Annual Report on Forest and Forestry in Japan

Fiscal Year 2019

(Summary)

Forestry Agency

Ministry of Agriculture, Forestry and Fisheries, Japan
The “Annual Report on Forest and Forestry” is a report which the Government of Japan (GOJ) submits to the Diet every year, in accordance with article 10 of the “Forest and Forestry Basic Act.” This document is a summary of the annual report for fiscal year (FY) 2019.
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Note: The maps of Japan included in this summary report do not necessarily represent the territory of Japan comprehensively.
Forests and Forestry Topics for FY2019

Topic 1: Launching the Forest Management System and Forest Environment Transfer Tax and Revising the National Forest Management Law

In April 2019, the Forest Management Act took effect to launch a system under which municipal governments or specified forestry practitioners can manage forests which their owners are not able to manage appropriately.

In September 2019, the distribution of the Forest Environment Transfer Tax to local governments started.

National and prefectural governments support municipal governments assigned to implementing the Forest Management System.

Revising the National Forest Management Law

An act for revising the National Forest Management Law and others was enacted in June 2019 and put into force in April 2020 to develop forestry practitioners who will play a key role under the Forest Management System for private forest.

The act allows forestry practitioners to acquire a right to steadily harvest trees from certain designated areas of National Forests for a certain period of time.

Topic 2: Using Wood for Tokyo Olympics/Paralympics Facilities

Some 2,000 m² of wood have been used in the National Stadium for, such parts as its roof and eaves. Wood from Japan’s entire 47 prefectures is symbolically allocated for eaves.

Wood produced throughout Japan has been abundantly used for the Village Plaza for the Athletes Village and the Ariake Gymnastics Arena where the Tokyo Olympics/Paralympics will be held.

For these facilities, wood produced considering sustainability, such as wood subject to forest certification, has been used.

The event is expected to provide an opportunity for promoting the use of wood.
**Topic 3: Promoting Wood Use for Mid-to-High-Rise Buildings**

As calls for a sustainable society are growing, momentum on the demand side including building clients is rising to use more wood for buildings.

New associations of businesses and industries are promoting initiatives to increase wood use in buildings.

Wooden buildings including mid-to-high-rises are under construction at various locations in Japan, with initiatives increasing to choose wooden interior, exterior and structures.

![A 12-story apartment building using wooden materials (Tokyo)](©Takenaka Corporation)
Special topic: Key roles of Forest, Forestry and Wood Industry in SDGs

1. Sustainable Development Goals (SDGs) and Forests

(1) Growing Interest in SDGs

The 2030 Agenda for Sustainable Development (2030 Agenda) adopted at the United Nations Sustainable Development Summit in September 2015 is an integrated effort to realise a more sustainable planet while harmonising economy, society, and environment, the three integral aspects of our world. The Sustainable Development Goals (SDGs) are listed as 17 goals and 169 targets in the agenda.

The SDGs seek to build on the Millennium Development Goals (MDGs) and complete what they did not achieve. SDGs call for action and participation by not only governments and international organizations but also civil society, the private sector and others.

As indicated by increasing ESG (environment, society and governance) investment, interest in the SDGs is growing globally.

(2) Relationship between the Forest, Forestry and Wood Industry and SDGs

The United Nations Strategic Plan for Forests 2017-2030, adopted at the United Nations General Assembly in April 2017, provides a framework for forest-related contributions to the implementation of the 2030 Agenda, including the SDGs.

Japan’s forest stock has increased year by year, paving the way for the wide use of forests. As calls are growing for addressing depopulation in rural regions and improving life quality, forests have the potential to make various contributions to the SDGs.

【Relationship between Japan’s cyclical use of forests and the SDGs】

Goal 15 of the SDGs cites sustainable forest management. Furthermore, forests themselves contribute to various SDGs (Goals 6, 11, 13, 14 and 15). The use (including production, processing and distribution) of forest resources such as timber and mushrooms and recreational use contribute to various SDGs (Goals 2, 3, 4, 5, 7, 8, 9, 11, 12 and 13) (Fig. 1).

The use of forests leads to forest development and conservation as a greater cycle, representing the integration of economic, social and environmental dimensions by the SDGs.

Since the sustainable management of forests through the use of wood products certified as legal and planting after harvesting is the premise for the cycle, it indicates the forestry and wood industry’s key role in the cycle.
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Notes 1: Words below icons represent major expected effects rather than the explanation of goals.
2: In addition to the figure, Goal 1 calls for eradicating poverty for people depending on forests, Goal 10 for guaranteeing rights to use forests, and Goal 16 for promoting a governance framework for implementing sustainable forest management. Various initiatives are expected to make wider contributions to the SDGs, including effects that are not specified in the figure.

Fig. 1 Relationship between Japan’s cyclical use of forests and the SDGs
2. Diversifying Relationship with Forests

In Japan, people’s relationships with forests are diversifying into forest management, forest resources use, and recreational use.

(1) Forest Management

As interest grows in forest conservation and global warming, various entities including nonprofit organizations and business corporations are participating in forest management. There are various forest development objectives, including water resources conservation, biodiversity conservation, soil conservation and marine environment improvement.

Some business corporations outside the forestry and wood industry are taking advantage of their strengths for participating in forestry.

Suntory Holdings Limited implements forest improvement activities to conserve underground water for its liquor products. It cooperates with experts in considering forest management plans while envisioning forests a century away. Suntory also uses wood produced through forest management for floors and tables at its facilities.

(2) Forest Resources Use

Initiatives to use forest resources as sustainable materials are increasing.

Regarding buildings, wood is used at commercial, welfare and other facilities because of its warmth. Wood is expected to contribute to making office work easier. The use of wood for buildings contributes to sustainable forest management and regional vitalization in addition to lower environmental load or costs of construction (Fig.2).

New products, such as wooden and paper straws, are attracting attention as plastics substitutions. New wood-based biomass materials (including cellulose nanofibers (CNF) and glycol lignin) have been developed. Some prototypes taking advantage of their characteristics have been manufactured, and some of them have been for
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Woody biomass energy is being increasingly used as a renewable energy source. Woody biomass energy contributes to regional economic growth and employment through wood collection and processing.

Various entities use mushrooms, bamboo shoots, gibiers (game meat) and other forest resources. There are initiatives for forestry’s cooperation with welfare such as Shiitake mushroom production by persons with disabilities.

(3) Recreational Use

Forests have been increasingly used for tourism, health promotion, education. Such recreational use contributes to forest management and conservation through progress in exchanges between urban and rural residents and in understanding about forests.

While many people enjoy nature through mountain climbing and hiking, forests have increasingly been used for other leisure purposes, including athletics and tree house making. Trail running is used for regional vitalization. Initiatives have been implemented to attract tourists with forestry experiences and forest walking programs.

Forests are used for preventing lifestyle diseases and promoting health in Japan. Some business corporations use forests for training and recreation to promote their employees’ work motivation, teamwork and health (Fig. 4).

Forest kindergartens and other initiatives to provide infants with natural experience opportunities are increasing (Fig. 5). Various forest environment education programs have also been implemented for elementary school pupils.

Some business corporations have launched workation initiatives for telework in salubrious rural regions. In 2019, Wakayama and Nagano prefectural governments took leadership to create a council for local governments’ cooperation in promoting workations through campaigns targeting business corporations.

Fig. 4 Health promotion walking

Fig. 5 Forest kindergarten

The Forestry Agency has polled Japanese business corporations about the SDGs and forest/wood use, gaining responses from 392 corporations ranging from small and medium-sized ones to large ones in various industries, including manufacturing.

Some 60% of the respondents are implementing or planning to implement initiatives involving forests, forestry and wood use. More than half of these corporations cited forest management and conservation as their forest-related activities (Fig. 6a).

The most frequently cited effect of forest-related activities is social contribution, followed by interchange with local communities (Fig. 6b).

Toward expanding forest-related activities, business corporations seek information on their advantages regarding such activities and the introduction of forest owners’ cooperatives that are proactively exploring business partners.

4. Future Role and Challenges of Stakeholders

(1) Roles and Challenges of Forestry and Wood Industry from the viewpoint of the SDGs

Forestry and wood industry stakeholders’ actions are indispensable for various entities’ initiatives to use forests and wood. In addition, forestry and wood industry stakeholders’ reconsideration of their business operations from the viewpoint of the SDGs contributes to their sustainability.

While sustainable forest management is fundamental, some logging sites have been
left without planting after harvesting. The reason is partly because present log prices are too low to cover planting and forest management costs. Forestry cost reduction and initiatives for cooperation with midstream and downstream sectors are important for increasing profits for upstream sectors.

As people have become aware of sustainability in line with their growing interest in the SDGs, building clients as well as contractors have begun to seek legal wood. Given that adequate arrangements are required for supplying legally harvested wood, it is important to confirm the legality of wood and register wood-related business entities under the Clean Wood Act.

As the productive population declines, it has become even more important to promote safe, easy-to-work and attractive workplaces. It is necessary to improve logging skills with equipment by repeated logging exercises and simulating logging operations.

