

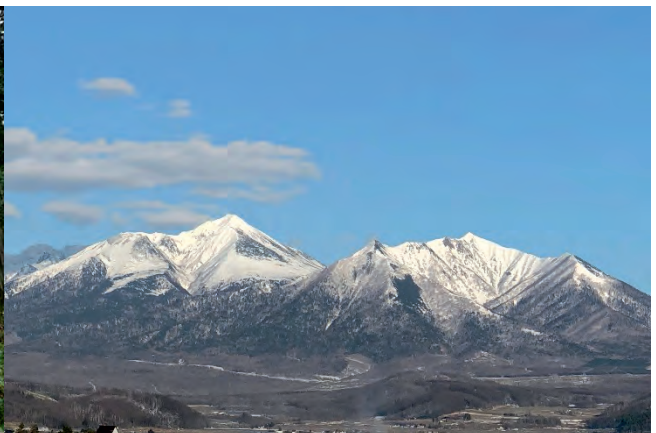
Annual Report on Forest and Forestry in Japan

Fiscal Year 2018

(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) 2018.

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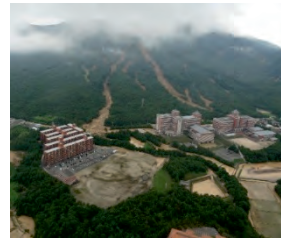
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Forests and Forestry Topics for FY2018

Topic 1. Occurrence of Damage Caused by Torrential Rains in July 2018 and the Hokkaido Eastern Iburi Earthquake and Recovery Efforts

The torrential rains in July 2018 and the Hokkaido Eastern Iburi Earthquake in September 2018 caused serious damage, which was estimated to about 165.9 billion yen and 47.5 billion yen, respectively.

The Forestry Agency conducted a joint helicopter survey, sent technical response staff immediately after the damage occurred, and made strenuous early recovery efforts through disaster restoration projects.



View of damage by torrential rains in July 2018
(Left: Hiroshima Pref., Right: Kochi Pref.)



View of damage by the 2018 Hokkaido Eastern Iburi Earthquake (Hokkaido)

Topic 2. The Twenty-fourth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24)

COP24 was held in Poland in December 2018; the Paris Agreement Work Programme was adopted, which enables the full implementation of the Paris Agreement from 2020 onwards.



COP24 attendees

Topic 3. Progress in Construction of Non-residential Mid-to-High-rise Buildings Using Wood and Woody material

Non-residential mid-to-high-rise buildings are being built in various regions using new wooden members including Cross Laminated Timber (CLT), which can be a model for the future.

Economic groups, etc. are undertaking initiatives to expand demand for wood by constructing wooden and woody buildings.

Beginning in 2018, the Prime Minister's Award was established in the Excellent Wood-Using Facility Contest. The Koto Municipal Ariake Nishi Gakuen Junior High School became the first winner of this award.



Koto Municipal Ariake Nishi Gakuen (Tokyo) Prime Ministers Award for the Excellent Wood-Using Facility Contest

Topic 4. Forests, Forestry, the Wood Product Industry, and Sustainable Development Goals (SDGs)

To achieve the Goal 15 in SDGs, it is necessary to strive to transform the forestry into a growth industry and to secure the multiple functional roles of forests.

Actions taken by various actors related to forests, forestry, and the wood product industry also contribute to the achievement of 14 SDGs, including Goal 15 and other Goals.



Topic 5. Sixty-ninth National Tree-planting Festival Held in Fukushima Prefecture

In June 2018, the Sixty-ninth National Tree-planting Festival, which was the final national tree-planting festival of the Heisei Era was held in Minamisoma City in Fukushima Prefecture with the Emperor and Empress in attendance.

The Emperor planted Japanese black pine (*Pinus thunbergii*) seedlings in order to restore coastal forests in this region which was severely damaged by the Great East Japan Earthquake.



Photo: Fukushima Prefecture

1. Need for Innovation in Forests, Forestry, and the Wood Products Industry

In Japan, more than half of planted forests are over 50 years old, the general harvesting period, and they are fully ready for harvest. It will be important to manage these planted forests appropriately in cycles of “harvesting, utilizing, re-planting, and treatment.” (Fig. I - 1)

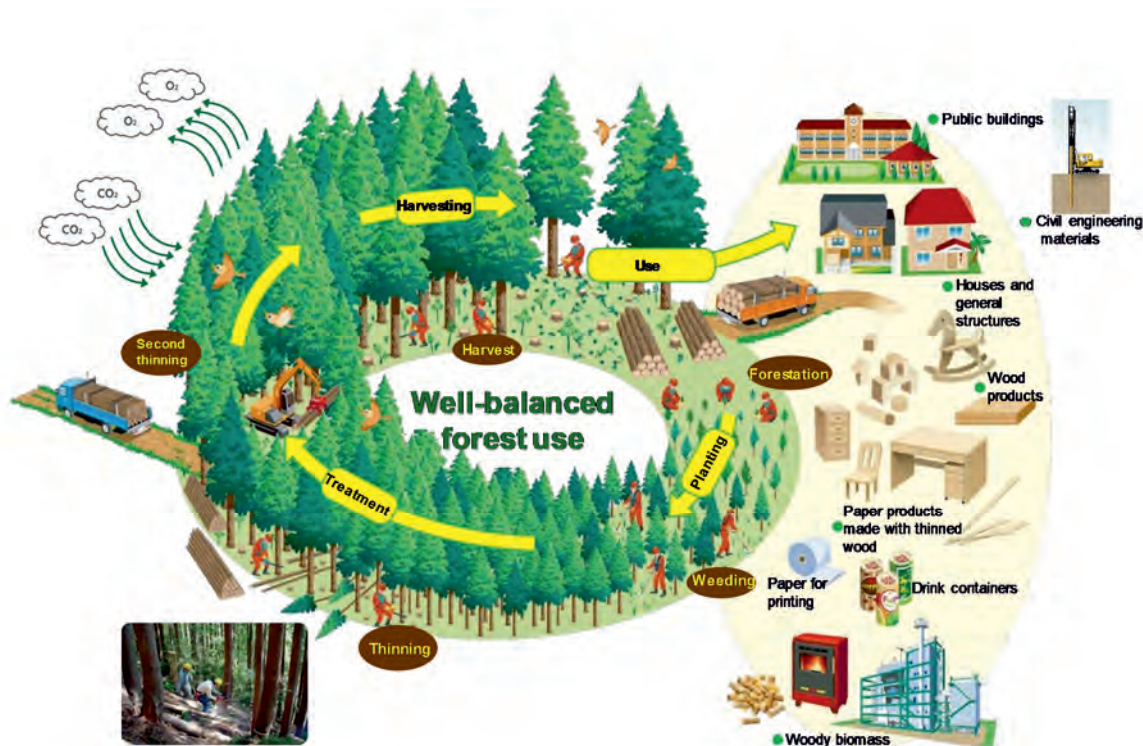


Fig. I – 1 Appropriate cycle of forest management

Therefore, it is necessary to ensure revitalization of forestry and appropriate forest management by promoting “smart” forestry and reforming the domestic wood production and distribution structures.

2. Trends in Forestry Management Entities

While the number of forestry management entities (such as Forest Owners Cooperatives, private forestry companies, forestry households) is declining, the forestry output increased from 422.4 billion yen in 2010 to 455 billion yen in 2015. Therefore, the management scale of the entities is increasing and the number of entities producing more than 10,000 m³ of roundwood also increased from 361 to 524.

(1) Current State of Forest Owners Cooperatives

The number of Forest Owners Cooperatives fell from 672 in 2011 to 624 in 2016, but the scale of their business increased as shown by the increase of their total business billing from 264.3 billion yen to 269.5 billion yen.

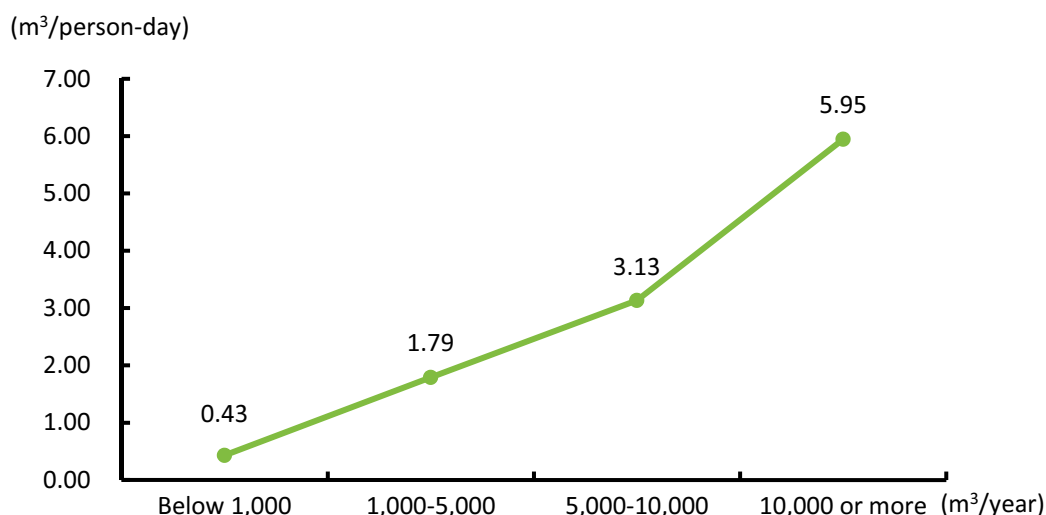
On the other hand, there are still many problems. For example, about 20% of forest owners cooperatives gain less than 100 million yen, which is below 1/4 of the average.

(2) Current State of Private Forestry Companies

The number of private forestry companies reached 2,456 in 2015, showing lively growth of the scale of their production. Total production of roundwood by private forestry companies increased from 6.4 million m³ in 2010 to 8.26 million m³ in 2015.

The labor productivity of forestry entities that produce roundwood has increased by 18% during the past five years. If private forestry companies produce more roundwood per year, the productivity is higher (Fig. I – 2).

In order to further increase productivity, it is important to spread efficient work systems with advanced forestry machines, etc.



Source: Ministry of Agriculture, Forestry and Fisheries (MAFF): 2015 Census of Agriculture Forestry (rearranged totals)

Fig. I - 2 Labor productivity of private forestry entities

(3) Efforts to Innovate Forestry Organizations

Regarding costs of producing roundwood, the current stumpage price is too low to cover costs including re-planting and weeding (Fig. I – 3).

Therefore, it is necessary to lower costs through smart forestry and revolutionary change in the production and distribution structures, and to increase the price of logs by pioneering new wood demand.

Some forestry entities have achieved innovations such as the use of ICT, and these successes must be expanded throughout Japan.

