

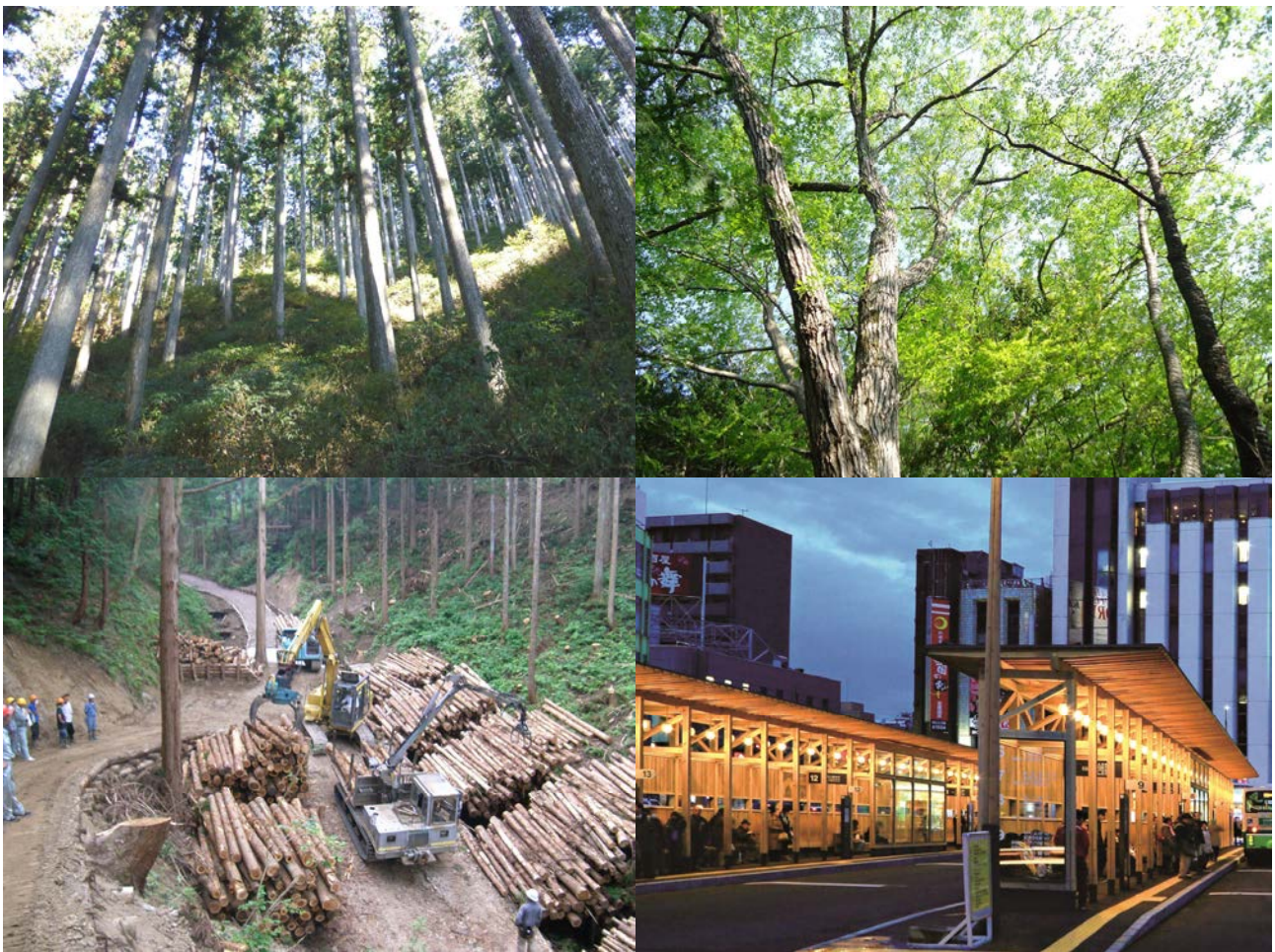
Annual Report on Forest and Forestry in Japan

Fiscal Year 2013

(Summary)

Forestry Agency

Ministry of Agriculture, Forestry and Fisheries, Japan



The “Annual Report on Forest and Forestry” is a report which the Japanese Government submits to the Diet every year, in accordance with article X of the “Forest and Forestry Basic Act.” This document is a summary of the annual report for FY2013.

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Note: The maps of Japan included in this summary report do not necessarily represent the territory of Japan comprehensively.

Forest and Forestry Topics in FY2013

TOPIC 1. Using the Results of Forest Management by Previous Generations in Shrine Rebuilding

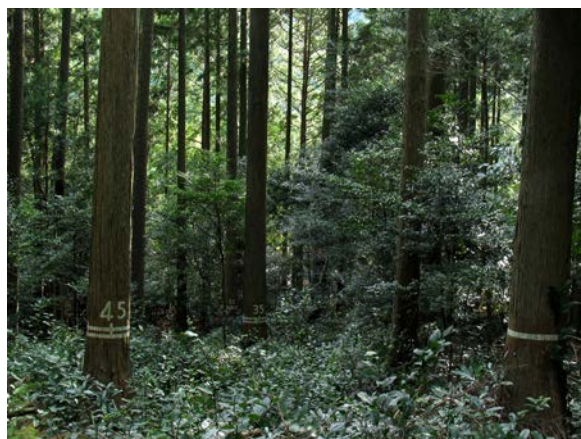
At the time of the 2013 rebuilding of Ise Grand Shrine, lumber used to build the new shrine buildings was supplied from not only National Forests in the Kiso region but also, for the first time in some 700 years, a “shrine forest” that is adjacent to the shrine. Wood from 80-year-old trees obtained from thinning was used for fences on the shrine’s inner ground (Naiku).

In the past, the shrine forest had been devastated by excessive logging. However, during the Taisho Era (1912 to 1926), the shrine prepared a “Shrine Forest Management Plan” and executed forest management involving planting, treatment, and other activities with the goal of producing 200-year-old *hinoki* (cypress) trees. The shrine is developing a mixed forest of conifer and broad-leafed trees that is comprised mainly of *hinoki*, as it also takes steps to conserve water resources and promote scenic beauty.

Forests play a significant role not only in land and water resource conservation but also in maintaining and passing down traditional culture by supplying wood and enhancing scenic beauty. Developing such forests need long-term forest management initiatives that extend beyond single generations.



Naiku building and fences



View of the shrine forest

TOPIC 2. Fujisan’s Inscription on the World Heritage List

In June 2013, “Fujisan, sacred place and source of artistic inspiration” was inscribed on the World Heritage List as Cultural Heritage. Forests make up 90% of the area of this site (approximately 20,000 hectares) and are an essential element in the natural environment and landscape that give “Fujisan” its sacred and artistic qualities.

Most of the forests on the Shizuoka Prefecture side are National Forests. In principle, portions of primitive forests are left to natural processes, while planted forest is managed with consideration for landscape. Most of the forests on the Yamanashi Prefecture side are prefectural forests. Forest management there puts emphasis on functions that benefit the public. This includes encouraging the

development of mixed coniferous and broadleaf forests, particularly in high-elevation forests.

The area is visited by numerous mountain climbers (in recent years, 300,000 climbers during the two-month climbing season), and its forests also suffer from feeding damage by wild deer. Responding to these and other issues will be essential to the conservation and management of “Fujisan” 's forests.



Mt. Fuji as seen from Lake Motosu



A protected forest on the foot of Mt. Fuji

TOPIC 3. A Greater Role by Women in Forestry Revitalization

In recent years, “*ringyo joshi-ka*” (girls’ forestry groups) comprised of women in various occupations (including students) are being formed in various regions throughout Japan (nine prefectures as of the end of 2013). These groups communicate forestry’s appeal through a variety of activities that include organizing hands-on forestry activities, forest development activities, and related events. Moves to organize women hunters have also been seen recently.

Interest in forests and forestry is growing among not only women who work in forestry but also ordinary women, and particularly young women. Such women are linking forests and forestry to other fields of interest through their activities.

It will be important to utilize the vitality of such women to reinvigorate forestry as a new growth industry.

TOPIC 4. Emergence of Technologies that Facilitate Mid-to-High-Rise Wooden Construction

The time for harvesting forests that were planted following World War II has come, and we have moved from an era of “tending” trees to “using” them. Wood is an earth friendly material that also provides healthy and comfortable environments.

In 2013, cross laminated timber (CLT) attracted attention as a new construction material that can be used for mid-to-high-rise wooden building. The construction of the first building in Japan that uses

CLT as major components began (October 2013). Also, the Ministry of Agriculture, Forestry and Fisheries (MAFF) established a Japan Agricultural Standard (JAS) for CLT (December 2013) and is gathering data for the establishment of CLT standard strength requirements.

The government's "Plan to Create Dynamism through Agriculture, Forestry, and Fisheries and Local Communities" (formulated in December 2013) calls for "creating new wood demand" through new products and technologies such as CLT among others. It is expected that rich supplies of natural resources and new technologies will be utilized and pave the way toward "woody cities".

Chapter I Multiple Functional Roles of Forests and Forest Management Activities

1. Multiple Functional Roles of Forests and Forest Management Activities

1.1. Japan's Forests and their Multiple Functional Roles

Among aspects that characterize Japan's forests are that they 1) account for two-thirds of national land; 2) are largely distributed in steep mountainous areas with heavy precipitation; and 3) are comprised of various forest zones resulting from Japan's long north-south orientation and complex topography.

Sixty percent of Japan's forests are natural forests including forests that were once used as coppices, while 40% are planted forests. This current makeup of forests is a result of the human activities of using and revitalizing forest resources. In particular, the planted forest stock has grown by roughly 5.4 times over the course of the past half century (Fig. I-1).

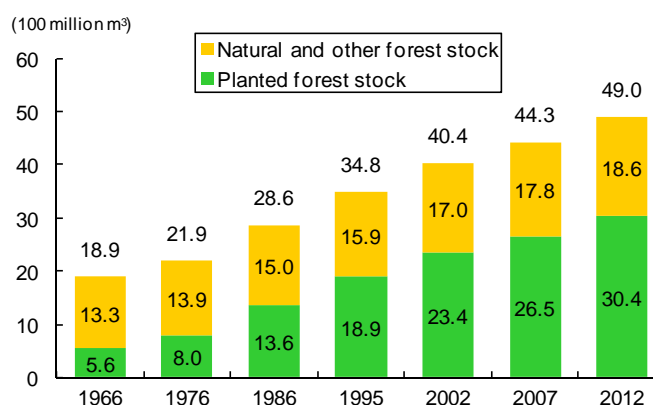


Fig. I-1: Changes in Japan's forest stock

Japan's forests make a contribution to people's lives and the national economy through multiple functional roles, such as water resource conservation, landslide prevention and soil conservation, provision of comfortable environments, health preservation and recreation, culture, biodiversity conservation, global environment conservation, and wood production. Many of these roles overlap one another.

1.2. The Significance of Forest Management Activities

The sustainable provision of forests' multiple functional roles requires human-led forest management activities for the development and cultivation of vigorous forests.

Particularly in the case of planted forests, forest regeneration is secured through forest management activities such as planting, treatment and thinning of trees. Also, forest management activities are necessary for vigorous forests that have developed tree canopies, trunks, roots and understories; have high resistance to various threats; and fully demonstrate their various functions.

In the case of individual forests, specific forest management activities are conducted focusing particularly on expected functions according to natural conditions and public needs, while maintaining balance among all forest functions.

The importance of thinning

- It encourages the growth and root development of remaining trees and produces weather-resistant forests.
- It allows sunlight to reach into the forest, which allows the understory to grow thickly and prevents soil erosion.
- It allows various plants and animals to live and breed and thus improves biodiversity.
- It raises resistance to disease and insects.
- It allows inclusion as a forest sink under international rules.

Forests' multiple functions deteriorate if thinning is not practiced.



Multiple functions are highly fulfilled if thinning is practiced.



1.3. Forest Management Activity Mechanisms

The techniques for Japan's forest management activities (e.g., raising seedling, planting, tending, thinning, etc.) have primarily been developed and diffused for *sugi* (cedar), *hinoki* (cypress), and other indigenous trees that have been used in Japan since ancient times and can grow into forests quickly (Fig. I-2).

Today, highly productive work systems built by combining advanced forestry machinery and forestry road systems are needed for the efficient execution of forest management activities.

In many cases, forest owners entrust their operations and business management to Forest Owners' Cooperatives or private forestry contractors, and there is a need to promote the coordination

and consolidation of forest management activities among small forest owners. On the other hand, groups of forest owners, NPOs, volunteers, companies, and various other entities are also involved.

The costs of forest management activities are continuously incurred over a long period (costs at the initial stages of planting and tending are particularly high). It takes several decades until income from wood sales can be obtained, and recovering the costs can be difficult as it is dependent upon wood supply-and-demand trends.

Forest management activities are systematically promoted based on the "Forest Planning System." Public projects and other means are used to support forest management activities that are based on forest management plans prepared by forest owners and forestry contractors.

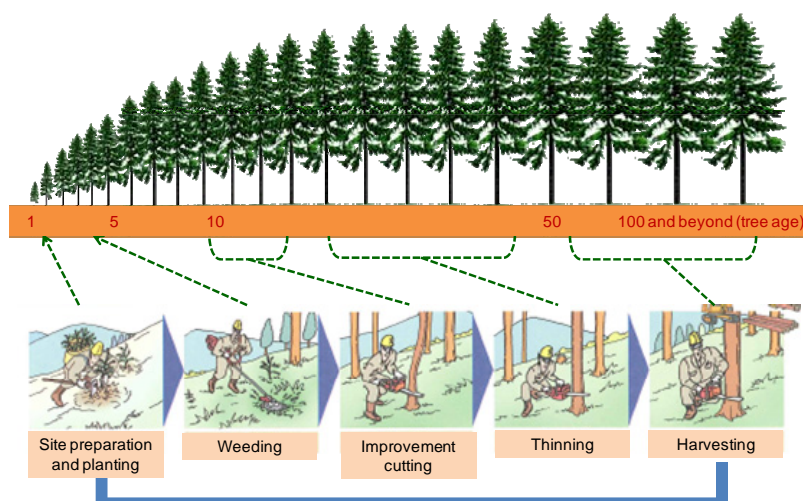


Fig. I-2: The forest management cycle

2. The History of Forest Management Activities in Japan

2.1. Forest Management Activities prior to World War II

From just before the Edo Period (1603 to 1868), deforestation came to be practiced on a large scale as demand of wood for construction grew, and this led to serious resource depletion and disasters. In response, the shogunate and individual clans promoted afforestation. In some regions, full-scale private forestry that involves afforestation also developed.

