	0	g/Nm^3	0.3	0.00	58,000

Management of Air Pollutants at Plants Overseas

At overseas plants, the Sumitomo Forestry Group measures the concentration of NOx, SOx and smoke dust in Indonesia and Vietnam as well as VOC emission in the United States of America in accordance with the regulations of each country and region. In fiscal 2022, emissions concentration testing results were all within the relevant standard values.

Management Table of Air Pollutants at Plants Overseas (FY2022)

Applicable Company	Country	Measured Substances	Unit	(Baseline)	Measured Concentration
KTI	Indonesia	CO (Carbon monoxide)	μg/Nm^3	10,000	3,957-4,647
		SO_2(sulfur dioxide)	μg/Nm^3	150	33-42
		NO_2(nitrogen dioxide)	μg/Nm^3	200	29-34
		Pb (lead)	μg/Nm^3	2	0.04-0.2
		HC (hydrocarbon)	ppm	160	13-20
		O_3(Ozone)	ppm	150	32-46
		Soot and dust	mg/Nm^3	230	11-71
RPI	Indonesia	Sulfur oxides (SOx)	mg/Nm^3	800	< LoD
		Nitrogen oxides (NOx)	mg/Nm^3	1,000	147.65
		Soot and dust	mg/Nm^3	350	336
ASTI	Indonesia	CO (Carbon monoxide)	μg/Nm^3	29	1.4
		SO_2(sulfur dioxide)	μg/Nm^3	-	< LoD
		NO_2(nitrogen dioxide)	μg/Nm^3	0.2	< LoD
		H_2S (Hydrogen sulfide)	μg/Nm^3	1	< LoD
		NH_3(Ammonia)	ppm	17	0.043
		TSP (Debu Total)	μg/Nm^3	5	0.525
SRP	Indonesia	CO (Carbon monoxide)	mg/Nm^3	10,000	1,312.8
		SO_2(sulfur dioxide)	mg/Nm^3	150	< 21.7
		NO_2 (nitrogen dioxide)	mg/Nm^3	200	35.4
		H_2S (Hydrogen sulfide)	mg/Nm^3	0.03	< 0.0031
		O3(Ozone)	ppm	0.1	0.011
VECO	Vietnam	Sulfur oxides (SOx)	mg/Nm^3	500	0.87
		Nitrogen oxides (NOx)	mg/Nm^3	850	137.53
		Soot and dust	mg/Nm^3	200	124.47
		CO (Carbon monoxide)	mg/Nm^3	1,000	45.23
		Formaldehyde	mg/Nm^3	20	0.00

Applicable Company	Country	Measured Substances	Unit	(Baseline)	Measured Concentration
CCC	United States of America	Volatile organic compounds (VOCs)	1bs	200,000	168,342
PAP	Thailand	Dust (TSP)	mg/Nm^3	0.33	0.14
		Formaldehyde	ppm	0.75	0.004

Management of Water Pollutants

Management of Water Pollutants in Japan

The Sumitomo Forestry Group conducts periodic water quality concentration tests of waste water at the Tsukuba Research Institute, all plants of Sumitomo Forestry Crest (Kashima Plant, Shizuoka Plant, Niihama Plant, Imari Plant), Mombetsu Biomass Power Plant and Hachinohe Biomass Power Generation Plant in accordance with the Water Pollution Control Act of Japan. Measured concentrations at the Kashima Plant have been affected by slags* in the soil since the land was purchased (when the Kashima Plant was built), causing the land to rise and water quality concentrations (PH values) to exceed the regulated values, but measurements continue to be carried out to determine the values. All other plant measured concentrations were below regulation threshold.

* General term for unwanted components that are separated during the smelting of minerals. Also known as slag.

Management Table of Water Quality at Plants in Japan (FY2022)

Applicable Company	Applicable Department	Test Items	Unit	(Baseline)	Measured Concentration
Sumitomo Forestry	Tsukuba Research Institute	pH	-	5～9	7.7
		BOD (Biochemical Oxygen Demand)	mg/L	< 600	2
		COD	mg/L	-	-
		SS (Suspended Solids)	mg/L	< 600	6
		Normal hexane extracts (mineral oils)	mg/L	≦ 5	< 1
		Normal hexane extracts (animal and vegetable oils and fats)	mg/L	≦ 30	< 1
		Iodine consumption	mg/L	≦ 220	< 5
		Phenol content	mg/L	≦ 5	< 0.025
		Cyanogen compound	mg/L	≦ 1	< 0.1
		Copper content	mg/L	≦ 3	< 0.02
		Zinc content	mg/L	≦ 2	0.02
		Soluble iron content	mg/L	≦ 10	0.06
		Soluble manganese content	mg/L	≦ 10	< 0.02
		Benzene	mg/L	≦ 0.1	< 0.001
		Boron and other compounds	mg/L	≦ 10	0.05
		Fluorine and other compounds	mg/L	≦ 8	< 0.17

Applicable Company	Applicable Department	Test Items	Unit	(Baseline)	Measured Concentration
Sumitomo Forestry Crest	Kashima Plant	pH	-	5.8～8.6	12.6
		BOD (Biochemical Oxygen Demand)	mg/L	-	2.2
		COD (Chemical Oxygen Demand)	mg/L	5	4.2
		SS(Suspended Solids)	mg/L	5	< 1
		Normal hexane extracts	mg/L	1	< 0.5
		Total Phosphorus	mg/L	-	< 0.02
		Total Nitrogen	mg/L	-	2.9
	Shizuoka Plant	pH	-	5.8～8.6	7.3
		BOD (Biochemical Oxygen Demand)	mg/L	≦160	7.4
		COD (Chemical Oxygen Demand)	mg/L	-	-
		SS(Suspended Solids)	mg/L	≦200	1.6
	Niihama Plant	pH	-	5.8～8.6	6.7
		BOD (Biochemical Oxygen Demand)	mg/L	-	-
		COD (Chemical Oxygen Demand)	mg/L	160	8.6
		SS(Suspended Solids)	mg/L	200	21
	Imari Plant	pH	-	5.8～8.6	8
		BOD (Biochemical Oxygen Demand)	mg/L	-	-
		COD (Chemical Oxygen Demand)	mg/L	70	7.5
		SS(Suspended Solids)	mg/L	70	7
Shinshiro Plant		pH	-	5～9	7.8
		BOD (Biochemical Oxygen Demand)	mg/L	1,000 mg/L or less over five days	2.1
		SS(Suspended Solids)	mg/L	1000	1
Hachinohe Biomass Power Generation Plant		pH	-	5.8～8.6	7.8
		BOD (Biochemical Oxygen Demand)	mg/L	30 mg/L or less	1.2
		SS(Suspended Solids)	mg/L	40 mg/L or less (Daily average of 30mg/L or less)	7.3
		Normal hexane extracts	mg/L	≦5	1

Management of Water Pollutants Overseas

The Sumitomo Forestry Group conducts concentration tests of water pollutants at overseas plants in accordance with the water quality regulations for waste water in each country. In fiscal 2022, emissions concentration testing results were all within the relevant standard values.

