1. Promoting Appropriate Management and Conservation of Forests

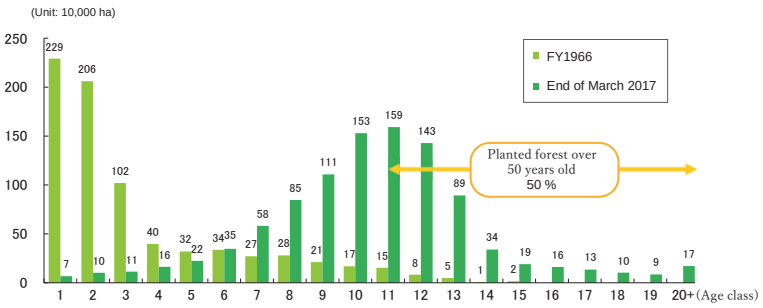
(1) Current State of Forests and Multiple Functions

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).

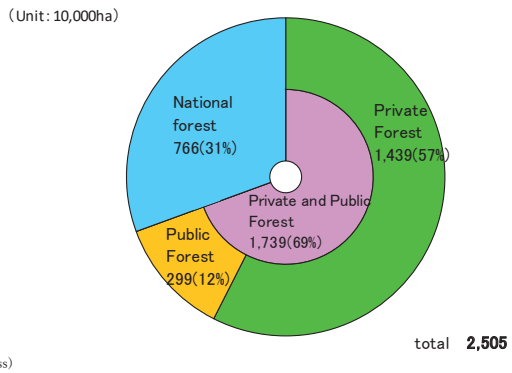
The growing stock is steadily expanding mainly on planted forests, reaching about 5.2 billion m^3 by the end of March 2017.



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

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

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



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

Fig. I – 2 Forest area by Owners

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

To make sure forests perform their multiple functions sustainably, the GOJ formulated the 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

promote the “Forest Management System” and to control damage by flood wood.

(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.

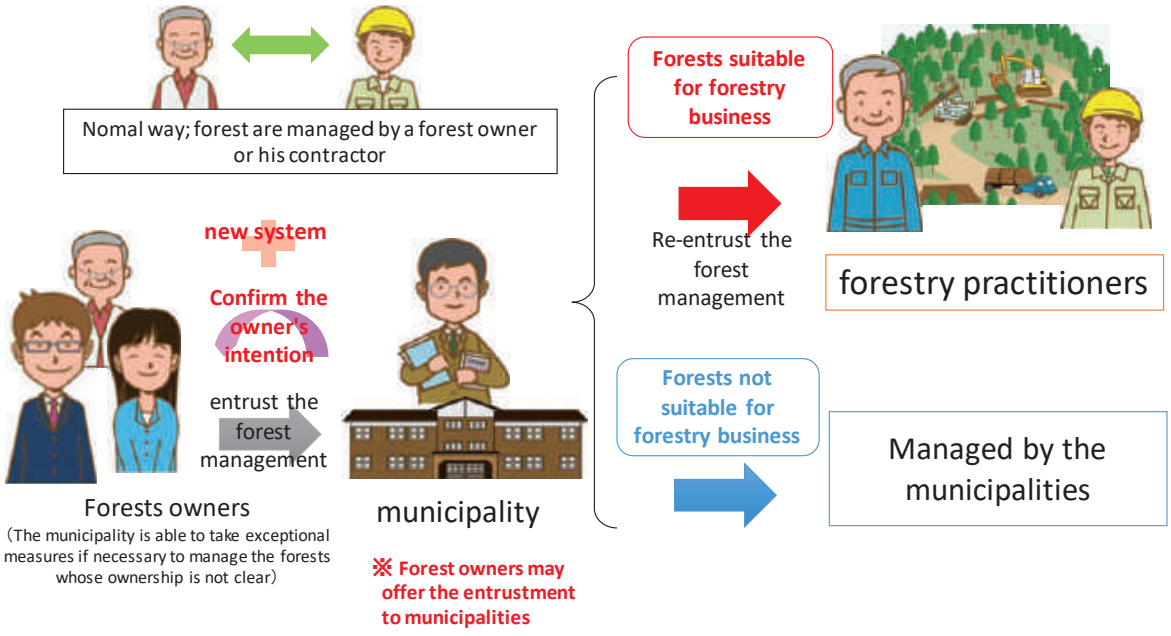


Fig. I – 3 Outline of Forest Management System

(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-leafed 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 pollionosis, the Forestry Agency proactively promotes measures to reduce pollen production, including to increase the production of less pollen seedlings and pollen-free seedlings.

