

## Chapter III Wood Product Demand and Use of Wood

### 1. Supply and Demand for Wood

#### (1) Global Wood Supply and Demand

In 2019, the global consumption of industrial roundwood decreased by 2% from the previous year to 2,031 million m<sup>3</sup>.

The total volume of industrial roundwood imports in the world increased by 0.3% from the previous year to 144 million m<sup>3</sup>. China was the world's largest industrial roundwood importer in 2019, accounting for 44% of global imports of industrial roundwood.

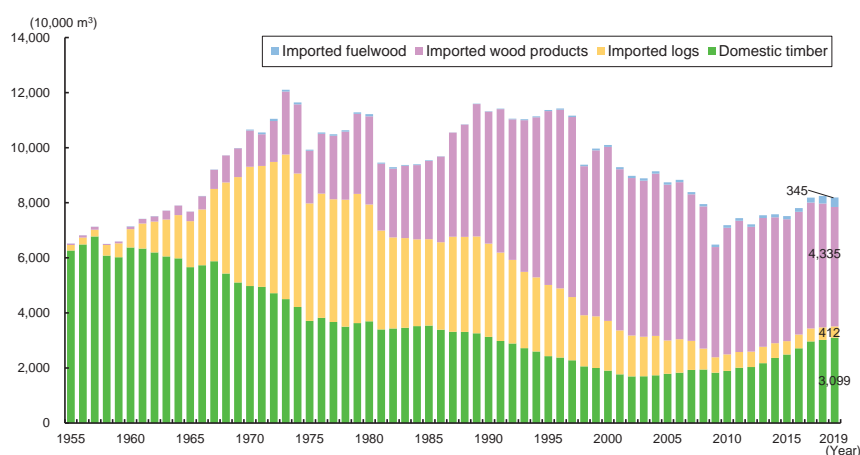
In 2019, the global consumption of sawn wood was 482 million m<sup>3</sup>, the same level as the previous year. The total volume of sawn wood imports in the world decreased by 1% to 149 million m<sup>3</sup>. China was also the world's largest sawn wood importer in 2019, accounting for 26% of global imports of sawn wood.

#### (2) Wood Supply and Demand in Japan

Japan's wood demand bottomed out in 2009 and has since recovered. The total wood product demand in Japan in 2019 was 81.91 million m<sup>3</sup> (roundwood equivalent), which was a 0.7% decrease from the previous year (Fig. III-1).

The domestic wood supply bottomed out in 2002 and has since recovered. It was 30.99 million m<sup>3</sup> in 2019, which was a 2.6% increase from the previous year (Fig. III-1).

The volume of imported wood in 2019 was 50.92 million m<sup>3</sup>, which was a 2.6% decrease from the previous year, due to a decrease in the imports of wood products (Fig. III-1).



Source: Forestry Agency "Wood Supply and Demand Chart"

Fig. III-1 Changes in wood supply

### **(3) Wood Prices**

The prices of domestic roundwood and sawn wood products have remained almost flat in recent years. Domestic wood chip prices have slightly increased.

### **(4) Illegal Logging Countermeasures**

The Clean Wood Act came into force in May 2017. The Act stipulates that all businesses must endeavor to use legally harvested wood and wood products, and that Wood-related Business Entities in particular shall confirm the legality of the wood and wood products they handle.

Wood-related Business Entities that appropriately and reliably take steps to confirm the legality of wood and wood products may apply to a registration body (there are six such bodies in operation) to obtain registration as a “registered Wood-related Business Entities”. As of March 2021, 536 companies had completed this registration process.

### **(5) Wood Exports**

The value of wood exports has been on a rising trend since 2013. In 2020, it rose by 3% from the previous year and reached 35.7 billion yen.

In December 2020, the GOJ established the Action Strategy for Expanding the Export of Agricultural, Forestry and Fishery Products and Foods. In this strategy, lumber and plywood are selected as priority items for exports. In addition, it announces a policy for working on marketing and expansion of overseas sales channels for building materials and highly durable woods, targeting China, the United States, South Korea, Taiwan, etc. The export production areas have been listed, including four lumber producing areas and eight plywood producing areas.

## **2. Wood Use**

### **(1) Importance of Wood Use**

Wood use can contribute to sustainable fulfillment of multiple functions of forests, as well as vitalization of local economies. Wood provides comfortable and healthy living conditions, through showing excellent properties of humidity conditioning and heat insulation, as well as the relaxing and stress-reducing effect of its scent.

In addition, wood use will contribute to achieving carbon neutrality by 2050, because wood stores carbon, processing of wood emits low levels of carbon dioxide, and wood can be used as a substitute for fossil fuels.

