参考2

Annual Report on Forest and Forestry in Japan

Fiscal Year 2010

(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 the article X of the “Forest and Forestry Basic Act.” This document is the summary of the annual report for FY2010.

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Forest and Forestry Topics in FY2010

TOPIC 1. New Initiatives for the Revitalization of Forest and Forestry

The “Forest and Forestry Revitalization Plan,” developed in 2009, was endorsed as a part of the “Japanese Government New Economic Development Strategy” in June 2010.
The Ministry of Agriculture, Forestry and Fisheries (MAFF) began to study possible measures for the realization of the “Forest and Forestry Revitalization Plan” from January 2010. In November 2010, the final report on those measures was publicized.
The final report proposed to review the Japan’s forest and forestry policies, institutions and organizations as a whole, for the development of the new forest and forestry policies in Japan.

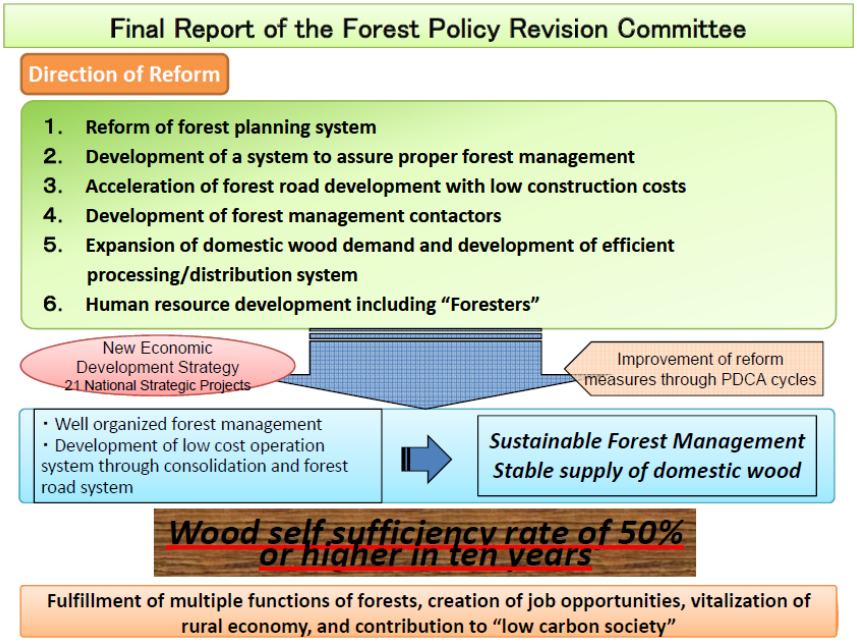


Fig.1: Final Report of the Forest Policy Revision Committee

In Response to the final report, the MAFF will implement the review of forest planning system, the introduction of a system to assure proper forest management (including the introduction of the “forest management and environmental conservation direct support system”), acceleration of the development of forest road system, and development of forestry technical experts, for the realization of the “Forest and Forestry Revitalization Plan” from the FY 2011.

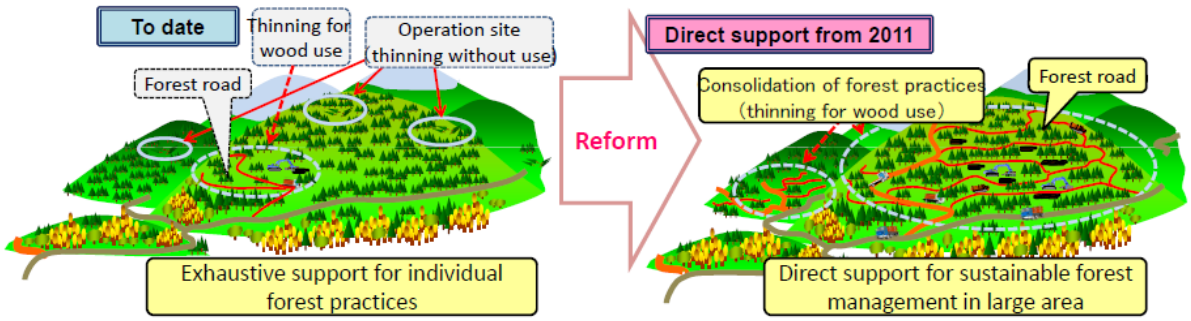


Fig.2: “Forest management and environmental conservation direct support system”

TOPIC 2. East Japan Earthquake Disaster

On March 11, 2011, the largest earthquake ever recorded in Japan hit the eastern part of Japan, especially, Tohoku region, causing severe disasters, including flooding by “tsunami.”
Along the coastal areas in *Miyagi* and *Iwate* Prefectures, the earthquake and tsunami caused major damage on coastal forest and wood manufacturing facilities.
The MAFF will put the maximum efforts for the recovery and reconstruction of the disaster.