During the Meiji Period (1868 to 1912), trees were cut down and used for various purposes as Japan's industries modernized. As a result, forests throughout the country were devastated and disasters occurred frequently. In 1897, the "Forest Law" (which included the creation of the conservation forests scheme) was established and planting in devastated areas of national and public forests began. As for private forests, forestry production swelled in response to growing wood demand, and afforestation expanded for the purpose of reproducing wood.

2.2. Postwar Forest Devastation and Recovery

During and following World War II, great amounts of wood were needed for war material and reconstruction, and consequently forests were cut down in great numbers and devastated. The years between 1945 and 1964 (Showa 20s and 30s) were also marked by major damage throughout the nation caused by typhoons and other phenomena.

Against this backdrop, active planting in devastated areas was promoted through public projects ("afforestation support projects" and "forest conservation projects") from 1946. In 1950, a "National Tree Planting Ceremony" and "Green Feather Fundraising Campaign" were started as national land afforestation campaigns. And in 1951, a revision of the Forest Law brought in the "Forest Planning System" as well as a cutting permission system for privately owned forests.

Planting in abandoned forest after clear-cutting was concluded in FY1956.

2.3. Demand for Increased Wood Production and Expansive Afforestation

Between 1955 and 1964 (Showa 30s), demand of wood for building and civil engineering projects grew in response to Japan's economic recovery and high growth. This resulted in skyrocketing wood prices and demands for increased wood production from domestic forests. On the other hand, use of "satoyama forests" dwindled as people turned to petroleum and gas for fuel.

Against this backdrop, the government decided on "emergency wood price stabilization measures" in 1961 and began promoting emergency expansion in the cutting of national and private forests, use of chips from harvest losses, and increased imports.

Fast-growing conifers were planted on lands on which emergency cutting occurred in order to absorb anticipated demand for building materials (afforestation in lumbered broad-leaf forests was called "expansive afforestation"). Approximately 400,000 hectares were planted annually until around 1970 (Fig. I-3).

In 1964, the government established

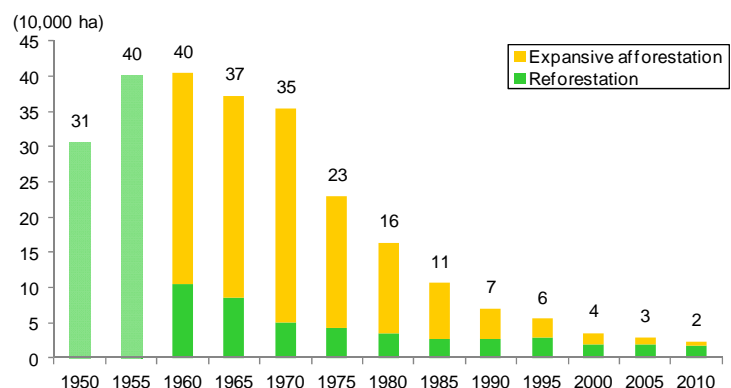


Fig. I-3: Changes in planted forest area

the “Forestry Basic Law” with the goal of expanding gross forestry production. It also limited the cutting permission system to conservation forests and promoted voluntary forest operations of individual forest owners based on their forest management plans.

2.4. Stagnation in the Forestry Industry and Diversifying Public Demand

Entering the decade beginning in 1965, forestry production activity declined while forests planted in the post-war period that required treatment increased. In response, weeding, improvement cutting, and thinning were added to subsidy-eligible items of afforestation projects. In 1977, a “National Tree Tending Ceremony” began.

Amid growing demand for recreational opportunities and interest in conserving the natural environment, the forest land development control system was established in order to regulate development of forests other than conservation forests. Policy shift was also executed toward (1) diversification and lengthening of cutting ages, (2) promotion of multiple storied forest management and natural forest management, and (3) promotion of comprehensive forest use.

Subsequently, the price of wood languished as imports of overseas wood grew with the yen gaining strength against other currencies and wood demand decreased. These factors caused even greater stagnation in forestry production activities. On the other hand, greater emphasis came to be placed on the multiple functional roles of forests (Fig. I-4), and thus the government established the current “Forest and Forestry Basic Law” in 2001.

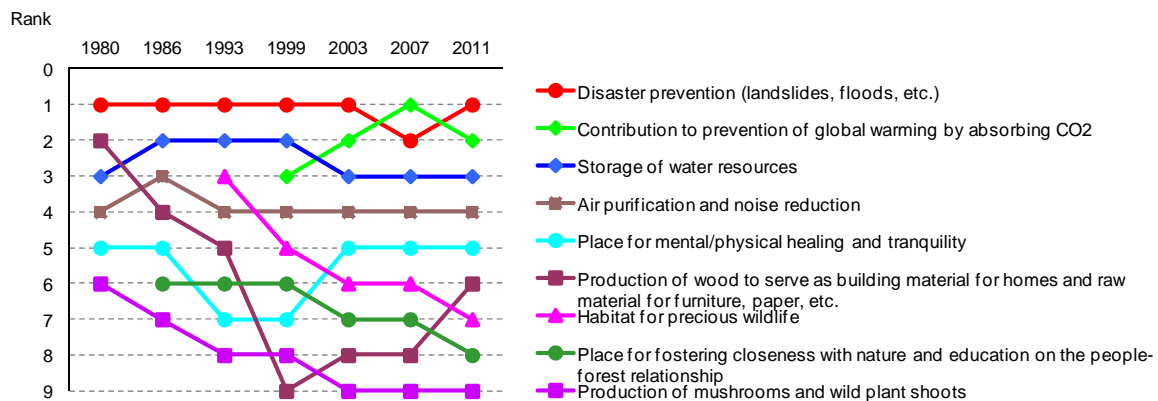


Fig. I-4: Changes in the public's expectations for the roles of forests

2.5. Response to Global Warming and New Initiatives

With the United Nations Framework Convention on Climate Change adopted in 1992, the functions of forests to prevent global warming gained attention. For the “first commitment period” (2008 to 2012) of the Kyoto Protocol adopted in 1997, Japan aimed to remove 3.8% of its 1990 level greenhouse gas (GHG) emissions, where its national emission reduction commitment was 6%, through the promotion of forest sink activities, by thinning an average of 550,000 hectares per year. For its FY2020 emission reduction goal (i.e. 3.8% reduction compared to the FY2005 level), Japan is to achieve at least 2.8% through the promotion of forest sink activities (thinning of 520,000 hectares per year) (Fig. I-5). The issue here includes the fact that stable financial resources for the promotion have yet to be secured.

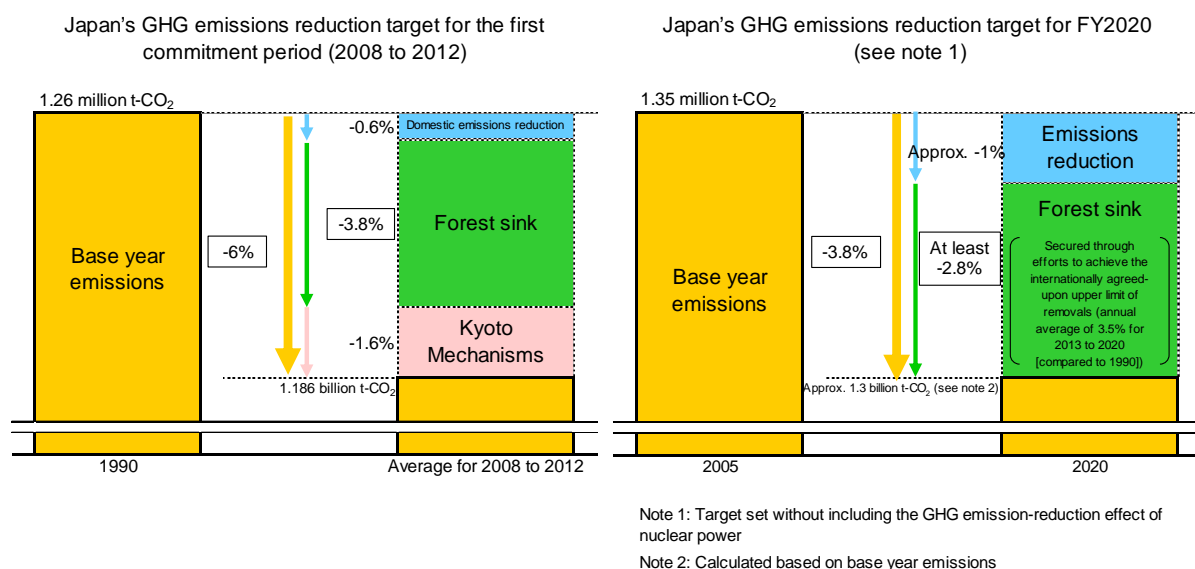


Fig. I-5: Forest sink activities in GHG reduction targets

Recent challenges related to forest management activities include, not only how to execute appropriate treatment and thinning, but also how to replace mature planted forests with young trees (harvesting/use and replanting) (Fig. I-6), control deer and other wildlife, and cope with natural disasters. On the other hand, new initiatives are being started, such as introduction of seedlings raised in containers as a way of reducing afforestation and treatment costs, and expansion of NPO and company-led activities as well as prefectural forest tax systems. There are also moves toward the use of wood for power generation, as well as the development and diffusion of new wood products and technologies, such as CLT.

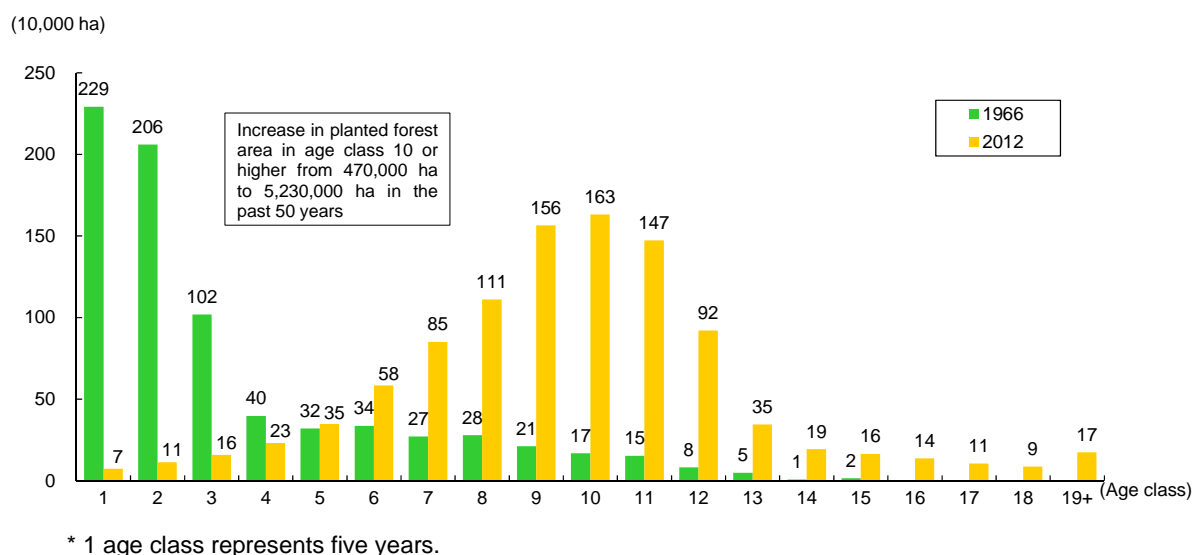


Fig. I-6: Age composition of planted forests (comparison of 1966 and 2012)

3. Future Tasks

3.1. Promotion of Forest Management Activities toward the Sustainable Provision of Multiple Functional Roles

It is necessary to conceive the desired future forms of forests and systematically promote forest management activities while taking into account current forest conditions, natural conditions, and regional needs. In the case of planted forests, in particular, the appropriate use of resources as well as thinning and reforestation need to be steadily engaged. At the same time, in accordance with geographical conditions, guidance should be provided toward various types of forests by, among other activities, promoting multiple storied forests and long-term management.

Also, demand of wood needs to be secured so that the cycle of “planting → treatment → harvesting → planting” will function and forest management activities can be sustained (Fig. I-7).

