

## Special Topic 1: Responses to Wood Shortages and Price Increases in 2021

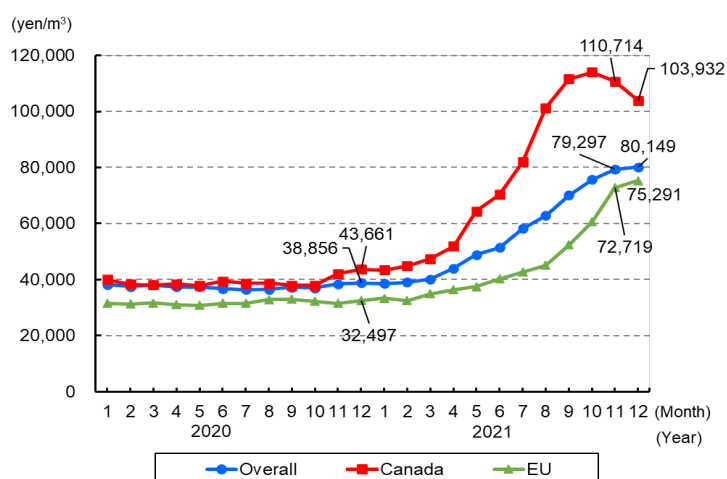
### 1. State of Wood Shortages and Price Increases in 2021

#### Trends in Wood Imports

In the United States, the number of housing starts surged since May 2020, mainly due to an increase in teleworking. In 2021, the lumber price in North America reached a record high. Furthermore, sea freight rates for containers rose sharply after the end of 2020.

Due to the increasing demand for wood in the United States and Europe and the disruption of maritime transportation, the monthly volume of Japan's sawn wood imports fell below the previous year's level in the first half of 2021, after which it gradually recovered.

The average unit price of imported sawn wood products in Japan has increased significantly with the rise in local prices and sea freight rates (Fig. 1).



Source: Ministry of Finance "Trade Statistics of Japan"

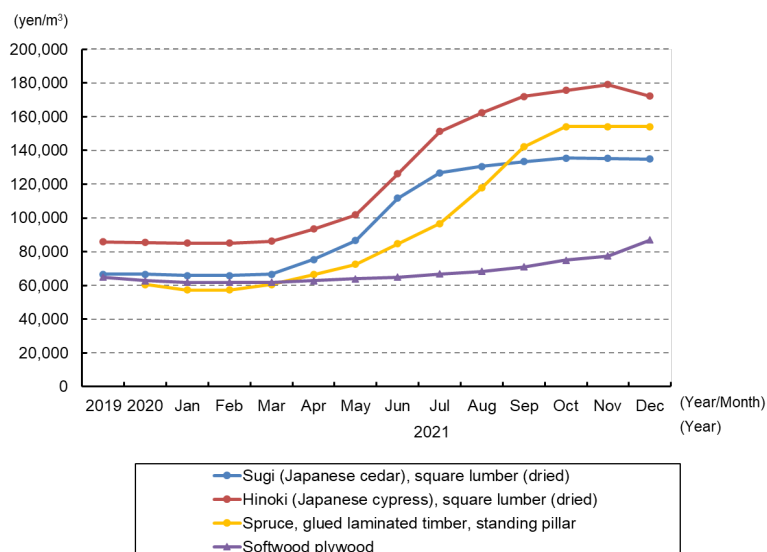
Fig. 1 Average unit price of imported sawn wood products in Japan

#### Trends in Shipments of Sawn Wood Products and Plywood and Wood Prices

As housing demand recovered in Japan, the demand for domestic wood increased as a substitute for imported wood. The shipments of sawn wood products recovered to the level before the COVID-19 pandemic in March 2021. However, the wood prices rose because forestry and the wood industry could not fully meet the strong demand.

Since March 2021, plywood shipments have recovered to the pre-pandemic level. Due to the continued strong demand, especially for housing, the product inventories have remained on a declining trend and the prices have risen (Fig. 2).

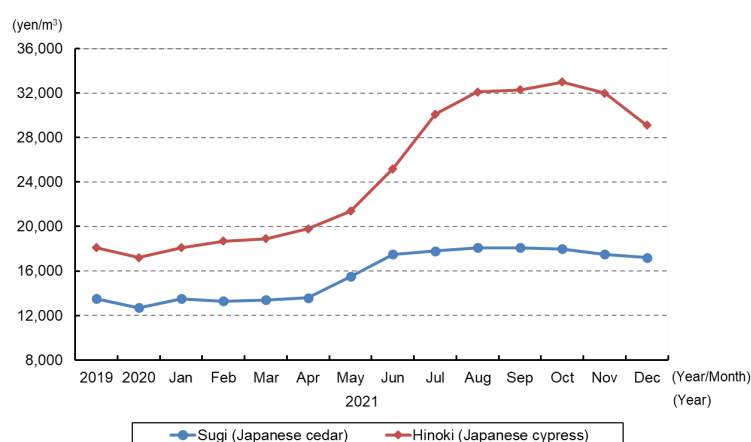
Log prices have also increased with the rise in product prices (Fig. 3).



Source: MAFF "Wood Supply and Demand Report"

- Notes: 1. Sugi (Japanese cedar), square lumber and Hinoki (Japanese cypress), square lumber are 10.5 cm square and 3.0 m long.  
 2. Spruce, glued laminated timber, standing pillar is 10.5 cm square and 2.98-3.0 m long. The price (yen/m<sup>3</sup>) is calculated by converting one pillar to 0.033075 m<sup>3</sup>.  
 3. Softwood plywood is 1.2 cm thick, 91 cm wide and 1.82 m long.

**Fig. 2 Changes in prices of sawn wood products, glued laminated timber and plywood**



Source: MAFF "Wood Supply and Demand Report"

Note: Logs of Sugi and Hinoki are medium-diameter logs with 14-22 cm in diameter and 3.65-4.0 m in length.