### **(2) Wood Use in Housing and Construction**

In Japan, about 80% of low-rise (up to three stories) residential buildings are wooden. However, wooden buildings account for less than 10% of mid-to-high-rise (four

stories and above) buildings and non-residential ones.

Developments are ongoing for fire-resistant wooden materials, cross-laminated timber (CLT) and other technologies and products to use wood for mid-to-high-rise buildings and non-residential ones.

Across Japan, wooden structures, both interior and exterior, have been promoted in the construction of mid-to-high-rise and non-residential buildings. Various companies and organizations have been working collaboratively towards expansion of wood use.



The seven-story "Takaso Wooden Building" was constructed in front of Sendai Station, using structural members made of bundled lumber. This construction method is expected to expand the possibilities of using wood for mid-to-high-rise buildings.



A pillar bundled with Cedar lumber

### **(3) Wood Use for Public Buildings**

The proportion of wooden structured buildings was 13.8% of all public buildings (based on floor area) whose construction started in FY2019. It was 28.5% among low-rise buildings.

### **(4) Use of Woody Biomass**

The quantity of woody biomass for energy use has been increasing recently. Japan's fuelwood consumption including wood chips, wood pellets, firewood and charcoal in 2019 increased by 15% from the previous year to 10.38 million m<sup>3</sup>.

While the increased use of woody biomass is mainly caused by a boom in woody biomass power plants, the Forestry Agency is also encouraging heat-use, which has higher energy conversion efficiency.

High value-added products including lightweight, high-strength cellulose nanofibers (CNF) and heat-resistant, processible glycol lignin are being developed as ways to utilize woody biomass for materials. As for CNF, manufacturing facilities are under operation in various places, and some products using CNF have been put into practical use, including athletic shoes and building materials. A speaker using glycol lignin for the diaphragm has also been commercialized.

### **(5) Spread of the Use of Wood among Consumers**

The Forestry Agency has been promoting the Kizukai Undo (attention to wood use) initiative to disseminate the importance of wood use among consumers, including

through the Japan Wood Design Award which acknowledges outstanding wood products and related activities that contribute to the re-discovery of the excellence and value of wood from the consumers' viewpoints.

The Forestry Agency has also been promoting “Mokuiku” (wood use education) activities to disseminate the excellence and significance of wood use among both adults and children.

### 3. Wood Industry

#### (1) State of the Wood Industry

The added value amount of lumber and the wood industry bottomed out in 2009 and has since recovered. In 2018, the value rose to 840 billion yen, which was an increase of 2.5% over the previous year.

#### (2) Response to Consumer Needs and the Creation of New Demand

Precut lumber using kiln-dried lumber is becoming popular in response to consumer needs for the quality and capability of wooden buildings. As large-scale wooden buildings are expected to create new demand for wood, it is necessary to establish a stable supply system for the JAS products.

Various efforts are being made in order to ensure a stable supply of wooden products that meet the needs of home builders, for example: (I) expanding further the capacity of large-scale mills; (II) improving production efficiency by collaboration among multiple mills; and (III) providing distinctive housing through collaboration among local timber producers, sawmills and home builders. The Forestry Agency supports collaborative supply chain management efforts of all stakeholders, including in efficient distribution of timber and sharing of supply and demand information.

#### (3) Each Sector of the Wood Industry

##### Sawmilling Industry

Shipments of sawn wood products have remained flat since the beginning of 2010. In 2019, shipments rose to 9.03 million m<sup>3</sup>, which was a decrease of 1.8% from the previous year. The quantity of industrial wood received by sawmills was 16.64 million m<sup>3</sup> in 2019.

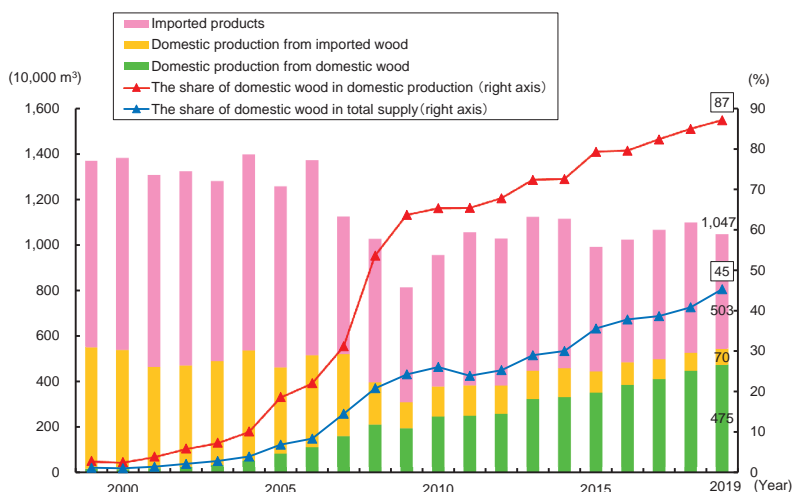
##### Glued Laminated Timber Manufacturing Industry

Glued laminated timber production in 2019 totaled 1.92 million m<sup>3</sup> of which structural use accounted for 1.83million m<sup>3</sup>. Japan's import of glued laminated timber products in 2019 stood at 0.97 million m<sup>3</sup>.