Management Table of Water Quality at Plants Overseas (FY2022)

Applicable Company	Applicable Department	Test Items	Unit	(Baseline)	Measured Concentration
KTI	Indonesia	pH	-	6～9	7.6-7.9
		BOD (Biochemical Oxygen Demand)	mg/L	75	4.3-12.7
		COD (Chemical Oxygen Demand)	mg/L	125	22.3-62.3
		TSS (Suspended Solids)	mg/L	50	2.3-17.7
		NH_3-N(Ammonia concentration)	mg/L	4	0.2-0.5
		Fenol (Fenol concentration)	mg/L	0.25	0.001-0.002
RPI	Indonesia	pH	-	6～9	7.77
		BOD (Biochemical Oxygen Demand)	mg/L	75	9.75
		COD (Chemical Oxygen Demand)	mg/L	125	24
		TSS (Suspended Solids)	mg/L	50	9.9

Applicable Company	Applicable Department	Test Items	Unit	(Baseline)	Measured Concentration
ASTI	Indonesia	pH	-	6～9	7.21
		BOD (Biochemical Oxygen Demand)	mg/L	50	11
		COD (Chemical Oxygen Demand)	mg/L	100	34
		Soluble iron content	mg/L	5	0.65
		Soluble manganese content	mg/L	2	0.1
		Copper content	mg/L	2	< 0.04
		Zinc content	mg/L	5	0.1
		Chromium hexavalent compound	mg/L	0.1	< 0.005
		Chromium compound	mg/L	0.5	< 0.108
		Cadmium compound	mg/L	0.05	0.013
		Lead compound	mg/L	0.1	< 0.006
		tin compounds	mg/L	2	0.006
		Hydrogen sulfide compound	mg/L	0.05	0.0049
		Nitrate compound	mg/L	20	0.2
		Nitrite compound	mg/L	1	0.11
		Mercury	mg/L	0.002	0.0015
		Fenol (Fenol concentration)	mg/L	0.5	< 0.005
VECO	Vietnam	Rainwater Treatment in Logyard			
		pH	-	5～9	7.21
		BOD (Biochemical Oxygen Demand)	mg/L	200	63.17
		COD (Chemical Oxygen Demand)	mg/L	300	155.33
		SS (Suspended Solids)	mg/L	200	15.67
		Nitrogen compound	mg/L	60	4.42
		Phosphate compound	mg/L	10	1.87
		Wastewater treatment plant			
		pH	-	5～9	7.26
		BOD (Biochemical Oxygen Demand)	mg/L	200	31.95
		COD (Chemical Oxygen Demand)	mg/L	300	70.68
		SS (Suspended Solids)	mg/L	200	15
		Nitrogen compound	mg/L	60	22.8
		Phosphate compound	mg/L	10	0.84

Applicable Company	Applicable Department	Test Items	Unit	(Baseline)	Measured Concentration
NPIL	New Zealand	pH	-	6～9	7.3
		BOD (Biochemical Oxygen Demand)	mg/L	2,350	1,995
		COD (Chemical Oxygen Demand)	mg/L	6,400	5,103
		SS (Suspended Solids)	mg/L	650	518
PAP	Thailand	pH	-	5.5-9.0	7.6
		BOD (Biochemical Oxygen Demand)	mg/L	500	40
		COD (Chemical Oxygen Demand)	mg/L	750	252
		SS(Suspended Solids)	mg/L	200	130

Appropriate Disposal of Building Materials Containing Asbestos

The Sumitomo Forestry Group has secured the proper disposal routes for asbestos. Sumitomo Forestry conducts preliminary surveys on all construction works subject to regulations to determine whether or not asbestos-containing building materials are present. In particular, the basis for determining whether or not asbestos is present is made clear, and guidance is given and measures are implemented to prevent the release of asbestos into the air and to ensure that it is disposed of properly.
The Group is also engaged in proper disposal of asbestos in the buildings of the various Group companies based on the law.

Storage and Proper Disposal Polychlorinated Biphenyl Waste

The treatment of polychlorinated biphenyl (PCB) contained in equipment such as spent high-voltage capacitors, was completed in Japan in fiscal 2021 in accordance with the Law concerning Special Measures for Promotion of Proper Treatment of PCB Wastes.

Disposal Status of Polychlorinated Biphenyl (PCB) Waste*1

Applicable Company	Applicable Facility	Total Disposal in FY2019 (kg)	Total Disposal in FY2020 (kg)	Total Disposal in FY2021 (kg)	Total Disposal in FY2022 (kg)
Sumitomo Forestry Crest	(Former) Nagoya Plant*2	0	0	1,515	0

*1 The total disposal amount is based on the disposal notification and includes the weight of the storage container.
*2 The (Former) Nagoya Plant was closed in end of June 2015.

Management Status of Polychlorinated Biphenyl (PCB)*1

Applicable Company	Applicable Facility	FY2021 Onward Estimated Processing (Units)	FY2022 Onward Estimated Processing (Units)	Management Status
Sumitomo Forestry Crest	(Former) Nagoya Plant*2	513 Units Stabilizers in storage	0 Units Stabilizers in storage	Stabilizers disposal complete: January 07, 2021
ASTI	ASTI Plants	144kg	74kg	Electrical Boards
RPI	RPI Plants	-	131kg	Power receiving board

*1 The equipment included above is equipment currently in use or in storage which is being evaluated for processing
*2 The (Former) Nagoya Plant was closed in end of June 2015.

Management of Fluorocarbon Emissions

The Sumitomo Forestry Group is managing fluorocarbon emissions related to the fluorocarbon gases that are used as coolants by equipment such as air-conditioning and refrigeration at affiliate companies, and for testing equipment at the Tsukuba Research Institute, through periodic inspections of fluorocarbon emissions in accordance with the Act on Rational Use and Proper Management of Fluorocarbons enacted April 2015. The amount of CFC leakage was 8.6t-CO_2 in fiscal 2021.