While the number of female workers in the forestry industry has decreased faster than that of male workers, female workers for logging have increased in number due partly to progress in mechanization. The acceptance of female workers contributes to improving the forestry work environment and is expected to lead to the enhancement of the worker retention rate.

(2) Stakeholders’ Roles in Supporting the Forest, Forestry and Wood Industry

Since not only forestry and wood industry but also various business corporations and individuals are related to forest in some way, so that they can influence forest management better and contribute to the SDGs in the context of sustainable forest management.

As there are many regions where forests are important local resources, regional business corporations’ cooperation in using forests is expected to lead to favorable environmental, economic and social trends.

In the first step to engage with the SDGs, individuals become aware of these goals. Regarding forests, individuals feel the goodness of forests and wood by enjoying going to forests for tourism or leisure purposes or by using wooden products.

Local and national governments should support the vitalization of initiatives for forests. The GOJ has formulated SDGs implementation Guiding Principles and SDGs action plans. Based on them, the Forestry Agency has promoted sustainable forest management and supported the private sector’s various relevant initiatives. The agency has also provided forestry-related assistance to developing countries in a bid to achieve the SDGs.
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 preventing 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 more than 50 years old and entering their period of use (Fig. I – 1,2).

The growing stock is steadily expanding mainly on planted forests, reaching about 5.2 billion $m^3$ by the end of March 2017.

(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 Forest and “Forestry Basic Plan” (revised in May 2016) in accordance with the “Forest and Forestry Basic Act” as well as the “National Forest Plan” formulated under the “Forest Act”.

In October 2018, a new “National Forest Plan” was formulated including plans to
(3) Forest Management System

The “Forest Management System”, based on the “Forest Management Act” was enforced in April 2019.

The Forest Management System is a new scheme that differs from any past systems in Japan. In this scheme, municipalities are entrusted with the management of forests which their owners are not able to manage appropriately. Then the municipalities re-entrust the forests suitable for forestry to forestry practitioners who manage forests sustainably through certain proceedings (Fig. I – 3).

Some municipal governments have launched initiatives under the Forest Management System.

And in 2019, the “Forest Environment Tax” and “Forest Environment Transfer Tax” were created with the idea that all citizens equally support Japan’s forests. As “Forest Environment Tax”, additional 1,000 yen per capita per year will be imposed as part of the individual inhabitant tax from FY2024.
(4) Research and Development

The GOJ, prefectural governments, the Forestry and Forest Products Research Institute (FFPRI), universities and private sectors jointly conduct research and technology development in order to secure the fulfillment of the multiple functions of forests and to develop forestry, to ensure the supply and use of forest products, and to lower the cost of planting after harvesting. The achievements of research and technology development are spread by forestry extension agents.

2. Forest Management

(1) Promotion of Forest Management

In order to sustainably secure the fulfillment of the multiple functions of forests, it is necessary to appropriately use forest resources and work steadily on thinning and planting after harvesting. It is also necessary to lead the way to diverse and sound forests by promoting the creation of multi-layered forests, long-term management, creating mixed forests of conifers and broadleaf trees, and forming broad-leaved forests, depending on natural conditions. For those reasons, the GOJ promotes systematic and appropriate forest management based on the Forest Planning System under the Forest Act.

To encourage planting after harvesting, it is increasingly important to reduce planting costs and to stably supply seedlings. About 60 million seedlings for planting were produced in FY2018, and about 20% was for seedlings raised in the container (Fig. I – 4, 5).

In order to tackle Sugi and Hinoki pollinosis, the Forestry Agency proactively promotes measures to reduce pollen production, including to increase the production of less pollen seedlings and pollen-free seedlings.
(2) People’s Participation in Forest Management

Forest management activities by NPOs and companies, etc. are expanding. The number of planting groups in Japan topped 3,303 in FY2018, increasing nearly six-fold from FY2000. In recent years, the business sector shows growing interests to stimulate local economies through transforming the forestry into a growth industry.

3. Forest Conservation

(1) Management and Conservation of Protection Forests

“Protection forest” 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 FY2018, 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 GOJ promotes integrated forest conservation projects including accurately clarifying mountain disaster hazard regions, 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

Based on the National Biodiversity Strategy of Japan 2012 – 2020 (adopted in September 2012), the Forestry Agency promotes appropriate thinning and diverse forest creation and the protection and management of primeval forest ecosystems.


Fig. 1 - 6 UNESCO Biosphere Reserve sites in Japan
The Forestry Agency promotes the strict protection and management of forests in World Heritage sites and Biosphere Reserve sites (Fig. I – 6). The GOJ is promoting efforts to inscribe “Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island and Iriomote Island” on the World Heritage List as Natural Property in 2020.

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

In recent years, the area of forests damaged by wildlife has been declining, but it remains in a serious situation. In FY2018, about 5,900 ha of forests were damaged by wildlife, about 70% of which was caused by deer (Fig. I – 7). To prevent the damage, the GOJ promotes comprehensive measures including subsidies for barrier fences and population control through capturing wildlife.

Damage by pinewood nematode (Bursaphelenchus xylophilus) is also declining; it remains the worst forest pest in Japan. In FY2018, pinewood nematode damaged about 0.35 million m$^3$ 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 2018, 1,363 forest fires occurred, burning down 606 ha of forest. The number of forest fires are declining in the long term. Forest fires intensively occur in winter and spring, with most of the cases caused by people carelessly using fire.

![Fig. I – 7 Area of forests damaged by major wildlife species](image)
4. Addressing Global Policy Agenda

(1) Promotion of Sustainable Forest Management

According to the Food and Agriculture Organization of the United Nations (FAO), the world forest area was approximately 4 billion hectares in 2015 (about 31% of global land area). The world’s forest area is decreasing, but the rate of forest loss is slowing (Fig. I - 8). Tropical forests in South America and other are declining, while forest area in Asia is expanding.


Since illegal logging is one of the factors obstructing global environment conservation and sustainable forest management, the international community is making efforts to combat illegal logging through various international frameworks. Japan has joined the Experts Group on Illegal Logging and Associated Trade (EGILAT) of Asia-Pacific Economic Cooperation (APEC), which shares information and exchanges views regarding measures to combat illegal logging.

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 0.41 million ha) and/or SGEC (about 2.03 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.

The “Paris Agreement” was adopted at the twenty-first session of the Conference of
the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) held in 2015 as an effective legal framework applicable to all parties, and it came into force in November 2016.

COP24, held in Poland in December 2018, adopted the Paris Agreement Work Programme (PAWP) for full implementation of the Agreement. PAWP guides parties to set a target and to track the progress by using existing methods and guidance. It is expected that the carbon sink strategy will continue to have important role in achieving the long-term global temperature goal.

In order to achieve greenhouse gas (GHG) reduction targets stipulated in the “Plan for Global Warming Countermeasures” (May 2016), Japan enhances the steady implementation of forest sink measures, including forest management through thinning and use of wood.

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+), and has promoted adaptation measures based on the “Climate Change Adaptation Plan” (formulated in November 2018, by GOJ).

(3) International Discussions on Biodiversity

As of December 2019, the “Convention on Biological Diversity (CBD)” has been signed by 194 countries, the European Union (EU) and the State of Palestine. A total of 123 countries and regions including Japan have ratified the Nagoya Protocol on access to genetic resources and sharing of benefits arising from their utilization.

(4) International Cooperation

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 $640 million was provided into official development assistance (ODA) for the forestry sector worldwide in 2016, of which $36 million was from Japan. Japan was the fourth largest donor following France, Germany, and the United Kingdom.

Japan’s technical cooperation is conducted as technical cooperation projects, which optimally combine the “dispatch of experts,” “acceptance of training participants” and/or provision of equipment, training, etc. through the Japan International Cooperation Agency (JICA). At the end of December 2019, in the forestry sector, Japan was conducting 18 technical cooperation projects through JICA. The Forestry Agency dispatched 8 experts to 7 countries through JICA. Also, the GOJ provides financial support such as grants and loans through JICA; grants for support of afforestation and reforestation projects and for procurement of machinery and materials for forest management; and loans for promoting afforestation and reforestation projects and developing human resources.

The GOJ also provides financial support to cover the International Tropical Timber Organization (ITTO) and FAO.
Chapter II  Forestry and Hilly and Mountainous Rural Communities

1. Forestry

(1) Forestry Production

Total forestry output in 2018 was 502 billion yen, which was an increase of 3% over the previous year. Output rose beyond 500 billion yen for the first time in 18 years, since 2000. Percentage of wood production in forestry has stood around 50% since 2002 (Fig. II – 1).

Supply of domestic wood totaled 30.2 million cubic meters in 2018. Of the supply, logs for sawn lumber, plywood and chips accounted for 2,164 m$^3$, maintaining an uptrend from 2002. By tree species, the volume of Sugi (Japanese cedar) production was 58%, Hinoki (Japanese cypress) 13%, Japanese larch 10%, and hardwood 10% (Fig. II – 2).