**Fig. 3 Changes in log prices**

## 2. Efforts to Convert from Imported Wood and Ensure a Stable Supply of Domestic Wood

As an urgent response to the situation, the Forestry Agency held three rounds of supply-demand information liaison councils at the center and by district in FY2021 to share supply-demand information among participants from upstream to downstream of the forestry and wood industry and to disseminate examples of conversion to domestic wood products.

The Forestry Agency also supported the installation of drying facilities to strengthen the supply capacity of wood products, as well as thinning and forestry road system development to ensure a stable supply of logs through a supplementary budget for FY2021.

## Special Topic 2: Expanding Demand for Wood and Strengthening the Competitiveness of the Wood Industry as a Key to Green Growth

### 1. Realization of Green Growth by Expanding Demand for Wood and Strengthening the Competitiveness of the Wood Industry

#### Significance of Wood Use for the Public Benefits

The majority of Japan's planted forests have reached maturity and are in the utilization phase, with over half the area is aged 50 years and above. It is essential to promote a cycle of "harvesting, utilizing, re-planting and tending" the planted forests (Fig. 1), including by expanding the use of wood and developing young forests with vigorous growth, to ensure that forests continue to contribute to carbon dioxide removals.

The use of wood in buildings enables long-term storage of carbon removed by forests (Fig. 2).

Wood contributes to the reduction of carbon dioxide emissions since it consumes less energy than other materials during the manufacturing process and can replace fossil fuels if burnt as woody biomass.

#### Toward the Realization of Green Growth

The Basic Plan for Forest and Forestry revised in June 2021 aims to realize "Green growth".

One of key points to achieve "Green growth" is how to secure and expand stable demand for wood, especially for lumber, in addition to efforts to reduce the costs of afforestation and log production through initiatives such as "New forestry".

The wood industry, which purchases logs from forest owners and processes and sells them to customers, plays an important role in ensuring the sustainability of forests and forestry and promoting the appropriate use of wood. Strengthening the competitiveness of the wood industry is key to "Green growth".

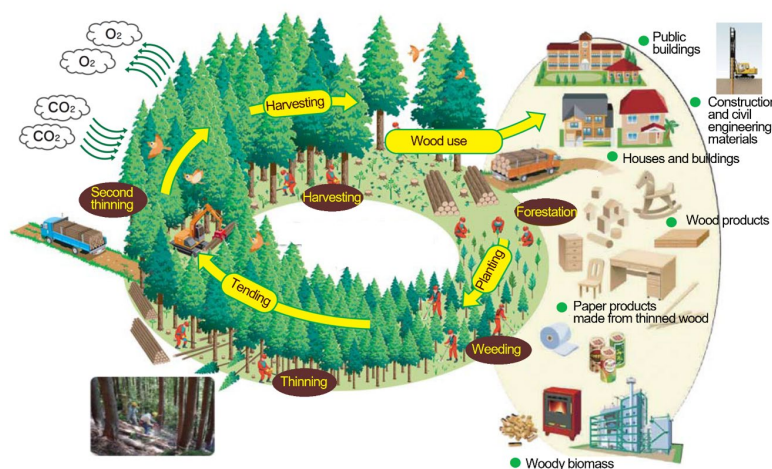
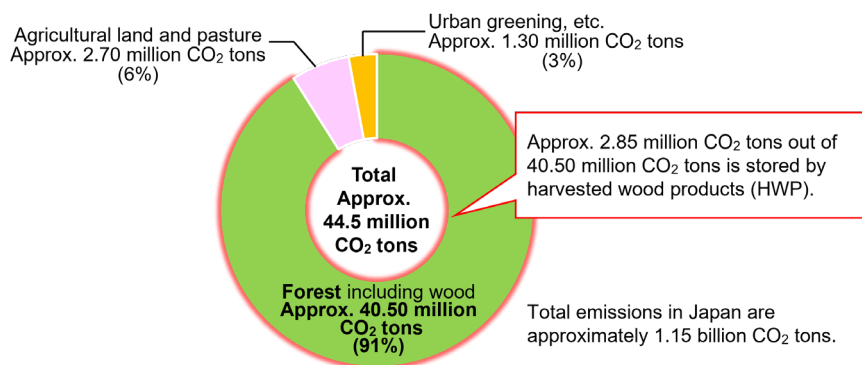


Fig.1 A schematic diagram of sustainable and cyclic use of forest resources



Source: Prepared by Forestry Agency based on National Institute for Environmental Studies "Japan's National Greenhouse Gas Emissions in Fiscal Year 2020 (Final Figures)"

Note: This pie chart shows the amount of CO<sub>2</sub> removed by forest and other carbon sink measures. Removals by forests are accounted for as the amount of CO<sub>2</sub> removed by forests where forest management activities such as thinning have been conducted since 1990.

**Fig. 2 Carbon dioxide removals in Japan in FY2020**

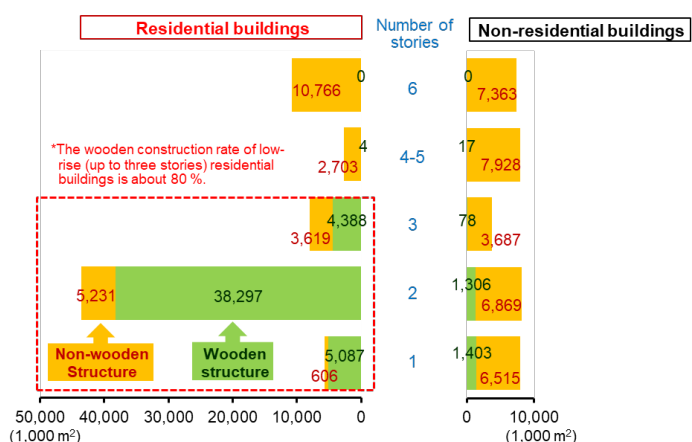
## 2. Trends in Wood Use in Housing and Construction

### (1) Trends in Wood Use in Housing

The wooden construction rate of low-rise (up to three stories) residential buildings is 80 %. The housing sector is an important market for domestic wood (Fig. 3).