* Data collection period: April 2021 to March 2022

Click here for related information

Environmental Risk Management

Project for Soil Purification Technology and Environmental Remediation Aided by Plants

In re-using the site of an old factory there is often the environmental impact associated with soil contamination and the cost burden of any remedial measures, which has become a problem as brownfields*. Under the revised Fire Service Act of Japan, gasoline stations are now obliged to repair any underground tanks that have lain under the ground for more than 40 years, and as a consequence of this, it is expected that between 1,000 and 2,000 stations will close down each year.

Grass laid on the site where a gasoline station once stood

In order to meet the demand for environmental remediation and measures dealing with soil contamination, the Sumitomo Forestry Group has been working on cleansing contaminated soil by using the functions of plants (phytoremediation). As part of this, during fiscal 2012, in collaboration with ENEOS (JX Nippon Oil & Energy Corporation at the time), the Group developed a method for purifying soil contaminated with oil using Burning Field, a variety of Japanese lawn-grass independently registered by the Group.

One of the functions possessed by the variety of Japanese lawn-grass used in this method is that the nutrients transpiring from its roots activate microorganisms in the soil, and the upshot of this is that it has the potential to inexpensively reduce the oil content in polluted soil. The purification has completed at five gasoline stations or oil depots by fiscal 2022.

In fiscal 2013 and 2014, the Ministry of the Environment conducted a study on low-cost, low-impact technologies for surveying and for counteracting contaminated soil in addition to presenting the Environmental Measures Exemplary Efforts Awards (Minister of the Environment Award) in 2013. The study found that oil-degrading microorganisms tend to become more active, and were recognized as having potential to be applied at sites heavily contaminated with oil. Received the Good Design Award in October 2018 from the Japan Institute of Design Promotion. In March 2020, the Burning Field®, an enhanced variety of Japanese lawn-grass was registered with the Ministry of Land, Infrastructure, Transport and Tourism's New Technology Information System (NETIS). NETIS is a new technology information system designed by the Ministry of Land, Infrastructure, Transport and Tourism to share and provide information for use of new technologies. The use of NETIS-registered technology scores additional points for general evaluation at the bidding stage or construction performance evaluation during the usage stage, which is expected to raise awareness and standardize these new technologies at contractors involved in public works projects.

Moving forward, by steadily producing results in soil purification based on this technique, the Group will continue to help resolve the nationwide problem of oil contamination.

* Land that is not used or underutilized significantly compared to its potential value due to the presence or concern of soil contamination.

Efficient Use of Water Resources

Efficient Use of Water Resources

Reduction of Water Consumption in Business Activities

Around the world, there is a growing sense of crisis over water shortages. It is expected that this problem will become more and more urgent as the demand for water rises with population increase and economic growth in developing countries.

The primary businesses of the Sumitomo Forestry Group include the Timber and Building Materials Business and the Housing Business, which operate on a business model that does not use a high-volume of water. However, our businesses are expanding into sectors that do use water as a valuable resource. Our policy is to reduce the amount of water used with emphasis on these businesses while conducting risk assessments and examining countermeasures for problems that arise.

Initiatives for Water Use in Business

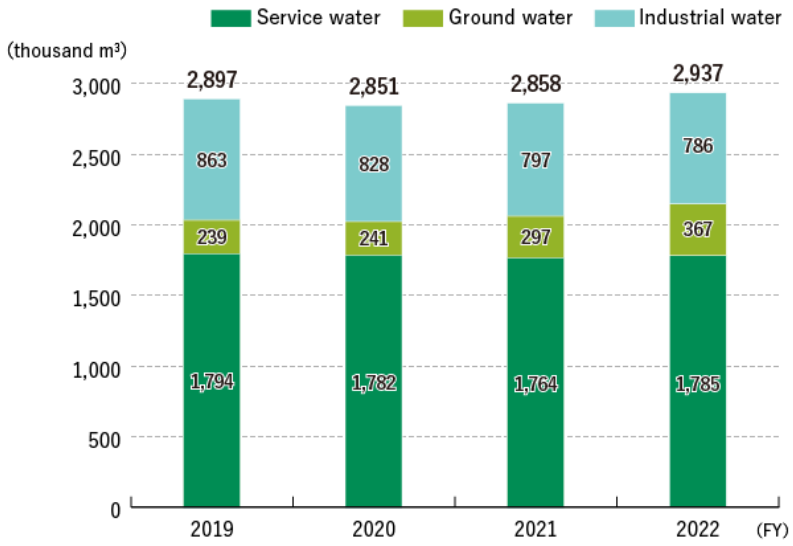
In addition to manufacturing plants inside and outside Japan, since fiscal 2012, the Sumitomo Forestry Group has begun examining the consumption of water and the associated sources at bases where actual water usage is measurable, such as at buildings owned by the Sumitomo Forestry Group. We discovered 91.8% of water use is at eight group companies which make up 7.2% of the consolidated net sales by analyzing the water use of all Group companies in fiscal 2016. Therefore, we have positioned these eight companies as important water management companies and first conducted risk assessments for water use at five companies in Japan and brought together specific measures to address any cases of insufficient water. The Sumitomo Forestry Group has also begun to grasp the actual state of water use even at three overseas companies that use large amounts of water.

From fiscal 2016 to fiscal 2018, our water consumption increased significantly due to the operation of the Mombetsu Biomass Power Generation Plant and Hachinohe Biomass Power Generation Plant. Biomass power generation leads to increased water usage because power is generated by burning wood and other biomass fuel to boil water and create steam for powering turbines.

The Mid-Term Sustainability Targets set targets for Group-wide water consumption and manages progress. In fiscal 2022, the Group's total water consumption was 2,937 thousand m^3. 79 thousand m^3 more than in 2021. The main factors were that in 2021, water use was curtailed due to a period of shutdown at overseas manufacturing plants as a result of a lockdown caused by the spread of COVID-19, and in 2022, the plant operated for the full year, and there was a groundwater pipe break at Indonesian subsidiary PT. Kutai Timber Indonesia (KTI), which caused a major leak over a period of several days. Although the Group's overall water consumption increased compared to fiscal 2021, thorough water-saving measures at Sumitomo Forestry Crest's Imari Plant to recycle industrial water and the replacement of waste fluid treatment equipment have led to a steady reduction in water consumption. At the Mombetsu Biomass Electric Power, an activity target was set to reduce water consumption in production activities, and the monitoring and management of water consumption was strengthened. In the future, efforts will be made to reach the 2024 target figure of 2,777 thousand m^3 or less.