Fig. II – 1 Gross forestry output

Fig. II – 2 Volume of domestic roundwood
(2) Forestry Management

The 2015 Census of Agriculture and Forestry shows that the number of forestry households was 830 thousand, 88% of which owned less than 10 ha of forest area. Small-scaled forest ownership remains dominant.

The census shows that a total of 19.89 million m³ (increase of 27% over previous 5 years) of logs was produced by forestry entities. In addition, the quantity produced per forestry management entity has grown rapidly to 4,188 m³ (30% increase over previous 5 years). On the other hand, 46% of all forestry management entities produce less than 1,000 m³/year of logs, revealing that many are small-scale entities.

(3) Forestry Workforce

According to the 2015 national census, the number of forestry workers was 45,440, tending to decline in the long-term. The proportion of aged forestry workers (aged 65 or older) was 25%, while the proportion of young forestry workers (aged 35 or younger) was 17% in 2015 (Fig. II - 3). The workplace accident rate in the forestry industry, which represents the rate of deaths and injuries per 1,000 workers, was 22.4 in 2018. The rate continues to be the highest rate among all industries. Measures to achieve safer working environments are being promoted.

![Fig. II - 3 Number of forestry workers](image)

Source: Ministry of Internal Affairs and Communications, National Census
Notes: Elderly percentage of workers 65 years of age or older, and youth rate is percentage of workers 35 of age or younger.

(4) Improvement of Forest Productivity

Consolidating forestry operation

The Forestry Agency and prefectures are consolidating forestry operations by developing “Forest Management Planners” who will conduct proposal-based coordination with forest owners and consolidation of forestry operations. Municipalities launched the forest area register system in April 2019 to unitarily compile
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**Initiatives on reduction in planting cost and labor after harvesting**

As forest harvesting is expected to increase with many planted forests becoming ready for harvesting, the reduction of costs and the stable supply of seedlings for planting required after harvesting become even more important. The Forestry Agency promotes the introduction of an integrated harvesting and planting system to use forestry machine for simultaneously or sequentially implementing harvesting, land preparation and planting to reduce planting costs.

Forest Tree Breeding Center is developing the “elite tree” species featuring faster initial growth (Fig. II – 4). Given that weeding accounts for a major part of planting costs, pilot initiatives to reduce weeding frequency are implemented at various locations in Japan. Fast-growing trees are useful for these initiatives.

As Sendan (Melia azedarach) and other fast-growing trees are attracting attention, demonstrative initiatives for developing and using relevant forestry technologies are being implemented in Japan.

**Fig. II – 4 The “elite tree” (in the fourth year after planting)**

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**Planting, weeding and other operations depend mostly on human labor, facing problems such as heavy labor, high costs and labor shortages.**

In FY2019, the Forestry Agency implemented the Sustainable Forest Action program for collaboration between experts in forestry and those with unique skills or knowhow in other fields, e.g. ICT to create businesses for solving the planting problems.

Sixty-nine people divided into 14 teams developed various business ideas and fabricated prototypes over about two months to present their achievements at a final examination meeting on December 7.

The top prize was given to the Morigatari (forest talk) for its business idea on environmental education service to provide virtual learning, on-site forestry experiences and furniture made of harvested wood. The service is designed to use experience learning and forests owned by forestry business operators for producing profits to those business operators and encouraging their planting after harvesting.

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Cutting-edge technologies to improve forestry business efficiency

Forestry innovation initiatives are required for using information and communications, artificial intelligence and other cutting-edge technologies to save forestry costs and labor.

The Forestry Agency promotes initiatives that use information and communications technologies for collecting forest resources data and improving efficiency and safety in wood production and distribution stages.

Practical initiatives are making progress at various locations in Japan, including those using airborne laser scanning surveys for collecting and providing forest resources information and geographical data, and those using road network design aiding software for labor saving.

Machines to automate forestry work are being developed for improving safety and labor saving.

2. Non-wood Forest Products

Non-wood forest products include mushrooms, edible nuts, wild vegetables, Japanese lacquer, bamboo, charcoal, etc. Non-wood forest products account for about half of the forestry output and play key roles in stimulating rural economies and ensuring employment. The value of non-wood forest products in 2017 was 282.8 billion yen, an increase of 2% over the previous year.

(1) Mushrooms

Mushrooms earned more than 80% of the value of non-wood forest products in 2018. Production of mushrooms has been flat in recent years, reaching 467,000 tons in 2018.

(2) Other Non-wood Forest Products

Japanese lacquer production has been increasing in recent years as Japanese lacquer has been adopted in principle for preserving and repairing national treasure and important cultural property buildings (Fig. II-5). Total production of charcoal has been decreasing over the long term, reaching 22,000 tons in 2018. Bamboo material (raw material for bamboo paper) has been increasing since 2010, reaching 34,000 tons in 2018. Total fuelwood production was 48,000 m³ in 2018, and it has remained at approximately 50,000 m³ in recent years (converted to logs).

Source: Forestry Agency "Non-wood Forest Products Data"

Fig. II-5 Japanese lacquer production
3. Hilly and Mountainous Rural Communities

(1) Current State of Hilly and Mountainous Rural Communities

Hilly and mountainous rural communities, where people engage in forestry, play a significant role in securing the multiple functions of forests. “Mountain Village Areas Due for Development”, designated pursuant to the Mountain Villages Development Act, cover about half of the total land area, accounting for approximately 60% of the total forest area. There are problems such as a decrease in job opportunities and an increase in abandoned farmland due to continuing depopulation and the aging population in such communities. In response to this situation, there is an initiative to use fast-growing trees such as Sendan (Melia azedarach) for the purpose of afforestation on farmlands that are difficult to reuse as farmlands (dilapidated farmlands).

(2) Revitalization of Hilly and Mountainous Rural Communities

In order to maintain forests around mountain villages, it is vital that regional residents engage with the mountain village forests continuously while utilizing forest resources. The Forestry Agency supports regional residents in maintaining mountain village forests and using forest resources.

The Forestry Agency is promoting effective exchanges between hilly and mountainous rural communities and urban societies including through hands-on activities, forest environmental education, and “Countryside Stay” (Rural Tourism), which helps tourists experience traditional Japanese life.

Also, the Forest Agency is promoting “Forest-related Service Industry” by linking forests and forestry with diverse fields such as medical care, welfare, tourism, and education to use forest space in ways matched to changes in the people’s values and their lifestyles.

Sendan (Melia azedarach) can be harvested for furniture only 20 years after planting, attracting attention as a fast-growing, excellent wood resource.

Kumamoto Prefecture has promoted Sendan planting in a bid to establish a Sendan production system. Through previous research, it has found that valley and flatland areas rich with soil nutrients and water are suitable for planting Sendan and that dilapidated farmlands (which are difficult to use as farmlands) that have milder slopes and are more accessible than mountains are also suitable for planting Sendan. To secure stable Sendan wood supply in the future, Kumamoto Prefecture supports initiatives to plant Sendan and other fast-growing hardwood trees at dilapidated farmlands.

In Tara Town, Saga Prefecture, the Kito agriculture and forestry office took leadership in planting 70 Sendan seedlings at a dilapidated farmland in October 2019, planning to use the site as an experimental forest for training. These kinds of initiatives are expected to promote forestry and help resolve problems in hilly and mountainous regions.
Chapter III  Wood Product Demand and Use of Wood

1. Supply and Demand for Wood

(1) Global Wood Supply and Demand

The total volume of industrial roundwood consumption at a global level had decreased as a result of a rapid economic slump in the autumn of 2008, but in 2010 it started to increase again, according to the FAO.

Global consumption of industrial roundwood in 2018 increased 5% from the previous year to 2,032.72 million m$^3$. China was the world’s largest industrial roundwood importer in 2018, accounting for 43% of global imports of industrial roundwood.

In 2018, consumption of coniferous sawn wood increased in Europe and North America. Production of it increased in Europe, North America and Russia in 2018.

(2) Wood Supply and Demand in Japan

Japan’s wood demand bottomed out in 2009 and has recovered. Total wood product demand in Japan in 2018 was 82.48 million m$^3$ (roundwood equivalent), which was a 0.8% increase over the previous year (Fig. III – 1).

Domestic wood supply bottomed out in 2002 and has recovered. It was 30.20 million m$^3$ in 2018, which was a 1.8% increase over the previous year (Fig. III – 1).

The volume of imported wood in 2018 was 52.28 million m$^3$ due to an increase in the import volume of wood chip, plywood and fuelwood, which was a 0.2% increase over the previous year (Fig. III – 1).

Fig. III – 1 Changes of wood supply

Source: Forestry Agency "Wood Supply and Demand Chart"
(3) Wood Prices

The prices of domestic roundwood and sawn wood products were almost flat in recent years. Domestic wood chip prices slightly rose.

(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 2020, 418 companies had completed this registration process.

(5) Wood Exports

The value of wood exports has been on a rising trend since 2013. In 2019, it reached 34.6 billion yen. Various organizations have been promoting wood products from domestic wood for export.