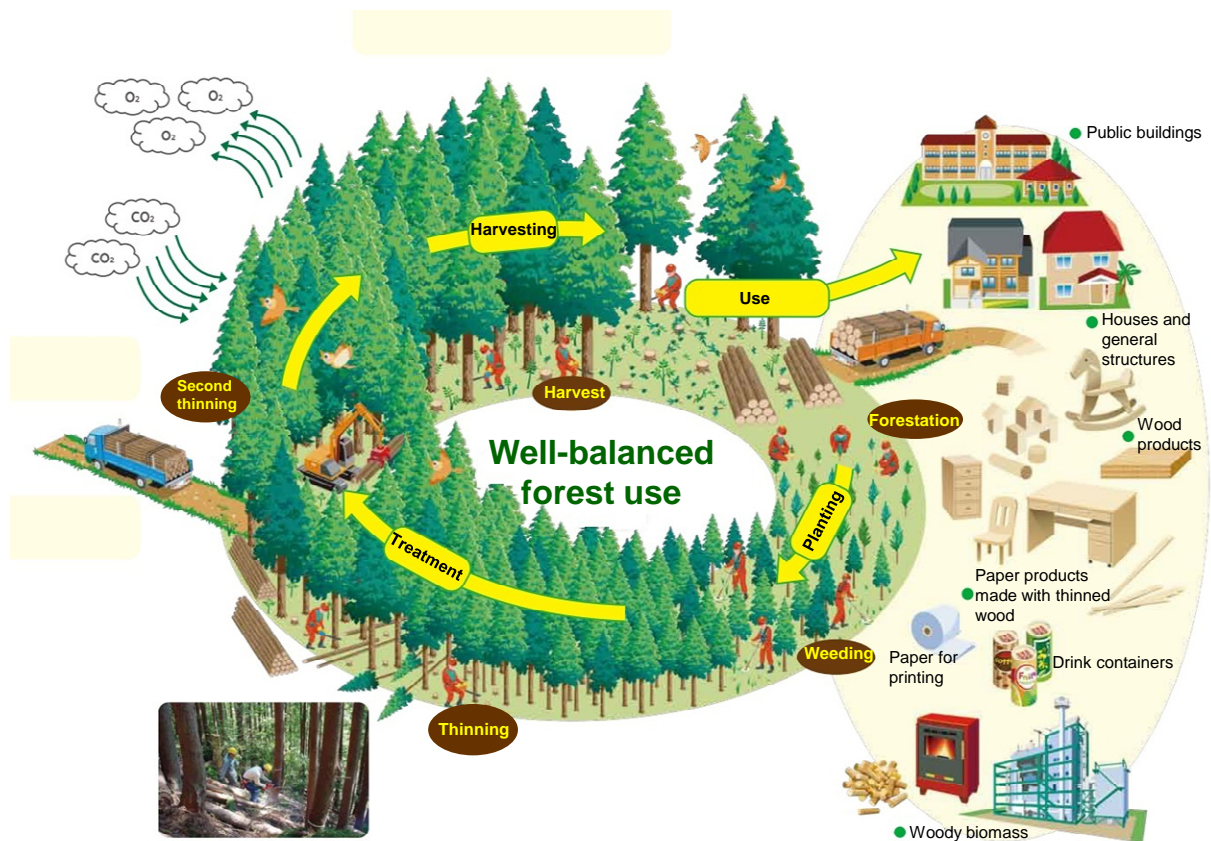


Fig. I-7: Appropriate forest cycle

3.2. Roles of Concerned Actors in promoting Forest Management Activities

The privileges and responsibilities of forest management primarily rests with forest owners. The appropriate management and conservation of their forests could include entrusting their operations and business management to Forest Owners' Cooperatives or private forestry contractors.

The forestry industry needs to strengthen its competitiveness by, for example, continuing to coordinate and consolidate forestry operations, develop forestry road systems, and lower the costs of afforestation and tending, so that the industry can practice forest management activities as their business.

Moreover, the forestry and wood products industries must take steps to create new wood demand and build systems for stable supply.

The national government and local governments need to provide support that allows these actors to execute such initiatives continuously.

Ordinary citizens can also support forest management by participating in regional activities, volunteer activities or companies' CSR activities etc., and helping cover related expenses through budgets, taxation, and donations.

Chapter II Reconstruction from the Great East Japan Earthquake

1. Recovery/Reconstruction of Forests, Forestry, and Wood Products Industry

1.1. Recovery of Forest, Forestry, and Wood Products Industry

Following the Great East Japan Earthquake, there were reports of damaged forest conservation facilities and forest roads as well as collapsed hillslopes in 15 prefectures, where recovery works have been implemented.

The Earthquake also damaged 115 wood processing/distribution facilities throughout Japan. The Forestry Agency is supporting the abolition, restoration, or maintenance of these facilities.

1.2. Restoration of Coastal Forests

The Forestry Agency is conducting recovery works in the damaged coastal forests, with a goal of building “berms” for replanting trees along the coasts within five years, and completing the recovery works within ten years.

The Forestry Agency has launched the recovery works in the coastal forests other than those used as temporary disaster debris storage areas. It is also encouraging private organizations including NPOs and private companies to participate in planting and tending the trees. The supply of a large number of seedlings needs to be assured, as well as ensuring the continuous treatment of planted trees, including weeding and thinning.

As it was confirmed that coastal forests have some efficacy in reducing tsunami damage, the Forestry Agency also enhanced its support for reinforcing the functions of those forests nationwide.

1.3. Promotion of Wood Use for Reconstruction

Local governments provided approximately 54,000 “emergency temporary houses” with a quarter of those houses (approximately 15,000 houses) being built with a wooden structure. In anticipation of future large scale disasters, there is also the signing of disaster agreements that aim to facilitate the quick supply of wooden emergency temporary houses.

Also seen are moves to build public housing (Reconstruction housing) and rebuild disaster victims’ houses with wood constructions, and initiatives to utilize wood in restoration and reconstruction projects taking place in the civil engineering sector.

Woody disaster debris is being used to produce wood-based panels and as a fuel input for boilers and power plants. In Aizu-wakamatsu city, Fukushima prefecture, a power plant which burns thinned wood as its fuel input has already started operation.



Reconstruction housing using wood

2. Reconstruction from Nuclear Accident

2.1. Response to the TEPCO Fukushima Daiichi Nuclear Power Plant Accident

With regard to the areas where evacuation was ordered in 2011, the Government of Japan (GOJ) completed their reorganization into “the areas where evacuation orders are ready to be lifted,” “the areas where the residents are not permitted to live,” and “the areas where it is expected that the residents have difficulties in returning for a long time” in August 2013.

2.2. Measures for Forests

The Ministry of the Environment (MoE) is conducting decontamination work in “forests in the neighborhood of communities” in the “Special Decontamination Areas.” In the “Intensive Contamination Survey Areas,” local municipalities are conducting the work in nearby-community private forests and the Forestry Agency in nearby-community National Forests.

For “bed log laying yards” that produce raw wood mushrooms, the Forestry Agency is currently studying how the removal of fallen leaves and the addition of soil control the transfer of radioactive cesium to *shiitake* mushrooms.

It is also studying changes in the distribution of radioactive cesium in forests and the dose-reduction effects of fallen leaf removal and cutting trees.

With regard to decontamination activities which handle contaminated soils, as well as forestry activities in forests where spatial doses exceed $2.5 \mu\text{Sv/h}$, dose measurement and other measures to ensure the safety of the workers are required.

2.3. Supply of Safe Wood Products

As of December 2013, shipment restrictions were ordered for 21 non-wood forest products including mushrooms and wild plant shoots, for which the radioactive cesium was found to exceed the standard values (100 Bq/kg for general food, etc.).

Shipment restrictions are lifted when it is determined that cultivation management is being practiced based on the “guidelines concerning cultivation management of roundwood mushrooms to decrease radioactive cesium” and that no mushrooms exceeding the standard values are produced.

In response to a decreasing supply of roundwood for mushrooms from Fukushima Prefecture, the Forestry Agency is providing matching assistance to help coordinate the supply and demand of roundwood used for mushroom production. It is also supporting the introduction of facilities and materials for continuing mushroom production.

2.4. Disposal of Contaminated Bark and Roundwood for Mushroom Production

Tree bark from lumber mills in Fukushima and neighboring prefectures, which had been used as fertilizers and beddings for livestock, also lost its outlet due to the possibility of contamination and some is retained in the lumber mills. The Forestry Agency is providing assistance in the disposal of the bark in waste disposal sites. The disposal of roundwood for mushroom production which cannot be used for the similar reason is also an issue.

2.5. Damage Compensation

Forestry organizations and mushroom growers in Fukushima and other prefectures are requesting compensation from TEPCO for income loss caused by the nuclear accident. Compensation for the loss of value in real estate of forests is still under consideration.

Chapter III Japan's Forest and International Cooperation

1. Basic Policy for Forest Management and Conservation

Forest management and conservation are promoted according to the “Forest and Forestry Basic Plan” based on the “Forest and Forestry Basic Law” as well as the “National Forest Plan”, “Prefectural Forest Plans,” and “Municipality Forest Plans” based on the “Forest Law.”

The government's “Plan to Create Dynamism through Agriculture, Forestry, and Fisheries and Local Communities” calls for the transformation of forestry into a growth industry, the promotion of forest sink activities through forest management and conservation, and the handing down of beautiful and traditional rural mountain communities to future generations by improving multiple functional roles.

2. Forest Management

2.1. Promotion of Forest Management

In FY2012, afforestation (tree planting) was conducted on 30,000 hectares, treatment on 270,000 hectares, and thinning on 490,000 hectares. Cooperation of private and National Forests within each river basin is promoted. In some private forests where proper management activity is needed, forest management activities are conducted by public bodies to maintain the multiple functional roles of forests.

In order to obtain information on forest owners, a mandatory notification system for new forest owners to local municipalities was introduced. The Forestry Agency is also conducting a survey on forest acquisition by foreigners and eight cases (totaling 16 hectares) were reported in 2012.

To improve the efficiency of forest planting and treatment, growing seedlings in a container and development of second-generation elite trees are being in progress. Development and planting of low-pollen Japanese cedar variations are also being practiced.



2.2. People's Participation in Forest Management

In recent years, the scope of forest management and conservation activities being undertaken by volunteers and private companies has been expanding. Interest in forest and forestry is also growing in economic circles.

Donations for forest management are brought in through the “Green Fundraising Campaign” (approximately 2.5 billion in 2012). As of FY2013, 33 of 47 prefectures had introduced their own forest tax systems with the objective of supporting forest management activities (estimated total income in 2013: 26.8 billion yen).

2.3. Research and Development

In September 2012, the new “National Research and Development Strategy in Forest, Forestry, and Wood Products Industry” was introduced. Under this strategy, the national government, the Forest

and Forest Products Research Institute, and prefectural governments are cooperatively conducting research and development into new technologies to provide solutions for current policy challenges. (Example: Experimental study on low-cost reforestation)

The Forestry Agency is developing technical experts with considerable knowledge and expertise in forest and forestry (“Foresters”). These Foresters are expected to support the policy administration of local governments.

3. Forest Conservation

3.1. Conservation Forests

Forests providing particularly important public benefits, including securing water resources and preventing disasters, are designated as “conservation forests.” As of 2012, the total area of conservation forests was 12.09 million hectares, or 48% of the total forest area and 32% of the total land area in Japan.

3.2. Disaster Control

In response to natural disasters in the mountainous area, the Forestry Agency dispatched technical staff to the damaged areas soon after the disaster to conduct recovery work.

The Forestry Agency also conducts “forest conservation projects” to install disaster control facilities and replant forests for the stabilization of mountain slopes and restoration of devastated mountain streams. It also promotes the development of coastal forests.

3.3. Conservation of Forest Biodiversity

The Forestry Agency is promoting appropriate thinning, development of diversified forests, and conservation of primitive forest ecosystems based on the “National Biodiversity Strategy of Japan 2012-2020,” which was adopted by GOJ in September 2012.

The Forestry Agency is also promoting conservation of those forests identified as being World Heritage sites. The Japanese National Commission for UNESCO also decided to submit applications for “Tadami”, and “Minami-Alps” and an extension application of “Shiga Highlands” to the “Biosphere Reserves.”

3.4. Wildlife and Pest Control

In FY2012, approximately 9,000 hectares of forests were damaged by wild animals, 70% of which was caused by deer (Fig. III-1).

For the control of wild animals, comprehensive approaches through “control of wildlife population,” “prevention of damages” with protective fences, and “proper management of habitats” is important. New methods for capturing wildlife are

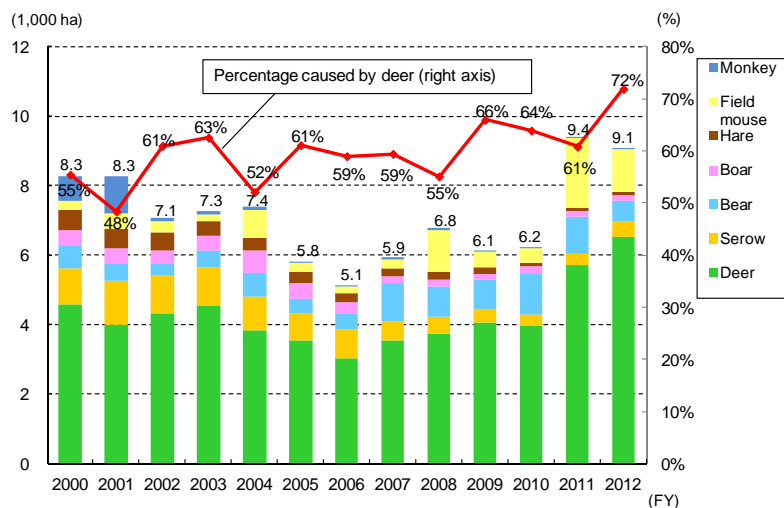


Fig. III-1: Changes in wildlife damage area

also being developed.

In FY2012, the volume of pine trees damaged by the pinewood nematode (*Bursaphelenchus xylophilus*) was 640 thousand m³, approximately one-fourth of its peak year of 1979, but such damage is still the worst among all forest pests and diseases in Japan. The volume of damage to *Quercus* spp. trees caused by the oak platypodid beetle (*Platypus quercivorus*) in FY2012 was 80 thousand m³, one-fourth of its recently peak year, FY2010. The Forestry Agency is implementing preventive measures through the application of chemicals and combating measures through logging and fumigation of affected trees.

4. International Cooperation

4.1. Promotion of Sustainable Forest Management

As of 2010, the world forest area was 4.03 billion hectares, or 31% of total land area. Between 2000 and 2010, the world's forest area declined by 5.21 million hectares annually. In Africa and South America, 3.00 million hectares of forests were lost annually, while in Asia, the forest area increased by 2.24 million hectares annually (Fig. III-2).

The preparation of international "criteria and indicators" for sustainable forest management is underway. Japan is a participant in the "Montreal Process," which is an undertaking of Pacific Rim countries.