Sumitomo Forestry conducts sample surveys of water used by partner companies at on-site construction of houses in fiscal 2015 to grasp the water consumption in the supply chain, which found the volume of water used per 1m² of floor area is approximately 0.0887m³.

Water Consumption* (consolidated)



Water Consumption per Department*

	Office Departments in Japan, etc. (Unit: 1,000m³)			Plants and Power Generation Business Departments in Japan (Unit: 1,000m³)			Overseas Plants (Unit: 1,000m³)			Total (Unit: 1,000m³)
	FY2020	FY2021	FY2022	FY2020	FY2021	FY2022	FY2020	FY2021	FY2022	FY2022
Service water	81	87	80	1,359	1,337	1,341	342	340	364	1,785
Ground water	42	52	54	10	8	8	189	238	305	367
Industrial water	120	113	124	419	431	416	288	253	246	786
Total	243	252	258	1,788	1,776	1,765	820	831	912	2,937

* Covers sites where actual water consumption is measurable, such as at buildings owned by the Sumitomo Forestry Group.

Efforts in Sumitomo Forestry Crest

The Imari Plant of Sumitomo Forestry Crest, which manufactures such products as synthetic resin adhesives, uses industrial water to cool its manufacturing equipment. Afterwards, this water is reused to dilute factory wastewater and for other purposes as a water-conservation measure. In addition, from fiscal 2018, wastewater (coagulation sedimentation treated water) is further

treated biologically to control the amount of water necessary for dilution for factory wastewater water quality management. This and other new water-saving measures led to an industrial water usage of 54,750m^3 in fiscal 2022, a 63% decline compared to fiscal 2018.

Biological processing facility (aeration blower)

Biological processing facility (aeration tank)

Measuring the COD of effluent

Measures Used at the Sumitomo Forestry Crest's Imari Plant for Saving Water

・Subjecting waste water (after processing for coagulating sedimentation) to further biological processing*1 makes it possible to restrict the water used for dilution in plant waste water quality management (approximately 350m^3/day).

・Maintain water-quality control by measuring COD*2 and treat wastewater using only the minimum amount of water necessary.

・After water is used to cool manufacturing equipment, it is used to dilute plant waste water.

・Improve the proportion of rainwater used, such as by upgrading the pumps used for collecting rainwater.

*1 Beneficial microorganisms are supplied with air (oxygen), whereupon they absorb and break down organic substances, lowering COD values.

*2 Chemical Oxygen Demand (COD): An indication of the amount of oxygen required to oxidize an organic compound in water; one of the most important indicators of water quality.

Participation in Relevant Incentives

The Sumitomo Forestry Group provides answers to the CDP Water Security questions and discloses more detailed information about efforts on risks related to water since fiscal 2017.

Environmental Related Data

Balance of Input & Output

Balance of Input & Output

The Sumitomo Forestry Group accurately understands how its business activities impact the environment and make evaluations and manage them in its environmental management. As such, data on environmental impact is collected at each stage from energy and raw material input to manufacturing and disposal per plant and business to utilize them for reduction initiatives.

Fiscal 2022 Sumitomo Forestry Group Balance of Input & Output*

INPUT

Energy Input (TJ)	**12,046**	**Raw materials (1,000t)**	**2,575**
Purchased electricity (1,000MWh)	266	Timber	1,832
Petroleum (1,000kL)	16	Metal	31
Gas (1,000m^3)	4,659	Plastic	19
Coal (1,000t)	27	Paper	1
Wood waste (1,000t)	520	Adhesives, coatings, drugs	89
Palm kernel shells (PKS, etc.) (1,000t)	23	Concrete	369
Non-industrial steam (TJ)	4	Other	233
Water consumption (1,000m^3)	**2,937**	Seedlings (1,000)	1,882

BUSINESS ACTIVITIES

Product

Building, housing materials (1,000t)	48
Potting mix (1,000t)	19
Chips (1,000t)	264
MDF (1,000m^3)	306
PB (1,000m^3)	416
LVL, plywood (1,000m^3)	164
Lumber / laminated engineered wood (1,000m^3)	27
Kitchen cabinets (1,000)	112
Woodworking / others (1,000t)	79
Quantity harvested at company owned forests (1,000m^3)	41
Seedling production (1,000)	1,887
Unused wood resources (1,000m^3)	18

Transmission (1,000MWh)	433

Number of delivered domestic household sales	8,300
Number of delivered overseas household sales	13,031

OUTPUT

Waste (1,000t)

Total generated	496
Final disposal amount	24

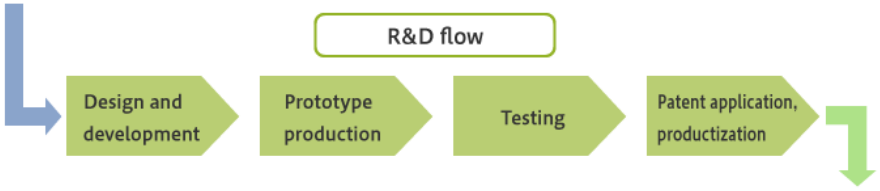
Greenhouse Gas emissions (1,000t-CO_2e) (Scope 1,2)	356

Chemical substance waste released (t)	13
Waste water discharge (1,000m^3)	970
Greenhouse Gas emissions (1,000t-CO_2e) (Scope 3)	9,400

* The period of data collection for fiscal 2022 is from January 1 to December 31, 2022

Research & Development*

INPUT			
Energy Input (TJ)	**28**	**Water consumption (1,000m³)**	**8**
Purchased electricity (1,000MWh)	2		
Petroleum (1,000kL)	0.02		
Gas (1,000m³)	77		
Wood waste (1,000t)	0.027		



OUTPUT			
Transmission (1,000MWh)	**0.039**	**Chemical substance waste released (t)**	**-**
Waste (1,000t)		**Greenhouse Gas emissions (1,000t-CO_2e)**	**1**
Total generated	0.18	**Waste water discharge (1,000m³)**	**7**
Final disposal amount	0.02		