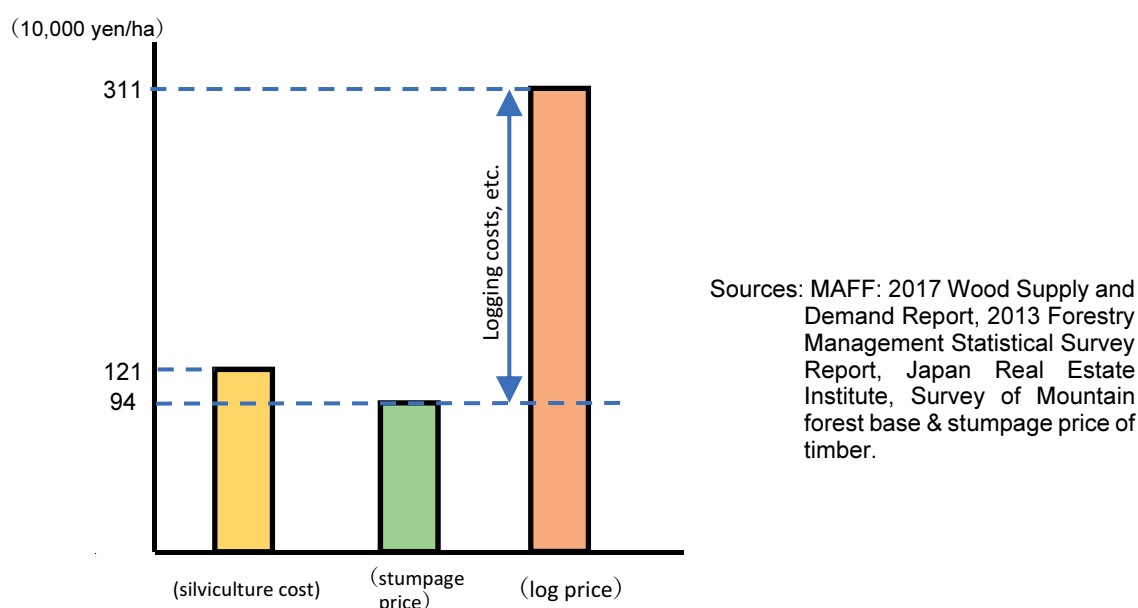


Fig. I - 3 Image of present cost of producing wood

3. Trends in Forestry Workers

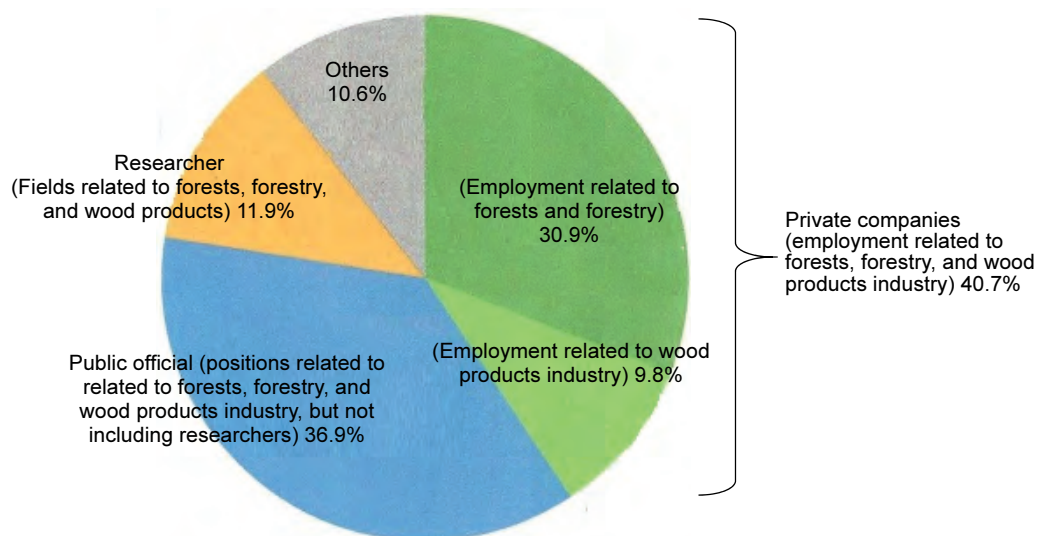
(1) Trends in Forestry Workers

The number of forestry workers is falling continuously, reaching about 45,000 in 2015. While those engaged in cutting, processing, yarding and shipping have increased in recent years, those engaged in planting and weeding have continuously declined.

(2) Questionnaire Survey of Students and Forestry Workers

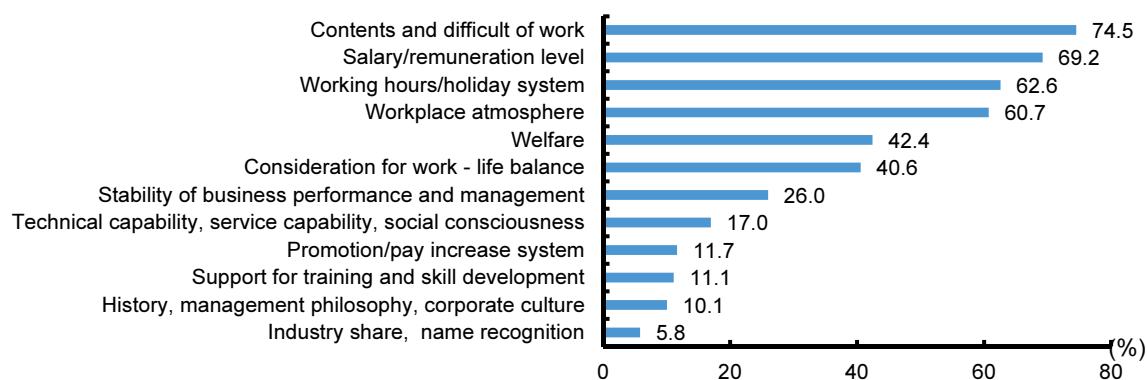
The Forestry Agency conducted a questionnaire survey of students who study forests, forestry, and the wood products industry in December 2018. Among university students, about 40% wished to work for private companies related to forests, forestry, and the wood products industry, while 40% wished to become public officers (Fig. I – 4a). When students considered future work places, the most important point is “contents of work and whether or not it seems worthwhile,” followed by level of salary and remuneration (Fig. I – 4b).

In questionnaires for workers in the “Green Employment Program,” a little less than 40% mentioned that it is difficult to match conditions related to treatment when they wanted to work in forestry (Fig. I – 4c).



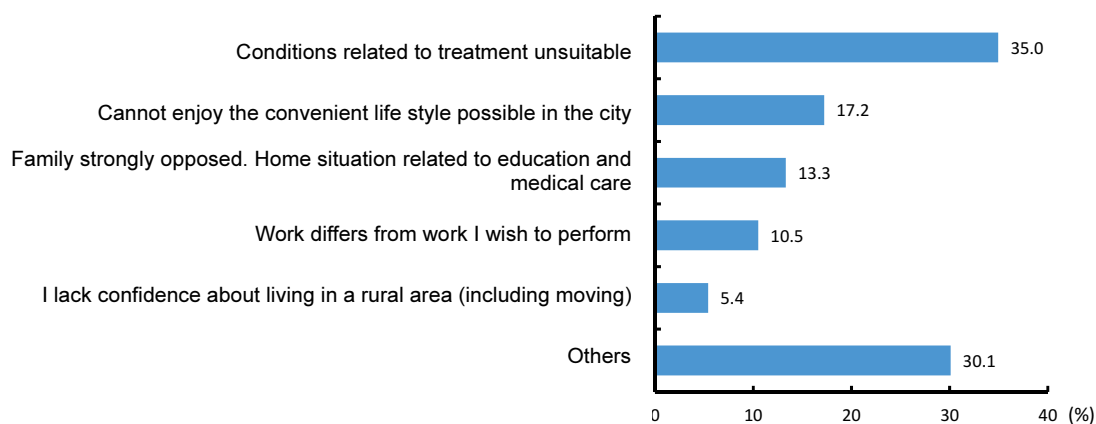
Source: Questionnaire survey conducted by Forestry Agency

Fig. I – 4a Employment goals of students, etc.



Source: Questionnaire survey conducted by Forestry Agency

Fig. I – 4b Information prioritized when selecting future work



Source: Green Employment Program questionnaire survey

Fig. I – 4c Obstacles to employment

(3) Improvement of Working Conditions in Forestry

Wage levels of forestry are not necessarily high in comparison with the average for all industries. The forestry work accident rate (annual deaths or injuries/1,000 workers) is 32.9, which is higher than 2.2 for all industries.

In recent years new training has been introduced to improve worker safety such as tree felling training using a variety of training devices, and training using simulators that let trainees experience forestry work accidents.

A visiting instructor from the Forestry Agency gave high-school students a lecture using a simulator of forestry work accidents and forestry machine operation. A chain-saw shaped controller simulates forestry work accidents, while a harvester operation simulator gives students a simulated experience of felling, cross-cutting trees, etc. with virtual reality. These two simulators are gradually being introduced to safety education given by College of forestry and Forest Owners Cooperatives etc.



Harvester simulator



VR experience simulator



(4) State of Training of Women

It is important to increase more female workers by realizing diverse forms of working at forestry work sites. While the number of female workers engaged in forestry is falling, the number working as fellers, wood processors, and tree logging workers has begun to rise again during the past 5 years as a result of progress in mechanization.

4. Trends in Human Resources at Administrative, Research, and Educational Organizations

(1) Administrative Staff

In the past 10 years, the number of public officers in charge of forestry has fallen slightly in municipal governments and more than 10% in prefectural governments. In order to promote appropriate management of forests mainly by municipalities, the Forestry Agency promotes training of “Foresters” who support technically the municipalities’ design visions and implementation of their forest management.

(2) Researchers at Research Institutes

In addition to the Forestry and Forest Products Research Institute of the Forest Research and Management Organization (FFPRI), there are research organizations dealing with forests, forestry, and the wood products industry operated by prefectures. They conduct research and development concerning forests, forestry, and the wood products industry.

(3) Training of Human Resources at Educational Institutions

Educational institutions where students can study forests and forestry have increased, particularly in recent years. In April 2018, there were 28 universities with a forests and forestry department, 17 colleges of forestry, and 72 high schools that offer courses or classes related to forests and forestry.

5. Human Resources Involved in Forests, Forestry, Wood Products Industry and Wood Use

To build a supply chain to produce and supply wood products in response to their demand, coordinators are necessary in the field of wood distribution.

As qualifications for technical experts who support forests, forestry and wood production, there are qualifications including Professional Engineer Japan (“Forest” is one of 21 technical disciplines), Forest Instructors and Tree Doctors. These experts play important roles in improving and expanding relevant technologies in each region.

Chapter II Forest Management and Conservation

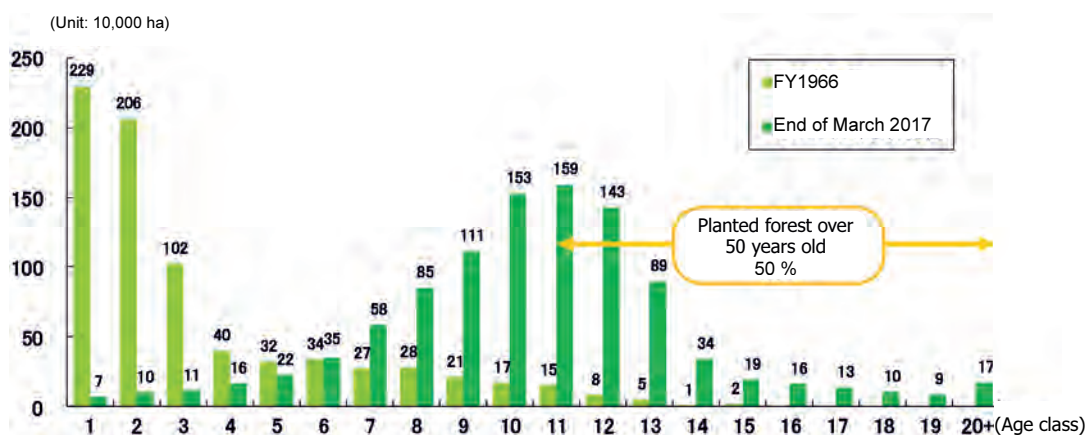
1. Promoting Appropriate Management and Conservation of Forests

(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.

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. II – 1).

The growing stock is steadily expanding mainly on planted forests, reaching about 5.2 billion m³ 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 plantation with the year of plantation counted as the 1st year.

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

(2) Fundamental Policies for Appropriate Management and Conservation of Forests

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."

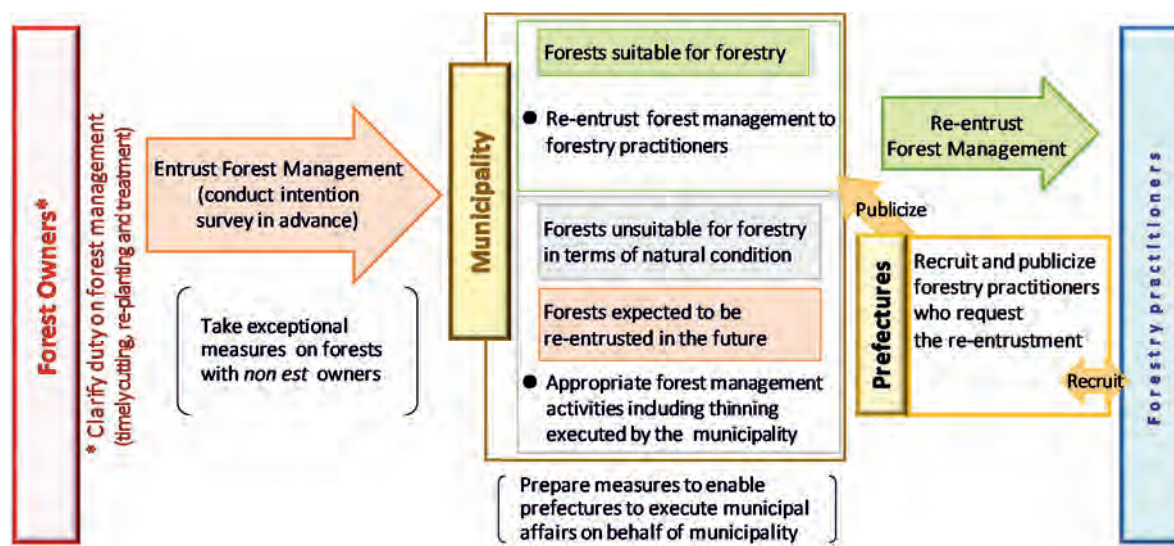
In October 2018, a new "National Forest Plan" was formulated including plans to promote the "Forest Management System" and to control damage by flood wood.