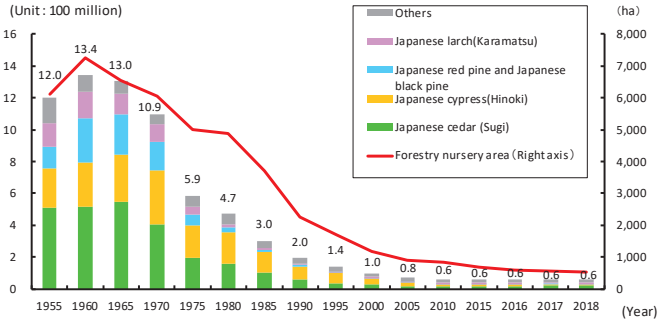
(Unit: 10,000ha)

	Type of work	Private and public forest	National forest	Total
Regeneration	Planted	2.2	0.9	3.0
	Underplanted	0.2	0.3	0.5
Post-Establishment Treatments		36	15	51
	Thinned	27	10	37

Source: Survey by Forestry Agency.

Note: Thinned area for promotion of forest sink activities

Fig. I – 4 Forest management area (FY2018)



Source: Forestry Agency "Forests and Forestry Statistical Manual."
Notes: Excluding state-owned.

Fig. I – 5 Annual production of seedlings for planting

(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

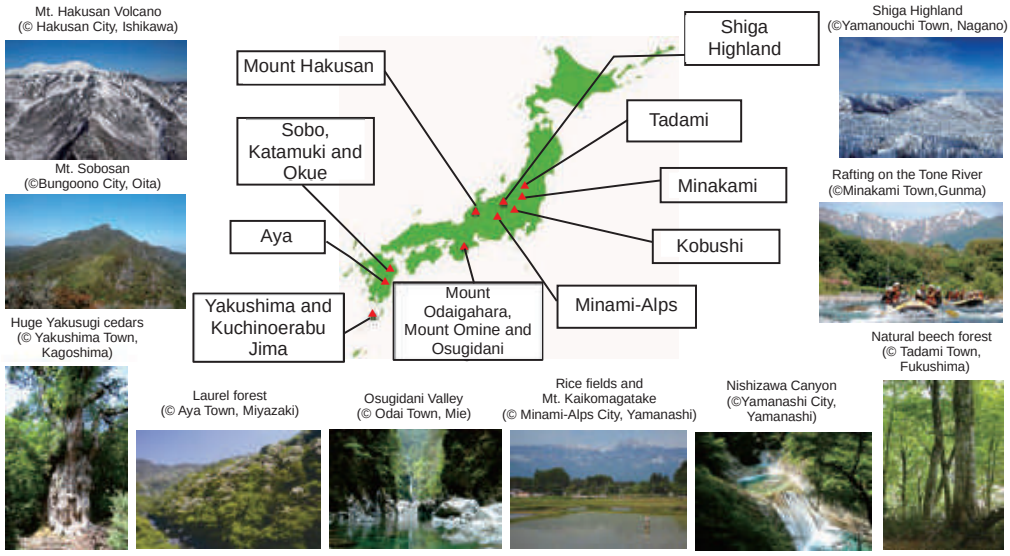
"Protection forest" are designated in accordance with the Forest Act when it is considered particularly necessary that they provide important public benefits. Felling and forest development are regulated in them. At the end of FY2018, 12.2 million ha of forests were designated as protection forests. 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.



Source: Prepared by Forestry Agency based on Ministry of Education, Culture, Sports, Science and Technology' Figures.