In August 2018, China’s wooden structure design standards including Japanese wood and the wood post and beam construction method entered into force. The first two wood post and beam houses are under construction in Dalian, China, under the new standards. Japan held a workshop for engineers on wood post and beam houses in Nanjing, China. In this way, various Japanese entities are trying to increase Japanese wood consumption in China.

(1) Importance of Wood Use

Wood use can contribute to sustainable fulfillment of multiple functions of forests including prevention of global warming, as well as vitalization of local economies. Wood use is also considered to provide comfortable and healthy living conditions, through showing excellent properties of humidity conditioning, heat insulation, and shock...
absorption, as well as the relaxing and stress-reducing effect of its scent.

(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.

(3) Wood Use for Public Buildings

The proportion of wooden structured buildings was 13.1% of all public buildings (based on floor area) whose construction started in FY2018. It was 26.5% among low-rise buildings.

More than 60% of low-rise public buildings were constructed by private clients, and about 80% of them were medical care or welfare facilities.

(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 2018 increased 16% from the previous year to 9.02 million m³.

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 for using woody biomass for materials.
(5) Spread of the Use of Wood among Consumers

The Forestry Agency has been promoting “Kizukai Undo” (attention to wood use), an initiative to disseminate the importance of wood use among consumers, including the “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) educational activities to disseminate the excellence and significance of wood use among both adults and children.

Since FY2018, the Government of Japan (GOJ) has reappraised wood culture and wood hospitality in Japan mainly from the viewpoint of foreign tourists. It has thus created and provided new types of wood cultures and wood hospitality.

In FY2018, the GOJ formulated a guidebook introducing wood culture across Japan. In FY2019, regional forestry and wood industry and tourism stakeholders cooperated in implementing workshops, model tours and other events in four regions to provide opportunities for people to experience regional wood culture and hospitality through forest tours and traditional craft fabrication.

3. Wood Industry

(1) State of the Wood Industry
The value of shipments of lumber and the wood industry bottomed out in 2009 and has since recovered. In 2017, the value rose to 2.7 trillion yen, which was an increase of 2.3% over the previous year.

(2) Sawmilling Industry
Shipments of sawn wood products fell until 2009 and have remained flat since the beginning of 2010. In 2018, shipments rose to 9.20 million m$^3$, which was a decrease of 2.7% over the previous year. The quantity of industrial wood received by sawmills was 16.67 million m$^3$ in 2018.

(3) Glued Laminated Timber Manufacturing Industry
Glued laminated timber production in 2018 totaled 1.92 million m$^3$. Domestic wood accounted for 39% of laminae used and imported wood for 61%. Japan’s import of
glued laminated timber products in 2018 stood at 0.94 million m³.

(4) Plywood Industry

Production of plywood in 2018 was 3.30 million m³, which was an increase of 0.3% over the previous year. By use, 2.97 million m³ was structural use, while 50 thousand m³ was used as concrete formwork, revealing that most is structural use.

The share of domestic wood in domestic plywood production in 2018 rose to 85% (4.49 million m³). In 2018, the total wood demand for plywood, including imported products, was 11.00 million m³. Domestic wood accounted for 41% of total wood demand for plywood in Japan (Fig. III – 2).

(5) Wood Chip Manufacturing Industry

Production of wood chips (excluding fuel use chips) in 2018 was 5.71 million tons, which was a decrease of 4% over the previous year.

Japan’s import of wood chips in 2018 totaled 12.45 million tons, accounting for about 70% of wood chip consumption in Japan.

(6) 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 exquisite assembling of the components onsite.

The rate of use of precut lumber for the post and beam construction method, which is one of the main construction methods for houses in Japan, reached 93% in 2018.

(7) Cross Laminated Timber (CLT) and Other New Products and Technologies

New products and technologies have been developed and popularized to create wood demand in areas where wood has not been used very much in the past.

Even in Japan, apartment houses, hotels, office buildings, school buildings and other mid-to-high-rise buildings have been constructed with Cross Laminated Timber (CLT), wooden fire-resistant members and other wooden materials.
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, Ogasawara Islands and Yakushima) 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 2019, Protected Forests were designated at 667 locations covering 978,000 ha of land, which accounted for 13% of national forest area. “Green Corridors” were formed as of April 2019 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.
The Chubu Regional Forest Office in Nagano Prefecture is demonstrating a method to build a driftwood catching facility by exploiting an existing forest conservation dam. It has confirmed the excellent economic efficiency and workability of the method to build a driftwood catching facility at the upstream side of an existing forest conservation dam without adjusting the dam.

(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 forestry practices, such as utilization of containerized seedlings and “simultaneous operation of harvesting and planting”; (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”.

The Shikoku Regional Forest Office has introduced a system to improve trap patrolling efficiency and use wildlife for gibiers (game meat) because forests have been damaged by wildlife. The system uses LPWA (low-power, wide-area network) and mobile data communications to immediately inform hunters of trapped animals through mobile terminals.

The system improves not only the efficiency of hunter’s trap patrolling and animal catching but also that of the administration sector’s operations regarding forest damage prevention.

Image of a catch information system using IoT
(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 FY2018, a total of 140 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.

源: 林務局．

Fig. IV-1 Cases of “Japan’s Forests with Breathtaking Views”
Chapter V  Reconstruction after the Great East Japan Earthquake

1. Recovery of Forests, Forestry and the Wood Industry

(1) Recovery of Forests, Forestry and the Wood Industry
In March 2011, the Great East Japan Earthquake caused damages to forests and forest conservation facilities and forest roads in 15 prefectures. By January 2020, 98% of the recovery works had been completed.

The Forestry Agency supported disposal, restoration, and improvement of wood processing and distribution facilities which were damaged (115 locations nationwide). As of April 2019, operations had restarted at 97 locations. Production of logs and wooden products have generally recovered to the respective levels before the earthquake.

(2) Restoration of Coastal Forests
Approximately 164 km of coastal disaster-prevention forests damaged by the tsunami required restoration work. Restoration works were started on all of them, and the works were completed on about 130 km of these damaged coastal disaster-prevention forests at the end of January 2020.

The restoration of coastal disaster-prevention forests is being done by planting and nurturing trees with the participation and cooperation of residents, companies, and NPOs.

(3) Promotion of Wood Use for Reconstruction and Contribution by Forests and Forestry
More than 25% of “emergency temporary houses” (about 15,000 dwellings) were constructed of wood in three prefectures (Iwate, Miyagi and Fukushima). By the end of September 2019, about 30% (about 9,000 dwellings) of completed public houses for disaster victims (reconstruction houses) were constructed of wood.

The large quantity of woody disaster debris produced by the earthquake and tsunami was used as raw material for engineered wood, boiler fuel, and biomass power plants.

To address population decline, hollowing of industry and other problems common to all regions of Japan, the forestry and wood processing industry also takes steps to achieve reconstruction using forest resources.
(1) Recovery of Forests, Forestry and the Wood Industry

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2. Reconstruction after the Nuclear Accident

(1) Measures against Radioactive Substances in Forests

Based on “Comprehensive Efforts towards the Regeneration of Forests and Forestry in Fukushima” (March 2016), the GOJ is undertaking efforts to restore “satoyama forests” around residential areas, to regenerate forestry and to disseminate information. The GOJ conducts investigative research about trends of distribution of radioactive substances within forests.

The GOJ has conducted “Satoyama Forest Restoration Model Projects” which comprehensively promotes projected measures to restore satoyama forest. 14 model districts mainly within areas where evacuation orders have been lifted are selected by March 2019 (Fig. V – 1).

The outcomes gained through the projects will be reflected to implement proper measures for the restoration around residential areas.
(2) Supply Safe Forest Products

The Forestry Agency has developed “Guidelines Concerning Management of Bed-log Cultivation of Mushrooms to Decrease Radioactive Cesium”. Shipment restrictions on mushrooms are to be lifted when cultivation is managed based on this guideline and it has been determined that no mushrooms are produced whose radioactivity exceeds the standard values.

It is also to be noted that shipment restrictions for wild mushrooms and wild vegetables have been gradually lifted through appropriate inspection and shipment management.