(3) Forest Management System

The “Forest Management System,” based on the “Forest Management Act” enacted in 2018, will be 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 owner are not able to manage appropriately. Then the municipalities re-entrust the forests suitable for forestry to highly-motivated forestry practitioners who manage forests sustainably through certain proceedings. The municipality is able to take exceptional measures if necessary to manage the forests whose ownership is not clear (Fig. II – 2).

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.



Source: Prepared by Forestry Agency

Fig. II – 2 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 re-planting. The achievements of research and technology development are spread by forestry extension agents.

2. Forest Management

(1) Promotion of Forest Management

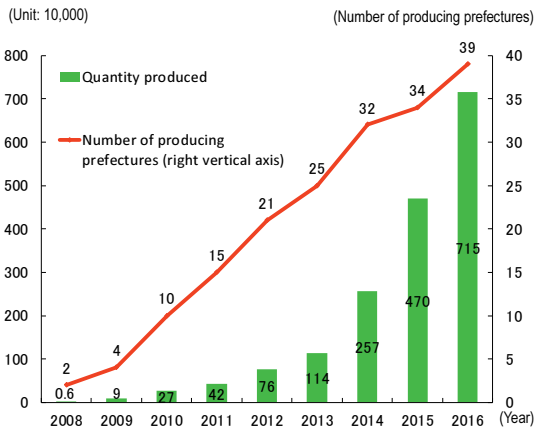
In order to sustainably secure the fulfillment of the multiple functions of forests, it is

necessary to appropriately use forest resources and work steadily on thinning and re-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.

(2) Promotion of Re-planting

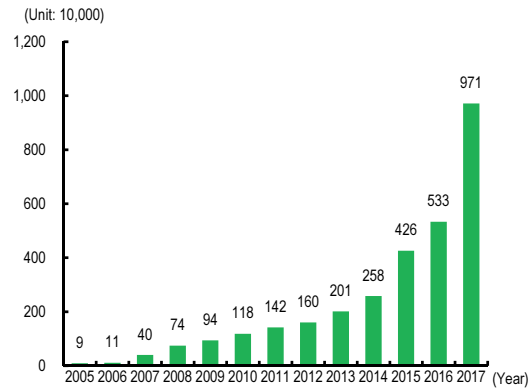
To encourage re-planting after harvesting, it is increasingly important to reduce re-planting costs and to stably supply seedlings. About 60 million seedlings for re-planting were produced in FY2016, and about 10% was for seedlings raised in the container (Fig. II – 3).

In April 2018, the Forest Agency revised “Guidelines for the Cedar Pollen Source” to actively promote countermeasures against pollen source such as increasing the production of seedlings of low-pollen or pollen-free varieties (Fig. II – 4).



Source: Investigation by Forestry Agency

Fig. II – 3 Annual production of containerized seedlings



Source: Investigation by Forestry Agency

Fig. II – 4 Annual production of Sugi seedlings of low-pollen or pollen-free varieties

(3) People’s Participation in Forest Management

Forest management activities by NPOs and companies, etc. are expanding. About three-thousand groups were conducting forest-creation activities in 2015, which is about 5 times as many as those in 2000. 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 FY2017, 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.

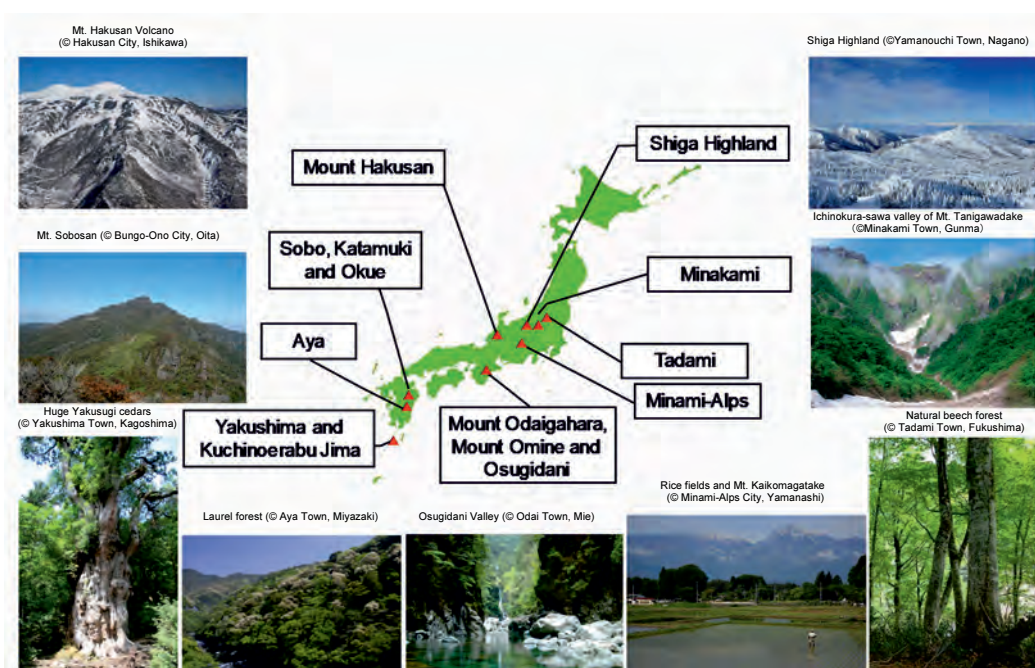
(2) Disaster Control

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.

The Forestry Agency promotes the strict protection and management of forests in World Heritage sites and Biosphere Reserve sites (Fig. II – 5). The GOJ also resubmitted the nomination of Amami-Oshima Island, Tokunoshima Island, Northern part of Okinawa Island, and Iriomote Island to the UNESCO World Heritage Center in February 2019.



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

Fig. II – 5 Biosphere Reserve sites in Japan

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

In recent years, the area of forests damaged by wildlife has been declining, but it still remains in a serious situation. In FY2017, about 6,400 ha of forests were damaged by wildlife, about ¾ of which was caused by deer (Fig. II – 6). 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 FY2017, pinewood nematode damaged about 0.4 million m³ of wood. To prevent the spread of this pest, the Forestry Agency propagates pest-resistant seedlings, implements prevention measure with chemicals, and eradicates the nematode and mediating insects by logging and fumigation of affected trees.

In 2017, 1,284 forest fires occurred, burning down 938 ha of forest. The number of forest fires are declining in the long term. Forest fires intensively occur in winter and spring, most of all caused by people carelessly using fire.

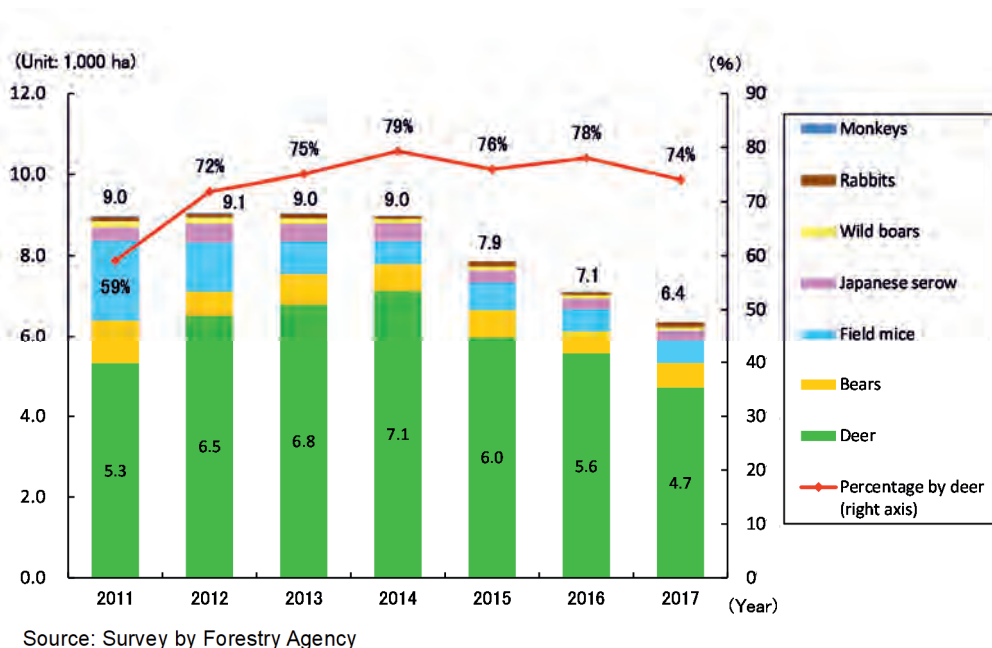
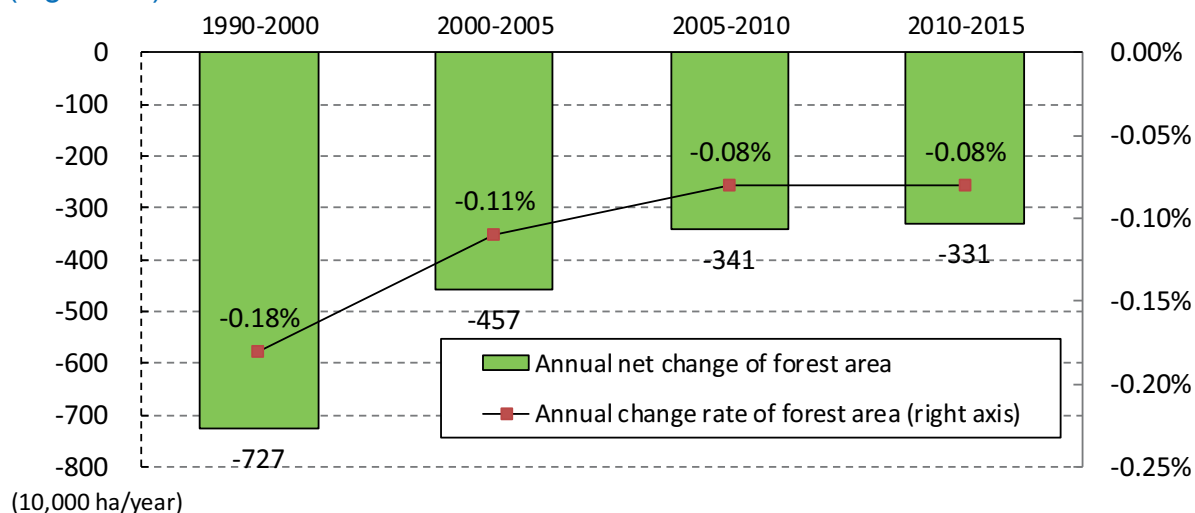


Fig. II – 6 Area of forests damaged by major wildlife species

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 global forest area is still decreasing, but the speed has slowed down (Fig. II – 7).



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. II – 7 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 other is run by the Sustainable Green Ecosystem Council endorsed by Programme for the Endorsement of Forest Certification schemes (SGEC/PEFC-J), which was established as the domestic certification scheme in Japan, and is 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 1.89 million ha). The procurement of certificated wood in preparation for the Tokyo 2020 Olympics/Paralympics is also expected to encourage forest certification.

(2) Global Warming and Forests

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 during COP22 in November 2016. COP24, held in Poland in December 2018, adopted the Paris Agreement Work Programme (PAWP) for full implementation of the Agreement. PAWP allows parties to set a target and tracking 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 global goal of reducing greenhouse gas (GHG) emission.