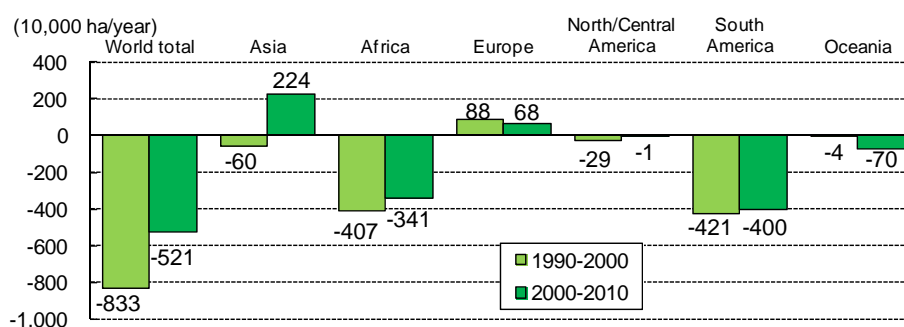


Fig. III-2: Changes in worldwide forest area (by region)

Illegal logging hinders the efforts of sustainable forest management. The GOJ is promoting international efforts to combat illegal logging.

In the area of forest certification, the international "FSC," Japan's own "SGEC," and others exist as mechanisms that promote the purchase of wood that has been certified based on sustainability standards. The percentage of Japan's certified forests ranks low compared to the European countries and the United States.

4.2. Global Warming Countermeasures and Forests

Measures against global warming are being promoted under such international frameworks as the "United Nations Framework Convention on Climate Change."

At COP19 held in 2013, Japan announced its expectation to reach its goal of a 6% emission reduction for the first commitment period of the Kyoto Protocol and its goal for 2020, which is a 3.8% emission reduction compared to 2005. Additionally, technical guidelines for Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forest and enhancement of forest carbon stocks in developing countries (REDD+) were approved.

4.3. International Discussion of Biodiversity

It is estimated that at least 80% of the Earth's remaining terrestrial biodiversity is found in forests. As of December 2013, The Convention on Biological Diversity has been signed by 192 countries and the European Union (EU).

4.4. Japan's Cooperation

Japan is promoting international cooperation for the promotion of sustainable forest management in developing countries through bilateral and multilateral schemes that include the provision of technical and financial assistance.

Chapter IV Forestry and Rural Mountain Communities

1. Forestry

1.1. Forestry Production

The value of gross forestry production has been declining since the peak year in 1980. In 2012, the value of gross forestry production was 391.7 billion yen, a 6% decline from the previous year. Among the value of gross forestry production, wood production and mushroom production each account for half of the total (Fig. IV-1).

The volume of domestic wood production bottomed out at roughly 15 million m³ in 2002; it stood at roughly 18 million m³ in 2012. By tree species, the volume of *sugi* production was 9.96 million m³ (54%), that of *karamatsu* (larch) was 2.25 million m³ (12%), and that of *hinoki* was 2.17 million m³ (12%). By region, those with large production amounts were Tohoku (24%), Kyushu (24%), and Hokkaido (17%).

The price of roundwood has been falling over the long term and the stumpage price of timber is 10 to 20% of its peak.

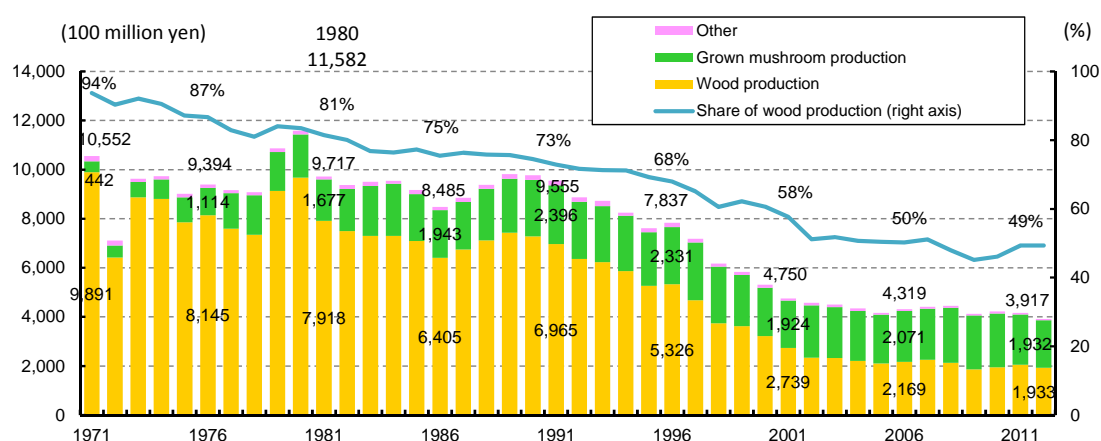


Fig. IV-1: Changes in forestry production

1.2. Forestry Management

In Japan, most private forests are owned by a large number of small scale forest owners. Additionally, the area of forests whose owners live away from their forests has been increasing and the age of forest owners is also rising.

Most forest owners depend on income derived from activities other than forestry. Generally, small-scale forest owners are reluctant to engage in forestry practices. In some regions, groups of small-scale forest owners cooperatively conduct thinning operations and transport the thinned wood to sell to chip mills or woody biomass energy plants.

The Forest Owners' Cooperatives are major forest management bodies, conducting more than half of forestry activities, including planting, weeding, and thinning. Private forestry contractors are major wood production bodies, conducting approximately 70% of harvesting. Recently, the share of large-scale forestry management bodies in roundwood production is becoming high.

1.3. Improvement of Forestry Productivity

To improve forestry productivity, it is necessary to coordinate and consolidation forest practices of multiple forest owners. For this purpose, the Forestry Agency is training “Forest Management Planners,” implementing the forest management plan system with flexibility, supporting surveys and consensus-building needed for coordination, and promoting identification of forest owners and their boundaries.

The Forestry Agency is accelerating the development of the forestry road system based on a combination of three types of forest roads: the “forest road” for general vehicles, “the forestry exclusive road” for trucks with ten ton loads, and the “forestry operation road” for forestry machinery. It is also training technical experts in the planning and construction of forestry road systems.

The Forestry Agency is promoting the development and improvement of advanced forestry machines, and promoting the spread of low-cost and high-efficiency work systems.

To improve the efficiency of forest planting and treatment, new technologies such as growing seedlings in containers, simplification of weeding practices, and planting with fewer seedlings, are being evaluated on an experimental basis.

1.4. Forestry Workforce

In recent years, there have been signs that the decrease in the size of forestry workforce is bottoming out (approximately 51,000 in 2010). Although the share of the aged workforce (aged 65 or older) is 21%, the ratio of the young workforce (aged 35 or younger) has begun to rise (Fig. IV-2).

The Forestry Agency has been implementing a “Green Employment Program,” which teaches introductory skills and basic forestry knowledge to the new workers since FY2003. Thanks to the Program, the number of new forestry workers has shown a significant increase (Fig. IV-3).

The forestry industry’s occupational accident rate remains high, and therefore the development of safe working environments is important.

The Forestry Agency is promoting the staged and systematic development of forestry workers having advanced knowledge and skills.

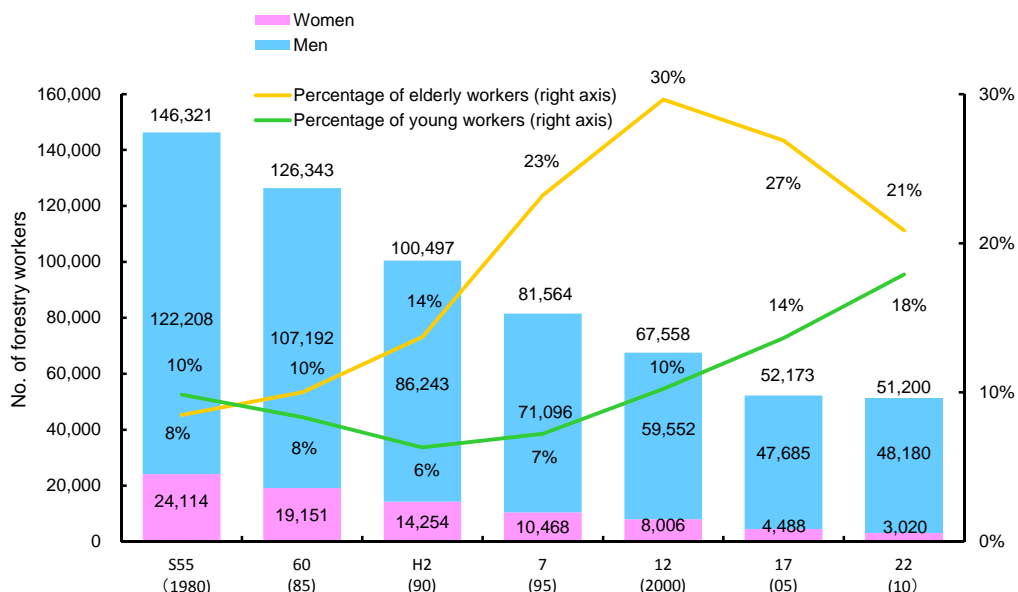


Fig. IV-2: Changes in number of forestry workers

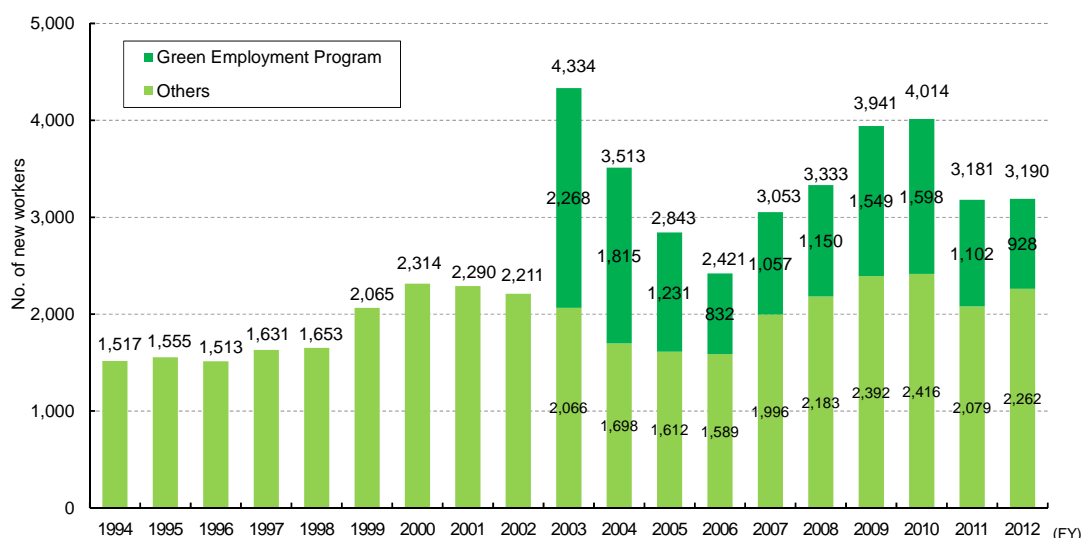


Fig. IV-3: Changes in the number of new entrants to forestry workforce

2. Non-Wood Forest Products

In 2012, the total value of non-wood forest products production was 250.8 billion yen, 80% of which was derived from mushroom production. Mushroom production has been increasing since 2000 (production in 2012 amounted to 460,000 tons, which represented a 3% decrease from the previous year). The number of mushroom-producing households has been decreasing, particularly in the area of *shiitake* mushrooms.

In 2013, the price of dried *shiitake* mushrooms declined due to decreased consumption and other factors. The Forestry Agency is supporting initiatives to expand consumption and ensure stable supply of *shiitake* and other mushrooms.

Production of charcoal has been declining over the long term and it amounted to 30,000 tons in 2012. Production of bamboo material (raw material for bamboo paper, etc.) has been increasing since 2010. Production of firewood has been increasing since 2008 (although it decreased in 2012). Other products here include lacquer and medicinal herbs.



An initiative to expand mushroom consumption: Inclusion in school lunch menus

3. Rural Mountain Communities

3.1. Conditions surrounding Rural Mountain Communities

In Japan, rural mountain communities cover 50% of the total land area, or 60% of the total forest area. In these areas, the population continues to decline and become older with more and more forests left untreated.

Urban residents have a high degree of interest in rural mountain communities for their rich forest and water resources, beautiful landscapes, and traditions and cultures. They also receive international appreciation for their traditional recycling-oriented agriculture and forestry. For example, *shiitake* mushroom growing in the Usa region on the Kunisaki Peninsula (Oita Prefecture) was certified as a Globally Important Agricultural Heritage System (GIAHS) by the FAO in May 2013.

3.2. Revitalization of Rural Mountain Communities

The Forestry Agency promotes development of regional forestry and wood products industries in order to secure and create diverse and attractive employment opportunities. It also supports the creation of new businesses that utilize unused resources, such as woody biomass fuel.

Further, the Forestry Agency supports initiatives by local residents to conserve and revitalize *satoyama* forests. It also promotes effective communication between rural mountain communities and urban areas through hands-on activities in the agriculture, forestry, and fishery industries; use of forests for therapeutic activities; and forest environmental education.

Chapter V Wood Demand/Supply and the Wood Products Industry

1. Wood Demand and Supply

1.1. World Wood Demand and Supply

The total volume of wood consumption in the world is increasing. Sawn softwood consumption is recovering in North America but continues to remain stagnant in Europe. In Russia, exports of industrial roundwood are decreasing, while exports of sawn softwood are increasing. China is seeing increasing imports of industrial roundwood as well as increasing exports of plywood.

1.2. Wood Demand and Supply in Japan

The volume of demand for lumber has been on a decreasing trend due to the decline in the number of domestic housing starts. In 2012, it decreased by 2.9% from the previous year, being 70.63 million m³ (roundwood equivalent).

The size of domestic wood supply has been increasing since bottoming out in 2002. In 2012, it increased by 1.6%, reaching 19.69 million m³ (RW eq.).

The volume of imported wood has been decreasing since peaking in 1996. In 2012, it decreased by 4.5%, being 50.95 million m³ (RW eq.).

The self-sufficiency rate for wood has been recovering since bottoming out in 2002. In 2012, it was 27.9%, up 1.3% from 2011 (Fig. V-1).