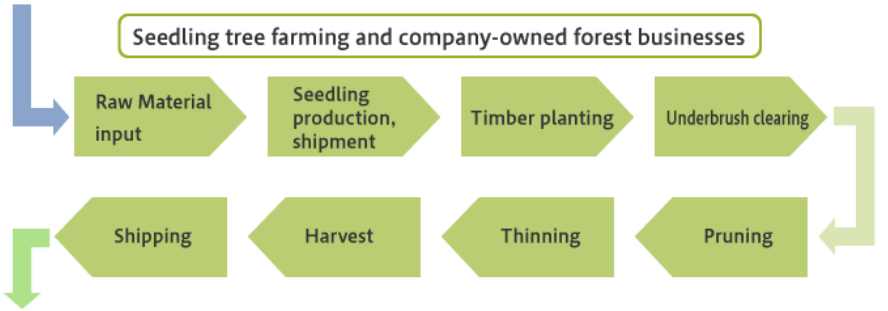
* Subject: Tsukuba Research Institute

Forest Management*

INPUT

Energy Input (TJ)	7
Purchased electricity (1,000MWh)	0.2
Petroleum (1,000kL)	0.1
Wood pellet (1,000t)	0.02

Raw Materials	
Domestic forest raw materials (seedling shipment [1,000])	1,882
Water consumption (1,000m^3)	55



OUTPUT

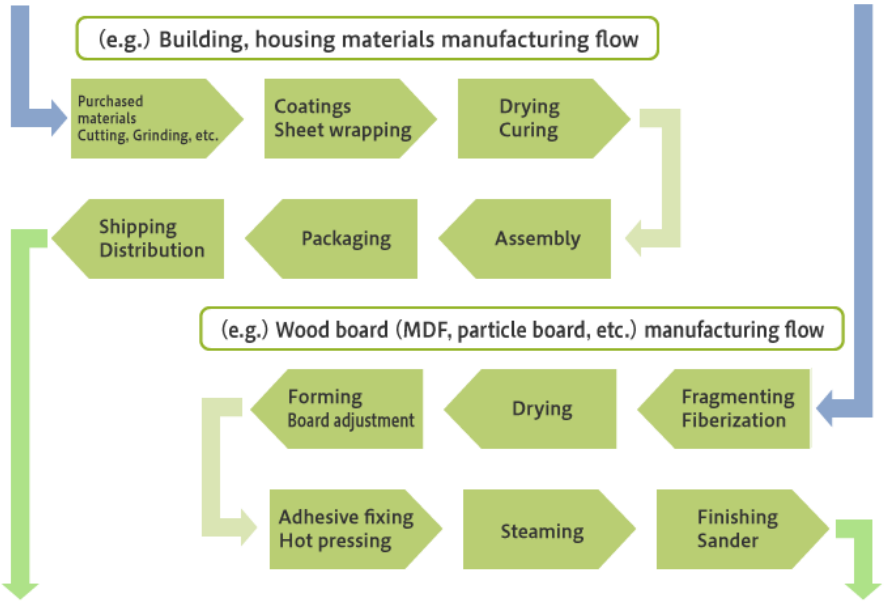
Product	
Quantity harvested at company owned forests (1,000m^3)	41
Seedling production (1,000)	1,887
Unused wood resources (1,000m^3)	18

Greenhouse Gas emissions (1,000t-CO_2e)	0.4

* Subjects: Forestry Offices (Hyuga, Niihama, Osaka, and Mombetsu); seedling tree farming centers (Togo, Motoyama, Gifu, Watarase, and Mombetsu)

Manufacturing Business*

INPUT			
Energy Input (TJ)	**4,249**	**Raw materials (1,000t)**	**1,847**
Purchased electricity (1,000MWh)	220	Timber	1,718
Petroleum (1,000kL)	4	Metal	6
Gas (1,000m^3)	2,952	Plastic	6
Wood waste (1,000t)	120	Paper	1
Waste plastic (1,000t)	-	Adhesives, coatings, drugs	85
Water consumption (1,000m^3)	**997**	Purified soil others	19
		Other	12



OUTPUT

Product	
Building, housing materials (1,000t)	48
Potting mix (1,000t)	19
Chips (1,000t)	264
MDF (1,000m^3)	306
PB (1,000m^3)	416
LVL, plywood (1,000m^3)	164
Lumber / laminated engineered wood (1,000m^3)	27
Kitchen Cabinets (1,000)	112
Woodworking / others (1,000t)	79

Chemical substance waste released (t)	**10**
Waste (1,000t)	
Total generated	245
Final disposal amount	5
Greenhouse Gas emissions (1,000t-CO_2e)	**120**
Waste water discharge (1,000m^3)	**454**

* Subjects: Sumitomo Forestry Crest (Kashima Plant, Shizuoka Plant, Niihama Plant and Imari Plant), Sumitomo Forestry Landscaping (Shinshiro Plant and Tobishima Plant of Agro-Products Division), Kutai Timber Indonesia (KTI, Indonesia), Rimba Partikel Indonesia (RPI, Indonesia), Sinar Rimba Pasifik (SRP, Indonesia), AST Indonesia (ASTI, Indonesia), Nelson Pine Industries (NPIL, New Zealand), Vina Eco Board (VECO, Vietnam), Canyon Creek Cabinet Company (CCC, America), Pan Asia Packing (PAP), Japan Bio Energy, Okhotsk Bio Energy, Michinoku Bio Energy.

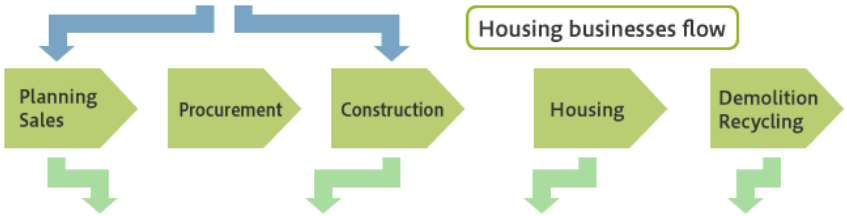
* Pan Asia Packing (PAP) is excluded for waste, etc.