In order to achieve GHG reduction targets stipulated in the “Plan for Global Warming Countermeasures” (May 2016), Japan needs to steadily implement forest sink measures including managing forests 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).

(3) International Discussions on Biodiversity

As of October 2018, the “Convention on Biological Diversity (CBD)” has been signed by 194 countries, the European Union (EU) and the State of Palestine. Japan becomes the 98th party of the “Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.”

(4) International Cooperation

Japan contributes to the promotion of sustainable forest management in developing countries by providing technical 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 2018, in the forestry sector, Japan was conducting 19 technical cooperation projects through JICA. The Forestry Agency dispatched 9 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 the 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.

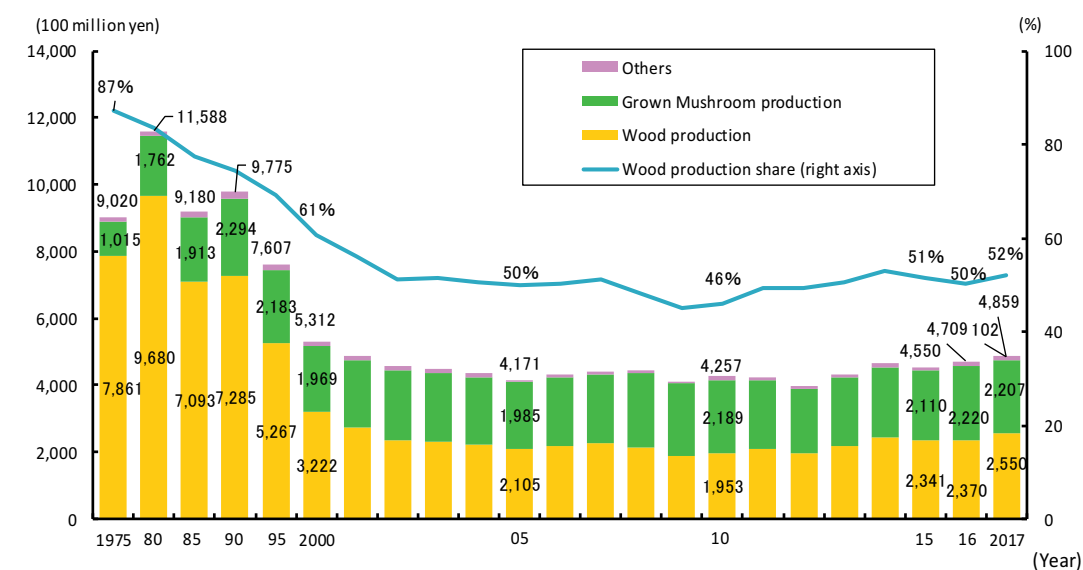
Chapter III Forestry and Hilly and Mountainous Rural Communities

1. Forestry

(1) Forestry Production

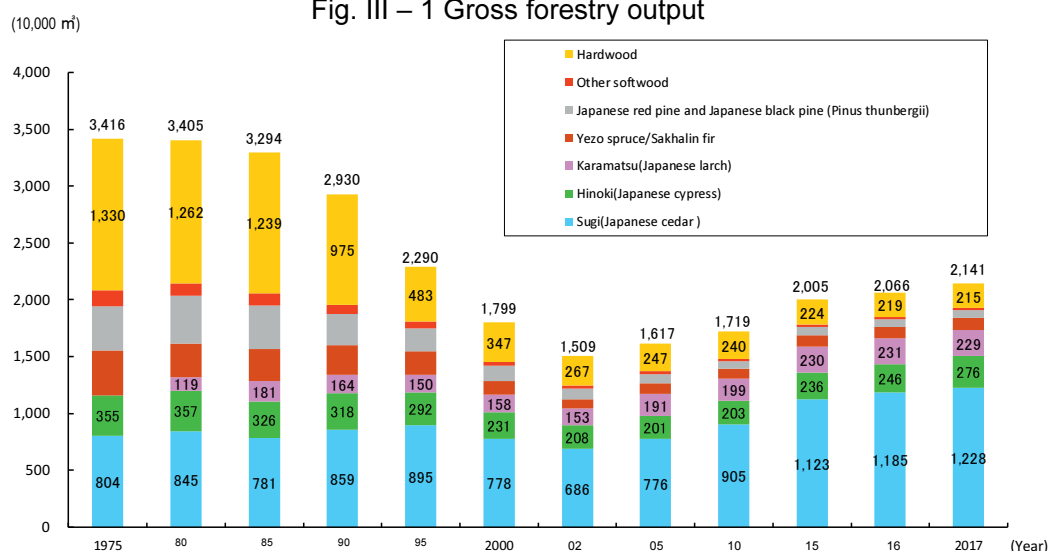
Total forestry output in 2017 was 485.9 billion yen, which was an increase of 3% over the previous year, and the highest since 2002. Percentage of wood production in forestry has stood around 50% since 2002 (Fig. III – 1).

The volume of domestic roundwood has tended to increase in recent years, reaching 21.41 million m³ in 2017. By tree species, the volume of Sugi (Japanese cedar) production was 57%, Hinoki (Japanese cypress) 13%, Japanese black pine 11%, and hardwood 10% (Fig. III – 2).



Source: MAFF: Forestry output

Fig. III – 1 Gross forestry output



Source: MAFF: Report on supply and demand of lumber

Fig. III – 2 Volume of domestic roundwood

(2) Forestry Management

The 2015 Census of Agriculture and Forestry shows that the number of forestry households was 830,000, 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) Improvement of Forest Productivity

Concentration of operation

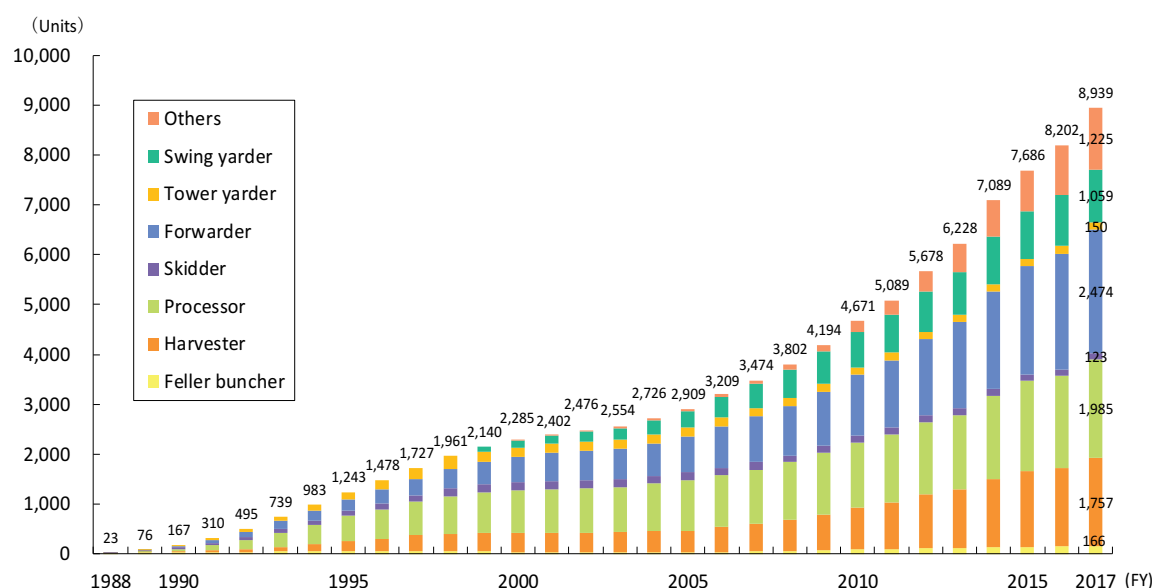
The Forestry Agency and prefectures are concentrating operation by training “Forest Management Planners” who will conduct proposal-based coordination with forest owners and consolidation of forestry practices.

Municipalities are preparing a forest area register that will centralize information about ownership and boundaries of forest area.

Low cost and efficient log production systems

The number of high-performance forestry machines are increasing to make timber production systems more efficient. In 2017, 74% of all logs were harvested by work systems utilizing high-performance forestry machines (Fig. III – 3).

In addition, forestry machines using robotic technologies are being developed, which contribute to safety and laborsaving in forestry work.

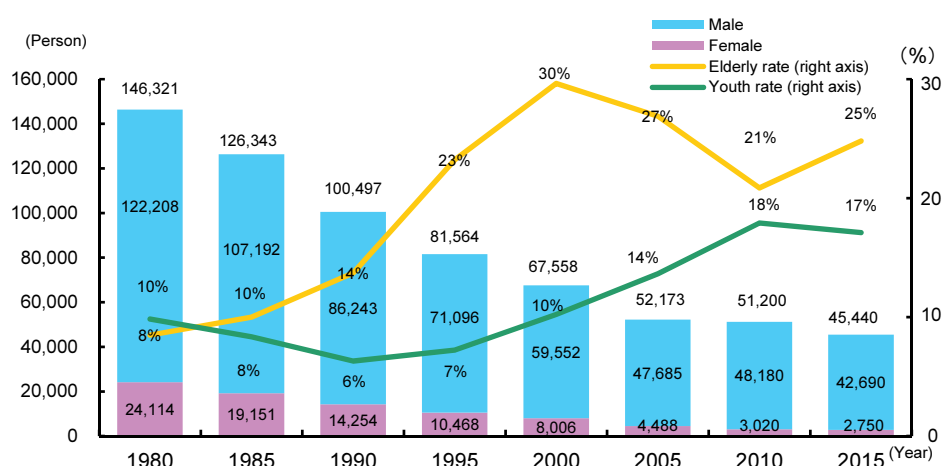


Source: Forestry Agency: Forests and Forestry Statistical Manual.

Fig. III – 3 Number of advanced forestry machines

(4) Forestry Workforce

According to the 2015 national census, the number of forestry workers was 45,440, tending to decline in the long-term. The share of aged forestry workers (aged 65 or older) was 25%, while the share of young forestry workers (aged 35 or younger) was 17% in 2015 (Fig. III – 4). The workplace accident rate in the forestry industry, which represents the rate of deaths and injuries per 1,000 workers, was 32.9 in 2017. 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. III – 4 Number of forestry workers

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 278.3 billion yen, a decrease of 1% over the previous year.

(1) Mushrooms

Mushrooms earned more than 80% of the value of non-wood forest products in 2017. Production of mushrooms has been flat in recent years, reaching 459,000 tons in 2017.

(2) Other Non-wood Forest Products

Total production of charcoal has been decreasing over the long term, reaching 23,000 tons in 2017. Bamboo material (raw material for bamboo paper) has been increasing since 2011, reaching 36,000 tons in 2017. Production of Japanese lacquer has also increased in recent years. Total fuelwood production was 52,000 m³ in 2017, and it has

remained at approximately 50,000 m³ in recent years (converted to logs).

In August 2018, “Iwate Charcoal” was registered as charcoal for the first time in the Geographical Indication (GI) protection system that protects the names of regional brand products as intellectual property. To improve and stabilize the quality of charcoal, it is standardized to use hardwood in the prefecture as raw materials and to use original kilns for this charcoal.



GI registered charcoal products



Making the charcoal

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. It is becoming more difficult to maintain the management of forests due to continuing depopulation and the aging population in such communities.

(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.

Mt. Ryusan in Rankoshi town in Hokkaido, which is acidic sulfate soil caused by the large-scale collection of soil in the 1980s, has been a treeless mountain where no vegetation has grown for more than 20 years. Since 2004, an owner of the mountain forest has independently restored vegetation on the land. In 2015, an organization of regional residents was formed, and it has revived natural growth on the treeless areas and managed surrounding forests. Many people including an illustrator, students, and so on, who come from outside the village, join and support these activities. As a result of these activities, the natural vegetation of Mt. Ryusan has been restored, young forests have been established, and the appearance of the treeless mountain has been improved.



View of conservation activities on Mt. Ryusan.



Chapter IV 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.