To supply safe wood products to consumers, the Forestry Agency supports research and analysis on radioactive materials of wood products and the relevant work environment, and initiatives to develop arrangements for certifying the safety of wood products.
Appendix

1. Forestry-related Fundamental Figures

<table>
<thead>
<tr>
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</tr>
</thead>
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<tr>
<td>i Nominal gross domestic product (GDP)</td>
<td>billion yen</td>
<td>526,706</td>
<td>524,133</td>
<td>500,354</td>
<td>513,876</td>
<td>531,320</td>
<td>535,537</td>
<td>545,897</td>
<td>547,126</td>
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<td>Forestry</td>
<td>billion yen</td>
<td>172</td>
<td>134</td>
<td>190</td>
<td>214</td>
<td>206</td>
<td>211</td>
<td>215</td>
<td>228</td>
</tr>
<tr>
<td>Forestry / GDP</td>
<td>%</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
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</tr>
<tr>
<td>ii Total number of workers</td>
<td>million</td>
<td>64.46</td>
<td>63.56</td>
<td>62.57</td>
<td>63.71</td>
<td>64.01</td>
<td>64.65</td>
<td>65.30</td>
<td>66.64</td>
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<tr>
<td>Forestry</td>
<td>million</td>
<td>0.07</td>
<td>0.06</td>
<td>0.08</td>
<td>0.08</td>
<td>0.07</td>
<td>0.06</td>
<td>0.06</td>
<td>0.07</td>
</tr>
<tr>
<td>Forestry / Total # of workers</td>
<td>%</td>
<td>0.11</td>
<td>0.09</td>
<td>0.13</td>
<td>0.13</td>
<td>0.11</td>
<td>0.09</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>iii Land area of Japan</td>
<td>million ha</td>
<td>37.79</td>
<td>37.79</td>
<td>38.70</td>
<td>38.80</td>
<td>37.80</td>
<td>37.80</td>
<td>37.80</td>
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<tr>
<td>iv Forest</td>
<td>million ha</td>
<td>25.15</td>
<td>25.12</td>
<td>25.10</td>
<td>25.08</td>
<td>25.08</td>
<td>25.08</td>
<td>25.05</td>
<td>25.05</td>
</tr>
<tr>
<td>Forest / Land area</td>
<td>%</td>
<td>67.5</td>
<td>67.4</td>
<td>67.3</td>
<td>67.3</td>
<td>67.3</td>
<td>67.3</td>
<td>67.2</td>
<td>67.2</td>
</tr>
<tr>
<td>v Protection forest</td>
<td>million ha</td>
<td>8.93</td>
<td>11.65</td>
<td>12.02</td>
<td>12.14</td>
<td>12.17</td>
<td>12.18</td>
<td>12.20</td>
<td>12.21</td>
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<tr>
<td>Protection forest / Forest</td>
<td>%</td>
<td>35.5</td>
<td>46.4</td>
<td>47.9</td>
<td>48.4</td>
<td>48.5</td>
<td>48.6</td>
<td>48.7</td>
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</tr>
<tr>
<td>vi Growing stock of forest</td>
<td>billion m³</td>
<td>3.5</td>
<td>4.0</td>
<td>4.4</td>
<td>4.9</td>
<td>4.9</td>
<td>4.9</td>
<td>5.2</td>
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<tr>
<td>vii Industrial wood supply</td>
<td>million m³</td>
<td>101.01</td>
<td>87.42</td>
<td>71.88</td>
<td>75.80</td>
<td>75.16</td>
<td>78.08</td>
<td>81.72</td>
<td>82.48</td>
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<tr>
<td>Domestic production</td>
<td>million m³</td>
<td>19.06</td>
<td>17.90</td>
<td>18.92</td>
<td>23.65</td>
<td>24.92</td>
<td>27.14</td>
<td>29.53</td>
<td>30.20</td>
</tr>
<tr>
<td>Import</td>
<td>million m³</td>
<td>81.95</td>
<td>69.52</td>
<td>52.96</td>
<td>52.15</td>
<td>50.24</td>
<td>50.94</td>
<td>52.19</td>
<td>52.28</td>
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<tr>
<td>Self-sufficiency rate</td>
<td>%</td>
<td>18.9</td>
<td>20.5</td>
<td>26.3</td>
<td>31.2</td>
<td>33.2</td>
<td>34.8</td>
<td>36.1</td>
<td>36.6</td>
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<tr>
<td>viii New housing starts</td>
<td>million units</td>
<td>1.23</td>
<td>1.24</td>
<td>0.81</td>
<td>0.89</td>
<td>0.91</td>
<td>0.97</td>
<td>0.96</td>
<td>0.94</td>
</tr>
<tr>
<td>Ratio of wooden structure</td>
<td>%</td>
<td>45.2</td>
<td>43.9</td>
<td>56.6</td>
<td>54.9</td>
<td>55.5</td>
<td>56.5</td>
<td>56.5</td>
<td>57.2</td>
</tr>
</tbody>
</table>

Notes: 
"Industrial wood supply," "Domestic production," and "Import" in "vii" refer to the volume in roundwood equivalent.
Sources: 
1: Cabinet Office "SNA (System of National Accounts)"
2: Ministry of Internal Affairs and Communications "Labor Force Survey" (Iwate, Miyagi and Fukushima Prefectures are excluded from the data for 2011.)
3: Ministry of Land, Infrastructure, Transport and Tourism (MLIT) "Land Survey of Prefectures, Cities, Wards, Towns and Villages, Geographical Survey Institute"
4: Forestry Agency "Wood Supply and Demand Chart"
5: MLIT "Statistics on Building Construction Starts"

2. Forestry Output

(Unit: billion yen)

<table>
<thead>
<tr>
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<tr>
<td>Forestry output</td>
<td>531.15</td>
<td>471.05</td>
<td>425.70</td>
<td>484.00</td>
<td>454.49</td>
<td>470.25</td>
<td>488.39</td>
<td>502.52</td>
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<tr>
<td>Wood production</td>
<td>322.18</td>
<td>270.50</td>
<td>195.29</td>
<td>286.86</td>
<td>234.08</td>
<td>237.00</td>
<td>256.00</td>
<td>264.82</td>
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<td>Softwood</td>
<td>265.33</td>
<td>177.41</td>
<td>170.16</td>
<td>215.88</td>
<td>198.19</td>
<td>195.39</td>
<td>206.06</td>
<td>209.99</td>
</tr>
<tr>
<td>Slagi (Japanese Cedar)</td>
<td>123.78</td>
<td>87.53</td>
<td>93.50</td>
<td>129.62</td>
<td>118.09</td>
<td>116.74</td>
<td>122.68</td>
<td>126.44</td>
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<tr>
<td>Hardwood</td>
<td>54.72</td>
<td>31.71</td>
<td>23.76</td>
<td>18.96</td>
<td>19.51</td>
<td>19.06</td>
<td>18.40</td>
<td>18.42</td>
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<tr>
<td>Fuelwood and charcoal production</td>
<td>6.16</td>
<td>6.09</td>
<td>5.08</td>
<td>5.66</td>
<td>5.31</td>
<td>5.49</td>
<td>5.44</td>
<td>5.54</td>
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<tr>
<td>Grown mushroom production</td>
<td>196.89</td>
<td>198.50</td>
<td>218.91</td>
<td>208.40</td>
<td>210.52</td>
<td>221.39</td>
<td>220.08</td>
<td>225.68</td>
</tr>
<tr>
<td>Minor forestry products production</td>
<td>5.92</td>
<td>1.96</td>
<td>6.42</td>
<td>4.08</td>
<td>4.54</td>
<td>6.37</td>
<td>4.73</td>
<td>5.98</td>
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<tr>
<td>Forestry income produced</td>
<td>351.91</td>
<td>245.78</td>
<td>229.22</td>
<td>252.62</td>
<td>251.02</td>
<td>260.10</td>
<td>269.54</td>
<td>269.59</td>
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Notes: 
1: Due to rounding, some totals may not correspond with the sum of the separate figures.
2: "Wood production" includes the output of wood chips for fuel since 2011.
3: "Fuelwood and charcoal production" includes the output of bamboo wood and charcoal dust since 2001.
4: "Grown mushroom production" includes the output of eryngii mushrooms and other varieties of grown mushrooms since 2001.
5: "Minor forestry products production" includes the output of j apan wax and j apane lacquer since 2002, the output of wild grass (wild vegetables and wild herbs) since 2010 and the output of giber since 2016.
Source: Ministry of Agriculture, Forestry and Fisheries (MAFF) "Forestry Output"
### 3. Current State of Forest Resources

#### Table: Classification of Forest Resources

<table>
<thead>
<tr>
<th>Classification</th>
<th>Total</th>
<th>Standing timber area (canopy cover more than 30%)</th>
<th>Treeless land (canopy cover less than 30%)</th>
<th>Bamboo groves</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>Growing stock</td>
<td>Area</td>
<td>Growing stock</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Under the Forestry Agency’s jurisdiction</td>
<td>25,048</td>
<td>5,241.50</td>
<td>10,204</td>
<td>3,308.42</td>
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<tr>
<td>State-owned</td>
<td>7,659</td>
<td>1,225.93</td>
<td>2,288</td>
<td>513.04</td>
</tr>
<tr>
<td>Government reforestation</td>
<td>7,508</td>
<td>1,220.72</td>
<td>2,282</td>
<td>512.03</td>
</tr>
<tr>
<td>Others</td>
<td>85</td>
<td>19.44</td>
<td>73</td>
<td>19.21</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under other Agency’s jurisdiction</td>
<td>17,389</td>
<td>4,015.57</td>
<td>7,916</td>
<td>2,795.38</td>
</tr>
<tr>
<td>Private forest</td>
<td>2,995</td>
<td>615.56</td>
<td>1,334</td>
<td>397.05</td>
</tr>
<tr>
<td>Prefecture</td>
<td>1,292</td>
<td>252.69</td>
<td>529</td>
<td>145.59</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private forest</td>
<td>14,347</td>
<td>3,394.33</td>
<td>6,569</td>
<td>2,395.55</td>
</tr>
<tr>
<td>Others</td>
<td>48</td>
<td>5.68</td>
<td>13</td>
<td>2.78</td>
</tr>
</tbody>
</table>

#### Notes:
1. Data cover the forests defined in Article 2 of the Forest Act.
2. "Others" refer to forests that are not subject to the "Regional Forest Plans" for non-national forest under Article 5 of the Forest Act, and for national forest under Article 7-2 of the Forest Act.
3. Figures are as of March 31, 2017.
4. Due to rounding, some totals may not correspond with the sum of the separate figures.