TOPIC 3. New Legislation for the Promotion of Wood Use in Public Buildings

In May 2010, the new legislation to promote wood use in public buildings was adopted in the Diet and put into force in October 2010. The Basic Plan developed according to the legislation sets the targets for wood use, including all low-rise national public buildings being built with wooden structure.

Photo: Education and research support facility in the University of Tokyo. Built with generic lumber with post-beam structure.

Photo: Special facility for the elderly in *Tamano*, *Okayama* Prefecture. One of the largest fire-resistant wooden buildings in Japan.

TOPIC 4. CBD COP10

In October 2010, the tenth meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity was held in *Nagoya*, *Aichi* Prefecture in Japan. The COP10 adopted the “Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets,” the global targets for the effective implementation of the Convention and the “Nagoya Protocol” on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.

Strategic Plan for Biodiversity 2011-2020
(forest related issues)

(Major objectives)
By 2020,
- the rate of loss of all natural habitats, including forests, is at least halved.
- areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
- at least 17% of terrestrial and inland water areas, and 10% of coastal and marine areas are conserved through systems of protected areas.
- restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Photo: CBD COP10 in *Nagoya*

TOPIC 5. International Year of Forests 2011

The year 2011 is the “International Year of Forests” according to the UN General Assembly resolution. In December 2010, the Bridging Ceremony from the “International Year of Biodiversity (2010)” to the “International Year of Forests” was conducted in *Kanazawa*, *Ishikawa* Prefecture. The national theme of the Year was decided as “Walk in Forests.” The national committee of the Year will implement various activities for the promotion of the year, including related symposia.

2011・国際森林年

Japan’s logo of the International Year of Forests 2011 (left). The logo symbolizes the international theme of the year “Forests for People”, implying the central role of people for the sustainable management and conservation of forests

Photo: Bridging Ceremony in *Kanazawa*

Chapter I　Wood Demand Expansion: Toward the New “Wood Culture”

1.　Background of wood demand expansion

1.1. Wood supply

Since 2002, the supply of Japan’s domestic wood has been increasing, with the maturing of domestic forest resources in the forest plantations planted after the post-war period (Fig.1-1).　On the other hand, the supply of imported wood is declining since its peak in 1996, with the shrink of domestic wood demand and limited volume of available forest resources in wood exporting countries (Fig.1-2).　As a result, the self-sufficiency rate of Japan’s wood supply began to rise from 2002.　The self-sufficiency rate in 2009 was 27.8% (Fig. 1-1).

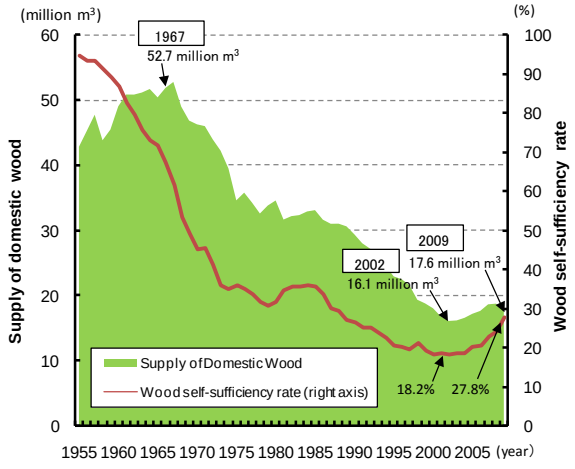


Fig.1-1: Supply of domestic wood and wood self-sufficiency rate in Japan

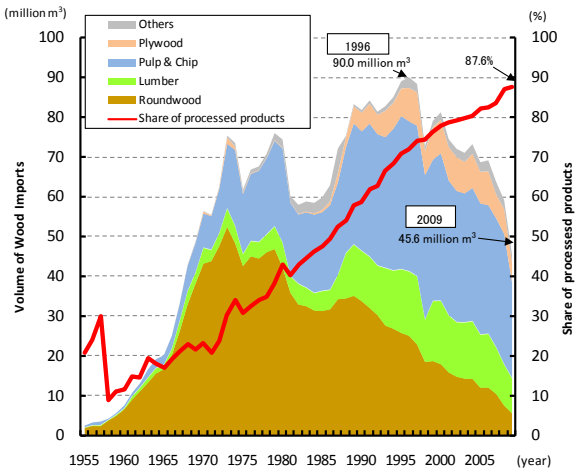


Fig.1-2: Wood Imports in Japan

1.2. Wood Demand

The domestic demand of wood has been declining since 1996.　In 2009, the volume of wood demand dropped by 19% from the previous year.　The volume of wood demand per capita has also dropped to 0.50m^3, approximately a half of the peak year in 1973 (Fig.1-3).