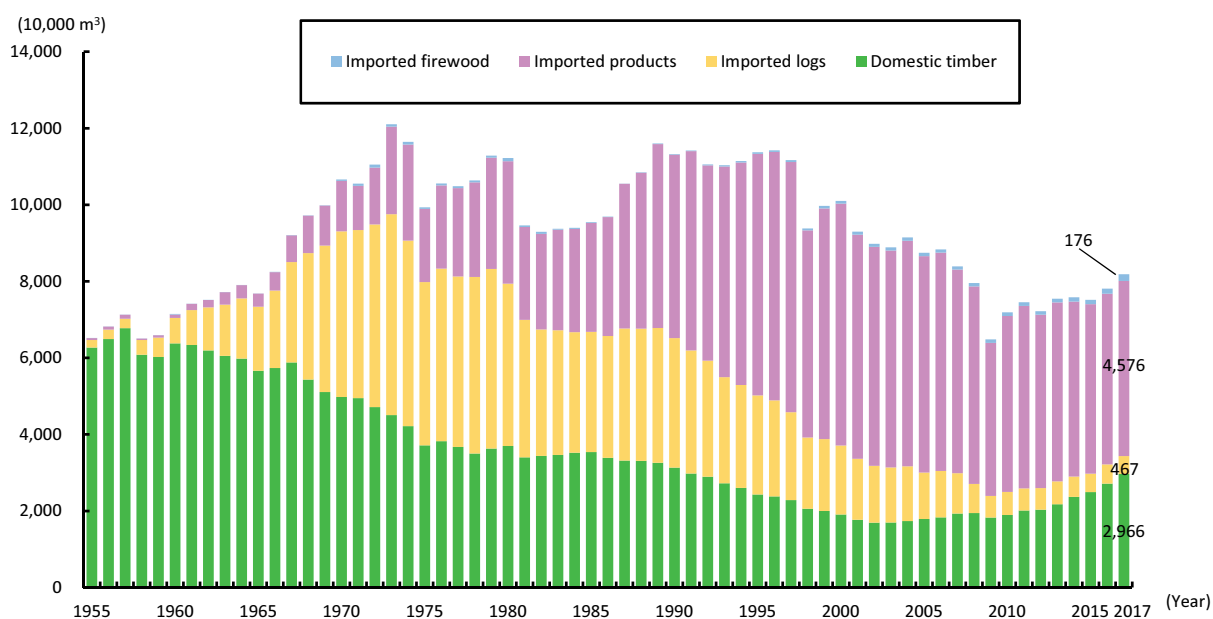
In 2017, production and consumption of sawn softwood increased in Europe, Russia, and North America. The major export destination of lumber from Europe and Russia was China. In North America, under the impact of lively demand and severe forest fires, the price of sawn softwood increased, which has affected the international market.

(2) Wood Supply and Demand in Japan

Japan's wood demand bottomed out in 2009 and has recovered, so that total wood product demand in Japan in 2017 was 81.85 million m³ (roundwood equivalent), which was a 4.8% increase over the previous year, and had exceeded 80 million m³ for the first time in 10 years (Fig. IV – 1).

Domestic wood supply bottomed out in 2002 and has recovered, reaching 29.66 million m³ in 2017, which was an increase of 9.3% over the previous year (Fig. IV – 1). In particular, the quantity of fuelwood supplied has continued to rise sharply, reaching 6.04 million m³, a 35% increase over the previous year.

The volume of imported wood in 2017 was, under the impact of rising wood product demand, 52.19 million m³, an increase of 2.5% over the previous year (Fig. IV – 1).



Source: Forestry Agency, Wood Demand and Supply Chart

Fig. IV - 1 Changes of wood supply

(3) Wood Prices

The prices of domestic roundwood rose a little in 2018, while prices of sawn lumber were flat. Domestic wood chip prices 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 2019, 212 companies had completed this registration process.

(5) Wood Exports

The value of wood exports has been rising since 2013, and in 2018, it reached 35.1 billion yen, a 7% increase over the previous year. Various organizations have been promoting wood products from domestic wood for export.

The Japan Wood Products Export Association has opened the Japan Pavilion at the Salon Raisonance, a crafts market in Strasbourg, France. At the venue, luxury wooden products are publicized by displaying wooden panels processed using “Kumiko” woodwork technique, wooden handbags, etc. which express harmony obtained by blending Japan’s traditional processing technologies and modern design.



View of the Japan Pavilion at an exhibition in France



2. Wood Products Industry

(1) State of the Wood Product Industry

The value of shipments of lumber and the wood products industry bottomed out in 2009 and has recovered. The value in 2016 reached 2.7 trillion yen, almost equal to the value of the previous year.

(2) Sawmilling industry

Shipments of sawn products fell until 2009 and remained flat the beginning of 2010. In 2017, shipments rose to 9.46 million m³, which was an increase of 1.8% over the previous year. The quantity of industrial wood received by sawmills was 16.8 million m³ in 2017.

(3) Glued Laminated Timber Manufacturing Industry

In 2017, 1.69 million m³ of glued laminated timber (glulam) was produced in Japan. The timber for glulam used was 26% domestic wood, 67% European wood, and 6% American wood. Imports of glulam on the other hand, were 980,000 m³. In total, 2.67 million m³ of glulam was supplied.

(4) Plywood Industry

Production of plywood in 2017 was 3.29 million m³, which was an increase of 7% over the previous year. By use, 2.94 million m³ was structure use, while 30,000 m³ was used as concrete formwork, revealing that most is structural use.

The total wood demand for plywood, including imported products, was 10.67 million m³.

(5) Wood Chip Manufacturing Industry

Production of wood chips (excluding fuel use chips) in 2017 was 5.95 million tons, which was an increase of 2% over the previous year. Almost all the materials for domestic wood chip mills are domestic wood, and the share of conifer wood in domestic wood rises year by year, reaching 57% in 2017. However, the share of domestic wood chips in total wood chip consumption was remaining around one-third in 2017.

(6) Precut Processing Industry

The rate of use of precut lumber for post and beam construction method reached 92% in 2017.

(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 by Cross Laminated Timber (CLT), wooden fire-resistant members and other wooden materials.

In terms of the use of woody biomass in materials, high value-added products have been developed from new materials, e.g. Cellulose Nanofibers (CNF), and glycol lignin.

In October 2018, a prototype car was announced which was equipped with interior and exterior components using the new material, glycol lignin extracted from Sugi (Japanese cedar). The Forestry and Forest Products Research Institute has been studying glycol lignin production technology, and successfully established a production method that can stably extract lignin from Sugi. In the future, high value-added products, e.g. auto parts, will come into wide use, and the creation of this new industry, glycol lignin manufacturing, will be counted on to stimulate hilly and mountainous regions.



Glycol lignin



Prototype car equipped with interior and exterior components using the new material, glycol lignin

Photos: Forestry and Forest Products Research Institute, National Institute of Advanced Industrial Science and Technology, Miyagi Kasei Co., Ltd., Mitsuoka Motor Co., Ltd.



3. Wood Use

(1) Importance of Wood Use

Wood use could 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 half of new housing starts are wooden construction, greatly impacting wood demand. A revision to the Building Standard Law was proclaimed in June 2018, which incorporates revisions to the scale of wooden buildings that require fire-resistant construction in order to meet the diverse needs related to wooden construction.



Sumita-town fire department building
(Iwate Prefecture)



Inside TORAYA Akasaka Store
(Tokyo)

Examples of wood use in varied facilities in Japan

(3) Wooden Public Buildings

The wooden construction rate (based on floor area) was 13.4%, which is an increase of 1.7 points over the previous year, of all public buildings whose construction started in FY2017. And among low-rise buildings, it was 27.2%, which is an increase of 0.8 points over the previous year.

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

(4) Energy Use of Woody Biomass

The quantity of woody biomass for energy use has been increasing recently; wood chips, wood pellets, firewood and sawdust are used by 8.73 million ton, 380 thousand ton, 60 thousand ton, and 410 thousand ton, respectively in 2017.

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.

(5) Spread of the Use of Wood among Consumers

The Forestry Agency has been promoting the “Kizukai Undo,” 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,” educational activities to disseminate the excellence and significance of wood use among both adults and children.



Mokuiku (wood use education) Exchange Base
created through citizen participation: Nagato Toy
Museum (In Yamaguchi Prefecture)



Chapter V 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 Mountains, Ogasawara Islands, Yakushima Island) 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.

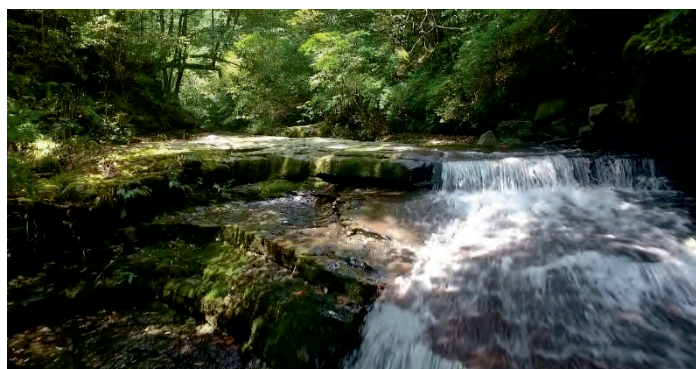
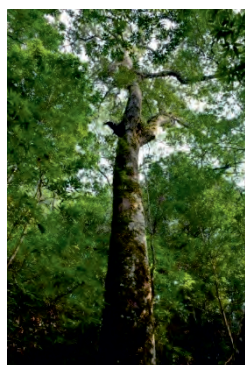
2. Specific Initiatives under the National Forest Management Program

(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. In April 2018, Protected Forests were designated at 666 locations covering 977,000 ha of land, which accounted for 13% of national forest area. “Green Corridors” were formed in April 2018 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.



Protected Forest of Inohae broad-leaved evergreen forest (Miyazaki Prefecture)

(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 through “System Sales” contracts with lumber and plywood mills.

(3) National Forests as “Forests for People”

The Forestry Agency provides various organizations (e.g. school, 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.

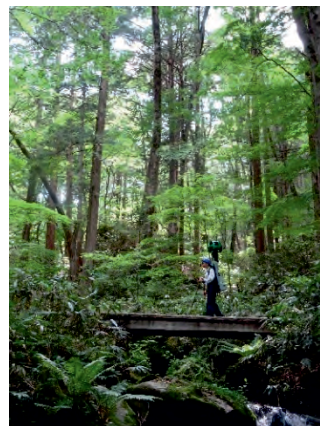
The Forestry Agency leases national forests to local governments and residents. “Recreation Forests” are managed and administered in partnership with municipalities and other stakeholders in local communities such as the tourist industry. In FY2017, a total of 140 million people visited “Recreational Forests.”

And 93 of “Recreational Forests” that have potential attractiveness as tourism resources were selected as “Japan’s Forests with Breathtaking Views.” To encourage more people to visit these forests, the Forest Agency has improved facilities and promotes these by posting signs, provides information on web sites in multiple languages, and participates in a variety of events jointly with local people.

The Kiso District National Forest Office of the Chubu Regional Forest Office (in Nagano Prefecture) released photographs of national forests taken using a “Street View*.” Forest Office staff members took photographs as they walked along trails carrying photographic equipment.

This effort uses “Recreational Forests” as a tourism resources to inform travelers of the superior natural scenic beauty and attractiveness of this region including beautiful groves of Kiso cypress.

* A function of Google Map, it is an internet service that can show 360-degree panorama photographs taken on roads



Forest Office staff carrying photographic equipment capture scenes inside a national park



In May 2018, the Forestry Agency launched a new web site: “Japan’s Forests with Breathtaking Views.” This web site is published in two languages: Japanese and English. It presents special locations and ways of enjoying each Recreational Forest, plus the latest information about local events. On some these forests sites, multi-lingual signboards have provided information both in voice and text not only in Japanese but also in multiple languages by smartphone application which works without WiFi or a communication environment.



Smartphone screen

Signboard adapted for multiple languages using a smartphone



Chapter VI Reconstruction after the Great East Japan Earthquake

1. Recovery of Forests, Forestry and the Wood Products Industry

(1) Recovery of Forests, Forestry and the Wood Products Industry

In March 2011, the Great East Japan Earthquake caused damaged to forests and forest conservation facilities and forest roads in 15 prefectures. By January 2019, 97% 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 2018, 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. Excluding sections which are difficult to restore, restoration works were started on about 163 km, and the works were completed on about 113km of these damaged coastal disaster-prevention forests at the end of January 2019.