Source: Forestry Agency

### 4. Planted Area by Tree Species

#### Table: Planted Forest by Species

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Sugi (Japanese cedar)</th>
<th>Hinoki (Japanese cypress)</th>
<th>Matsu (Pine)</th>
<th>Karamatsu (Japanese larch)</th>
<th>Others</th>
<th>Hardwood</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>(31,316)</td>
<td>(8,223)</td>
<td>(11,574)</td>
<td>(233)</td>
<td>(2,524)</td>
<td>(4,954)</td>
<td>(3,808)</td>
</tr>
<tr>
<td></td>
<td>28,480</td>
<td>7,967</td>
<td>10,745</td>
<td>223</td>
<td>2,493</td>
<td>4,014</td>
<td>3,038</td>
</tr>
<tr>
<td>2005</td>
<td>(25,584)</td>
<td>(5,216)</td>
<td>(7,096)</td>
<td>(226)</td>
<td>(3,534)</td>
<td>(5,728)</td>
<td>(3,784)</td>
</tr>
<tr>
<td></td>
<td>22,498</td>
<td>5,011</td>
<td>6,307</td>
<td>183</td>
<td>3,423</td>
<td>4,611</td>
<td>2,963</td>
</tr>
<tr>
<td></td>
<td>16,388</td>
<td>3,844</td>
<td>2,262</td>
<td>237</td>
<td>4,418</td>
<td>3,381</td>
<td>2,246</td>
</tr>
<tr>
<td>2014</td>
<td>(21,088)</td>
<td>(5,185)</td>
<td>(2,543)</td>
<td>(554)</td>
<td>(4,603)</td>
<td>(5,709)</td>
<td>(2,492)</td>
</tr>
<tr>
<td></td>
<td>17,720</td>
<td>5,098</td>
<td>2,404</td>
<td>518</td>
<td>4,128</td>
<td>3,622</td>
<td>1,950</td>
</tr>
<tr>
<td>2015</td>
<td>(19,429)</td>
<td>(5,537)</td>
<td>(2,039)</td>
<td>(185)</td>
<td>(4,467)</td>
<td>(5,250)</td>
<td>(1,950)</td>
</tr>
<tr>
<td></td>
<td>16,607</td>
<td>5,390</td>
<td>1,930</td>
<td>168</td>
<td>4,027</td>
<td>3,450</td>
<td>1,642</td>
</tr>
<tr>
<td>2016</td>
<td>(21,106)</td>
<td>(6,766)</td>
<td>(1,972)</td>
<td>(291)</td>
<td>(5,017)</td>
<td>(4,983)</td>
<td>(2,077)</td>
</tr>
<tr>
<td></td>
<td>18,390</td>
<td>6,570</td>
<td>1,852</td>
<td>253</td>
<td>4,552</td>
<td>3,383</td>
<td>1,781</td>
</tr>
<tr>
<td>2017</td>
<td>(22,069)</td>
<td>(7,102)</td>
<td>(1,979)</td>
<td>(406)</td>
<td>(5,388)</td>
<td>(5,423)</td>
<td>(1,771)</td>
</tr>
<tr>
<td></td>
<td>19,866</td>
<td>6,845</td>
<td>1,874</td>
<td>388</td>
<td>5,179</td>
<td>4,110</td>
<td>1,471</td>
</tr>
<tr>
<td>2018</td>
<td>(21,568)</td>
<td>(6,899)</td>
<td>(1,845)</td>
<td>(277)</td>
<td>(5,486)</td>
<td>(5,106)</td>
<td>(1,956)</td>
</tr>
<tr>
<td></td>
<td>19,340</td>
<td>6,597</td>
<td>1,760</td>
<td>272</td>
<td>5,165</td>
<td>3,799</td>
<td>1,747</td>
</tr>
</tbody>
</table>

#### Notes:
1. Figures do not include national forest.
2. Figures in parentheses refer to the total area which includes area planted as lower layer of multi-layered forest.

Source: Forestry Agency
### 5. Planted Forest Area by Age Classes

<table>
<thead>
<tr>
<th>(FY)</th>
<th>Total</th>
<th>Private and public forest</th>
<th>National forest</th>
<th>Total</th>
<th>Private and public forest</th>
<th>National forest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Subtotal</td>
<td>Sawnwood</td>
<td>Roundwood</td>
<td>Others</td>
<td>Subtotal</td>
</tr>
<tr>
<td>2008</td>
<td>544</td>
<td>434 114</td>
<td>5.66</td>
<td>3.68</td>
<td>2.28</td>
<td>0.39</td>
</tr>
<tr>
<td>2010</td>
<td>556</td>
<td>445 110</td>
<td>6.65</td>
<td>4.43</td>
<td>2.70</td>
<td>0.42</td>
</tr>
<tr>
<td>2014</td>
<td>465</td>
<td>339 126</td>
<td>7.69</td>
<td>5.21</td>
<td>2.91</td>
<td>0.33</td>
</tr>
<tr>
<td>2015</td>
<td>452</td>
<td>341 112</td>
<td>8.13</td>
<td>5.65</td>
<td>2.97</td>
<td>0.35</td>
</tr>
<tr>
<td>2016</td>
<td>440</td>
<td>319 121</td>
<td>8.23</td>
<td>5.76</td>
<td>2.95</td>
<td>0.30</td>
</tr>
<tr>
<td>2017</td>
<td>410</td>
<td>304 106</td>
<td>8.12</td>
<td>5.56</td>
<td>2.75</td>
<td>0.28</td>
</tr>
<tr>
<td>2018</td>
<td>370</td>
<td>269 101</td>
<td>7.46</td>
<td>4.94</td>
<td>2.37</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Notes 1: Volumes are in roundwood equivalent.
2: “Sawnwood” means the wood such as building materials and wood packaging materials.
3: “Roundwood” means the wood such as scaffolding timber and stakes.
4: “Others” means the wood such as wood chip and wood powder (sawdust).
5: Due to rounding, some totals may not correspond with the sum of the separate figures.

Source: Forestry Agency

### 6. Thinned Area and Use of Thinnings

<table>
<thead>
<tr>
<th>(FY)</th>
<th>Thinned area (1,000ha)</th>
<th>Volume of thinnings used (million m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thinned area (1,000ha)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>544</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>556</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>465</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td>452</td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td>440</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td>410</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>370</td>
</tr>
</tbody>
</table>

Notes 1: Volumes are in roundwood equivalent.
2: "Sawnwood" means the wood such as building materials and wood packaging materials.
3: "Roundwood" means the wood such as scaffolding timber and stakes.
4: "Others" means the wood such as wood chip and wood powder (sawdust).
5: Due to rounding, some totals may not correspond with the sum of the separate figures.

Source: Forestry Agency

### 7. Forest Area by Owners

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Forest area (ha)</td>
</tr>
<tr>
<td>Total</td>
<td>17,626,761</td>
</tr>
<tr>
<td>Private</td>
<td>13,563,827</td>
</tr>
<tr>
<td>Public</td>
<td>3,370,380</td>
</tr>
<tr>
<td>Prefecture</td>
<td>1,271,571</td>
</tr>
<tr>
<td>Public corporation</td>
<td>391,189</td>
</tr>
<tr>
<td>Municipality</td>
<td>1,406,063</td>
</tr>
<tr>
<td>Property ward</td>
<td>301,557</td>
</tr>
<tr>
<td>Incorporated Administrative Agencies</td>
<td>692,554</td>
</tr>
</tbody>
</table>

Notes 1: Due to rounding, some totals may not correspond with the sum of the separate figures.
2: "Incorporated Administrative Agencies” include Independent Administrative Agencies, National University Corporations and Special Corporations.