More reliable quality and performance are required for wood products used for housing in terms of dimensional stability and strength. As a result, the proportion of kiln-dried lumber has increased (Fig. 4).

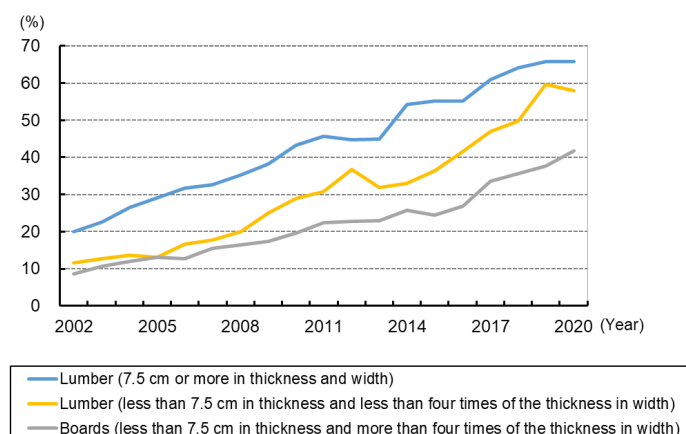
Furthermore, major housing manufacturers use more glued laminated timber (glulam) with high dimensional stability. The use of Sugi (Japanese cedar) glulam has increased in pillars. On the other hand, glulam of imported wood is highly competitive for horizontal members due to the need for strength.



Source: Prepared by the Forestry Agency based on Ministry of Land, Infrastructure, Transport and Tourism "Statistics Survey on Building Starts 2021"

Note: Residential buildings are the total of residential, semi-residential and residential-industrial buildings, while non-residential buildings are the total of all the other types of buildings.

**Fig. 3 Floor area of buildings starts by use, number of stories and structure**



Source: MAFF "Wood Supply and Demand Report"

**Fig. 4 Proportion of kiln-dried lumber in construction lumber**

## **(2) Trends in Wood Use in Non-residential and Mid-to-high-rise Buildings**

The wooden construction rate of non-residential and mid-to-high-rise buildings started was only 6% in 2021.

Since the Act for Promotion of Use of Wood in Public Buildings came into force in 2010, the share of wooden construction in public buildings started in each fiscal year has been increasing (8.3% in FY2010 → 13.9% in FY2020) .

In private buildings, construction and design firms and private enterprises that serve as building owners are moving toward wooden structures, interiors and exteriors in non-residential and mid-to-high-rise buildings against the backdrop of the expected shrinkage of the housing market and the growing attention to wood as a sustainable resource.

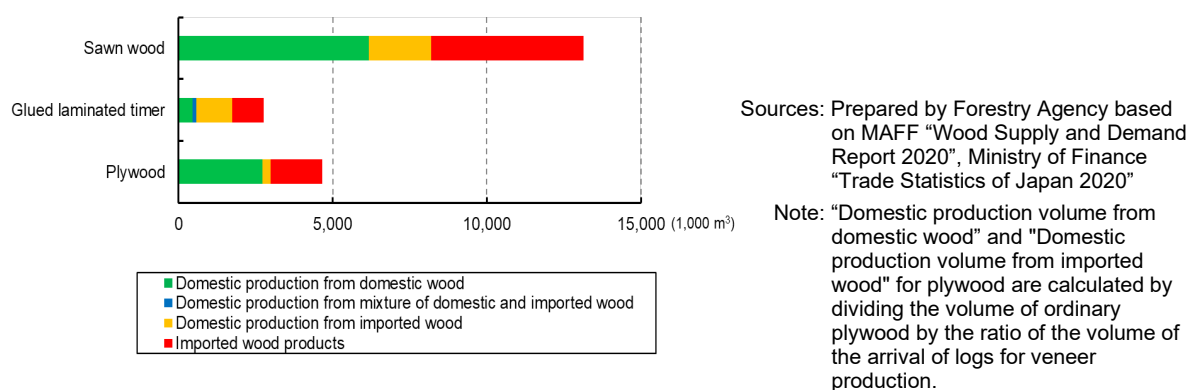
Especially for low-rise non-residential buildings with small floor areas, the wooden construction rate is relatively high (about 40% for buildings less than 500 m<sup>2</sup>). Various buildings such as stores and offices are constructed with wood.

For mid-to-high-rise buildings, the technical and institutional environment for wood use has been developed to a certain extent. As a result, leading buildings such as an 11-story wooden training facility has made progress.

## **3. Strengthening the Competitiveness of the Wood Industry**

### **(1) Trends in the Wood Product Manufacturing Industry**

Among sawn wood, glued laminated timber and plywood, which are the major wood products for construction, sawn wood has the largest supply. It is important to provide a stable supply of products that meet market needs (Fig. 5).



**Fig. 5 Supply of sawn wood, glued laminated timber and plywood in 2020**

### **Strengthening Global Competitiveness**

The needs of major housing manufacturers are to procure wood products (general distribution products) stably, with reliable quality and performance in large lots.

Sawmills have become larger in scale: the number of mills consuming more than 10,000 m<sup>3</sup> of logs per year and the volume of logs consumed have increased (Fig. 6). Large-scale mills ensure cost competitiveness not only by reducing costs through expansion of scale but also by conducting multiple operations, such as combined production of lumber and glued laminated timber, and woody biomass power generation.

Plywood mills have also become larger in scale: the number of mills consuming more than 100,000 m<sup>3</sup> of logs per year and the volume of logs consumed have increased (Fig. 7).

The utilization rate of domestic wood has improved, mainly for structural plywood. Efforts to use domestic wood are also progressing in plywood for floor base and concrete forming, where imported wood products have a high market share.

In addition, some plywood mills produce particle board and Medium Density Fiberboard (MDF) for the advanced utilization of wood offcuts generated during veneer production.