Housing Business (Domestic)*

INPUT

Energy Input (TJ)	258
Purchased electricity (1,000MWh)	13
Petroleum (1,000kL)	4
Gas (1,000m^3)	90
Non-industrial steam (TJ)	1
Water consumption (1,000m^3)	44

Raw materials (1,000t)	723
Timber	114
Metal	25
Plastic	13
Concrete	369
Other	202



OUTPUT

Greenhouse Gas (1,000t-CO_2e) (Scope 1,2)	14
Transmission (1,000MWh)	0.17

Facilities completed in 2022 (buildings)	8,300
Average total floor area (m^2)	123.14
Waste from new housing construction (1,000t)	
Total generated	22
Final disposal amount	1

Greenhouse Gas emissions (1,000t-CO_2e) (Scope 3)	1,635

Demolition waste (1,000t)	
Total generated	118
Final disposal amount	7

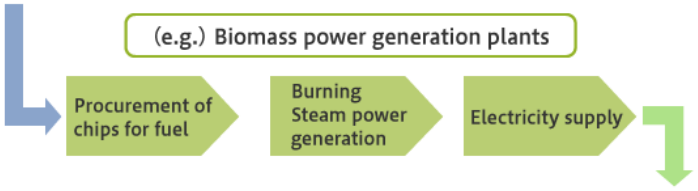
* Subjects: Sumitomo Forestry Housing Division and Sumitomo Forestry Home Engineering

Renewable Energy Business*

INPUT

Energy Input (TJ)	6,861
Purchased electricity (1,000MWh)	1
Petroleum (1,000kL)	0.4
Gas (1,000m^3)	-
Wood waste (1,000t)	400
Palm kernel shells (PKS, etc.) (1,000t)	23
Coal (1,000t)	27

Raw materials (1,000t)	
Adhesives, coatings, drugs	5
Water consumption (1,000m^3)	**1,411**



OUTPUT

Transmission (1,000MWh)	429
Chemical substance waste released (t)	3
Greenhouse Gas emissions (1,000t-CO_2e)	186
Waste water discharge (1,000m^3)	508

Waste (1,000t)	
Total generated	11
Final disposal amount	0.1

* Subjects: Mombetsu Biomass Electric Power, Hachinohe Biomass Electric Power

Click here for related information

Boundaries and Method of Data Aggregation (Balance of Input & Output)

About symbol for Independent assurance

Environmental Related Data

Boundaries and Method of Data Aggregation (Balance of Input & Output)

* The period of data collection on the balance of input and output in fiscal 2022 is from January 1 to December 31, 2022

Boundaries (Organizational Range)

Classification	Boundary
All Business Activities	All Sumitomo Forestry Group Companies
Research & Development	Tsukuba Research Institute
Environment and Resources Business (Forest Management)	Forestry offices (Hyuga, Niihama, Osaka, and Mombetsu); Seedling tree farming centers (Hyuga, Motoyama, Gero, Midori, Mombetsu, and Minamiaizu) Japan Bio Energy, Okhotsk Bio Energy, and Michinoku Bio Energy
Timber and Building Materials Business (Manufacturing Business)	Sumitomo Forestry Crest (Kashima Plant, Shizuoka Plant, Niihama Plant and Imari Plant), Rimba Partikel Indonesia, AST Indonesia, Kutai Timber Indonesia, Nelson Pine Industries, Vina Eco Board, Sinar Rimba Pasifik, Canyon Creek Cabinet Company and Pan Asia Packing
Environment and Resources Business (Renewable Energy Business)	Mombetsu Biomass Electric Power, Hachinohe Biomass Electric Power
Housing Business (Domestic)	Sumitomo Forestry (Housing Division), Sumitomo Forestry Home Tech, Sumitomo Forestry Home Engineering, Sumitomo Forestry Landscaping, Sumitomo Forestry Archi Techno, and Sumitomo Forestry Landscaping (Shinshiro Plant and Tobishima Plant)
Offices and other sites	Sumitomo Forestry and Group companies other than the above

Click here for related information

> All Sumitomo Forestry Group Companies

Prerequisites

Classification	Prerequisites	
Research & Development	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions at research institutes
	Raw Materials	Raw materials used during research and development
	Water	Water used during research and development
	Waste	Waste produced during research and development
Environment and Resources Business (Forest Management)	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions from harvesting and seedling production at Company-owned forests
	Raw Materials	Raw material used during harvesting and seedling production at Company-owned forests
	Water	Water used during harvesting and seedling production at Company-owned forests
	Waste	Waste produced during harvesting and seedling production at Company-owned forests
Timber and Building Materials Business (Manufacturing Business)	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions at each plant
	Raw Materials	Raw material used during production of wood products and construction materials
	Water	Water used during production of wood products and construction materials
	Waste	Waste produced during production of wood products and construction materials
Environment and Resources Business (Renewable Energy Business)	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions at power generation plants
	Raw Materials	Raw materials used during power generation
	Water	Water used during power generation
	Waste	Waste produced during power generation
Housing Business (Domestic)	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions for business sites (including model homes) related to the housing business
	Raw Materials	Materials invested in housing construction
	Water	Water used at business sites related to the housing business
	Waste	Waste emitted from housing construction (including renovations) and demolition

Classification	Prerequisites	
Offices and other sites	Energy and Greenhouse Gases	Energy use and greenhouse gas emissions at Sumitomo Forestry and other business sites of Group companies not related to domestic or overseas manufacturing or design, construction and sales of houses
	Water	Water used at Sumitomo Forestry and other business sites of Group companies not related to domestic or overseas manufacturing or design, construction and sales of houses
	Waste	Waste emitted at Sumitomo Forestry and other business sites of Group companies not related to domestic or overseas manufacturing or design, construction and sales of houses

Aggregation Method

Greenhouse gases: Refer to the pages below

Click here for related information

Boundaries and Methods of Greenhouse Gas Emissions Calculation

Waste: Calculating Emissions with Data Collected from Manifests

Environmental Related Data

Environmental Related Data (FY 2022)

Environmental Data of Group Companies in Japan

The Sumitomo Forestry Group reports information about its environmental impact of each company and each plant for domestic manufacturers and power plants that have a large influence on the environment.

Sumitomo Forestry Crest Co., Ltd.