## **Plywood Industry**

Production of plywood in 2019 was 3.34 million m<sup>3</sup>, which was an increase of 1.2% over the previous year. Most of this - 2.95 million m<sup>3</sup> - was for structural use, while 50 thousand m<sup>3</sup> was used as concrete formwork.

The share of domestic wood in domestic plywood production in 2019 rose to 87% (4.75 million m<sup>3</sup>). In 2019, the total wood demand for plywood, including imported products, was 10.47 million m<sup>3</sup>. Domestic wood accounted for 45% of total wood demand for plywood in Japan (Fig. III-2).



Source: Forestry Agency "Wood Supply and Demand Chart"

**Fig. III-2 Changes in supply of wood for plywood**

## **Wood Chip Manufacturing Industry**

Production of wood chips (excluding fuel use chips) in 2019 was 5.27 million tons, which was a decrease of 8% from the previous year.

Japan's import of wood chips in 2019 totaled 12.17 million tons, accounting for about 70% of wood chip consumption in Japan.

## **Precut Processing Industry**

"Precut lumber" refers to lumber that is pre-processed into the required shapes and sizes of building components, such as posts and beams, which enables quick and easy assembling of the components onsite.

The share of precut lumber in the lumber used for the post and beam construction method, which is one of the main construction methods for houses in Japan, reached 93% in 2019.

## **Wood Distribution Industry**

In the distribution of domestic timber in 2018, 40% was distributed through the timber market, while 41% was transported directly from logging sites to mills. The share of direct delivery has been increasing.

## Chapter IV National Forest Management

### 1. Roles of National Forests

#### (1) Distribution and Roles of National Forests

National forests occupy 7.58 million ha of land, almost 20% of the land area of Japan, and approximately 30% of the total forest area. They are widely distributed in the remote mountainous areas and headwaters areas, and they play important roles in fulfillment of the multiple functions of forests, including land conservation, watershed conservation, etc.

National forests which have diverse ecosystems, are important for the conservation of biodiversity, and 95% of the land designated as World Natural Heritage sites in Japan (Shiretoko, Shirakami-Sanchi, Yakushima and Ogasawara Islands) is located in national forests.

#### (2) National Forests Management

National forests, an important asset of the country, are managed by the Forestry Agency in an integrated manner under the National Forest Management Program.

Since FY2013, this program has been executed under the General Account Budget with a view to further promoting the sound management of national forests aiming to enhance public benefits and to contribute to revitalization of Japan's forests and forestry.

### 2. Specific Initiatives under the National Forest Management Program

#### (1) Further Promotion of Management with Emphasis on Public Benefits

The Forestry Agency manages each national forest in accordance with the five forest types categorized based on the expected functions of “landslide prevention”, “natural conservation”, “recreational use”, “comfortable environment development”, and “watershed conservation”.

Ninety percent of national forests are conservation forests such as watershed conservation. The Forestry Agency improves devastated land and conservation forests through forest conservation projects in order to ensure the people safe and worry-free lives.

The Forestry Agency designates and manages “Protected Forests” and “Green Corridors” in order to conserve biodiversity. As of April 2020, Protected Forests were designated at 661 locations covering 978,000 ha of land, which accounted for 13% of national forest area. “Green Corridors” were formed as of April 2020 at 24 locations, covering 584,000 ha of land, and accounting for 8% of national forest area. The Forestry Agency takes measures to protect rare species of wildlife, and prevents



deer and other wildlife from damaging forests.

In Shiretoko, a World Natural Heritage Site, feeding damage on vegetation by Yezo sika deer has a significant impact on the ecosystem and biodiversity of the heritage area.

Since 2006, the GOJ and the local government have been collaborating to implement conservation and management measures for Yezo sika deer with advice of academic experts.

The Hokkaido Regional Forest Office used traps to capture Yezo sika deer, and investigated the effects of feeding damage on vegetation and the status of vegetation recovery. Using captured Yezo sika deer for gibiers (game meat) contributes to effective utilization of local resources.



As of 2012



As of 2020

Vegetation recovery in Shiretoko



## **(2) Contribution to Transforming Forestry into a Growth Industry**

Through the organizations, technical capabilities and resources of the National Forest Management Program, the Forestry Agency is (I) developing and disseminating technologies for low-cost and effective forestry practices, such as utilization of containerized seedlings, drones and Information and Communication Technology (ICT) and an integrated harvesting and planting system; (II) establishing cooperative forest management areas to collaborate with private forests to promote development of forestry road systems and forest operations; and (III) promoting stable wood supply to lumber and plywood mills through “System Sales”.