Scale (Domestic log consumption)	Number of mills (Log consumption)	
	2004	2019
More than 100,000 m <sup>3</sup>	0 (0)	12 (2.43 million m <sup>3</sup> )
50,000-100,000 m <sup>3</sup>	13 (0.85 million m <sup>3</sup> )	31 (2.24 million m <sup>3</sup> )
10,000-50,000 m <sup>3</sup>	194 (3.70 million m <sup>3</sup> )	209 (4.30 million m <sup>3</sup> )
Less than 10,000 m <sup>3</sup>	9,213 (6.92 million m <sup>3</sup> )	4,130 (3.90 million m <sup>3</sup> )

Sources: MAFF "Wood Supply and Demand Report", Survey by Forestry Agency

**Fig. 6 Number and log consumption of sawmills by scale**



Scale (Domestic log consumption)	Number of mills (Log consumption)	
	2004	2019
More than 200,000 m <sup>3</sup>	0 (0)	9 (2.34 million m <sup>3</sup> )
100,000-200,000 m <sup>3</sup>	1 (0.14 million m <sup>3</sup> )	12 (1.77 million m <sup>3</sup> )
10,000-100,000 m <sup>3</sup>	11 (0.28 million m <sup>3</sup> )	4 (0.26 million m <sup>3</sup> )

Source: Survey by Forestry Agency

Note: The total number of plywood mills was 287 in 2004 and 176 in 2019 (MAFF "Wood Supply and Demand Report").

**Fig. 7 Number and log consumption of plywood mills by scale**



Chugoku Lumber Co., Ltd. owns a sawmill that consumes about 700,000 m<sup>3</sup> of logs annually in Hyuga City, Miyazaki Prefecture.

The company accepts logs of a wide range of diameters from small to large, and processes them into kiln-dried lumber and glued laminated timber while improving processing yields.

Furthermore, the company works to maximize the added value of wood by fully utilizing logs through selling and using logs and offcuts that cannot be processed into wood products as pulp materials and biomass fuels.



A large-scale sawmill

## **Strengthening Local Competitiveness**

Local sawmills provide high-quality lumber such as knot-free lumber that meets the various individual needs of local builders and other related parties.

In FY2020, a total of 19,898 houses were supplied by 540 groups that consist of all parties involved, from forest owners to home builders who work together to build houses with wood, connecting producers and consumers.

Local sawmills are also responding to demand for wood other than for housing (Fig. 8). The shipments of domestic sawn wood products for furniture and fittings increased from 30,000 m<sup>3</sup> in 2015 to 49,000 m<sup>3</sup> in 2020.

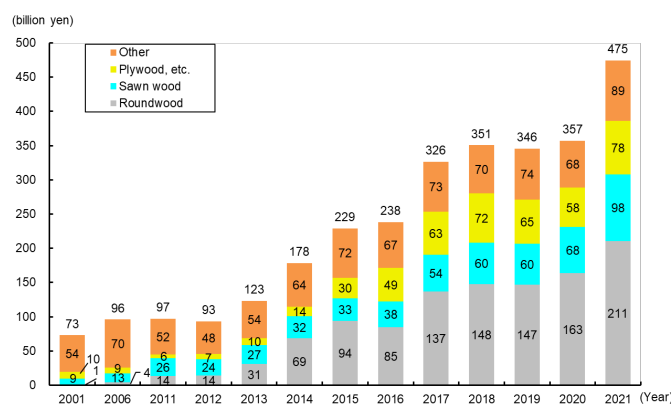


**Fig.8 Furniture made of Japanese cypress produced through collaboration among designers, sawmills and other related parties**

(©KOIYA Council)

## Initiatives for Wood Exports

The value of wood exports has increased. In 2021, it rose to 47.5 billion yen, which was an increase of 33 % from the previous year (Fig. 9).



Source: Ministry of Finance "Trade Statistics of Japan"

Notes: 1. The bar chart of each year is the total of HS44.  
2. For 2021, it is the definite reported value.

**Fig. 9 Changes in the value of wood exports in Japan**

The largest export destination was China at approximately 47%, 77% of which was exported in logs used for packaging materials, civil engineering materials and other materials. Exports of Sugi (Japanese cedar) lumber to the United States have increased for the usage of fence materials (Fig. 10).

In the Action Strategy for Expanding the Export of Agricultural, Forestry and Fishery Products and Foods, lumber and plywood are selected as priority items for exports. In addition, it sets out a policy on marketing and expansion of overseas sales channels for building materials and highly durable woods, targeting mainly China, the United States, South Korea and Taiwan.



**Fig. 10 Exterior wall decoration of a shopping mall in Shanghai, China (Japanese cedar and Japanese cypress)**  
(©KOSHII & Co., Ltd.)

## **(2) Trends in the Wood Distribution Industry**

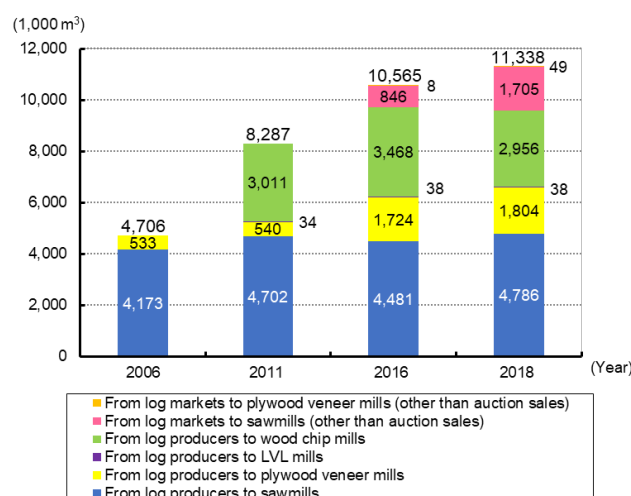
### Establishment of a Stable Supply System

In order to establish a stable supply system of logs, some sawmills have entered into agreements with forest owners' cooperatives and others to stabilize supply volumes and transaction prices.