Fig. I – 6 UNESCO Biosphere Reserve sites in Japan

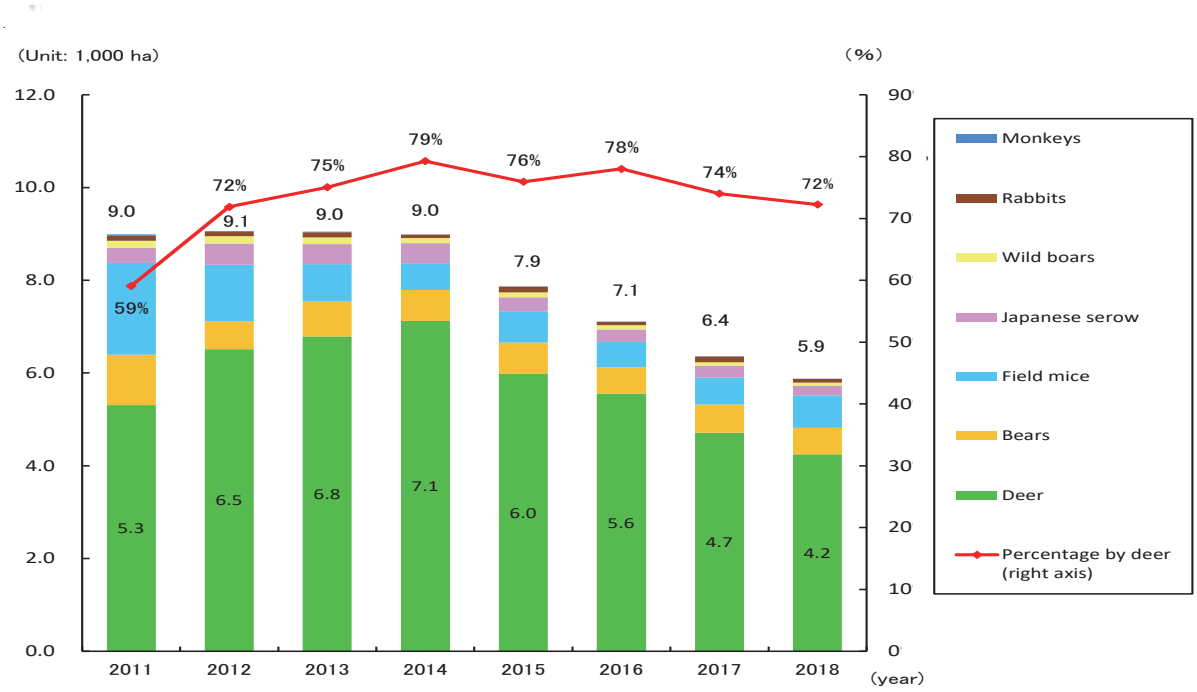
The Forestry Agency promotes the strict protection and management of forests in World Heritage sites and Biosphere Reserve sites (Fig. I – 6). The GOJ is promoting efforts to inscribe “Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island and Iriomote Island” on the World Heritage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



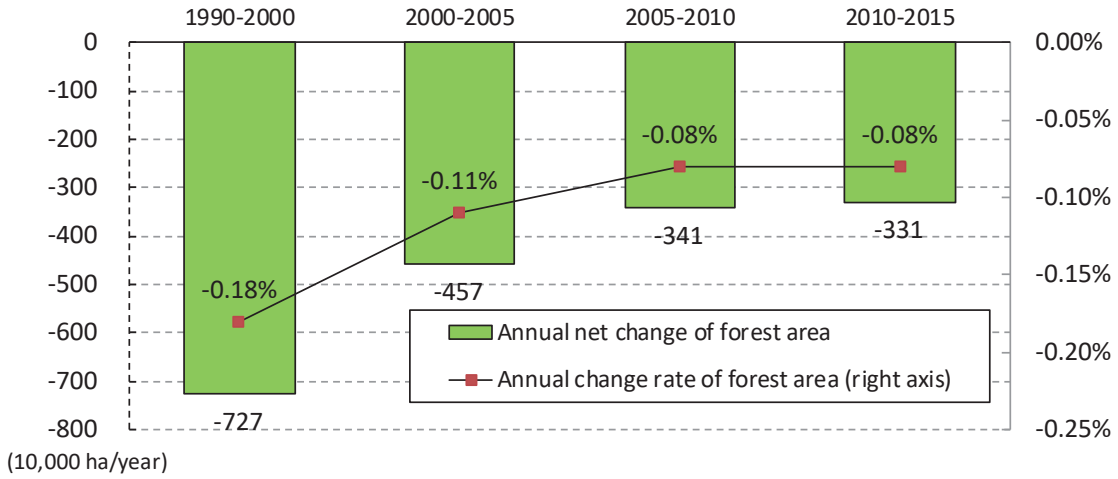
Source: Survey by Forestry Agency.