Item (unit)		Kashima Plant	Shizuoka Plant	Niihama Plant	Imari Plant	Subtotal
Energy Input (GJ)		41,165	28,988	27,992	11,675	109,819
Raw Material Input (t)		9,779	23,191	3,593	9,305	45,867
Water Resource Use (m^3)						
	Total	7,715	6,407	4,517	54,869	73,508
	Service water	7,715	6,407	4,517	119	18,758
	Main Water Source	Lakes -- Lake Kitaura in Kasumigaura (Protected region: A portion is part of Suigo-Tsukuba Quasi-National Park)	Groundwater -- Oi River Basin	-	Reservoirs	-
	Industrial water	-	-	-	54,750	54,750
	Main Water Source	-	-	Groundwater (water authority in Niihama City)	River -- Arita-gawa River basin (partly Mt. Kurokami mammal and avian species wildlife refuge)	-

Item (unit)		Kashima Plant	Shizuoka Plant	Niihama Plant	Imari Plant	Subtotal
Water discharge (m^3)						
	Total	6,387	6,407	3,614	49,354	65,762
	Sewerage	6,387	-	3,614	-	10,001
	Ocean	-	-	-	49,354	49,354
	Rivers	-	6,407	-	-	6,407
	Lakes	-	-	-	-	-
Water consumption (m^3)		1,328	0	903	5,515	7,746
Greenhouse gas emissions (t-CO_2)						
	Carbon dioxide (CO_2)	76	827	1,562	641	3,106
	Methane (CH_4)*	20	5	13	-	38
	Dinitrogen oxide (N_2O)*	2	0.4	1	-	4
Waste generations (t)		2,410	1,955	981	368	5,714
Emissions to the air (kg)						
	Sulfur oxides (SOx)	-	-	252	845	1,098
	Nitrogen oxides (NOx)	-	-	1,437	-	1,437
	Soot and dust	-	-	56.3	-	56.3

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

The Agro-Products division of Sumitomo Forestry Landscaping

Item (unit)		Tobishima Plant	Shinshiro Plant	Subtotal
Energy Input (GJ)		2,282	5,380	7,661
Raw Material Input (t)		12,914	6,276	19,190
Water Resource Use (m^3)				
	Total	711	483	1,194
	Service water	711	483	1,194
	Main Water Source	River -- Kiso-gawa River Basin	River -- Toyokawa Prefectural Water System	-
	Industrial water	-	-	-
	Main Water Source	-	Well water	-

Item (unit)		Tobishima Plant	Shinshiro Plant	Subtotal
Water discharge (m^3)				
	Total	711	483	1,194
	Sewerage	-	-	-
	Ocean	-	-	-
	Rivers	711	483	1,194
	Lakes	-	-	-
Water consumption (m^3)		0	0	0
Greenhouse gas emissions (t-CO_2)				
	Carbon dioxide (CO_2)	119	327	446
	Methane (CH_4)*	-	-	-
	Dinitrogen oxide (N_2O)*	-	-	-
Waste generations (t)		32	37	68
Emissions to the air (kg)				
	Sulfur oxides (SOx)	-	24	24
	Nitrogen oxides (NOx)	-	711	711
	Soot and dust	-	141	141

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

Power Plants

Item (unit)	Mombetsu Biomass Electric Power Co.,Ltd.	Hachinohe Biomass Electric Power Co.,Ltd.	Okhotsk Bio Energy Co. Ltd.	Japan Bio Energy Co., Ltd.	Michinoku Bio Energy Co., Ltd.	Subtotal
Energy Input (GJ)	5,132,021	1,729,134	16,162	9,764	9,311	6,896,391
Raw Material Input (t)	3,694	808	86,523	56,602	65,443	213,071
Water Resource Use (m^3)						
Total	1,040,436	370,890	435	6,335	221	1,418,317
Service water	1,040,436	9,198	435	6,335	221	1,056,625
Main Water Source	Shokotsu River System	Mount Haku Water System Service Reserve	Shokotsu River System	Lake Sagami, Sagami River System, and Miyagase Dam	Mount Haku Water System Service Reserve	-
Industrial water	-	361,692	-	-	-	361,692
Main Water Source	-	Mabechi River	-	-	-	-
Water discharge (m^3)						
Total	408,477	99,511	435	0	221	508,644
Sewerage	408,477	-	435	-	221	409,133
Ocean	-	99,511	-	-	-	99,511
Rivers	-	-	-	-	-	-
Lakes	-	-	-	-	-	-
Water consumption (m^3)	631,959	271,379	0	6,335	0	909,673
Greenhouse gas emissions (t-CO_2)						
Carbon dioxide (CO_2)	64,798	126	1,009	203	628	66,764
Methane (CH_4)*	7,540	3,113	-	-	-	10,653
Dinitrogen oxide (N_2O)*	82,241	27,772	-	-	-	110,013
Waste generations (t)	9,179	2,151	4	600	0.1	11,933

Item (unit)		Mombetsu Biomass Electric Power Co.,Ltd.	Hachinohe Biomass Electric Power Co.,Ltd.	Okhotsk Bio Energy Co. Ltd.	Japan Bio Energy Co., Ltd.	Michinoku Bio Energy Co., Ltd.	Subtotal
Emissions to the air (kg)							
	Sulfur oxides (SOx)	65,396	673	-	-	-	66,069
	Nitrogen oxides (NOx)	244,308	76,602	-	-	-	320,910
	Soot and dust	7,761	0	-	-	-	7,761

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

Total for All Plants in Japan

Item (unit)		Total
Energy Input (GJ)		7,013,872
Raw Material Input (t)		278,128
Water Resource Use (m^3)		
	Total	1,493,019
	Service water	1,076,577
	Main Water Source	As indicated above
	Industrial water	416,442
	Main Water Source	As indicated above
Water discharge (m^3)		
	Total	575,600
	Sewerage	419,134
	Ocean	148,865
	Rivers	7,601
	Lakes	-

Item (unit)		Total
Water consumption (m^3)		917,419
Greenhouse gas emissions (t-CO_2)		
	Carbon dioxide (CO_2)	70,316
	Methane (CH_4)*	10,691
	Dinitrogen oxide (N_2O)*	110,017
Waste generations (t)		17,716
Emissions to the air (kg)		
	Sulfur oxides (SOx)	67,191
	Nitrogen oxides (NOx)	323,058
	Soot and dust	7,958

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

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Environmental Data of Group Companies Overseas

The Sumitomo Forestry Group reports information about its environmental impact for each plant for overseas manufacturers that have a large influence on the environment.