The amount of logs sent directly from log producers to sawmills and plywood mills has also increased due to development of agreements with them (Fig. 11).



In the manufacturing sector, there is a trend toward the expansion of multiple operations combined with forestry management whereby log markets and sawmills enter the forestry sector to secure a stable supply of logs.



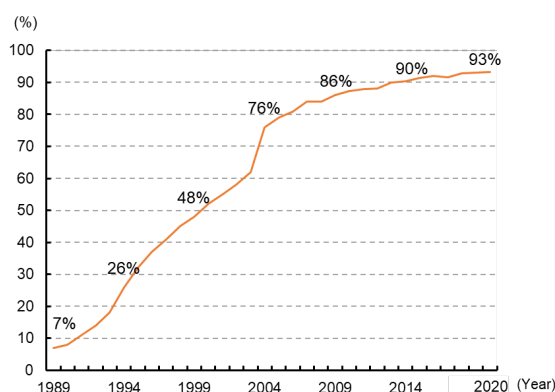
Source: MAFF "Report on wood distribution structure survey"

- Notes: 1. The volume of shipments from log markets to sawmills and plywood mills (other than auction sales) has been added since 2016.  
2. The volume of shipments from log markets to LVL mills and wood chip mills (other than auction sales) has been added since 2011.

**Fig. 11 Changes in direct shipments from log producers to sawmills**

### Expansion of the Role of Precut Factories

The precut rate of the post-and-beam construction method has been increasing year by year, and it reached to 93 % in 2020 (Fig. 12). The role of precut factories is expanding in the distribution of wood products, as precut factories are often responsible for part of the design process and wood procurement and quality control. The scale of precut factories is also expanding and their consolidation is progressing.



Source: Survey by National Wooden Housing Machinery Precut Association

**Fig. 12 Changes in the precut rate of the post-and-beam construction method**

## 4. Challenges and Countermeasures

### (1) Full Utilization of Forest Resources

To promote sustainable use of forest resources, it is important to develop an environment where logs are fully utilized by cultivating demand to use them according to their quality and characteristics.

Since the price of logs decreases in the order of use for lumber, plywood and chips, how much logs can be used for lumber is also important in terms of obtaining funds for reforestation.

To increase the utilization rate of logs, some sawmills accept logs of a wide range of diameters from small to large and produce pieces of solid sawn wood called laminations used for glued laminated timber, along with sawn wood products, while using low-quality wood and offcuts as fuel for kiln-drying and biomass power generation. The challenge is to disseminate these practices widely.

### (2) Utilization of Domestic Wood Products

#### Expanding Demand in the Housing Sector

The proportion of domestic wood used in the post-and-beam construction method is gradually increasing. As for the wood frame construction method, a stable supply system for domestic wood construction materials is being established mainly in the Kyushu and Tohoku regions, and some major housing manufacturers have started to use domestic wood products.

In 2021, the supply and demand of wood products significantly tightened, especially in those used as horizontal members which have a high proportion of imported wood. In response to this situation, there is a movement to substitute domestic wood for imported wood in some cases. It is important to disseminate these cases in order to cope with the shortage of imported wood.

#### Expanding Demand in Non-residential and Mid-to-high-rise Sectors

The Forestry Agency and the Ministry of Land, Infrastructure, Transport and Tourism have been supporting the training and development of such designers, since there is a shortage of designers with the knowledge required to design non-residential and mid-to-high-rise buildings using wooden structures, interiors and exteriors.

It is necessary to develop and disseminate standardized designs and construction methods that are widely applicable, in order to reduce design and construction costs (Fig. 13).



Source: Japan Housing and Wood Technology Center "Model designs for building medium-sized buildings with "wood""

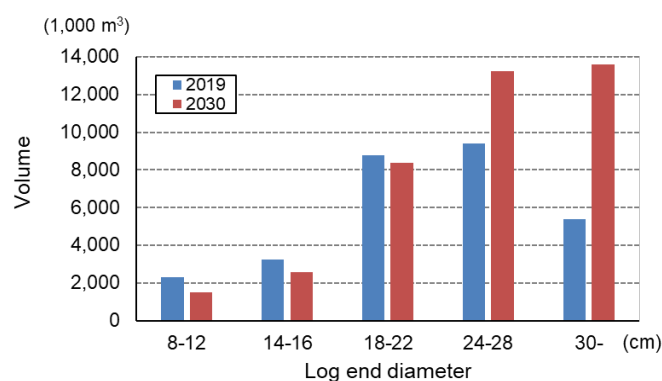
**Fig. 13 4-story office model based on the post-and-beam construction method**

In addition, it is essential to establish a supply system for Japanese Agricultural Standards (JAS) products of reliable quality and performance. The Forestry Agency is working to rationalize the classification and criteria of the JAS in line with actual usage conditions, as well as supporting demonstrative use of JAS structural wood products.

### **Initiatives for Utilization of Large-diameter Logs**

While the supply of large-diameter logs (over 30 cm in diameter) is expected to increase, many sawmills do not have a system for efficient sawing of large-diameter logs. Therefore, efforts to expand their use are required (Fig. 14).

The Forestry Agency supports sawmills to introduce production lines for large-diameter logs, which can cut the logs automatically and efficiently.



Source: Forestry Policy Council materials on March 30, 2021

**Fig. 14 Expected supply of logs by log end diameter**

### **(3) Improvement of a Working Environment in the Wood Industry**

It is vital to address labor shortages and improve the working environment including work safety, not only in forestry but also in the wood industry, in order to strengthen the supply capacity of domestic wood.

The Forestry Agency supports the introduction of labor-saving machinery such as automated sawmill machines and promotes occupational safety measures. The Forestry Agency has also been disseminating the “Code of Practice for Work Safety in Agriculture, Forestry, Fisheries and Food Industry” developed in February 2021 as well as related training materials.

### **(4) Technological Development for Further Utilization of Domestic Wood**

The Forest Research and Management Organization has been conducting technological development to establish the drying technology necessary for the production of flat-square lumber from large-diameter logs to expand the use in areas where the proportion of domestic wood is low, such as horizontal members of buildings.