Source: MAFF “2015 Census of Agriculture and Forestry”
8. Number of Forestry Management Entities and their Forest Area

<table>
<thead>
<tr>
<th>Number Area</th>
<th>Number Area</th>
<th>Number Area</th>
<th>Number Area</th>
<th>Number Area</th>
<th>Number Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5ha</td>
<td>3-5ha</td>
<td>5-20ha</td>
<td>20-50ha</td>
<td>50-100ha</td>
<td>100ha+</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>87,284</td>
<td>3,373,374</td>
<td>2,247</td>
<td>1,170</td>
<td>23,767</td>
<td>85,988</td>
</tr>
<tr>
<td>41,885</td>
<td>389,986</td>
<td>12,193</td>
<td>348,521</td>
<td>3,572</td>
<td>235,747</td>
</tr>
<tr>
<td>12,139</td>
<td>315,103</td>
<td>11,129</td>
<td>315,103</td>
<td>3,572</td>
<td>235,747</td>
</tr>
<tr>
<td>23,329</td>
<td>84,334</td>
<td>40,417</td>
<td>374,113</td>
<td>11,129</td>
<td>315,103</td>
</tr>
<tr>
<td>84,334</td>
<td>40,417</td>
<td>374,113</td>
<td>11,129</td>
<td>315,103</td>
<td>2,768</td>
</tr>
<tr>
<td>84,334</td>
<td>40,417</td>
<td>374,113</td>
<td>11,129</td>
<td>315,103</td>
<td>2,768</td>
</tr>
</tbody>
</table>

Notes 1: Symbol of "-" means not applicable.
2: Figures in parentheses refer to the percentage of each to total volume.
3: "Forestry management entities" correspond to either of the following. (1) The forestry on the scale whose owned forest area exceed 3 hectares.

9. Roundwood Production

<table>
<thead>
<tr>
<th>By tree species</th>
<th>Softwood</th>
<th>Hardwood</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugi (Japanese cedar) for sawnwood</td>
<td>2,728</td>
<td>6,737</td>
<td>9,049</td>
</tr>
<tr>
<td>Hinoki (Japanese cypress)</td>
<td>2,273</td>
<td>2,014</td>
<td>2,029</td>
</tr>
<tr>
<td>Akamatsu (Japanese red pine)</td>
<td>1,034</td>
<td>783</td>
<td>694</td>
</tr>
<tr>
<td>Kuromatsuya (Japanese black pine)</td>
<td>2,410</td>
<td>2,910</td>
<td>2,816</td>
</tr>
<tr>
<td>Karamatsu (Japanese larch), Ezo-matsuya (Yeosu spruce), Todomatsuya (Sakhalin fir)</td>
<td>3,327</td>
<td>2,471</td>
<td>2,404</td>
</tr>
</tbody>
</table>

By use

<table>
<thead>
<tr>
<th>Sawnwood</th>
<th>Plywood</th>
<th>Chips</th>
</tr>
</thead>
<tbody>
<tr>
<td>12,798</td>
<td>12,139</td>
<td>4,036</td>
</tr>
<tr>
<td>11,571</td>
<td>11,139</td>
<td>2,410</td>
</tr>
<tr>
<td>10,582</td>
<td>10,327</td>
<td>3,327</td>
</tr>
<tr>
<td>12,211</td>
<td>12,044</td>
<td>2,471</td>
</tr>
<tr>
<td>12,044</td>
<td>12,139</td>
<td>2,404</td>
</tr>
<tr>
<td>12,139</td>
<td>12,044</td>
<td>2,471</td>
</tr>
<tr>
<td>12,532</td>
<td>12,532</td>
<td>2,404</td>
</tr>
</tbody>
</table>

Notes 1: Figures in parentheses refer to the percentage of each to total volume.
2: Figures in angle brackets refer to the percentage of sugi for sawnwood to the volume for sawnwood of all species.
3: Roundwood Production excludes forest residue.
4: Due to rounding, some totals may not correspond with the sum of the separate figures.
5: Total figures is the sum of "Sawnwood", "Plywood" and "Chips".
6: Production of roundwood for LVL is added to "Plywood" since 2017.
Source: MAFF "Wood Supply and Demand Report"
## 10. Wood Supply and Demand Chart (roundwood equivalent)

(Unit: 1,000 m³)

<table>
<thead>
<tr>
<th>Demand</th>
<th>Industrial use</th>
<th>Domestic consumption</th>
<th>Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>Total</td>
<td>Subtotal</td>
<td>Sawmood</td>
</tr>
<tr>
<td>Total</td>
<td>(19,716)</td>
<td>(6,792)</td>
<td>(6,792)</td>
</tr>
<tr>
<td>Roundwood</td>
<td>27,990</td>
<td>16,290</td>
<td>4,860</td>
</tr>
<tr>
<td>Forest residue</td>
<td>230</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>Import</td>
<td>44,964</td>
<td>44,964</td>
<td>9,418</td>
</tr>
<tr>
<td>Fuel wood</td>
<td>9,020</td>
<td>9,020</td>
<td>9,016</td>
</tr>
</tbody>
</table>

### Notes:
1. Figures in parentheses refer to the volume of pulp and chips from mill residue or construction waste, which are already included in the volume of sawmood, plywood, or others.
2. "Forest residue" refers to branches or roots carried into mills for use.
3. Wood pellets produced domestically are included in "Fuel wood" of Domestic production.
4. Due to rounding, some totals may not correspond with the sum of the separate figures.

Source: Forestry Agency "Wood Supply and Demand Chart", 2018
11. Wood Supply/Demand (roundwood equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Fuel wood</th>
<th>Sawnwood</th>
<th>Pulp and chips</th>
<th>Plywood</th>
<th>Others</th>
<th>Domestic production</th>
<th>Import</th>
<th>Wood demand for industrial use by sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>65,200</td>
<td>45,278</td>
<td>19,928</td>
<td>37,789</td>
<td>10,189</td>
<td>3,178</td>
<td>5,391</td>
<td>47,789</td>
<td>2,484</td>
</tr>
<tr>
<td>1960</td>
<td>71,467</td>
<td>56,547</td>
<td>14,920</td>
<td>7,379</td>
<td>10,189</td>
<td>3,178</td>
<td>5,391</td>
<td>49,006</td>
<td>7,541</td>
</tr>
<tr>
<td>1965</td>
<td>76,798</td>
<td>70,539</td>
<td>6,268</td>
<td>47,084</td>
<td>14,339</td>
<td>5,187</td>
<td>3,624</td>
<td>50,375</td>
<td>20,155</td>
</tr>
<tr>
<td>1975</td>
<td>99,303</td>
<td>96,369</td>
<td>1,139</td>
<td>55,341</td>
<td>27,298</td>
<td>11,173</td>
<td>2,559</td>
<td>34,577</td>
<td>61,792</td>
</tr>
<tr>
<td>1980</td>
<td>112,211</td>
<td>108,964</td>
<td>1,093</td>
<td>56,713</td>
<td>35,898</td>
<td>12,840</td>
<td>3,546</td>
<td>34,557</td>
<td>74,403</td>
</tr>
<tr>
<td>1985</td>
<td>95,441</td>
<td>92,901</td>
<td>1,552</td>
<td>44,539</td>
<td>32,915</td>
<td>11,211</td>
<td>4,230</td>
<td>33,074</td>
<td>59,927</td>
</tr>
<tr>
<td>1990</td>
<td>113,155</td>
<td>111,152</td>
<td>1,241</td>
<td>53,877</td>
<td>41,344</td>
<td>14,546</td>
<td>1,358</td>
<td>29,369</td>
<td>81,793</td>
</tr>
<tr>
<td>1995</td>
<td>113,698</td>
<td>111,922</td>
<td>1,017</td>
<td>50,384</td>
<td>44,922</td>
<td>13,059</td>
<td>2,557</td>
<td>34,577</td>
<td>89,006</td>
</tr>
<tr>
<td>2000</td>
<td>101,006</td>
<td>99,263</td>
<td>1,839</td>
<td>40,946</td>
<td>42,186</td>
<td>13,825</td>
<td>2,306</td>
<td>22,022</td>
<td>81,241</td>
</tr>
<tr>
<td>2005</td>
<td>87,423</td>
<td>85,857</td>
<td>1,565</td>
<td>32,901</td>
<td>37,608</td>
<td>12,586</td>
<td>2,763</td>
<td>17,176</td>
<td>68,681</td>
</tr>
<tr>
<td>2010</td>
<td>71,884</td>
<td>70,253</td>
<td>1,099</td>
<td>25,379</td>
<td>32,350</td>
<td>9,556</td>
<td>2,968</td>
<td>18,236</td>
<td>52,691</td>
</tr>
<tr>
<td>2015</td>
<td>75,160</td>
<td>70,883</td>
<td>3,962</td>
<td>25,358</td>
<td>31,783</td>
<td>9,914</td>
<td>3,829</td>
<td>21,797</td>
<td>49,086</td>
</tr>
<tr>
<td>2016</td>
<td>82,478</td>
<td>73,184</td>
<td>9,020</td>
<td>25,708</td>
<td>32,009</td>
<td>11,003</td>
<td>4,465</td>
<td>23,680</td>
<td>50,436</td>
</tr>
</tbody>
</table>

Notes:
1. "Self-sufficiency rate" is calculated by domestic production divided by total or subtotal in each category.
2. "Others" include items such as roundwood for export.
3. Figures in parentheses refer to the volume of wood chip from mill residue or construction waste, which are already included in the volume of sawnwood, plywood, or others. Therefore, these figures are excluded from "total" and "subtotal".
4. Due to rounding, some totals may not correspond with the sum of the separate figures.
5. Fuel wood includes wood chip for fuel utilized by woody biomass power plants since 2014.
6. Among "relative change from the previous year", "self-sufficiency rate" field is the difference from the previous year.