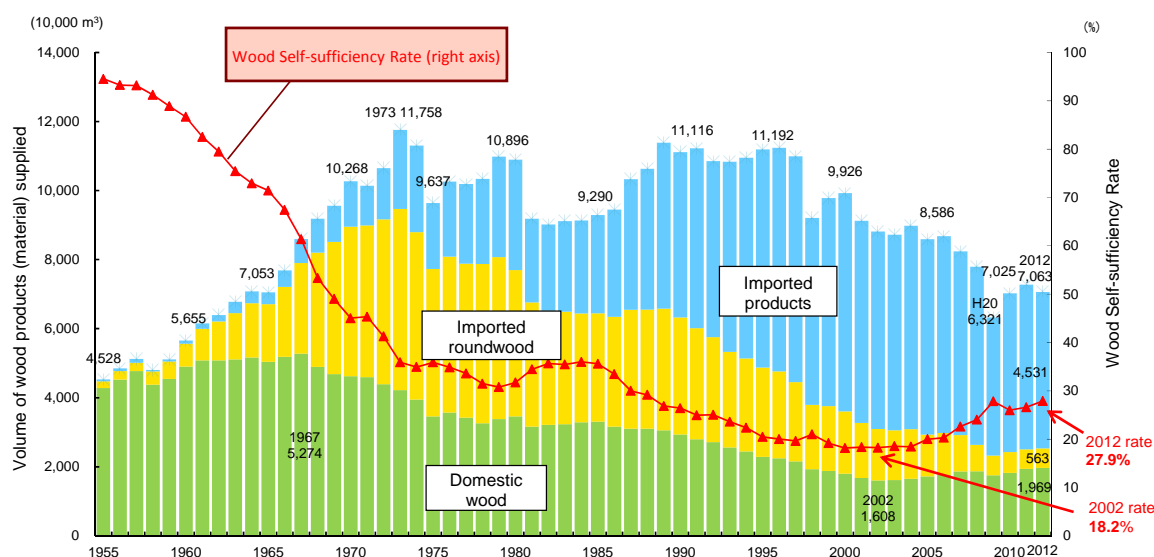


Fig. V-1: Changes in wood supply/demand and the self-sufficiency rate for wood

1.3. Wood Prices

The price for domestic roundwood has been declining for a long period; however, it showed a recovery in 2013 on the back of favorable demand from the housing sector (Fig. V-2).

The price of domestically produced woodchips has been declining since 2010 due to decreasing paper demand.

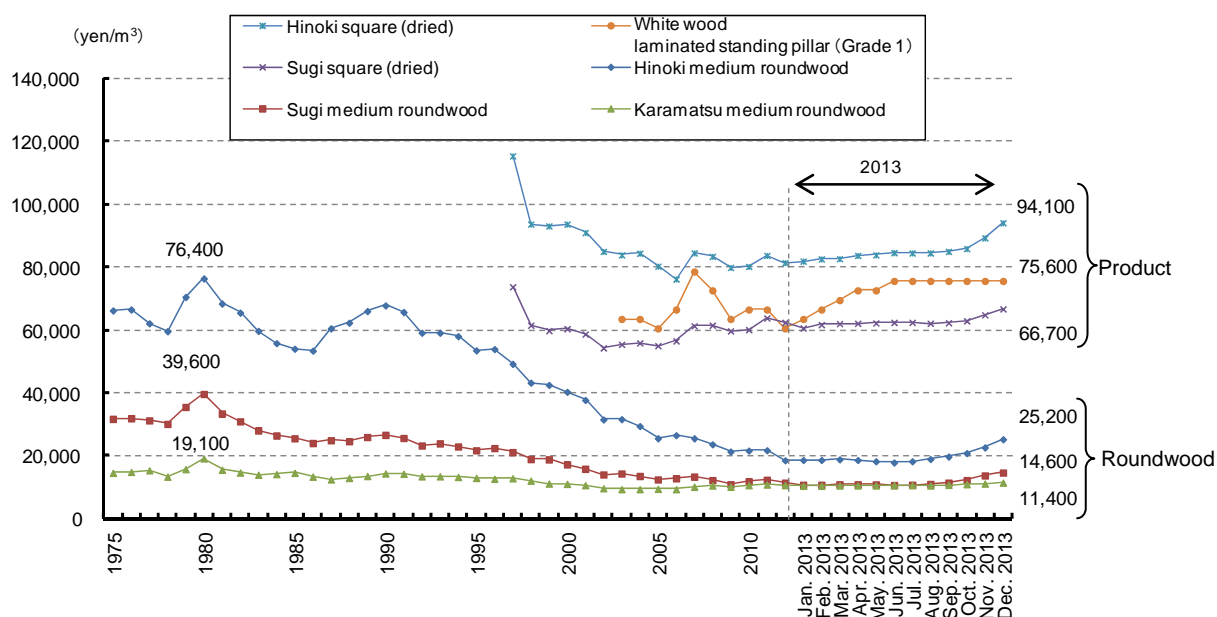


Fig. V-2: Changes in wood product prices

1.4. Countermeasures against Illegal Logging

The GOJ promotes the use of appropriately produced wood products based on a basic philosophy of “not using wood products from illegal logging.”

Based on “Basic Guidelines for Green Purchasing,” it uses wood products with certified legality and sustainability in government procurements. It is also engaging in publicity activities that encourage private companies and general consumers to use legal wood products.

1.5. Wood Exports

In 2013, the volume of wood exports was 12.3 billion yen, which represented a 32% year-on-year increase. Exports of roundwood showed particular growth.

The export of wood products to China and Korea is being promoted, through the exhibition of Japanese wooden housing materials in these countries and the provision of technical support in the revision of China’s “Wooden Structure Design Standard” to ensure that Japan’s domestic wood species are included in the Standard.

MAFF sets a target of increasing forest product exports from 12.3 billion yen in 2012 (of which wood products accounted for 9.3 billion yen) to 25.0 billion yen by 2020.

2. Wood Products Industry

The gross value of wood products production has been on the decline for a long period. The “Plan to Create Dynamism through Agriculture, Forestry, and Fisheries and Local Communities” of December 2013 states that forestry will be made a growth industry through the creation of new wood demand and building of a stable and efficient supply scheme.

As for lumber production, shipments are on a downward trend. The share of domestic wood in the raw material inputs for lumber mills is 70% (Fig. V-3). Large scale lumber mills are becoming dominant in terms of their share of total lumber production. Acquisition of JAS certification by sawmills and response to demand for kiln-dried lumber for pre-cut timber is needed.

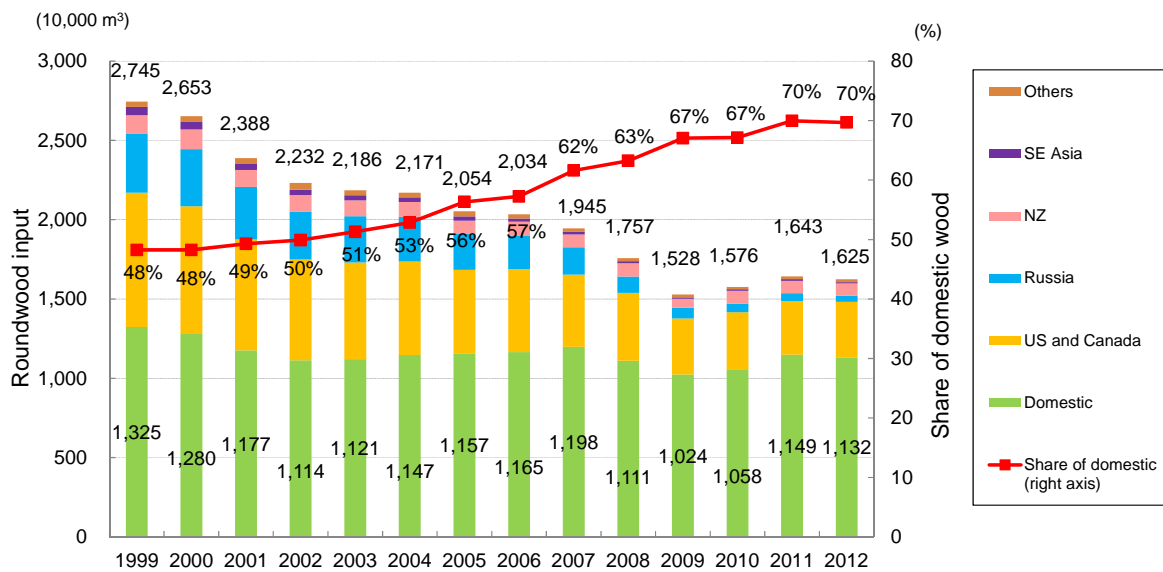


Fig. V-3: Material inputs for lumber production

As for glulam production, the volume of production has been increasing since 2010. The share of domestic wood in the material input for domestic glulam mills was 22% in 2012.

As for plywood production, the supply of domestic wood used for plywood production is increasing, reaching 68% in 2012. However, the share of domestic wood in the total wood demand for plywood production, including imported plywood, was 25% in 2012.

As for wood chip production, the volume of production has been increasing since 2010. The share of domestic wood chips in wood chip consumption was 34%.

Looking at new products and technologies, in addition to CLT (cross laminated timber), fire-resistant glulam was developed for wooden fire-resistant structures in the field of building. And in the field of civil engineering, wooden guardrails and plywood made of domestic softwood for concrete forming are under development.

Human resources for wooden construction, such as designers and carpenters, also need to be developed.

3. Wood Use

3.1. The Significance of Wood Use

The use of wood materials does more than help create comfortable and healthy living environments. It also contributes to the prevention of global warming, sustainable provision of forests' multiple functional roles, and vitalization of regional economies.

The Forestry Agency is promoting the “*Kizuka*” (attention to wood use) initiative to educate ordinary consumers on the significance of wood use as well as the “*Mokuiku*” (wood use education) initiative to give children and adults an opportunity to gain familiarity with wood and learn about wood culture. There are also other initiatives for wood use, such as woodworking contests.

3.2. Housing Sector

Approximately 40% of Japan's wood demand and the majority of domestic wood demand are used for building construction. Approximately half of new housing starts in Japan are wooden constructions. Use of pre-cut timber is expanding at construction sites.

A supply system that suits the needs of housing manufacturers needs to be developed. Local housing projects are also promoted by supporting cooperation among forest owners, log producers, lumber producers, and local home builders.

3.3. Wooden Public Buildings

All 22 governmental ministries, all 47 prefectures, and 1,384 municipalities (out of 1,742) have developed their own policies to increase the use of wood in public buildings as of the end of March 2014, based on the “Act for Promotion of Use of Wood in Public Buildings” of 2010.

During FY2012, the GOJ constructed 42 low-rise public buildings with a wooden structure, and renovated 258 public buildings with wooden exterior/interiors.

The design criteria for wooden government facilities and school buildings were developed. The fire tests and other verifications toward establishing building standards for three-story wooden school buildings were also conducted.



Three-story wooden municipal government building
(Kamiamakusa City, Kumamoto Prefecture)



M-WAVE, a skating rink with a wooden roof used
in the 1998 Nagano Olympics

3.4. Energy Use of Woody Biomass

The “Forest and Forestry Basic Plan,” adopted in July 2011, set a target of wood use for pulp/chip production including fuel use at six million m³ by 2020. Among the variety of woody biomass, most of the “mill residue wood” and “construction refuse wood” is already almost fully utilized. Thus, use of “unused thinned wood” (produced at an estimated rate of 20 million m³ annually) is indispensable for the promotion of energy production using woody biomass.

In recent years, more wood pellet boilers are being introduced into public facilities and ordinary homes, and therefore production of wood pellets is increasing. Use of firewood with the popularization of wood-burning stoves is also gathering attention.

As of January 2014, 37 woody biomass power plants are taking advantage of the “Feed-in Tariff (FIT) Scheme for Renewable Energy” (introduced in July 2012) to sell power. Amid expectations that woody biomass will contribute to regional economies, there is a need to engage in preliminary study concerning the efficient and stable supply of woody biomass resources.

Chapter VI National Forest Management

1. The Roles of National Forests

1.1. The Distribution and Roles of National Forests

National Forests represent approximately 30% of the total forest area, or almost 20% of the total land area in Japan. Widely distributed in remote mountainous areas and water source areas, National Forests perform vital roles in the fulfillment of the multiple functional roles of forests, including land conservation, water resource conservation, and conservation of the natural environment.

1.2. National Forest Management

National forests are an important asset shared by all citizens. The Forestry Agency has been managing National Forests in an integrated manner under the National Forest Management program. From FY2013, this program is being executed under the General Account Budget so as to further promote National Forest Management with a view to public benefit and contribute to the revitalization of Japan's forests and forestry through utilization of the program's technical capacity and resources.

In December 2013, the Forestry Agency formulated the first "National Forest Management Fundamental Plan" (plan period of 10 years beginning in April 2014) to be implemented under the General Account Budget.

2. Specific Initiatives under the National Forest Management Program

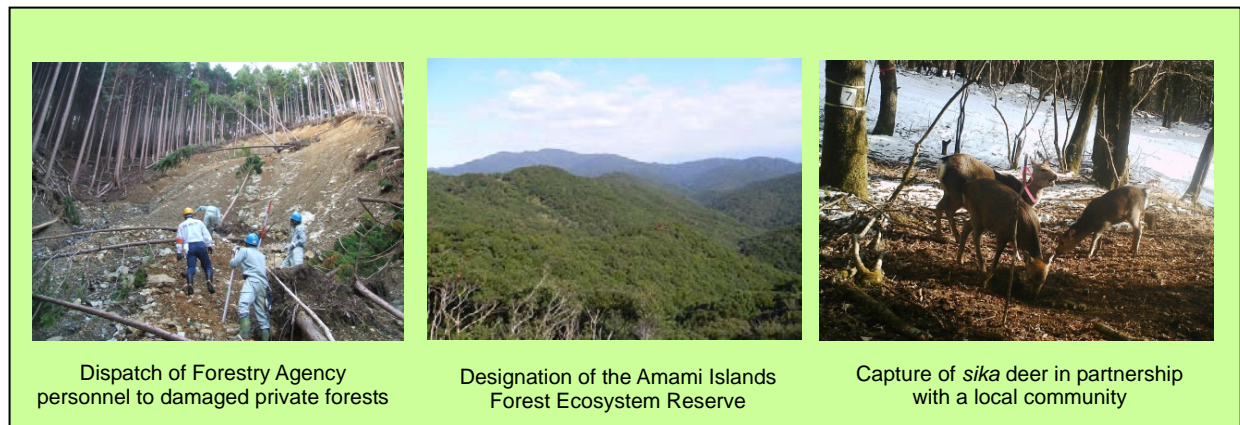
2.1. Further Promotion of Management with Emphasis on Public Benefit

The Forestry Agency manages National Forests with the categorization of each National Forest into one of five functional types based on its primary function: "landslide prevention," "natural conservation," "recreational use," "comfortable environment development," and "water resource conservation." It promotes the restoration of devastated areas and maintenance of conservation forests by implementing "forest conservation projects." It also supports the restoration of damaged private forests.