In addition, it is also important to develop and disseminate technologies, for example, cross-laminated timber (CLT) and fire-resistant wooden materials, to expand wood use in non-residential and mid-to-high-rise buildings. As of April 2021, the annual production capacity of CLT was 80,000 m<sup>3</sup> with a total of 9 mills.

Products such as floorboards with increased surface hardness by compression have been developed to expand wood demand in interior decoration, furniture and refurbishment.

## Chapter I Forest Management and Conservation

### 1. Promoting Appropriate Management and Conservation of Forests

#### (1) Current State of Forests and Multiple Functions

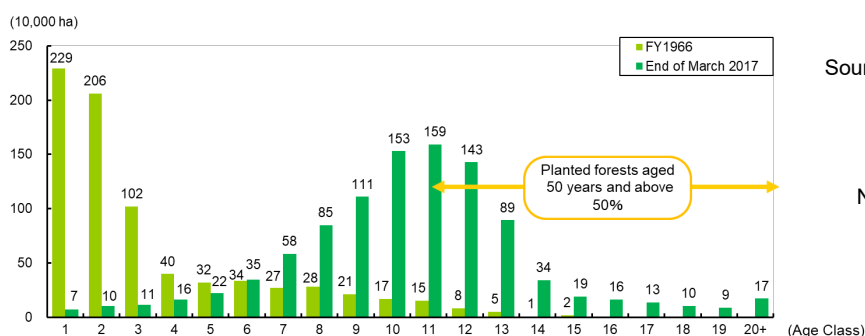
Forests contribute to the people's lives and economies through their multiple functions including land conservation, water resource conservation, and mitigating global warming.

The part of forests' multiple functions that can be monetarily evaluated is estimated at 70 trillion yen a year.

Forests cover about 25 million hectares, which accounts for 2/3 of the national land. About 40% of forests are planted forests. Half of the planted forests are aged 50 years and above and entering their period of use (Fig. I-1). The forest area consists of private forest, public forest and national forest, which account for 57%, 12% and 31% respectively (Fig. I-2).

The stock of forest is steadily expanding mainly on planted forests, reaching about 5.2 billion m<sup>3</sup> by the end of March 2017.

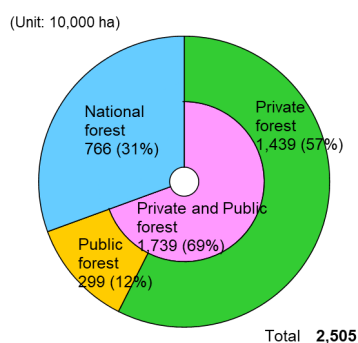
Forests contribute to the achievement of SDGs and net-zero by 2050 through their multiple functions and the economic and social benefits of forestry and wood industry.



Sources: Forestry Agency "State of Forest Resources" (March 31, 2017) and "Forest Resources of Japan" (April 1968)

Note: Age-classes are divided by 5 year-period steps. "Age-class 1" includes the 1st to 5th year after planting with the year of planting counted as the 1st year.

Fig. I-1 Changing forest age class configuration of planted forests



Source: Forestry Agency "State of Forest Resources" (March 31, 2017)

Fig. I-2 Forest area by owners

## **(2) The Fundamental Framework of Forest Plans for Appropriate Management and Conservation**

To make sure forests perform their multiple functions sustainably, the GOJ formulated the Basic Plan for Forest and Forestry (revised in June 2021) in accordance with the Forest and Forestry Basic Act as well as the National Forest Plan formulated under the Forest Act.

## **(3) Research and Development**

In May 2021, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) has developed a “Strategy for Sustainable Food Systems” to promote innovation in reducing environmental impact from a medium- to long-term perspective. In the forest and forestry sector, the strategy promotes the development and dissemination of the “elite trees” which are selected varieties with faster initial growth and good wood quality, the development of automated forestry machinery, the utilization of ICT, the construction of wooden high-rise buildings and the development of wood-based chemical materials such as glycol lignin.

The Forestry Agency develops Foresters who support municipal governments’ forest administration and management.

## **2. Forest Management**

### **(1) Promotion of Forest Management**

The Forest Agency promotes systematic and appropriate forest management based on the Forest Planning System under the Forest Act. In order to secure the multiple functions of forests for future and to use forest resources appropriately, the Forestry Agency promotes implementation of thinning and replanting after harvesting steadily on planted forests. The Forestry Agency also encourages to establish diverse and healthy forests through leading part of coniferous planted forests into multi-layered forests or mixed forests of conifers and broadleaf trees depending on its natural conditions.

Furthermore, it is vital to enhance carbon dioxide removals by forests through thinning and reforestation to achieve the forest removals target of approximately 3.8 million CO<sub>2</sub> ton in FY2030 (equivalent to approximately 2.7% of Japan’s total emissions in FY2013) as set out under the Paris Agreement and also to contribute to net-zero by 2050. The Forestry Agency has been promoting thinning for the forest removals. In addition, it has been supporting production of the “specified mother tree” with superior growth, which are selected from trees including the “elite trees” and designated by the MAFF. 456 varieties have been designated in nine years since 2013.

To encourage planting after harvesting, it is increasingly important to reduce planting costs and to supply seedlings stably. About 66 million seedlings were produced for planting in FY2020, about 30% of which was raised using containers ([Fig. I-3, 4](#)).