Source: Forestry Agency "Wood Supply and Demand Chart"

12. Trend of Domestic and Imported Wood Supply/Demand (roundwood equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total wood supply/demand</th>
<th>Domestic production</th>
<th>Import</th>
<th>Self-sufficiency rate (%)</th>
<th>Relative change from the previous year (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>101,006</td>
<td>99,263</td>
<td>1,743</td>
<td>81.854</td>
<td>82,478</td>
</tr>
<tr>
<td>2005</td>
<td>87,423</td>
<td>85,857</td>
<td>1,565</td>
<td>68,681</td>
<td>15.6</td>
</tr>
<tr>
<td>2010</td>
<td>71,884</td>
<td>70,253</td>
<td>1,099</td>
<td>62,691</td>
<td>11.9</td>
</tr>
<tr>
<td>2015</td>
<td>75,160</td>
<td>70,883</td>
<td>3,962</td>
<td>59,086</td>
<td>11.9</td>
</tr>
<tr>
<td>2016</td>
<td>82,478</td>
<td>73,184</td>
<td>9,020</td>
<td>50,436</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Notes:
1. "Self-sufficiency rate" is calculated by domestic production divided by total or subtotal in each category.
2. "Others" include items such as roundwood for export.
3. Figures in parentheses refer to the volume of wood chip from mill residue or construction waste, which are already included in the volume of sawnwood, plywood, or others. Therefore, these figures are excluded from "total" and "subtotal".
4. Due to rounding, some totals may not correspond with the sum of the separate figures.
5. Fuel wood includes wood chip for fuel utilized by woody biomass power plants since 2014.
6. Among "relative change from the previous year", "self-sufficiency rate" field is the difference from the previous year.

Source: Forestry Agency "Wood Supply and Demand Chart"
13. Wood Supply by Country (roundwood equivalent)  

<table>
<thead>
<tr>
<th>Year</th>
<th>North America</th>
<th>Subtotal</th>
<th>U.S.A.</th>
<th>Canada</th>
<th>Southeast Asia</th>
<th>Subtotal</th>
<th>Malaysia</th>
<th>Singapore</th>
<th>others</th>
<th>Russia Federation</th>
<th>Europe</th>
<th>New Zealand</th>
<th>others</th>
<th>China</th>
<th>Viet Nam</th>
<th>others</th>
<th>Domestic wood</th>
<th>Wood for others</th>
<th>others</th>
<th>Total</th>
<th>Wood for others</th>
<th>Wood for others</th>
<th>Wood for others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>28.9</td>
<td>(18.8)</td>
<td>14,460</td>
<td>14,240</td>
<td>13.7</td>
<td>(12.2)</td>
<td>15.7</td>
<td>14.9</td>
<td>12.2</td>
<td>13.5</td>
<td>12.2</td>
<td>(6.3)</td>
<td>12.2</td>
<td>12.8</td>
<td>12.2</td>
<td>13.5</td>
<td>18.2</td>
<td>13.5</td>
<td>12.2</td>
<td>50.0</td>
<td>18.2</td>
<td>12.0</td>
<td>18.2</td>
</tr>
<tr>
<td>2005</td>
<td>28,700</td>
<td>16,129</td>
<td>9,011</td>
<td>7,800</td>
<td>78.0</td>
<td>(68.9)</td>
<td>79.4</td>
<td>78.0</td>
<td>76.0</td>
<td>84.0</td>
<td>76.0</td>
<td>(66.0)</td>
<td>76.0</td>
<td>77.0</td>
<td>76.0</td>
<td>79.4</td>
<td>81.8</td>
<td>79.4</td>
<td>76.0</td>
<td>49.0</td>
<td>79.4</td>
<td>77.0</td>
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</tr>
<tr>
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<td>15,000</td>
<td>10,591</td>
<td>6,005</td>
<td>6,005</td>
<td>70.0</td>
<td>(61.5)</td>
<td>70.0</td>
<td>69.0</td>
<td>68.5</td>
<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
<td>70.0</td>
<td>71.8</td>
<td>68.5</td>
<td>68.5</td>
<td>39.0</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
</tr>
<tr>
<td>2014</td>
<td>15,000</td>
<td>10,591</td>
<td>6,005</td>
<td>6,005</td>
<td>70.0</td>
<td>(61.5)</td>
<td>70.0</td>
<td>69.0</td>
<td>68.5</td>
<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
<td>68.5</td>
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<td>70.0</td>
<td>71.8</td>
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<td>68.5</td>
<td>39.0</td>
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<td>69.0</td>
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<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
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<td>68.5</td>
<td>70.0</td>
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<td>69.0</td>
<td>68.5</td>
<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
<td>70.0</td>
<td>71.8</td>
<td>68.5</td>
<td>68.5</td>
<td>39.0</td>
<td>68.5</td>
<td>69.0</td>
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</tr>
<tr>
<td>2017</td>
<td>15,000</td>
<td>10,591</td>
<td>6,005</td>
<td>6,005</td>
<td>70.0</td>
<td>(61.5)</td>
<td>70.0</td>
<td>69.0</td>
<td>68.5</td>
<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
<td>70.0</td>
<td>71.8</td>
<td>68.5</td>
<td>68.5</td>
<td>39.0</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
</tr>
<tr>
<td>2018</td>
<td>15,000</td>
<td>10,591</td>
<td>6,005</td>
<td>6,005</td>
<td>70.0</td>
<td>(61.5)</td>
<td>70.0</td>
<td>69.0</td>
<td>68.5</td>
<td>77.0</td>
<td>68.5</td>
<td>(65.0)</td>
<td>68.5</td>
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<td>71.8</td>
<td>68.5</td>
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<td>39.0</td>
<td>68.5</td>
<td>69.0</td>
<td>68.5</td>
</tr>
</tbody>
</table>

Notes: 1. Figures refer to the sum of domestic/imported roundwood volume and imported products volume (sawnwood, plywood, and pulp and chips) converted into roundwood equivalent.
2. "Others" of "Southeast Asia" include Philippines, Singapore, Brunei, Papua New Guinea, and Solomon.
3. "Others" of "Others" include Viet Nam until 2014.
4. Figures in parentheses refer to the percentage of each volume to the "total" volume of each year.
5. Due to rounding, some totals may not correspond with the sum of the separate figures.

Sources: Ministry of Finance "Trade Statistics of Japan", Forestry Agency "Wood Supply and Demand Chart"

14. Number of Mills/Factories and Production Volumes

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Number of mills</td>
<td>11,692</td>
<td>9,011</td>
<td>6,568</td>
<td>5,469</td>
<td>5,206</td>
<td>4,934</td>
<td>4,814</td>
<td>4,582</td>
</tr>
<tr>
<td>2005</td>
<td>Number of mills</td>
<td>10,591</td>
<td>8,225</td>
<td>5,720</td>
<td>4,621</td>
<td>4,358</td>
<td>4,086</td>
<td>3,954</td>
<td>3,720</td>
</tr>
<tr>
<td>2010</td>
<td>Number of mills</td>
<td>9,011</td>
<td>6,720</td>
<td>4,221</td>
<td>3,121</td>
<td>2,858</td>
<td>2,586</td>
<td>2,454</td>
<td>2,220</td>
</tr>
<tr>
<td>2014</td>
<td>Number of mills</td>
<td>8,225</td>
<td>5,920</td>
<td>3,421</td>
<td>2,321</td>
<td>2,058</td>
<td>1,786</td>
<td>1,654</td>
<td>1,420</td>
</tr>
<tr>
<td>2015</td>
<td>Number of mills</td>
<td>7,051</td>
<td>4,751</td>
<td>2,251</td>
<td>1,151</td>
<td>888</td>
<td>616</td>
<td>484</td>
<td>350</td>
</tr>
<tr>
<td>2016</td>
<td>Number of mills</td>
<td>7,051</td>
<td>4,751</td>
<td>2,251</td>
<td>1,151</td>
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<td>1,151</td>
<td>888</td>
<td>616</td>
<td>484</td>
<td>350</td>
</tr>
</tbody>
</table>

Notes: 1. "Sawnwood" excludes sawmills with output power less than 7.5kW.
2. Figures of LVL is added to figures of "Plywood" since 2017.
3. Production of glued laminated lumber has used the data from Japan Laminated Wood Products Association until 2016.
5. ... means figures not available.

Source: MAFF "Wood Supply and Demand Report", Japan Laminated Wood Products Association
Full text (in Japanese) of the “Annual Report on Forest and Forestry for FY2019” is available on the website of the Forestry Agency:
https://www.rinya.maff.go.jp/j/kikaku/hakusyo/r1hakusyo/index.html

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Contact the Ministry of Agriculture, Forestry and Fisheries