Fig. I – 7 Area of forests damaged by major wildlife species

4. Addressing Global Policy Agenda

(1) Promotion of Sustainable Forest Management

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



Source : Global Forest Resources Assessment 2015 (FAO), R.J. Keenan et al., (2015) Dynamics of global forest area: Results from the FAO Global Forest Resources Assessment 2015. Forest Ecology and Management, 352: 9-20.

Fig. I – 8 Changes in global forest area

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.

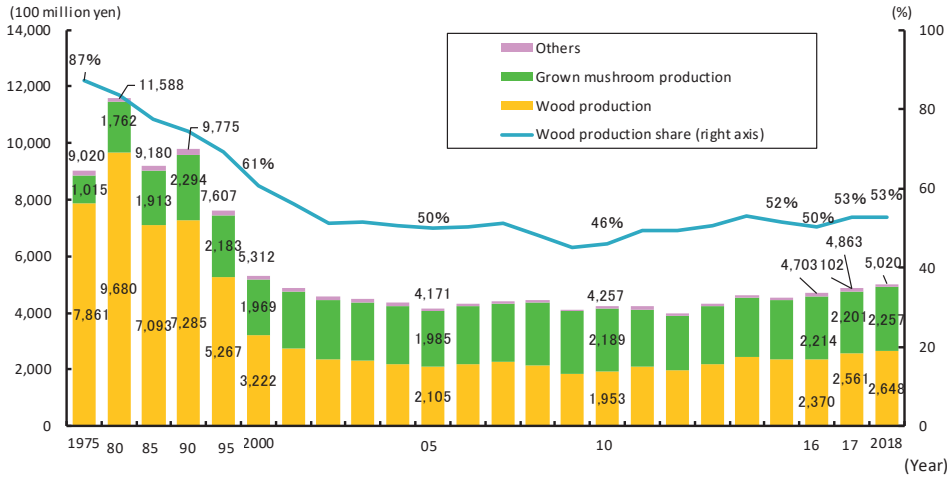
The GOJ also provides financial support to cover the International Tropical Timber Organization (ITTO) and FAO.

1. Forestry

(1) Forestry Production

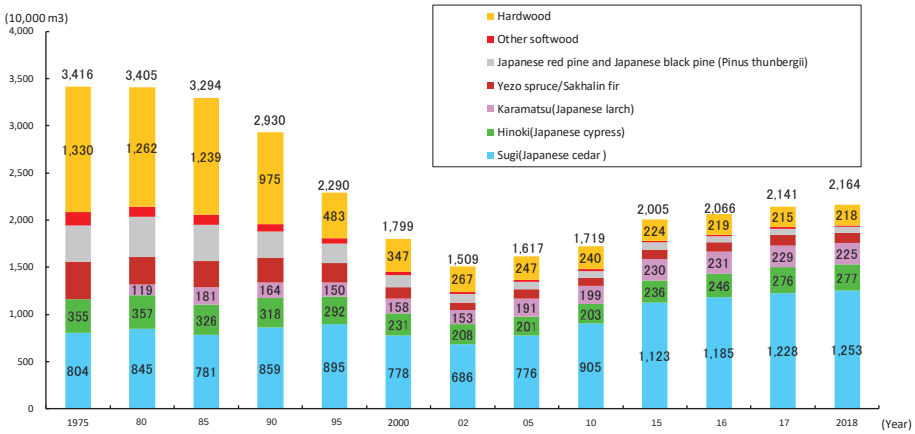
Total forestry output in 2018 was 502 billion yen, which was an increase of 3% over the previous year. Output rose beyond 500 billion yen for the first time in 18 years, since 2000. Percentage of wood production in forestry has stood around 50% since 2002 (Fig. II – 1).

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).