The Forestry Agency engages in thinning as a way of forest sink activities and promotes the use of wood products in the construction of government buildings.

The Forestry Agency is conducting forest management activities for the conservation of biodiversity, designating National Forests with diverse forest ecosystems as "Protected Forests" (seven classifications, including Forest Ecosystem Reserves) or "Green Corridors" and executing measures to deal with deer damage.

The Forestry Agency manages private forests located in close proximity to National Forests in an integrated manner based on "Agreements for Maintenance and Development of the Public Benefits of Forests."



2.2. Contribution to Forest and Forestry Revitalization

The Forestry Agency is developing and diffusing technologies for low-cost forest practices by utilizing diverse National Forest fields. It is also developing human resources that include forestry contractors and technical experts (“Foresters”).

The Forestry Agency is promoting the development of the forestry road system and forest operations in collaboration with private forests by establishing “cooperative forest management areas.”

The Forestry Agency is also promoting a stable wood supply through “system sales” contracts with major wood processing companies, such as large-scale lumber mills or plywood factories, and the supply of wood products for restoration of cultural assets.

2.3. National Forests as “Forests for People”

The Forestry Agency provides access to the National Forests for the activities of various organizations engaged in forest environmental education and forest management and conservation, in such forests as “Forests for Students,” “Forests for Voluntary Groups,” “Forests for Wood Culture,” and “Forests for Corporations.”

The Forestry Agency lends National Forests to local governments and local residents. It also designates National Forests as “Recreational Forests” and manages and operates them in partnership with persons concerned.

To advance restoration and reconstruction following the Great East Japan Earthquake, the Forestry Agency is revitalizing coastal forests devastated by the great tsunami, decontaminating National Forests contaminated by the nuclear accident, and providing temporary storage areas for soil removed with decontamination.

Appendix

1. Forestry-related Fundamental Figures

| Item | Unit | 1980 | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| i Gross domestic product (GDP) | billion yen | 248,375.9 | 501,706.9 | 509,860.0 | 503,903.0 | 501,209.3 | 471,138.7 | 482,384.4 | 471,310.8 | 473,777.1 |
| Forestry (A) | billion yen | 826.0 | 695.8 | 886.5 | 446.4 | 437.9 | 387.4 | ... | ... | ... |
| Forestry / GDP | % | 0.34 | 0.14 | 0.17 | 0.09 | 0.08 | 0.08 | ... | ... | ... |
| Forestry (B) | billion yen | ... | ... | ... | 142.7 | 167.4 | 146.7 | 151.9 | 155.9 | 143.2 |
| Forestry / GDP | % | ... | ... | ... | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| ii Total number of workers | million | 55.36 | 64.57 | 64.46 | 63.56 | 63.85 | 62.82 | 62.57 | 59.77 | 62.70 |
| Forestry | million | 0.19 | 0.09 | 0.07 | 0.06 | 0.06 | 0.06 | 0.08 | 0.07 | 0.08 |
| Forestry / Total # of workers | % | 0.34 | 0.14 | 0.11 | 0.09 | 0.09 | 0.10 | 0.13 | 0.12 | 0.13 |
| iii Land area of Japan | million ha | 37.77 | 37.78 | 37.79 | 37.79 | 37.79 | 37.79 | 37.79 | 37.79 | 37.79 |
| iv Forest | million ha | 25.28 | 25.15 | 25.15 | 25.12 | 25.10 | 25.10 | 25.10 | 25.10 | 25.08 |
| Forest / Land area | % | 67.8 | 67.5 | 67.5 | 67.4 | 67.3 | 67.3 | 67.3 | 67.3 | 67.3 |
| v Conservation Forest | million ha | 7.32 | 8.57 | 8.93 | 11.65 | 11.91 | 11.96 | 12.02 | 12.05 | 12.09 |
| Conservation Forest / Forest | % | 29.0 | 34.1 | 35.5 | 46.4 | 47.5 | 47.7 | 47.9 | 48.0 | 48.2 |
| vi Growing stock of forest | billion m ³ | 2.5 | 3.5 | 3.5 | 4.0 | 4.4 | 4.4 | 4.4 | 4.4 | 4.9 |
| vii Industrial wood supply/ consumption | million m ³ | 108.96 | 111.92 | 99.26 | 85.86 | 77.97 | 63.21 | 70.25 | 72.73 | 70.63 |
| Domestic production | million m ³ | 34.56 | 22.92 | 18.02 | 17.18 | 18.73 | 17.59 | 18.24 | 19.37 | 19.69 |
| Import | million m ³ | 74.41 | 89.01 | 81.24 | 68.68 | 59.23 | 45.62 | 52.02 | 53.36 | 50.95 |
| Self-sufficiency rate | % | 31.7 | 20.5 | 18.2 | 20.0 | 24.0 | 27.8 | 26.0 | 26.6 | 27.9 |
| viii New housing starts | million units | 1.27 | 1.47 | 1.23 | 1.24 | 1.09 | 0.79 | 0.81 | 0.83 | 0.88 |
| Ratio of wooden structure | % | 59.2 | 45.3 | 45.2 | 43.9 | 47.3 | 54.6 | 56.6 | 55.7 | 55.1 |

Notes 1: Figures in "Forestry (B)" are equal to the Figures in "Forestry (A)" minus the production value of National Forest Management Special

2: "Conservation forest area" in "v" refers to the area excluding duplication.

3: "Industrial wood supply/ consumption," "Domestic production" and "Import" in "vii" refer to the volume in log equivalent.

Source: 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.)

iv, v, vi: Forestry Agency, vii: Forestry Agency "Wood Demand and Supply," viii: MLIT "Statistics on Building Construction Starts"

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

(Unit: billion yen)

| Item | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Gross domestic product | 495,166 | 502,990 | 503,903 | 501,209 | 471,139 | 482,384 | 471,311 | 473,777 |
| Industries | 463,956 | 468,062 | 445,662 | 440,946 | 412,615 | 424,842 | 414,224 | 416,723 |
| Agriculture, forestry and fisheries | 9,346 | 8,896 | 6,108 | 5,700 | 5,440 | 5,656 | 5,426 | 5,730 |
| Forestry (A) | 696 | 887 | 446 | 438 | 387 | ... | ... | ... |
| Forestry (B) | ... | ... | 143 | 167 | 147 | 152 | 156 | 143 |
| Mining | 861 | 627 | 400 | 353 | 283 | 301 | 304 | 306 |
| Manufacturing | 114,669 | 111,439 | 99,699 | 98,666 | 83,351 | 94,333 | 87,284 | 85,637 |
| Pulp, paper and paper products | 3,399 | 3,237 | 2,728 | 2,295 | 2,314 | 2,376 | 2,360 | 2,205 |
| Wood and wooden products | 1,469 | 1,240 | 946 | 813 | 686 | 714 | 773 | 724 |
| Construction | 40,850 | 37,130 | 29,018 | 28,091 | 26,948 | 26,198 | 26,461 | 26,653 |
| Electricity, gas and water supply | 13,329 | 13,576 | 11,712 | 9,661 | 11,132 | 11,008 | 8,551 | 8,084 |
| Wholesale and retail trade | 75,788 | 70,661 | 74,814 | 70,111 | 64,136 | 65,981 | 67,131 | 68,122 |
| Finance and insurance | 31,964 | 30,445 | 30,789 | 25,082 | 23,742 | 23,766 | 22,430 | 21,559 |
| Real estate | 53,757 | 57,864 | 54,042 | 56,013 | 56,879 | 56,890 | 56,726 | 56,871 |
| Transport and communications | 35,264 | 34,821 | ... | ... | ... | ... | ... | ... |
| Transport | ... | ... | 24,379 | 25,383 | 22,974 | 23,465 | 22,858 | 23,677 |
| Communications | ... | ... | 26,269 | 27,306 | 26,189 | 25,978 | 25,871 | 26,294 |
| Service activities | 88,129 | 102,604 | 88,433 | 94,580 | 91,541 | 91,266 | 91,183 | 93,789 |
| Others | 31,209 | 34,928 | 58,241 | 60,263 | 58,524 | 57,542 | 57,087 | 57,054 |

Note 1: Figures in "Forestry (B)" are equal to the Figures in "Forestry (A)" minus the production value of National Forest Management Special Account.

2: "Transport and communications" is divided into "Transport" and "Communications".

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

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

3. Gross Forestry Output

(Unit: billion yen)

| Item | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Gross output of forestry | 760.55 | 531.10 | 416.77 | 444.87 | 412.20 | 421.69 | 416.59 | 391.69 |
| Roundwood production | 526.61 | 322.13 | 210.23 | 213.30 | 186.07 | 194.55 | 205.52 | 193.33 |
| Softwood | 436.76 | 265.33 | 177.41 | 180.39 | 156.09 | 170.16 | 185.05 | 171.40 |
| Japanese Cedar (<i>sugi</i>) | 187.39 | 123.78 | 87.53 | 94.12 | 81.60 | 93.50 | 101.77 | 97.31 |
| Hardwood | 86.02 | 54.72 | 31.71 | 32.05 | 29.22 | 23.76 | 19.81 | 21.29 |
| Wood fuel production | 7.93 | 6.16 | 6.09 | 5.05 | 4.91 | 5.08 | 5.06 | 4.39 |
| Mushroom production | 218.32 | 196.89 | 198.50 | 223.98 | 220.01 | 218.91 | 204.72 | 193.15 |
| Forestry by-product | 7.70 | 5.92 | 1.96 | 2.55 | 1.22 | 3.15 | 1.29 | 0.83 |
| Value-added of Forestry | 532.91 | 351.87 | 245.60 | 241.61 | 219.30 | 225.50 | 223.78 | 208.99 |

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

Source: MAFF "Report of Statistics on Forestry Income".

4. Current State of Forest Resources

(Unit: 1,000ha, million m³)

(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 | | | 25,081 | 4,900.51 | 10,289 | 3,041.87 | 13,429 | 1,858.19 | 1,201 | 0.45 | 161 |
| National forest | Subtotal | | 7,674 | 1,151.82 | 2,327 | 467.32 | 4,717 | 684.06 | 629 | 0.45 | 0 |
| | Under the Forestry Agency's jurisdiction | Subtotal | 7,610 | 1,146.20 | 2,321 | 466.03 | 4,667 | 679.72 | 623 | 0.45 | 0 |
| | | State-owned | 7,509 | 1,126.81 | 2,240 | 446.86 | 4,664 | 679.50 | 604 | 0.44 | 0 |
| | | Government reforestation | 93 | 19.39 | 81 | 19.17 | 2 | 0.22 | 9 | 0.00 | 0 |
| | | Others | 9 | 0.00 | 0 | 0.00 | 0 | 0.00 | 9 | 0.00 | 0 |
| | Under other agency's jurisdiction | | 64 | 5.62 | 6 | 1.28 | 51 | 4.34 | 7 | 0.00 | 0 |
| Private and public forest | Subtotal | | 17,407 | 3,748.69 | 7,962 | 2,574.56 | 8,712 | 1,174.13 | 572 | 0.00 | 161 |
| | Public forest | Subtotal | 2,919 | 557.70 | 1,287 | 350.30 | 1,495 | 207.40 | 131 | 0.00 | 6 |
| | | Prefecture | 1,210 | 218.53 | 479 | 120.88 | 672 | 97.66 | 58 | 0.00 | 0 |
| | | Municipality | 1,709 | 339.16 | 808 | 229.42 | 823 | 109.75 | 73 | 0.00 | 5 |
| | Private forest | | 14,437 | 3,184.21 | 6,662 | 2,221.18 | 7,186 | 963.03 | 437 | 0.00 | 153 |
| | Others | | 51 | 6.79 | 14 | 3.09 | 30 | 3.70 | 4 | 0.00 | 3 |

Note 1: Data cover the forests defined in the Forest Law Article 2.1.

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 the Forest Law Article 5 and for National Forest under the Forest Law Article 7.2.

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

4: Figures are as of March 31, 2012.

Source: Forestry Agency

5. Planted Area by Tree Species

(unit: ha)

| | Total | Softwood | | | | | Hardwood |
|------|----------------------|-----------------------------------|---------------------------------------|--------------------------|--|--------------------|--------------------|
| | | Japanese Cedar (<i>sugi</i>) | Japanese Cypress (<i>hinoki</i>) | Pine (<i>matsu</i>) | Japanese Larch (<i>karamatsu</i>) | Others | |
| 1995 | (48,650) 45,241 | (13,660) 13,196 | (22,332) 20,908 | (219) 199 | (2,739) 2,677 | (5,544) 4,577 | (4,156) 3,684 |
| 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 |
| 2008 | (23,400) 20,865 | (5,171) 4,904 | (4,726) 4,079 | (217) 175 | (4,414) 4,260 | (5,173) 4,380 | (3,699) 3,067 |
| 2009 | (23,032) 20,006 | (4,787) 4,522 | (5,241) 4,113 | (166) 150 | (4,638) 4,435 | (5,282) 4,490 | (2,917) 2,296 |
| 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 |
| 2011 | (19,596) 16,697 | (4,598) 4,311 | (2,830) 2,347 | (178) 169 | (4,950) 4,713 | (4,220) 2,839 | (2,819) 2,318 |
| 2012 | (20,277) 16,992 | (4,648) 4,425 | (2,643) 2,103 | (245) 214 | (5,155) 4,821 | (4,687) 3,112 | (2,897) 2,318 |

Note 1: Figures do not include National Forest.