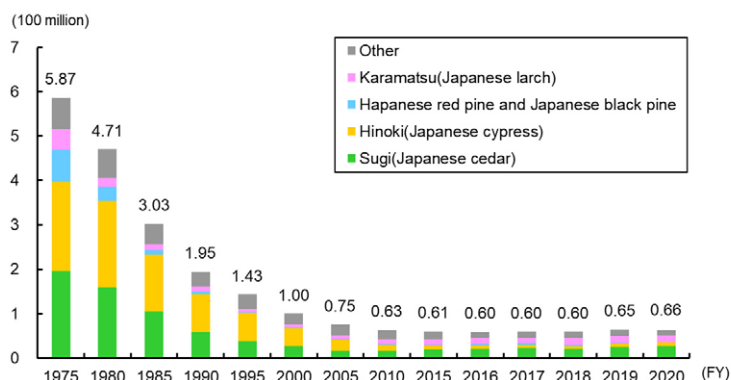
(Unit: 10,000 ha)

Type of work	Private and public forest	National forest	Total
Tree planting	2.3	1.1	3.4
Post establishment nurturing	35	14	49
Thinning	26	10	36

Source: Survey by Forestry Agency

Note: Area of Thinning represents a result of the forest sink measures.

**Fig. I-3 Forest management area (FY2020)**



Source: Forestry Agency "Forests and Forestry Statistics"

Note: Excluding those produced in state-owned nurseries

**Fig. I-4 Annual production of seedlings for planting**

## (2) Private Forest Management Entrustment System and Forest Environment Tax

The Private Forest Management Entrustment System was enforced in April 2019 through the Private Forest Management Entrustment Act.

Under the Private Forest Management Entrustment System, local municipalities can be entrusted with the management of forests whose owners are unable to manage appropriately. The municipalities can re-entrust the management of those forests that are suitable for forestry activities to private forestry operators who authorized by prefectural governments. Otherwise, the municipalities will manage those entrusted forest by themselves.

In FY2020, 778 out of total 1,592 municipalities in Japan conducted the "questionnaires of forest owners' intention", the first step of the entrustment process, for approximately 400,000 ha of private forest. In total, approximately 80% of all the municipalities, including those conducted questionnaires, have conducted some activities related to the Private Forest Management Entrustment System.

Also in 2019, the Forest Environment Tax and Forest Environment Transfer Tax were introduced for the funding of forest management activities by local municipalities. While the Forest Environment Tax will be imposed on each individual as a national tax at a rate of 1,000 yen per capita per year from FY2024, the Forest Environment Transfer Tax has been transferred to all the municipalities in Japan for the expenses of their forest management activities since FY 2019.

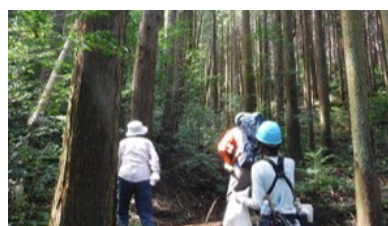
In FY2020, local municipalities in Japan conducted the “questionnaires of forest owners’ intention” for 216,000 ha of private forests and forest thinning in 10,300 ha, with the revenue from the Forest Environment Transfer Tax.

### **(3) People’s Participation in Forest Management**

Forest management activities by organizations such as NPOs and companies are expanding. The number of planting groups in Japan topped 3,671 in FY2021, nearly six-fold from FY2000. In recent years, more companies are willing to get involved in forest management with increasing interest in SDGs and ESG investment.



Okazaki City in Aichi Prefecture has designated 15 districts of planted forest as the potential areas of the Private Forest Management Entrustment System through forest resource analysis with aerial photographs. The city conducts forest boundary confirmation and field survey of the entire district, before implementing questionnaires of forest owners’ intention, for smooth confirmation of intention and entrustment of forest management.



Forestry boundary confirmation

In FY2020, the city was entrusted with management of 57 ha of private forests by their owners, 23 ha of which were re-entrusted to private forestry operators. In FY2021, the city has conducted 24 ha of thinning in the entrusted forests by itself.

## **3. Forest Conservation**

### **(1) Management and Conservation of Protection Forests**

“Protection forests” are designated in accordance with the Forest Act when it is considered particularly necessary that they provide important public benefits. Felling and forest development are regulated in them. At the end of FY2019, 12.2 million ha of forests were designated as protection forests. Additionally, even when a forest, except a protection forest, is diverted, the Forest Land Development Permission System secures public benefits.

### **(2) Disaster Control**

The Forestry Agency promotes integrated forest conservation projects including accurately clarifying mountain disaster hazard zones, restoration of devastated forests, and development of coastal forests. When natural disasters occur in mountainous areas, the Forestry Agency conducts immediate surveys and elaborates recovery works.

### (3) Conservation of Forest Biodiversity

The Forestry Agency promotes variety of forest management such as conversion to mixed forests of conifers and broadleaf trees and long-term management, and the protection and management of primeval forest ecosystems.

Additionally, the Forestry Agency implements the strict protection and management of forests in World Heritage sites and Biosphere Reserve sites.

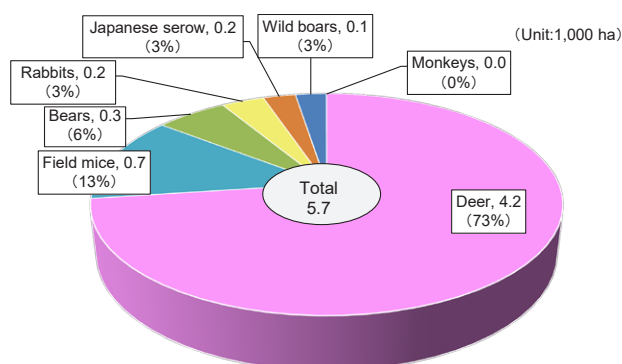
### (4) Forest Damage by Wildlife, Pests and Forest Fire

Forest damage by wildlife is serious. In FY2020, about 5,700 ha of forests were damaged by wildlife, about 70% of which was caused by deer (Fig. I-5). To prevent the damage, the MAFF and Ministry of the Environment promote comprehensive measures including barrier fences installation and population control through capturing wildlife.

Damage by pinewood nematode (*Bursaphelenchus xylophilus*) is declining, although it remains the worst forest pest in Japan. In FY2020, pinewood nematode damaged about 298 thousand m<sup>3</sup> of wood. To prevent the spread of this pest, the Forestry Agency propagates pest-resistant seedlings, implements prevention measures with chemicals, and eradicates the nematode and mediating insects by logging and fumigation of affected trees.