Overseas Manufacturers 1/2

Item (unit)	PT. Rimba Partikel Indonesia (RPI)	PT. AST Indonesia (ASTI)	PT. Kutai Timber Indonesia (KTI)	PT. Sinar Rimba Pasifik (SRP)
Energy Input (GJ)	508,954	99,528	1,244,819	29,769
Raw Material Input (t)	83,988	25,567	499,997	6,343

Item (unit)		PT. Rimba Partikel Indonesia (RPI)	PT. AST Indonesia (ASTI)	PT. Kutai Timber Indonesia (KTI)	PT. Sinar Rimba Pasifik (SRP)
Water Resource Use (m^3)					
	Total	46,375	44,385	455,474	0
	Service water	-	648	-	-
	Industrial water	-	43,737	202,187	-
	Ground water	46,375	-	253,287	-
Water discharge (m^3)					
	Total	46,375	12,183	27,162	0
	Sewerage	-	12,183	-	-
	Ocean	-	-	27,162	-
	Rivers	46,375	-	-	-
Water consumption (m^3)		0	32,202	428,312	0
Greenhouse gas emissions (t-CO_2)					
	Carbon dioxide (CO_2)	19,470	7,663	46,631	2,290
	Methane (CH_4)*	438	-	1,138	-
	Dinitrogen oxide (N_2O)*	41	-	106	-
Waste generations (t)		17,736	4,909	77,452	1,097

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

Overseas Manufacturers 2/2

Item (unit)		Nelson Pine Industries Ltd. (NPIL)	Vina Eco Board Co., Ltd. (VECO)	Canyon Creek (CCC)	Pan Asia Packing (PAP)	Total
Energy Input (GJ)		1,775,077	369,153	62,045	6,459	4,095,804
Raw Material Input (t)		756,174	314,041	6,840	13,306	1,706,255
Water Resource Use (m^3)						
	Total	302,513	56,699	6,964	2,529	914,938
	Service water	302,513	56,699	4,539	-	364,398
	Industrial water	-	-	-	-	245,924
	Ground water	-	-	2,425	2,529	304,616
Water discharge (m^3)						
	Total	284,372	19,845	4,539	2,529	397,005
	Sewerage	284,372	19,845	4,539	2,529	323,468
	Ocean	-	-	-	-	27,162
	Rivers	-	-	-	-	46,375
Water consumption (m^3)		18,141	36,854	2,425	0	517,934
Greenhouse gas emissions (t-CO_2)						
	Carbon dioxide (CO_2)	15,856	18,518	1,331	338	112,097
	Methane (CH_4)*	489	142	-	-	2,207
	Dinitrogen oxide (N_2O)*	46	13	-	-	206
Waste generations (t)		117,830	17,527	2,095	-	238,646

* Methane and dinitrogen oxide are converted and calculated as carbon dioxide

Environmental Accounting Results for Fiscal 2022

Sumitomo Forestry publicizes aggregated data of environmental protection costs and effects and also economic impact of its activities for the purpose of promoting environmentally sound management.

* The basis of calculation includes Sumitomo Forestry on a non-consolidated basis and certain Group companies

Environmental Protection Costs

Cost Category		Main Activities	Total Cost (Million yen)
Costs within operational area	Global environmental protection costs*1	Sustainable forestry cultivation	618
		Environment-related business (Overseas consulting, REDD+ business, etc.)	97
	Resource recycling costs*2	Promotion of appropriate treatment, reduction, and recycling of industrial waste	7,464
		Waste wood chip distribution operations	173
		Volume sold of potting mix using recycled sediment from water purification	294
Upstream / Downstream costs*3		Green purchasing	22
Management activity costs*4		Operation and promotion of environmental management activities (ISO14001 certification, environmental education, LCA surveys, etc.)	238
		Monitoring of environmental impact	1
		Disclosure and administration of environmental information (Sustainability Report, environment-related advertising, environment-related exhibitions, etc.)	30
R&D costs*5		R&D activities related to environmental protection	1,030
Social contribution costs*6		Management and operation of Mt. Fuji Manabi no Mori	17
		Management and operation of Forester House	13
		Other social contribution activities	0
		Donations to the Keidanren Nature Conservation Fund	2
Total			9,999

*1 Global environmental protection costs: Expenditures for preservation and management of Company-owned forests to foster sustainable forestry, and expenditures in Japan and overseas relating to the environmental business

*2 Resource recycling costs: Expenditures on waste wood distribution operations and sorting, recycling, appropriate treatment, transportation and management of construction waste, as well as costs incurred in the recycling of potting mix

*3 Upstream/Downstream costs: Expenditures for green purchasing

*4 Management activity costs: Office expenses and auditing costs relating to maintenance of ISO 14001 certification; expenditures relating to disclosure of environmental information through advertising, environment-related exhibitions and sustainability reports; expenditures relating to lectures on environmental education; and costs for LCA inspections and environmental impact oversight

*5 R&D costs: Expenditures for environment-related research conducted at the Tsukuba Research Institute

*6 Social contribution costs: Expenditures related to operating the Mt. Fuji Manabi no Mori natural forest restoration project, and maintaining and operating Forester House; expenditures related to other social contribution activities; donations to the Keidanren Nature Conservation Fund; and provision of financial assistance to the Keidanren Nature Conservation Fund commissioned by the Keidanren Committee on Nature Conservation

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Keidanren Committee on Nature Conservation

Environmental Benefits

Category	Effects	Benefits
Benefits from costs within operational area	Volume of recycled waste wood from distribution operations (converted into chip equivalents)	640,000m^3
	Volume sold of potting mix using recycled sediment from water purification	14,000t
Benefits from Upstream/Downstream costs	Green procurement ratio	66.5%
Benefits from management activity costs	Employees designated as internal environmental auditors	121
Benefits from R&D costs	Development of "soil biodegradable tree shelters" that return to the soil. CO_2 reduction and labor-saving afforestation	-
	Development of "High Sound Insulation Boundary Wall 50" for rental housing Realizes high sound insulation performance for "Forest Maison"	-
	Expansion of the scope of ministerial approval for hybrid laminated engineered wood perforated beams with one-hour fire-resistant structure Freedom of space design expanded with beams up to 700 mm height	-
	Nikken Sekkei and Sumitomo Forestry jointly developed the composite beam construction method, which joins wooden beams and RC floor slabs (Shoban). Encouraging the spread of medium- to large-scale wooden constructions	-
	Joint development of highly seismic resistant wooden buckling restrained braces Actively introduced into medium- to large-scale wooden constructions	-

Category	Effects	Benefits
Benefits from social activity costs	Volunteers who participated in Mt. Fuji Manabi no Mori project	71
	Children participating in the Environmental Education Program at Mt. Fuji Manabi no Mori project	1,110
	Visitors to Forester House	3,227