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

In the Maehama district of Noda village in Iwate Prefecture, Japanese black pine (*Pinus thunbergii*) forests played the role of a tidal wave and salty wind prevention forest. But the Great East Japan Earthquake washed away all of the trees except a few. In this district, a tree-planting event was held for the first time in October 2017, after which a tide embankment had almost been completed. At this event, about 100 residents planted approximately 1,000 Japanese black pines. Then in June 2018, another tree planting event was held led by a local resident group, and about 200 people from the village and elsewhere took part, planting approximately 300 broad-leaved trees.



View of the tree-planting event in the Maehama district (Iwate Prefecture)



(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 2018, about 30% (about 8,300 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.

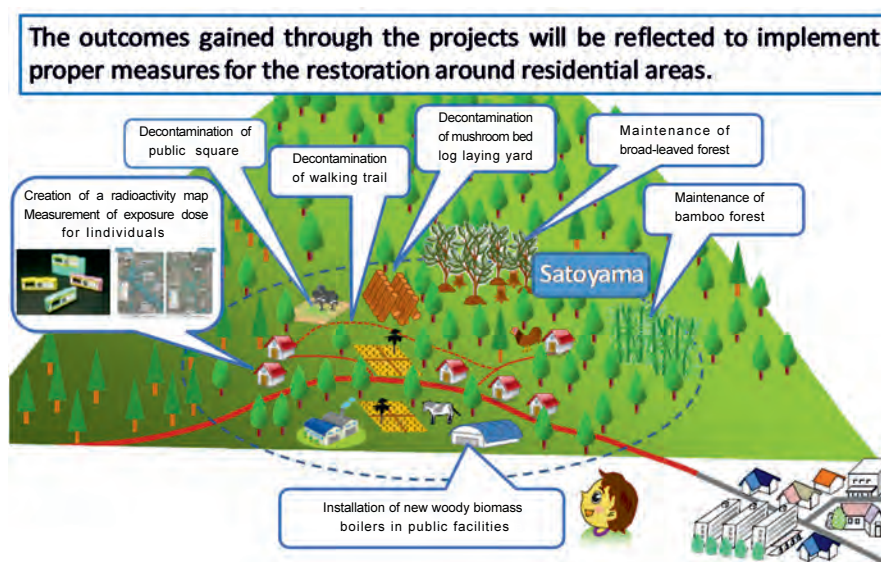
To address population decline, hollowing of industry and other problems common to all regions of Japan, the forestry and wood processing industry also takes steps to achieve reconstruction through the use of forest resources.

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 forest around residential areas, to regenerate forestry and to disseminate information.

The GOJ conducts investigative research about trends of distribution of radioactive substances within forests.



Source: Prepared by the Forestry Agency based on the Reconstruction Agency web site

Fig. VI – 1 Illustration of the Satoyama Forest Restoration Model Project

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. VI – 1).

(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.

Appendix

1. Forestry-related Fundamental Figures

Item	Unit	2000	2005	2010	2013	2014	2015	2016	2017
i Gross domestic product (GDP)	billion yen	526,706	524,133	500,354	503,176	513,876	531,320	535,986	545,122
Forestry	billion yen	172	134	190	201	214	206	211	217
Forestry / GDP	%	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
ii Total number of workers	million	64.46	63.56	62.57	63.26	63.71	64.01	64.65	65.30
Forestry	million	0.07	0.06	0.08	0.08	0.08	0.07	0.06	0.06
Forestry / Total # of workers	%	0.11	0.09	0.13	0.13	0.13	0.11	0.09	0.09
iii Land area of Japan	million ha	37.79	37.79	37.80	37.80	37.80	37.80	37.80	37.80
iv Forest	million ha	25.15	25.12	25.10	25.08	25.08	25.08	25.08	25.05
Forest / Land area	%	67.5	67.4	67.3	67.3	67.3	67.3	67.3	67.2
v Protection forest	million ha	8.93	11.65	12.02	12.12	12.14	12.17	12.18	12.20
Protection forest / Forest	%	35.5	46.4	47.9	48.3	48.4	48.5	48.6	48.7
vi Growing stock of forest	billion m ³	3.5	4.0	4.4	4.9	4.9	4.9	4.9	5.2
vii Industrial wood supply	million m ³	101.01	87.42	71.88	75.46	75.80	75.16	78.08	81.72
Domestic production	million m ³	19.06	17.90	18.92	21.74	23.65	24.92	27.14	29.53
Import	million m ³	81.95	69.52	52.96	53.72	52.15	50.24	50.94	52.19
Self-sufficiency rate	%	18.9	20.5	26.3	28.8	31.2	33.2	34.8	36.1
viii New housing starts	million units	1.23	1.24	0.81	0.98	0.89	0.91	0.97	0.96
Ratio of wooden structure	%	45.2	43.9	56.6	56.1	54.9	55.5	56.5	56.5

Notes 1: "Protection forest area" in "v" refers to the area excluding duplication.

2: "Industrial wood supply," "Domestic production," and "Import" in "vii" refer to the volume in roundwood equivalent.

Sources: i: Cabinet Office "SNA (System of National Accounts)"

ii: Ministry of Internal Affairs and Communications "Labor Force Survey" (Iwate, Miyagi and Fukushima Prefectures are excluded from the data for 2011.)

iii: Ministry of Land, Infrastructure, Transport and Tourism (MLIT) "Land Survey of Prefectures, Cities, Wards, Towns and Villages, Geographical Survey Institute"

iv, v, vi: Forestry Agency

vii: Forestry Agency "Wood Demand and Supply Chart"

viii: MLIT "Statistics on Building Construction Starts"

2. Gross Domestic Product classified by Economic Activities (at current prices)

(Unit: billion yen)

Item	2000	2005	2010	2013	2014	2015	2016	2017
Gross domestic product	526,706	524,133	500,354	503,176	513,876	531,320	535,986	545,122
Agriculture, forestry, and fishing	8,090	5,898	5,515	5,556	5,428	5,918	6,491	6,483
Forestry	172	134	190	201	214	206	211	217
Mining	611	414	304	311	327	315	286	301
Manufacturing	118,815	113,448	104,239	97,799	101,394	110,585	110,817	112,988
Electricity, gas and water supply and waste management service	16,898	15,237	13,797	10,655	12,090	13,924	13,938	14,253
Construction	36,215	29,186	23,984	26,779	28,470	29,362	29,887	31,329
Wholesale and retail trade	68,830	75,313	69,088	74,271	73,188	74,270	74,012	75,919
Transport and postal services	25,643	26,573	25,231	25,366	26,752	27,153	26,993	27,695
Accommodation and food service activities	16,580	14,350	12,847	12,345	12,648	12,405	13,656	13,791
Information and communications	24,236	25,911	25,514	25,718	26,082	26,723	26,856	26,684
Finance and insurance	25,637	31,192	24,115	23,055	22,808	23,208	22,323	22,516
Real estate	54,138	54,571	59,531	59,889	60,128	60,616	61,154	61,789
Professional, scientific and technical activities	30,291	33,394	34,940	36,513	37,144	38,387	39,868	40,483
Public administration	27,314	26,930	26,306	25,759	26,446	26,572	26,697	26,883
Education	19,003	18,620	18,247	18,377	18,861	19,205	19,397	19,598
Human health and social work activities	27,874	28,916	32,025	34,818	34,910	36,267	37,740	38,102
Other service activities	27,353	25,700	23,454	22,891	23,251	23,377	22,903	23,302

Source: Cabinet Office "SNA (System of National Accounts)"

3. Forestry Output

(Unit: billion yen)

Item	2000	2005	2010	2013	2014	2015	2016	2017
Forestry output	531.15	417.05	425.70	433.12	464.10	454.98	470.91	485.89
Wood production	322.18	210.50	195.29	219.68	245.86	234.08	237.00	254.97
Softwood	265.33	177.41	170.16	193.66	215.88	198.19	195.39	204.94
Sugi (Japanese Cedar)	123.78	87.53	93.50	112.02	129.62	118.09	116.74	121.57
Hardwood	54.72	31.71	23.76	20.06	18.96	19.51	19.06	18.40
Fuelwood and charcoal production	6.16	6.09	5.08	5.53	5.66	5.31	5.49	5.44
Grown mushroom production	196.89	198.50	218.91	203.73	208.50	210.98	222.05	220.75
Minor forestry products production	5.92	1.96	6.42	4.18	4.08	4.60	6.37	4.73
Forestry income produced	351.91	245.78	229.22	234.42	252.67	251.29	260.41	269.15

Notes 1: Total figures may not be equal to the sum of each item due to round off.

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 japan wax and japanese lacquer since 2002, the output of wild grass (wild vegetables and wild herbs) since 2010 and the output of gibier since 2016.

Source: Ministry of Agriculture, Forestry and Fisheries (MAFF) "Forestry Output"

4. Current State of Forest Resources

(Unit: 1,000ha, million m³)

Classification			Total		Standing timber area (canopy cover more than 30%)				Treeless land (canopy cover less than 30%)		Bamboo groves
					Planted forest		Natural forest		Area	Growing stock	
			Area	Growing stock	Area	Growing stock	Area	Growing stock			
Total			25,048	5,241.50	10,204	3,308.42	13,481	1,932.45	1,197	0.64	167
National forest	Subtotal		7,659	1,225.93	2,288	513.04	4,733	712.45	637	0.44	0
	Under the Forestry Agency's jurisdiction	Subtotal	7,593	1,220.72	2,282	512.03	4,682	708.24	629	0.44	0
		State-owned	7,508	1,201.28	2,208	492.83	4,680	708.01	620	0.44	0
		Government reforestation	85	19.44	73	19.21	2	0.23	10	0	-
		Others	0	0	-	-	-	-	0	0	-
	Under other Agency's jurisdiction		65	5.12	7	1.00	51	4.20	8	-	0
Private and public forest	Subtotal		17,389	4,015.57	7,916	2,795.38	8,747	1,220.00	560	0.19	167
	Public forest	Subtotal	2,995	615.56	1,334	397.05	1,531	218.36	124	0.15	6
		Prefecture	1,292	252.69	529	145.59	709	107.01	53	0.09	1
		Municipality	1,702	362.87	804	251.47	822	111.35	71	0.06	5
	Private forest		14,247	3,394.33	6,569	2,395.55	7,188	998.74	431	0.04	158
	Others		48	5.68	13	2.78	28	2.90	5	0	3

Notes 1: Data cover the forests defined in Article 2 of the Forest Act.

2: "Others" and "Under other agency's jurisdiction" 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: Total figures may not be equal to the sum of each item due to round off.

Source: Forestry Agency

5. Planted Area by Tree Species

(Unit: ha)

	Total	Softwood					Hardwood
		Sugi (Japanese cedar)	Hinoki (Japanese cypress)	Matsu (Pine)	Karamatsu (Japanese larch)	Others	
2000	(31,316) 28,480	(8,223) 7,967	(11,574) 10,745	(233) 223	(2,524) 2,493	(4,954) 4,014	(3,808) 3,038
2005	(25,584) 22,498	(5,216) 5,011	(7,096) 6,307	(226) 183	(3,534) 3,423	(5,728) 4,611	(3,784) 2,963
2010	(18,756) 16,388	(4,132) 3,844	(2,820) 2,262	(247) 237	(4,604) 4,418	(4,265) 3,381	(2,688) 2,246
2013	(22,225) 18,906	(5,429) 5,215	(2,780) 2,512	(330) 231	(5,099) 4,620	(5,811) 3,942	(2,777) 2,386
2014	(21,088) 17,720	(5,185) 5,098	(2,543) 2,404	(554) 518	(4,603) 4,128	(5,709) 3,622	(2,492) 1,950
2015	(19,429) 16,607	(5,537) 5,390	(2,039) 1,930	(185) 168	(4,467) 4,027	(5,250) 3,450	(1,950) 1,642
2016	(21,106) 18,390	(6,766) 6,570	(1,972) 1,852	(291) 253	(5,017) 4,552	(4,983) 3,383	(2,077) 1,781
2017	(22,069) 19,866	(7,102) 6,845	(1,979) 1,874	(406) 388	(5,388) 5,179	(5,423) 4,110	(1,771) 1,471

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

6. Planted Forest Area by Age Classes

(Unit: 1,000ha)

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
1985	604	895	1,263	1,691	1,762	1,569	947	337	240	205	178	137	111	83	148					
1989	436	700	943	1,351	1,691	1,746	1,413	777	270	224	183	151	118	93	79	52	62			
1994	278	421	699	937	1,336	1,686	1,719	1,388	735	262	213	172	139	112	86	67	105			
2001	131	226	350	589	874	1,149	1,599	1,677	1,522	946	353	204	171	144	112	89	62	52	70	
2006	88	168	227	352	593	873	1,143	1,582	1,649	1,500	918	345	200	168	141	106	90	62	120	
2011	73	114	159	231	347	584	852	1,111	1,565	1,631	1,473	921	345	194	164	138	105	87	174	
2016	68	102	114	164	224	348	582	846	1,108	1,529	1,592	1,428	893	340	190	162	135	104	86	172

Notes 1: Figures are as the end of each fiscal year.