Source: MAFF: Forestry output

Fig. II – 1 Gross forestry output



Source: MAFF: Report on supply and demand of lumber

Fig. II – 2 Volume of domestic roundwood

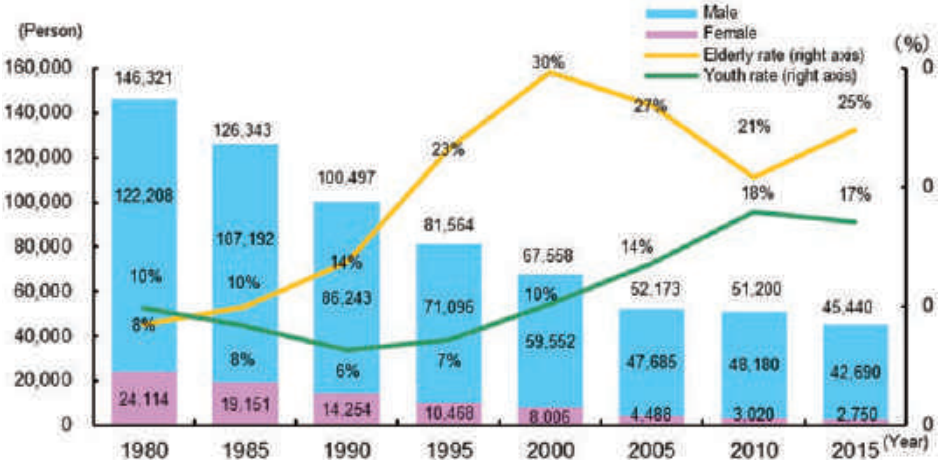
(2) Forestry Management

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 m^3 (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 m^3 (30% increase over previous 5 years). On the other hand, 46% of all forestry management entities produce less than 1,000 m^3/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.



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.

Fig. II – 3 Number of forestry workers

(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

information on forest owners and ownership boundaries and provide part of such information to forestry contractors.

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.

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

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.

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.

Final examination meeting

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

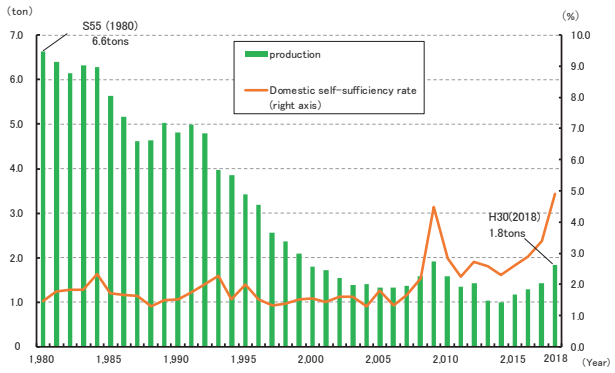
Non-wood forest products include mushrooms, edible nuts, wild vegetables, Japanese lacquer, bamboo, charcoal, etc. Non-wood forest products account for about half of the forestry output and play key roles in stimulating rural economies and ensuring employment. The value of non-wood forest products in 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.

Sendan trees planted at a dilapidated farmland (Kumamoto Prefecture)

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 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.