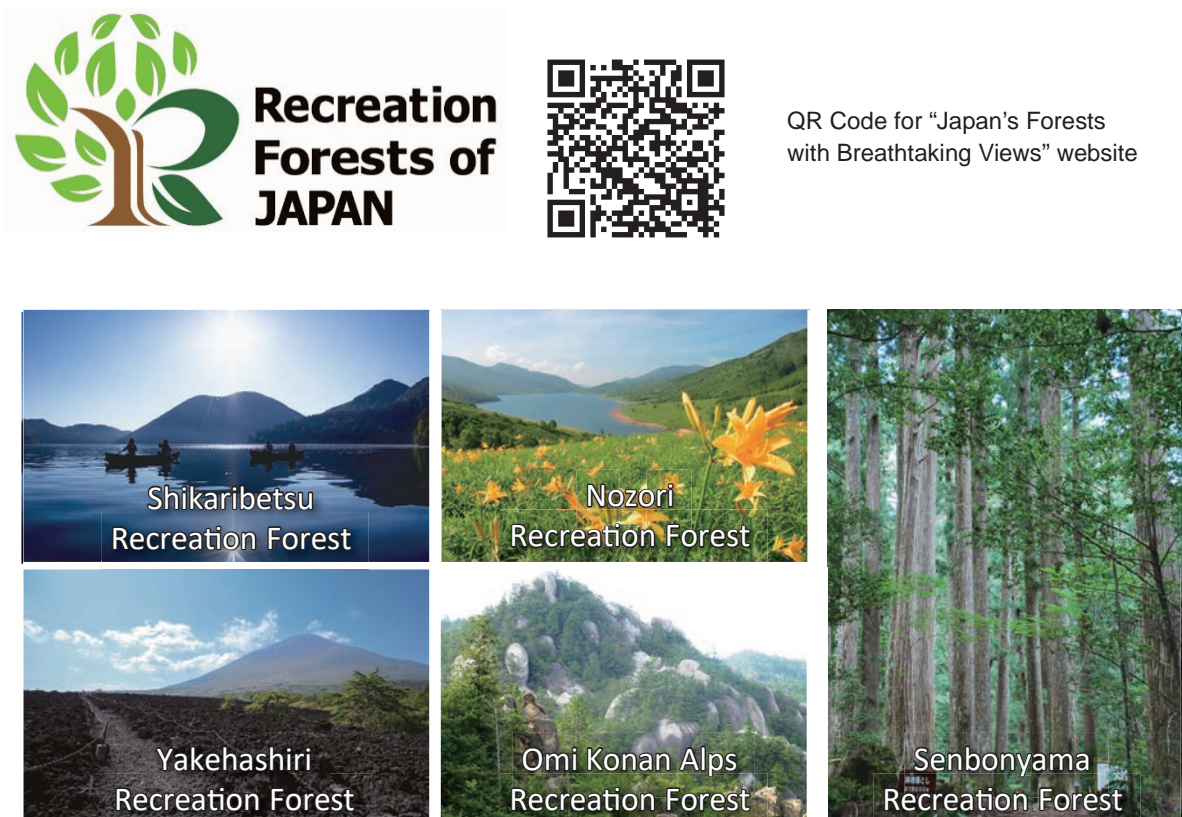
In April 2020, the Timber Harvesting Rights System was enforced. Under this system, forestry practitioners can acquire the right to steadily harvest trees in certain designated areas of national forests for a certain period of time, while ensuring multiple functions of the forest.

## **(3) National Forests as “Forests for People”**

The Forestry Agency provides various organizations (e.g. schools, voluntary groups, corporations, traditional woodworkers) with places for field activities such as forest environmental education and forest management practices, by designating forests for such activities within national forests. The Forestry Agency also undertakes “model projects” to manage forests in cooperation with local parties and nature conservation groups.

The Forestry Agency leases national forests to local governments and residents. “Recreation Forests” are managed and administered in partnership with municipalities and other stakeholders in local communities such as the tourist industry. In FY2019, a total of 130 million people visited “Recreation Forests”.

And 93 of “Recreation Forests” that have potential attractiveness as tourism resources were selected as “Japan’s Forests with Breathtaking Views” (Fig. IV-1). To encourage more people to visit these forests, the Forest Agency has improved facilities and promotes these by posting multilingual signs, provides information on web sites in two languages.



Source: Forestry Agency

**Fig. IV-1 Cases of “Japan’s Forests with Breathtaking Views”**