2: For the year 1985, the class XV contains forests older than that class. For the years 1989 and 1994, the class XVII contains forests older than that class. For the years 2001, 2006, and 2011, the class XIX contains forests older than that class. For the year 2016, the class XX contains forests older than that class.

3: Data cover the forests defined in Article 5 or Article 7-2 of the Forest Act.

Source: Forestry Agency

7. Thinned Area and Use of Thinnings

(FY)	Thinned area (1,000ha)			Volume of thinnings used (million m³)					
	Total	Private and public forest	National forest	Total	Private and public forest				National forest
					Subtotal	Sawnwood	Roundwood	Others	
2007	521	395	126	5.37	3.44	2.14	0.47	0.83	1.93
2010	556	445	110	6.65	4.43	2.70	0.42	1.31	2.22
2013	521	400	121	8.11	5.65	3.23	0.44	1.97	2.46
2014	465	339	126	7.69	5.21	2.91	0.33	1.97	2.47
2015	452	341	112	8.13	5.65	2.97	0.35	2.32	2.48
2016	440	319	121	8.23	5.76	2.95	0.30	2.51	2.47
2017	410	304	106	8.12	5.56	2.75	0.28	2.53	2.56

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: Total figures may not be equal to the sum of each item due to round off.

Source: Forestry Agency

Thinned Area and Use of Thinnings before 2007 (as for private forest including communal forest)

(FY)	1990	1995	2000	2003	2004	2005	2006	2007
Thinned area (1,000ha)	277	215	304	312	277	281	282	395
Volume of thinnings used (million m³)	Total	2.34	1.83	2.74	2.83	2.84	3.24	3.44
	Sawnwood	1.70	1.25	1.95	1.85	1.81	1.96	2.14
	Roundwood	0.37	0.34	0.41	0.50	0.41	0.48	0.47
	Others	0.26	0.24	0.38	0.48	0.55	0.80	0.83

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: Total figures may not be equal to the sum of each item due to round off.

Source: Forestry Agency

8. Forest Area by Owners

	2015	
	Forest area (ha)	Ratio to total area
Total	17,626,761	100.0%
Private	13,563,827	77.0%
Public	3,370,380	19.1%
Prefecture	1,271,571	7.2%
Public corporation	391,189	2.2%
Municipality	1,406,063	8.0%
Property ward	301,557	1.7%
Incorporated Administrative Agencies	692,554	3.9%

Notes 1: Total figures may not be equal to the sum of each item due to round off.

2: "Incorporated Administrative Agencies" include Independent administrative agencies, National University Corporations and Special Corporations.

Source: MAFF "2015 Census of Agriculture and Forestry"

9. Number of Forestry Management Entities and their Forest Area

(Unit: #, ha)

	Total		-3ha		3-5ha		5-20ha		20-50ha		50-100ha		100ha-	
	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area
Total	87,284	4,373,374	2,247	1,170	23,767	85,988	41,885	389,986	12,193	348,521	3,572	235,747	3,620	3,311,962
Corporation	5,599	1,470,626	1,065	237	397	1,495	1,315	14,029	894	27,849	658	45,473	1,270	1,381,544
Private company	2,456	774,282	707	144	193	706	538	5,481	333	9,838	196	12,829	489	745,285
Cooperative	2,337	497,968	304	85	109	425	480	5,559	448	14,529	379	26,598	617	450,772
Agricultural cooperative	87	19,669	-	-	4	16	9	101	21	779	14	1,041	39	17,732
Forestry cooperative	1,819	304,008	263	83	74	287	342	4,083	341	11,085	317	22,336	482	266,135
Other cooperatives	431	174,291	41	2	31	123	129	1,376	86	2,665	48	3,221	96	166,905
Other corporations	806	198,376	54	8	95	364	297	2,990	113	3,482	83	6,047	164	185,487
Non-corporation	80,396	1,349,519	1,181	933	23,329	84,334	40,417	374,113	11,129	315,103	2,768	180,050	1,572	394,985
Individual	77,692	1,215,213	1,073	901	22,922	82,773	39,327	362,792	10,575	298,201	2,494	160,726	1,301	309,821
Public	1,289	1,553,229	1	-	41	159	153	1,844	170	5,570	146	10,224	778	1,535,432

Notes 1: Symbol of "-" means not applicable.

2: "Forestry management entities" correspond to either of the following. (1) The forestry on the scale whose owned forest area exceed 3 hectares.

(2) Consigned forestation and raw materials production, and crude matters manufacturing through the purchase of standing trees.

Source: MAFF "2015 Census of Agriculture and Forestry"

10. Roundwood Production

(Unit: 1,000m³, %)

		2000	2005	2010	2013	2014	2015	2016	2017	Relative change from previous year (%)
Total		17,034	16,166	17,193	19,646	19,916	20,049	20,660	21,408	nc
By tree species	Subtotal	13,707 (80)	13,695 (85)	14,789 (86)	17,246 (88)	17,743 (89)	17,815 (89)	18,470 (89)	19,258 (90)	nc
	Sugi (Japanese cedar)	7,671	7,756	9,049	10,902	11,194	11,226	11,848	12,276	nc
	for sawnwood	7,258 <57>	6,737 <58>	6,695 <63>	7,825 <65>	7,872 <64>	7,869 <66>	8,095 <66>	8,200 <65>	nc
	Hinoki (Japanese cypress)	2,273	2,014	2,029	2,300	2,395	2,364	2,460	2,762	nc
	Akamatsu (Japanese red pine), Kuromatsu (Japanese black pine)	1,034	783	694	624	674	779	678	641	nc
	Karamatsu (Japanese larch), Ezomatsu (Yezo spruce), Todomatsu (Sakhalin fir)	2,410	2,910	2,816	3,275	3,327	3,268	3,325	3,380	nc
	Others	319	232	201	145	153	170	153	198	nc
	Hardwood	3,327 (20)	2,471 (15)	2,404 (14)	2,400 (12)	2,173 (11)	2,236 (11)	2,188 (11)	2,153 (10)	nc
	Sawnwood	12,798 (75)	11,571 (72)	10,582 (62)	12,058 (61)	12,211 (61)	12,004 (60)	12,182 (59)	12,632 (59)	nc
	Plywood	138 (1)	863 (5)	2,490 (15)	3,016 (15)	3,191 (16)	3,356 (17)	3,682 (18)	4,122 (19)	nc
	Chips	4,098 (24)	3,732 (23)	4,121 (24)	4,572 (23)	4,514 (23)	4,689 (23)	4,796 (23)	4,654 (22)	nc

Notes 1: Figures in parentheses refer to the percentage to total volume.

2: Figures in < > are the percentage of sugi for sawnwood to the total volume for sawnwood of all species.

3: Roundwood Production exclude forest residue.

4: Total figures may not be equal to the sum of each item due to round off.

5: Total figures is the sum of "Sawnwood", "Plywood" and "Chips".

6: Production of roundwood for LVL is added to "Plywood" since 2017 so that "relative change from previous year" cannot be calculated.

Source: MAFF "Wood Supply and Demand Report", 2017

11. Wood Supply and Demand Chart (roundwood equivalent)

(Unit: 1,000m³)

Demand Supply		Demand								Domestic consumption								Export												
		Total	Industrial use					Wood for mushroom production	Fuel wood	Total	Industrial use					Wood for mushroom production	Fuel wood				Total	Industrial use					Fuel wood			
			Subtotal	Sawnwood	Pulp and chips	Plywood	Others				Subtotal	Sawnwood	Pulp and chips	Plywood	Others		Subtotal	Charcoal	Firewood	Wood chips for fuel		Subtotal	Roundwood	Sawnwood	Pulp and chips	Plywood	Others	Subtotal	Charcoal	Firewood
Supply	Total	(19,591) 81,854	(7,107) 73,742	26,370	(7,107) 32,302	10,667	4,403	311	(12,484) 7,800	(19,591) 79,235	(7,107) 71,128	26,165	(7,107) 31,085	10,471	3,408	311	(12,484) 7,795	933	52	(12,484) 6,811	2,619	2,614	971	205	1,218	196	25	5	4	0
	Industrial use	(7,107) 27,713	(7,107) 27,713	16,392	(7,107) 4,934	5,004	1,384		(7,107) 25,099	(7,107) 25,099	16,187	(7,107) 3,716	4,808	388							2,614	2,614	971	205	1,218	196	25			
	Roundwood	265	265		265				265	265		265																		
	Forest residue	45,764	45,764	9,978	27,104	5,663	3,020		45,764	45,764	9,978	27,104	5,663	3,020																
	Wood for mushroom production	311						311		311						311														
	Fuel wood	(12,484) 7,800							(12,484) 7,800	7,795							(12,484) 7,795	933	52	(12,484) 6,811	5							5	4	0
Domestic production	Total	29,660	23,312	12,632	5,193	4,122	1,365	311	6,037	27,047	20,703	12,428	3,975	3,930	370	311	6,032	67	51	5,913	2,613	2,608	971	204	1,218	192	25	5	4	0
	Industrial use	23,047	23,047	12,632	4,928	4,122	1,365			20,438	20,438	12,428	3,710	3,930	370						2,608	2,608	971	204	1,218	192	25			
	Roundwood	265	265		265					265	265		265																	
	Forest residue	311						311		311						311														
	Wood for mushroom production																													
Fuel wood	6,037							6,037	6,032								6,032	67	51	5,913	5						5	4	0	
Import	Total	52,194	50,430	13,738	27,110	6,545	3,038		1,764	52,189	50,425	13,737	27,110	6,541	3,038		1,764	866	0	897	6	6	0	1	5	0				
	Industrial use	4,666	4,666	3,760	6	882	18			4,661	4,661	3,759	6	877	18															
	Roundwood	45,764	45,764	9,978	27,104	5,663	3,020			45,764	45,764	9,978	27,104	5,663	3,020															
	Sawnwood	9,978	9,978							9,978	9,978	9,978																		
	Pulp	5,887	5,887		5,887					5,887	5,887		5,887																	
	Chips	21,216	21,216		21,216					21,216	21,216		21,216																	
	Plywood	5,663	5,663			5,663				5,663	5,663			5,663																
	Others	3,020	3,020				3,020			3,020	3,020				3,020															
	Fuel wood	1,764							1,764	1,764								1,764	866	0	897									

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 sawnwood, plywood, or others.

These figures are excluded from "total" and "subtotal".

2: "Others" refers to items such as glulam, worked wood, sleeper, utility pole, pile wood, and scaffolding timber.

3: "Forest residue" refers to branches or roots carried into mills for use.

4: Wood pellet produced domestically is included "Fuel wood" of Domestic production.

5: Total figures may not be equal to the sum of each item due to round off.

6: "Fuel wood" includes wood chips for fuel, utilized by woody biomass power plants since 2014.

7: "Others" of Export was divided into "Roundwood" and "Others" since 2017.