2: Figures in parentheses refer to the total area which includes area planted as the lower story of multiple storied 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 |
|------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|------|-----|-----|-----|------|-------|-----|
| 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 |

Note: For the year 1985, the class XV contains forests older than that class. For 1989 and 1994, the class XVII contains forests older than that class.

For the years 2001 and 2006, the class XIX contains forests older than that class.

Source: Forestry Agency

7. Thinned Area and Use of Thinned Wood

| | Thinned area (1,000ha) | | | Used volume of thinned wood (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 |
| 2008 | 548 | 434 | 114 | 5.66 | 3.68 | 2.26 | 0.39 | 1.03 | 1.98 |
| 2009 | 585 | 446 | 140 | 6.37 | 4.23 | 2.57 | 0.48 | 1.18 | 2.14 |
| 2010 | 556 | 445 | 110 | 6.65 | 4.43 | 2.70 | 0.42 | 1.31 | 2.22 |
| 2011 | 552 | 437 | 115 | 7.11 | 4.86 | 2.88 | 0.40 | 1.58 | 2.25 |
| 2012 | 488 | 368 | 121 | 7.59 | 5.21 | 3.00 | 0.36 | 1.86 | 2.38 |

Note 1: Used volumes are in roundwood equivalent.

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

Source: Forestry Agency

(Private and public forest)

| | 1990 | 1995 | 2000 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|-----------|------|------|------|------|------|------|------|
| Thinned area (1,000ha) | 277 | 215 | 304 | 312 | 277 | 281 | 282 | 395 |
| Used volume of thinned wood (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 | 0.45 | 0.48 | 0.47 |
| | Others | 0.26 | 0.24 | 0.38 | 0.48 | 0.55 | 0.62 | 0.83 |

Note 1: Used volumes are in roundwood equivalent.

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

Source: Forestry Agency

8. Forest Area by Owners

| | 2010 | |
|--------------------------------------|------------------|-------------------------|
| | Forest area (ha) | Ratio to total area (%) |
| Total | 17,627,335 | 100.0 |
| Private | 13,584,004 | 77.1 |
| Public | 3,395,800 | 19.3 |
| Prefecture | 1,248,262 | 7.1 |
| Public corporation | 436,296 | 2.5 |
| Municipality | 1,404,452 | 8.0 |
| Property ward | 306,790 | 1.7 |
| Incorporated Administrative Agencies | 647,531 | 3.7 |

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

2: "Incorporated Administrative Agencies" include National University Corporations and Special Corporations.

Source: MAFF "2010 Census of Agriculture and Forestry"

9. Number of Forestry Management Bodies 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 | 140,186 | 5,177,452 | 2,642 | 1,650 | 41,049 | 149,366 | 69,250 | 638,990 | 17,871 | 509,510 | 4,892 | 320,798 | 4,482 | 3,557,138 |
| Corporation | 6,789 | 1,512,674 | 925 | 176 | 595 | 2,254 | 1,824 | 19,486 | 1,216 | 38,580 | 797 | 55,469 | 1,432 | 1,396,709 |
| Private Company | 2,534 | 831,262 | 602 | 100 | 194 | 714 | 623 | 6,380 | 382 | 11,601 | 201 | 13,396 | 532 | 799,071 |
| Cooperative | 3,016 | 483,989 | 301 | 76 | 169 | 650 | 711 | 8,228 | 646 | 21,091 | 478 | 33,720 | 711 | 420,224 |
| Agricultural cooperative | 119 | 45,319 | 1 | 2 | 5 | 18 | 17 | 212 | 28 | 935 | 16 | 1,185 | 52 | 42,967 |
| Forestry cooperative | 2,261 | 296,112 | 277 | 70 | 82 | 316 | 451 | 5,415 | 476 | 15,625 | 402 | 28,253 | 573 | 246,432 |
| Other cooperatives | 636 | 142,558 | 23 | 4 | 82 | 316 | 243 | 2,601 | 142 | 4,531 | 60 | 4,281 | 86 | 130,825 |
| Other corporations | 1,239 | 197,423 | 22 | 0 | 232 | 890 | 490 | 4,878 | 188 | 5,887 | 118 | 8,354 | 189 | 177,414 |
| Individual | 131,724 | 2,051,347 | 1,715 | 1,472 | 40,400 | 146,904 | 67,194 | 616,812 | 16,430 | 463,576 | 3,873 | 249,485 | 2,112 | 573,098 |
| Public | 125,136 | 1,759,002 | 1,507 | 1,422 | 39,012 | 141,685 | 64,269 | 588,125 | 15,328 | 429,640 | 3,392 | 216,460 | 1,628 | 381,670 |
| Public | 1,673 | 1,613,431 | 2 | 2 | 54 | 208 | 232 | 2,691 | 225 | 7,355 | 222 | 15,843 | 938 | 1,587,331 |

Source: MAFF "2010 Census of Agriculture and Forestry"

10. Roundwood Production

(Unit: 1,000m³, %)

| | | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 | Relative change from previous year (%) |
|-----------------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|
| Total | | 21,242 | 17,034 | 16,166 | 17,709 | 16,619 | 17,193 | 18,290 | 18,473 | 1.0 |
| By tree species | Subtotal | 16,575 (78) | 13,707 (80) | 13,695 (85) | 14,975 (85) | 13,976 (84) | 14,789 (86) | 15,986 (87) | 16,056 (87) | 0.4 |
| | Japanese Cedar (Sugi) | 8,852 | 7,671 | 7,756 | 8,755 | 8,263 | 9,049 | 9,649 | 9,950 | 3.1 |
| | for sawnwood | 8,642 <53> | 7,258 <57> | 6,737 <58> | 6,782 <61> | 6,352 <62> | 6,695 <63> | 7,089 <62> | 7,295 <64> | 2.9 |
| | Japanese Cypress (Hinoki) | 2,882 | 2,273 | 2,014 | 1,886 | 1,957 | 2,029 | 2,169 | 2,165 | ▲ 0.2 |
| | Red pine (Akamatsu), Black pine (Kuromatsu) | 1,551 | 1,034 | 783 | 815 | 704 | 689 | 580 | 660 | 13.8 |
| | Japanese Larch (Karamatsu), Yezo spruce (Ezomatsu), Todomatsu (<i>Abies sachalinensis</i>) | 2,779 | 2,410 | 2,910 | 3,286 | 2,821 | 2,821 | 3,373 | 3,100 | ▲ 8.1 |
| | Others | 375 | 319 | 232 | 233 | 231 | 201 | 215 | 181 | ▲ 15.8 |
| | Hardwood | 4,667 (22) | 3,327 (20) | 2,471 (15) | 2,734 (15) | 2,643 (16) | 2,404 (14) | 2,304 (13) | 2,417 (13) | 4.9 |
| By use | Sawnwood | 16,252 (77) | 12,798 (75) | 11,571 (72) | 11,110 (63) | 10,243 (62) | 10,582 (62) | 11,492 (63) | 11,321 (61) | ▲ 1.5 |
| | Plywood | 228 (1) | 138 (1) | 863 (5) | 2,137 (12) | 1,979 (12) | 2,490 (14) | 2,524 (14) | 2,602 (14) | 3.1 |
| | Chips | 4,762 (22) | 4,098 (24) | 3,732 (23) | 4,462 (25) | 4,397 (26) | 4,121 (24) | 4,274 (23) | 4,550 (25) | 6.5 |

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

Source: MAFF "Wood Demand and Supply Report", "Timber Statistics"

11. Wood Supply/Demand Chart (roundwood equivalent)

(1,000m³)

| Demand Supply | | Demand | | | | | | | | Domestic consumption | | | | | | | | | Export | | | | | | | |
|----------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|------------------|----------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|------------------|----------------|----------------|------------------|------------------|---------------|------------------|---------------|----------------|---------------|
| | | Total | Industrial use | | | | | Mushroom cultivation | Fuel | Total | Industrial use | | | | | Mushroom cultivation | Fuel | | | Total | Industrial use | | | | | Fuel |
| | | | Subtotal | Sawnwood | Pulp and chips | Plywood | Others | | | | Subtotal | Sawnwood | Pulp and chips | Plywood | Others | | Subtotal | Charcoal | Firewood | | Subtotal | Sawnwood | Pulp and chips | Plywood | Others | |
| Supply | Total | (6,708) 72,189 | (6,708) 70,633 | (6,708) 26,053 | (6,708) 31,010 | (6,708) 10,294 | (6,708) 3,275 | (6,708) 437 | (6,708) 1,119 | (6,708) 70,769 | (6,708) 69,226 | (6,708) 25,960 | (6,708) 29,851 | (6,708) 10,262 | (6,708) 3,153 | (6,708) 437 | (6,708) 1,106 | (6,708) 899 | (6,708) 207 | (6,708) 1,420 | (6,708) 1,406 | (6,708) 93 | (6,708) 1,159 | (6,708) 32 | (6,708) 122 | (6,708) 13 |
| | Roundwood | (6,708) 24,918 | (6,708) 24,918 | (6,708) 15,682 | (6,708) 4,923 | (6,708) 3,837 | (6,708) 477 | | | (6,708) 23,512 | (6,708) 23,512 | (6,708) 15,589 | (6,708) 3,764 | (6,708) 3,805 | (6,708) 354 | | | | | (6,708) 1,406 | (6,708) 1,406 | (6,708) 93 | (6,708) 1,159 | (6,708) 32 | (6,708) 122 | |
| | Forest residue | 402 | 402 | | 402 | | | | | 402 | 402 | | 402 | | | | | | | | | | | | | |
| | Import | 45,312 | 45,312 | 10,371 | 25,686 | 6,457 | 2,798 | | | 45,312 | 45,312 | 10,371 | 25,686 | 6,457 | 2,798 | | | | | | | | | | | |
| | Mushroom cultivation | 437 | | | | | | 437 | | 437 | | | | | | 437 | | | | | | | | | | |
| | Fuel | 1,119 | | | | | | | 1,119 | 1,106 | | | | | | | 1,106 | 899 | 207 | 13 | | | | | | 13 |
| Domestic production | Total | 20,318 | 19,686 | 11,321 | 5,309 | 2,602 | 454 | 437 | 196 | 18,901 | 18,282 | 11,228 | 4,150 | 2,572 | 332 | 437 | 182 | 81 | 101 | 1,417 | 1,404 | 93 | 1,159 | 30 | 122 | 13 |
| | Roundwood | 19,284 | 19,284 | 11,321 | 4,907 | 2,602 | 454 | | | 17,880 | 17,880 | 11,228 | 3,748 | 2,572 | 332 | | | | | 1,404 | 1,404 | 93 | 1,159 | 30 | 122 | |
| | Forest residue | 402 | 402 | | 402 | | | | | 402 | 402 | | 402 | | | | | | | | | | | | | |
| | Mushroom cultivation | 437 | | | | | | 437 | | 437 | | | | | | 437 | | | | | | | | | | |
| | Fuel | 196 | | | | | | | 196 | 182 | | | | | | | 182 | 81 | 101 | 13 | | | | | | 13 |
| Import | Total | 51,870 | 50,947 | 14,732 | 25,702 | 7,692 | 2,821 | | 924 | 51,868 | 50,944 | 14,732 | 25,702 | 7,690 | 2,821 | | 924 | 818 | 106 | 3 | 3 | 0 | | 3 | | |
| | Roundwood | 5,634 | 5,634 | 4,361 | 16 | 1,235 | 22 | | | 5,632 | 5,632 | 4,361 | 16 | 1,232 | 22 | | | | | 3 | 3 | 0 | | 3 | | |
| | Subtotal | 45,312 | 45,312 | 10,371 | 25,686 | 6,457 | 2,798 | | | 45,312 | 45,312 | 10,371 | 25,686 | 6,457 | 2,798 | | | | | | | | | | | |
| | Sawnwood | 10,371 | 10,371 | 10,371 | | | | | | 10,371 | 10,371 | 10,371 | | | | | | | | | | | | | | |
| | Pulp | 6,033 | 6,033 | | 6,033 | | | | | 6,033 | 6,033 | | 6,033 | | | | | | | | | | | | | |
| | Chips | 19,652 | 19,652 | | 19,652 | | | | | 19,652 | 19,652 | | 19,652 | | | | | | | | | | | | | |
| | Plywood | 6,457 | 6,457 | | | 6,457 | | | | 6,457 | 6,457 | | | 6,457 | | | | | | | | | | | | |
| | Others | 2,798 | 2,798 | | | | 2,798 | | | 2,798 | 2,798 | | | | 2,798 | | | | | | | | | | | |
| | Fuel | 924 | | | | | | | 924 | 924 | | | | | | | 924 | 818 | 106 | | | | | | | |

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

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

Source: Forestry Agency "Wood Demand and Supply Chart"