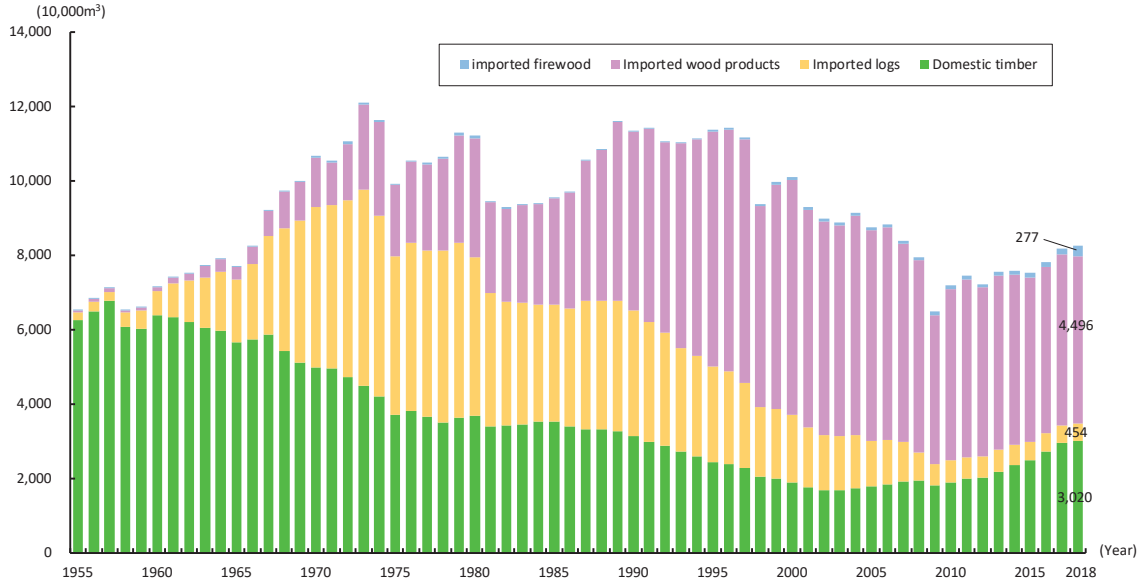
In 2018, consumption of coniferous sawn wood increased in Europe and North America. Production of it increased in Europe, North America and Russia in 2018.

(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).



Source: Forestry Agency "Wood Supply and Demand Chart"

Fig. III ー 1 Changes of wood supply

(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.

A workshop on wooden houses held in Nanjing, China

Wood post and beam houses under construction in Dalian, China

2. Wood Use

(1) Importance of Wood Use

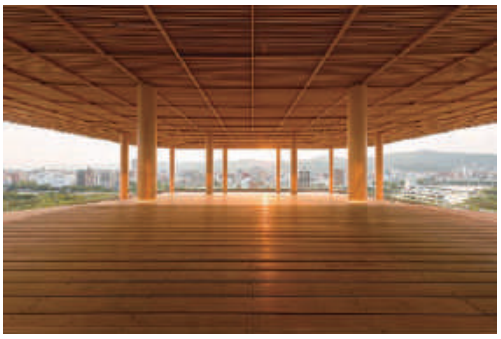
Wood use can contribute to sustainable fulfillment of multiple functions of forests including prevention of global warming, as well as vitalization of local economies. Wood use is also considered to provide comfortable and healthy living conditions, through showing excellent properties of humidity conditioning, 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.



Mid-to-high-rise buildings and non-residential ones using wooden materials in Japan

(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 m^3.

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.

Wood culture and hospitality guidebook


Craft fabrication in Odate, Akita Prefecture

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

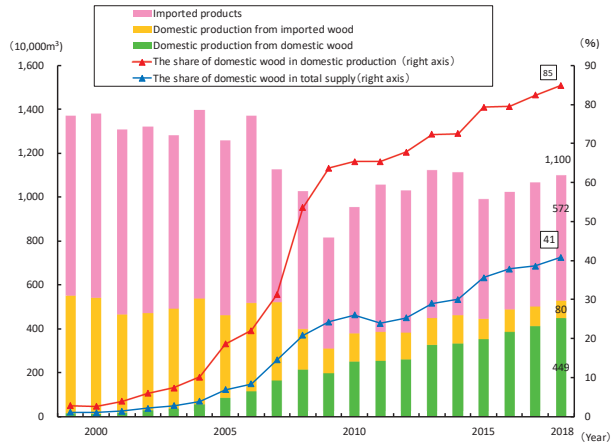
Glued laminated timber production in 2018 totaled 1.92 million m^3. Domestic wood accounted for 39% of laminae used and imported wood for 61%. Japan’s import of

glued laminated timber products in 2018 stood at 0.94 million m^3.

(4) Plywood Industry

Production of plywood in 2018 was 3.30 million m^3, which was an increase of 0.3% over the previous year. By use, 2.97 million m^3 was structural use, while 50 thousand m^3 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 m^3). In 2018, the total wood demand for plywood, including imported products, was 11.00 million m^3. Domestic wood accounted for 41% of total wood demand for plywood in Japan (Fig. III – 2).



Source: Forestry Agency “Wood Supply and Demand Chart”

Fig. III ― 2 Changes of supply of wood for plywood

(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.