Source: Forestry Agency "Wood Supply and Demand Chart", 2017

12. Wood Supply/Demand (roundwood equivalent)

(Unit: 1,000m³)

	Wood supply/demand				Wood demand for industrial use by sector				Wood supply for industrial use by source	
	Total	Wood for industrial use	Fuel wood	Wood for mushroom production	Sawnwood	Pulp and chips	Plywood	Others	Domestic production	Import (roundwood and wood products)
1955	65,206	45,278	19,928	-	30,295	8,285	2,297	4,401	42,794	2,484
1960	71,467	56,547	14,920	-	37,789	10,189	3,178	5,391	49,006	7,541
1965	76,798	70,530	6,268	-	47,084	14,335	5,187	3,924	50,375	20,155
1970	106,601	102,679	2,348	1,574	62,009	24,887	13,059	2,724	46,241	56,438
1975	99,303	96,369	1,132	1,802	55,341	27,298	11,173	2,557	34,577	61,792
1980	112,211	108,964	1,200	2,047	56,713	35,868	12,840	3,543	34,557	74,407
1985	95,447	92,901	572	1,974	44,539	32,915	11,217	4,230	33,074	59,827
1990	113,242	111,162	517	1,563	53,887	41,344	14,546	1,385	29,369	81,793
1995	113,698	111,922	721	1,055	50,384	44,922	14,314	2,302	22,916	89,006
2000	101,006	99,263	940	803	40,946	42,186	13,825	2,306	18,022	81,241
2005	87,423	85,857	1,001	565	32,901	37,608	12,586	2,763	17,176	68,681
2010	71,884	70,253	1,099	532	25,379	32,350	9,556	2,968	18,236	52,018
2013	75,459	73,867	1,204	388	28,592	30,353	11,232	3,690	21,117	52,750
2014	75,799	72,547	2,940	313	26,139	31,433	11,144	3,830	21,492	51,054
2015	75,160	70,883	3,962	315	25,358	31,783	9,914	3,829	21,797	49,086
2016	78,077	71,942	5,807	328	26,150	31,619	10,248	3,925	22,355	49,586
2017	81,854	73,742	7,800	311	26,370	32,302	10,667	4,403	23,312	50,430

Notes 1: "Wood supply/demand" = Domestic production + Import (roundwood, wood products and fuel wood). (Roundwood equivalent)

2: "Others" refers to items such as glulam, worked wood, sleeper, utility pole, pile wood, and scaffolding timber.

3: Total figures may not be equal to the sum of each item due to round off.

4: "Fuel wood" includes wood chip for fuel, utilized by woody biomass power plants since 2014.

Source: Forestry Agency "Wood Supply and Demand Chart"

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

(Unit: 1,000m³)

		2000	2005	2010	2013	2014	2015	2016	2017	Relative change to previous year (%)
Total wood supply/demand		101,006	87,423	71,884	75,459	75,799	75,160	78,077	81,854	4.8
Industrial use		99,263	85,857	70,253	73,867	72,547	70,883	71,942	73,742	2.5
Fuel wood		940	1,001	1,099	1,204	2,940	3,962	5,807	7,800	34.3
Wood for mushroom production		803	565	532	388	313	315	328	311	▲ 5.2
Domestic production		19,058	17,899	18,923	21,735	23,647	24,918	27,141	29,660	9.3
Import		81,948	69,523	52,961	53,724	52,152	50,242	50,936	52,194	2.5
Self-sufficiency rate (%)		18.9	20.5	26.3	28.8	31.2	33.2	34.8	36.2	1.4
Wood demand for industrial use by sector	Total	99,263	85,857	70,253	73,867	72,547	70,883	71,942	73,742	2.5
	Domestic production	18,022	17,176	18,236	21,117	21,492	21,797	22,355	23,312	4.3
	Import	81,241	68,681	52,018	52,750	51,054	49,086	49,586	50,430	1.7
	Self-sufficiency rate (%)	18.2	20.0	26.0	28.6	29.6	30.8	31.1	31.6	0.5
	Sawnwood	40,946	32,901	25,379	28,592	26,139	25,358	26,150	26,370	0.8
	Domestic production	12,798	11,571	10,582	12,058	12,211	12,004	12,182	12,632	3.7
	Import	28,148	21,330	14,797	16,534	13,928	13,354	13,968	13,738	▲ 1.6
	Self-sufficiency rate (%)	31.3	35.2	41.7	42.2	46.7	47.3	46.6	47.9	1.3
	Pulp and chips	(6,537)	(7,974)	(6,192)	(7,972)	(6,922)	(6,667)	(6,853)	(7,107)	2.2
	Domestic production	4,749	4,426	4,785	5,177	5,047	5,202	5,266	5,193	▲ 1.4
	Import	37,437	33,181	27,565	25,176	26,386	26,581	26,353	27,110	2.9
	Self-sufficiency rate (%)	11.3	11.8	14.8	17.1	16.1	16.4	16.7	16.1	▲ 0.6
	Plywood	13,825	12,586	9,556	11,232	11,144	9,914	10,248	10,667	4.1
	Domestic production	138	863	2,490	3,255	3,346	3,530	3,876	4,122	6.3
	Import	13,687	11,723	7,066	7,977	7,798	6,384	6,372	6,545	2.7
	Self-sufficiency rate (%)	1.0	6.9	26.1	29.0	30.0	35.6	37.8	38.6	0.8
	Others	2,306	2,763	2,968	3,690	3,830	3,829	3,925	4,403	12.2
	Domestic production	337	316	379	627	889	1,061	1,031	1,365	32.4
	Import	1,969	2,447	2,589	3,063	2,942	2,767	2,894	3,038	5.0
	Self-sufficiency rate (%)	14.6	11.4	12.8	17.0	23.2	27.7	26.3	31.0	4.7

Notes 1: "Wood supply/demand" = Domestic production + Import (roundwood, wood products and fuel wood). (Roundwood equivalent)

2: Self-sufficiency rate = Volume of domestic production for each category / Volume of total or subtotal for each category × 100

3: "Others" refers to items such as glulam, worked wood, sleeper, utility pole, pile wood and scaffolding wood.

4: 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".

5: Total figures may not be equal to the sum of each item due to round off.

6: "Fuel wood" includes wood chip for fuel, utilized by woody biomass power plants since 2014.

7: Among "relative change to the previous year", "self-sufficiency rate" field is the difference from the previous year.

Source: Forestry Agency "Wood Supply and Demand Chart"

14. Wood Supply by Country (roundwood equivalent)

(Unit: 1,000m³, %)

			2000	2005	2010	2013	2014	2015	2016	2017
Imported wood	North America	Subtotal	(28.9)	(18.8)	(19.2)	(18.9)	(17.9)	(17.5)	(17.2)	(16.8)
		U.S.	28,700	16,129	13,506	13,942	13,013	12,415	12,377	12,352
		Canada	14,460	6,844	5,838	6,225	6,153	6,057	6,083	6,233
	Southeast Asia	Subtotal	(13.7)	(12.2)	(8.9)	(8.7)	(9.2)	(8.3)	(7.7)	(7.8)
		Malaysia	13,569	10,511	6,287	6,439	6,718	5,848	5,525	5,751
		Indonesia	6,690	5,888	3,773	3,518	3,293	2,917	2,709	2,778
		Others	5,858	4,137	2,304	2,787	3,328	2,804	2,698	2,887
	Russia	Subtotal	1,021	486	209	134	97	127	117	85
		Russia	(7.5)	(8.6)	(3.3)	(3.2)	(3.1)	(2.9)	(3.3)	(3.3)
	Europe	Subtotal	7,429	7,411	2,343	2,380	2,221	2,081	2,366	2,398
		Europe	(4.7)	(6.9)	(7.1)	(9.1)	(7.6)	(7.6)	(8.5)	(8.7)
	Others	Subtotal	4,675	5,937	4,967	6,754	5,554	5,374	6,135	6,450
		New Zealand	(4.4)	(3.4)	(3.9)	(3.0)	(2.6)	(2.3)	(2.4)	(2.1)
		Chile	4,374	2,878	2,720	2,217	1,858	1,638	1,749	1,545
		Australia	(3.8)	(4.6)	(6.7)	(6.3)	(6.2)	(5.6)	(5.9)	(5.7)
		China	3,795	3,952	4,726	4,617	4,468	3,987	4,234	4,236
		Viet Nam	(8.7)	(10.2)	(11.0)	(5.6)	(5.8)	(6.6)	(5.7)	(6.4)
		Others	8,604	8,729	7,722	4,106	4,203	4,662	4,067	4,684
		Others	(2.5)	(3.0)	(3.0)	(3.4)	(3.4)	(2.8)	(2.7)	(2.7)
	Subtotal	Subtotal	2,445	2,544	2,084	2,483	2,434	1,967	1,912	1,982
		Others	(7.7)	(12.3)	(10.9)	(13.3)	(14.7)	(8.0)	(8.7)	(8.3)
		Others	7,651	10,591	7,663	9,810	10,585	5,696	6,275	6,116
	Domestic wood		(18.2)	(20.0)	(26.0)	(28.6)	(29.6)	(30.8)	(31.1)	(31.6)
	Total		18,022	17,176	18,236	21,117	21,492	21,797	22,355	23,312
			(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
			99,263	85,857	70,253	73,867	72,547	70,883	71,942	73,742

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 African countries.

4: "Others" of "Others" include Viet Nam until 2014.

5: Figures in parentheses refer to the percentage of each volume to the "total" volume of each year.

6: Total figures may not be equal to the sum of each item due to round off.

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

15. Number of Mills/Factories and Production Volumes

		Unit	2000	2005	2010	2013	2014	2015	2016	2017
Sawnwood	Number of mills	mills	11,692	9,011	6,569	5,690	5,469	5,206	4,934	4,814
	shipments	1,000m ³	17,231	12,825	9,415	10,100	9,595	9,231	9,293	9,457
Plywood	Number of mills	mills	354	271	192	195	186	185	183	181
	Inputs for plywood production	1,000m ³	5,401	4,636	3,811	4,181	4,405	4,218	4,638	5,004
	Surface-untreated plywood production	1,000m ³	3,218	3,212	2,645	2,811	2,813	2,756	3,063	3,287
	Surface-treated plywood production	1,000m ³	1,534	1,037	647	654	584	524	642	623
Glued laminated lumber	Number of factories	factories	281	259	182	166	165	157	150	150
	production	1,000m ³	892	1,512	1,455	1,647	1,555	1,485	1,549	1,687
Cross Laminated Timber	Number of factories	factories	-	-	-	-	-	-	-	7
	production	1,000m ³	-	-	-	-	-	-	-	14
Wood chips	Number of mills	mills	2,657	2,040	1,577	1,510	1,477	1,424	1,393	1,364
	production	1,000tons (1,000m ³)	10,851	6,005	5,407	6,452	5,850	5,745	5,826	5,954

Note 1: "Sawnwood" excludes sawmills with output power less than 7.5kW.

2: Figures of LVL is added to figures of "Plywood" since 2017.

3: "Wood chips" excludes chips for fuels.

Source: MAFF "Wood Supply and Demand Report", Japan Laminated Wood Products Association

16. Number of Sawmills classified by Sawing Power Output

	2000	2005	2010	2013	2014	2015	2016	2017
Number of sawmills	11,692	9,011	6,569	5,690	5,469	5,206	4,934	4,814
7.5 to less than 75.0 kW	8,178	6,189	4,282	3,615	3,455	3,239	3,030	2,924
75.0 - 300.0 kW	2,971	2,334	1,837	1,643	1,597	1,551	1,491	1,466
300.0 kW and over	543	488	450	432	417	416	413	424
1000.0 kW and over	71

Notes 1: Figures exclude sawmills with power output less than 7.5kW.

2: Classes of sawing power output were changed to "7.5 - 75.0 kW", "75.0 - 300.0 kW", "300.0 kW -" and "1000.0kW -" since 2017. Therefore, figures before 2016 are recounted by new classes.

3: The indicator used for classification changed "output of sawing power" to "volume of logs consumption in previous year" since 2017. For that reason, the number of sawmills classified by sawing power output in 2017 is not able to compare with the number before 2016.

4: "..." means "figures not available" because number of sawmills with power output more than 1000.0kW can not count before 2016.

Source: MAFF "Wood Supply and Demand Report"

Full text (in Japanese) of the “Annual Report on Forest and Forestry for FY2018” is available on the website of the Forestry Agency:

<http://www.rinya.maff.go.jp/j/kikaku/hakusyo/30hakusyo/index.html>



Please refer to those texts for further information on the issues contained in this brochure, or ask the Annual Report Group of the Forestry Agency:

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