12. Wood Supply/Demand (roundwood equivalent)

(Unit: 1,000m³)

| | Total wood supply/demand | Wood for industrial use | Wood for fuel | Wood for mushroom production | Wood demand for industrial use by sector | | | | Wood supply for industrial use by source | | Self-sufficiency rate(%) |
|------|--------------------------|-------------------------|---------------|------------------------------|--|----------------|---------|--------|--|---------------|--------------------------|
| | | | | | Sawnwood | Pulp and chips | Plywood | Others | Domestic wood | Imported wood | |
| 1955 | 65,206 | 45,278 | 19,928 | - | 30,295 | 8,285 | 2,297 | 4,401 | 42,794 | 2,484 | 94.5 |
| 1960 | 71,467 | 56,547 | 14,920 | - | 37,789 | 10,189 | 3,178 | 5,391 | 49,006 | 7,541 | 86.7 |
| 1965 | 76,798 | 70,530 | 6,268 | - | 47,084 | 14,335 | 5,187 | 3,924 | 50,375 | 20,155 | 71.4 |
| 1970 | 106,601 | 102,679 | 2,348 | 1,574 | 62,009 | 24,887 | 13,059 | 2,724 | 46,241 | 56,438 | 45.0 |
| 1975 | 99,303 | 96,369 | 1,132 | 1,802 | 55,341 | 27,298 | 11,173 | 2,557 | 34,577 | 61,792 | 35.9 |
| 1980 | 112,211 | 108,964 | 1,200 | 2,047 | 56,713 | 35,868 | 12,840 | 3,543 | 34,557 | 74,407 | 31.7 |
| 1985 | 95,447 | 92,901 | 572 | 1,974 | 44,539 | 32,915 | 11,217 | 4,230 | 33,074 | 59,827 | 35.6 |
| 1990 | 113,242 | 111,162 | 517 | 1,563 | 53,887 | 41,344 | 14,546 | 1,385 | 29,369 | 81,793 | 26.4 |
| 1995 | 113,698 | 111,922 | 721 | 1,055 | 50,384 | 44,922 | 14,314 | 2,302 | 22,916 | 89,006 | 20.5 |
| 2000 | 101,006 | 99,263 | 940 | 803 | 40,946 | 42,186 | 13,825 | 2,306 | 18,022 | 81,241 | 18.2 |
| 2005 | 87,423 | 85,857 | 1,001 | 565 | 32,901 | 37,608 | 12,586 | 2,763 | 17,176 | 68,681 | 20.0 |
| 2008 | 79,518 | 77,965 | 1,005 | 548 | 27,152 | 37,856 | 10,269 | 2,688 | 18,731 | 59,234 | 24.0 |
| 2009 | 64,799 | 63,210 | 1,047 | 543 | 23,513 | 29,006 | 8,163 | 2,528 | 17,587 | 45,622 | 27.8 |
| 2010 | 71,884 | 70,253 | 1,099 | 532 | 25,379 | 32,350 | 9,556 | 2,968 | 18,236 | 52,018 | 26.0 |
| 2011 | 74,403 | 72,725 | 1,157 | 520 | 26,634 | 32,064 | 10,563 | 3,464 | 19,367 | 53,358 | 26.6 |
| 2012 | 72,189 | 70,633 | 1,119 | 437 | 26,053 | 31,010 | 10,294 | 3,275 | 19,686 | 50,947 | 27.9 |

Note 1: "Wood supply/demand" refers to the sum of roundwood volume and imported products volume (sawnwood, plywood, and pulp and chips) converted into roundwood equivalent.

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

3: "Self-sufficiency rate" = "Wood supply (Domestic Wood)" / "Wood for industrial use" ×100

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

Source: Forestry Agency "Wood Demand and Supply Chart"

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

(Unit: 1,000m³)

| | | | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 | Relative change to previous year (%) |
|------------------------------|----------------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------------------------|
| Total wood supply/demand | | | 113,698 | 101,006 | 87,423 | 79,518 | 64,799 | 71,884 | 74,403 | 72,189 | ▲ 3.0 |
| Wood for industrial use | | | 111,922 | 99,263 | 85,857 | 77,965 | 63,210 | 70,253 | 72,725 | 70,633 | ▲ 2.9 |
| Wood for fuel | | | 721 | 940 | 1,001 | 1,005 | 1,047 | 1,099 | 1,157 | 1,119 | ▲ 3.3 |
| Wood for mushroom production | | | 1,055 | 803 | 565 | 548 | 543 | 532 | 520 | 437 | ▲ 16.0 |
| Wood for industrial use | Total | Total | 111,922 | 99,263 | 85,857 | 77,965 | 63,210 | 70,253 | 72,725 | 70,633 | ▲ 2.9 |
| | | Domestic Wood | 22,916 | 18,022 | 17,176 | 18,731 | 17,587 | 18,236 | 19,367 | 19,686 | 1.6 |
| | | Imported Wood | 89,006 | 81,241 | 68,681 | 59,234 | 45,622 | 52,018 | 53,358 | 50,947 | ▲ 4.5 |
| | | Self-sufficiency rate (%) | 20.5 | 18.2 | 20.0 | 24.0 | 27.8 | 26.0 | 26.6 | 27.9 | 1.3 |
| | Sawnwood | Subtotal | 50,384 | 40,946 | 32,901 | 27,152 | 23,513 | 25,379 | 26,634 | 26,053 | ▲ 2.2 |
| | | Domestic Wood | 16,252 | 12,798 | 11,571 | 11,110 | 10,243 | 10,582 | 11,492 | 11,321 | ▲ 1.5 |
| | | Imported Wood | 34,132 | 28,148 | 21,330 | 16,042 | 13,270 | 14,797 | 15,142 | 14,732 | ▲ 2.7 |
| | | Self-sufficiency rate (%) | 32.3 | 31.3 | 35.2 | 40.9 | 43.6 | 41.7 | 43.1 | 43.5 | 0.4 |
| | Pulp and chips | Subtotal | (6,280) | (6,537) | (7,974) | (6,509) | (5,662) | (6,192) | (6,725) | (6,708) | ▲ 0.3 |
| | | Domestic Wood | 44,922 | 42,186 | 37,608 | 37,856 | 29,006 | 32,350 | 32,064 | 31,010 | ▲ 3.3 |
| | | Imported Wood | 5,989 | 4,749 | 4,426 | 5,113 | 5,025 | 4,785 | 4,914 | 5,309 | 8.0 |
| | | Self-sufficiency rate (%) | 13.3 | 11.3 | 11.8 | 13.5 | 17.3 | 14.8 | 15.3 | 17.1 | 1.8 |
| | Plywood | Subtotal | 14,314 | 13,825 | 12,586 | 10,269 | 8,163 | 9,556 | 10,563 | 10,294 | ▲ 2.5 |
| | | Domestic Wood | 228 | 138 | 863 | 2,137 | 1,979 | 2,490 | 2,524 | 2,602 | 3.1 |
| | | Imported Wood | 14,086 | 13,687 | 11,723 | 8,132 | 6,184 | 7,066 | 8,039 | 7,692 | ▲ 4.3 |
| | | Self-sufficiency rate (%) | 1.6 | 1.0 | 6.9 | 20.8 | 24.2 | 26.1 | 23.9 | 25.3 | 1.4 |
| | Others | Subtotal | 2,302 | 2,306 | 2,763 | 2,688 | 2,528 | 2,968 | 3,464 | 3,275 | ▲ 5.5 |
| | | Domestic Wood | 447 | 337 | 316 | 370 | 340 | 379 | 438 | 454 | 3.7 |
| | | Imported Wood | 1,855 | 1,969 | 2,447 | 2,317 | 2,188 | 2,589 | 3,026 | 2,821 | ▲ 6.8 |
| | | Self-sufficiency rate (%) | 19.4 | 14.6 | 11.4 | 13.8 | 13.4 | 12.8 | 12.6 | 13.9 | 1.3 |

Note 1: "Wood supply/demand" refers to the sum of roundwood volume and imported products volume (sawnwood, plywood, and pulp and chips) converted into log equivalent.

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

3: "Self-sufficiency rate" = "Domestic wood supply" for each category / "total" or "subtotal" for each category ×100

4: 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. 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.

Source: Forestry Agency "Wood Demand and Supply Chart"

14. Wood Supply by Country (roundwood equivalent)

(Unit: 1,000m³, %)

| | | | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---------------|----------------|-------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Imported wood | North America | Subtotal | (34.2) 38,261 | (28.9) 28,700 | (18.8) 16,129 | (17.9) 13,948 | (18.2) 11,493 | (19.2) 13,506 | (19.1) 13,871 | (18.6) 13,108 |
| | | U.S. | 23,273 | 14,460 | 6,844 | 6,291 | 5,163 | 5,838 | 5,877 | 5,560 |
| | | Canada | 14,987 | 14,240 | 9,285 | 7,657 | 6,330 | 7,668 | 7,993 | 7,548 |
| | Southeast Asia | Subtotal | (14.7) 16,418 | (13.7) 13,569 | (12.2) 10,511 | (9.8) 7,632 | (9.6) 6,041 | (8.9) 6,287 | (9.1) 6,586 | (8.8) 6,235 |
| | | Malaysia | 7,601 | 6,690 | 5,888 | 4,959 | 3,755 | 3,773 | 3,701 | 3,543 |
| | | Indonesia | 6,334 | 5,858 | 4,137 | 2,419 | 2,079 | 2,304 | 2,622 | 2,506 |
| | | Others | 2,482 | 1,021 | 486 | 253 | 207 | 209 | 263 | 186 |
| | Russia | | (6.4) 7,131 | (7.5) 7,429 | (8.6) 7,411 | (4.9) 3,795 | (3.9) 2,449 | (3.3) 2,343 | (3.3) 2,410 | (3.1) 2,196 |
| | Europe | | (2.2) 2,411 | (4.7) 4,675 | (6.9) 5,937 | (5.5) 4,324 | (6.9) 4,391 | (7.1) 4,967 | (7.6) 5,553 | (7.8) 5,509 |
| | Others | New Zealand | (3.8) 4,263 | (4.4) 4,374 | (3.4) 2,878 | (3.8) 2,975 | (3.3) 2,086 | (3.9) 2,720 | (3.8) 2,772 | (3.6) 2,570 |
| | | | (4.7) 5,311 | (3.8) 3,795 | (4.6) 3,952 | (6.5) 5,049 | (6.9) 4,389 | (6.7) 4,726 | (7.2) 5,210 | (7.3) 5,189 |
| | | Australia | (6.6) 7,428 | (8.7) 8,604 | (10.2) 8,729 | (12.8) 9,986 | (10.6) 6,674 | (11.0) 7,722 | (7.7) 5,629 | (7.5) 5,323 |
| | | | (1.8) 2,061 | (2.5) 2,445 | (3.0) 2,544 | (2.8) 2,156 | (2.6) 1,647 | (3.0) 2,084 | (3.6) 2,633 | (3.4) 2,396 |
| | | China | (5.1) 5,721 | (7.7) 7,651 | (12.3) 10,591 | (12.0) 9,370 | (10.2) 6,451 | (10.9) 7,663 | (12.0) 8,695 | (11.9) 8,421 |
| | | Others | | | | | | | | |
| | Subtotal | | (79.5) 89,006 | (81.8) 81,241 | (80.0) 68,681 | (76.0) 59,234 | (72.2) 45,622 | (74.0) 52,018 | (73.4) 53,358 | (72.1) 50,947 |
| | Domestic wood | | | (20.5) 22,916 | (18.2) 18,022 | (20.0) 17,176 | (24.0) 18,731 | (27.8) 17,587 | (26.0) 18,236 | (26.6) 19,367 |
| Total | | | (100.0) 111,922 | (100.0) 99,263 | (100.0) 85,857 | (100.0) 77,965 | (100.0) 63,210 | (100.0) 70,253 | (100.0) 72,725 | (100.0) 70,633 |

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

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

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

15. Number of Mills/Factories and Production Volumes

| | | Unit | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|----------------|------------------------------------|-------------------------------------|---------|--------|--------|--------|-------|-------|-------|-------|
| Sawnwood | Number of sawmills | plants | 14,565 | 11,692 | 9,011 | 7,378 | 6,865 | 6,569 | 6,242 | 5,927 |
| | Sawnwood shipments | 1,000m ³ | 24,766 | 17,231 | 12,825 | 10,884 | 9,291 | 9,415 | 9,434 | 9,302 |
| Plywood | Number of plywood mills | plants | 455 | 354 | 271 | 233 | 208 | 192 | 203 | 197 |
| | Inputs for plywood production | 1,000m ³ | 7,321 | 5,401 | 4,636 | 3,986 | 3,107 | 3,811 | 3,858 | 3,837 |
| | General plywood production | 1,000m ³ | | 3,218 | 3,212 | 2,586 | 2,287 | 2,645 | 2,486 | 2,549 |
| | Special plywood production | (1,000m ³) | 655,799 | | | | | | | |
| | | 1,000m ³ | | 1,534 | 1,037 | 825 | 636 | 647 | 703 | 640 |
| Laminated wood | Number of laminated wood factories | plants | 293 | 281 | 259 | 199 | 187 | 182 | 181 | 174 |
| | Laminated wood production | 1,000m ³ | 582 | 892 | 1,512 | 1,293 | 1,249 | 1,455 | 1,455 | 1,524 |
| Wood chips | Number of wood chip mills | plants | 3,535 | 2,657 | 2,040 | 1,744 | 1,663 | 1,578 | 1,545 | 1,536 |
| | Wood chip production | 1,000tons (1,000m ³) | 11,226 | 10,851 | 6,005 | 5,797 | 5,129 | 5,406 | 5,638 | 5,864 |

Note: "Number of sawmills" excludes sawmills with output power less than 7.5kW.

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

16. Number of Sawmills and Sawmill Employees

| | 1995 | 2000 | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|-----------------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| Number of sawmills | 14,565 | 11,692 | 9,011 | 7,378 | 6,865 | 6,569 | 6,242 | 5,927 |
| -22.5kW | 1,394 | 1,137 | 899 | 790 | 799 | 784 | 757 | 716 |
| 22.5-37.5 | 3,317 | 2,635 | 1,919 | 1,501 | 1,413 | 1,333 | 1,286 | 1,195 |
| 37.5-75.0 | 5,472 | 4,406 | 3,371 | 2,628 | 2,309 | 2,165 | 2,015 | 1,891 |
| 75.0-150.0 | 2,596 | 1,991 | 1,552 | 1,309 | 1,241 | 1,196 | 1,124 | 1,082 |
| 150.0-300.0 | 1,233 | 980 | 782 | 681 | 649 | 641 | 619 | 601 |
| 300.0kW- | 553 | 543 | 488 | 469 | 454 | 450 | 441 | 442 |
| Number of sawmill employees | 104,197 | 73,625 | 49,159 | 38,260 | 34,970 | 33,479 | 32,482 | 31,638 |

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

Source: MAFF "Wood Demand and Supply Report", "Timber Statistics"

Full text (in Japanese) of the “Annual Report on Forest and Forestry for FY2013” is available on the website of the Forestry Agency:

<http://www.rinya.maff.go.jp/j/kikaku/hakusyo/25hakusyo/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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