In addition, damage by Japanese Oak Wilt, which is transmitted by *Platypus quercivorus*, is increasing. In FY2020, this pest damaged 192 thousand m<sup>3</sup> of wood. To prevent the spread of this pest, the Forestry Agency promotes the extermination of insects by fumigation of damaged trees and the prevention of insect invasion by applying adhesives to and covering with vinyl sheets on healthy trees.

In 2020, 1,239 forest fires occurred, burning down 449 ha of forest. Forest fires intensively occur in winter and spring, with most of the cases caused by people carelessly using fire.



Source: Survey by Forestry Agency

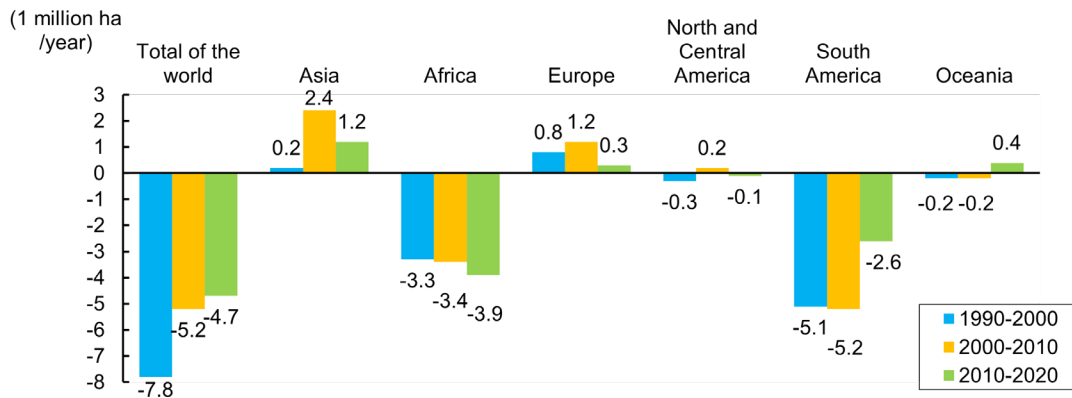
**Fig. I-5 Area of forests damaged by major wildlife species**

## 4. Addressing Global Policy Agenda

### (1) Promotion of Sustainable Forest Management

According to the Food and Agriculture Organization of the United Nations (FAO), the

global forest area in 2020 is estimated at 4.06 billion ha, which is 31 percent of the total land area. The world's forest area is still decreasing worldwide, especially in tropical forests in Africa and South America. The annual rate of forest loss in 2010-2020 is estimated at 4.7 million ha/year, but if the increase due to afforestation and forest expansion is not taken into account, the annual rate of forest loss is 10.2 million ha/year in 2015-2020 (Fig. I-6).



Source: Prepared by the Forestry Agency based on Global Forest Resources Assessment 2020 (FAO)

**Fig. I-6 Annual forest area net change by decade and region, 1990–2020**

The GOJ promotes efforts toward sustainable forest management through participating in international dialogues on forests such as the United Nations Forum on Forests (UNFF), the FAO Committee on Forestry (COFO) and the Montreal Process.

In Japan, two forest certification schemes have been widely in place, one of which is run by the Forest Stewardship Council (FSC), an international organization, and the other is run by the Sustainable Green Ecosystem Council endorsed by Programme for the Endorsement of Forest Certification schemes (SGEC/PEFC-J), which had been established as the domestic certification scheme in Japan, and was endorsed by the Programme for the Endorsement of Forest Certification (PEFC) in 2016. About 10% of forests in Japan are certified by FSC (about 0.42 million ha) and/or SGEC (about 2.15 million ha).

## (2) Global Warming and Forests

Global warming is one of the most serious environmental problems. Adverse impacts caused by the rising global average temperature are causing concern.

To realize net-zero by 2050, the GOJ revised the Plan for Global Warming Countermeasures in October 2021, in which Japan's target for GHG reduction for FY2030 has been raised to 46% (compared to the total emissions in FY2013) and that for forest removals to approximately 2.7%.

Forest carbon sink measures are essential to achieve the targets. It is necessary to implement the forest management through thinning and reforestation using the "elite trees" and to promote wood use.

The GOJ has taken initiatives in “Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of carbon stocks in developing countries” (REDD+). The GOJ has also promoted adaptation measures based on the Climate Change Adaptation Plan (revised in October 2021, by the GOJ).

### **(3) International Discussions on Biodiversity**

The first part of the 15th meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity was held in October 2021. A new target (Post-2020 Global Biodiversity Framework) to replace the "Aichi Biodiversity Targets" will be discussed and adopted in the second part of the COP15 scheduled in 2022.

### **(4) International Cooperation**

The GOJ contributes to the promotion of sustainable forest management in developing countries by providing technical cooperation and financial assistance by bilateral cooperation and multilateral cooperation through international bodies.

Approximately 1,360 million US dollar was provided into official development assistance (ODA) for the forestry sector worldwide in 2019, of which 33 million US dollar was from Japan. Japan was the fourth largest donor following Germany, France, and the United Kingdom.

Japan’s technical cooperation is conducted as projects which optimally combine the “dispatch of experts”, “acceptance of training participants” and “provision of equipment”, and policy/technical training courses through the Japan International Cooperation Agency (JICA). At the end of December 2021, in the forestry sector, Japan was conducting 18 technical cooperation projects through JICA. Also, the GOJ provides financial support such as loans and grants through JICA: loans for promoting afforestation and reforestation projects and developing human resources, and grants for procurement of machinery and materials for forest management.

The GOJ also provides financial support to projects conducted by the International Tropical Timber Organization (ITTO) and FAO. In the projects, ITTO promotes sustainable domestic wood consumption in Vietnam and establishes timber legality framework in producing countries, and FAO promotes conservation and utilization of forests for enhancing community resilience to climate change in mountain watersheds of developing countries.