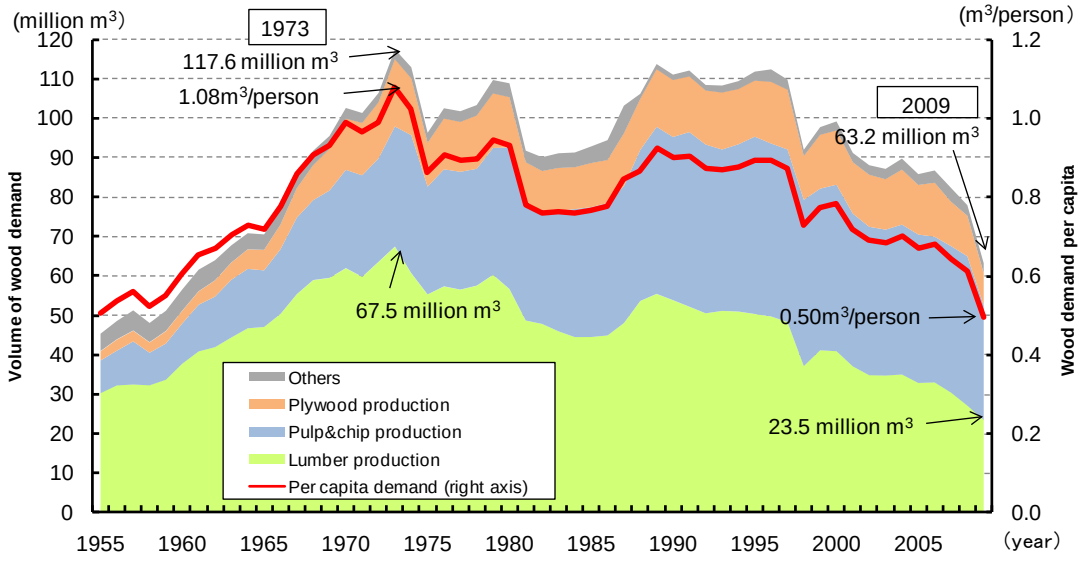


Fig.1-3: Wood Demand in Japan

In particular, the volume of wood demand for lumber production dropped to one third of the peak year, due to the decline of the number of domestic housing starts (Fig.1-4). Wood demand for chip and pulp production is also on the decline due to the stagnation of paper and paperboard consumption. Wood demand for plywood production is also on the down trend, while the volume of domestic wood used for plywood production is increasing (Fig.1-5).

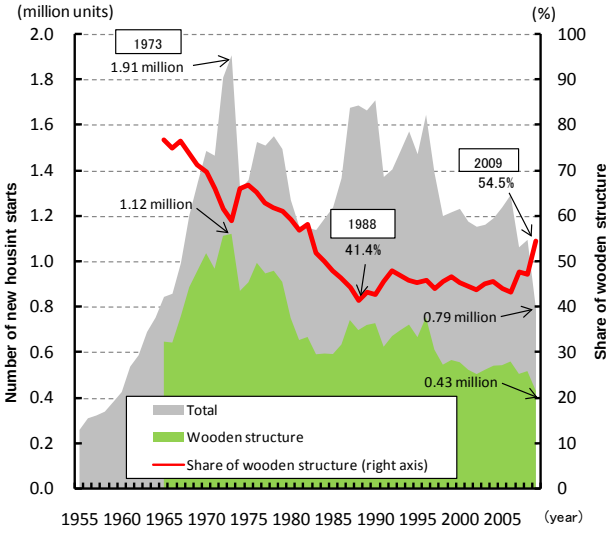


Fig.1-4: New housing starts and share of wooden structure

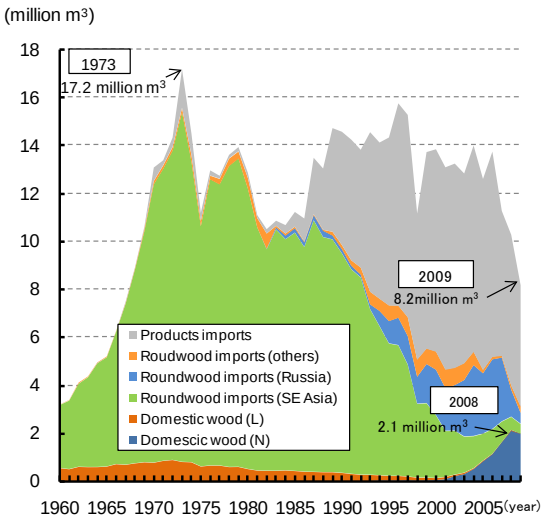


Fig.1-5: Supply of wood for plywood production

Under such circumstances, the number of Japan's population started decreasing in 2006. The number of population is expected to decline approximately by four million in 2020 and by 12 million in 2030 from the current level.

Accordingly, the domestic housing starts and consumption of paper and paperboard are not expected to increase sharply any longer. Given such conditions, the volume of wood demand is expected to continue to decline without any additional measures.

1.3. Necessity of wood demand expansion

Wood use contributes to the development of comfortable living condition, promotion of local economy, and mitigation of global warming. In particular, the use of domestic wood contributes to the fulfillment of the multi functional roles of forests and promotion of local economy.

The revitalization of forestry requires the expansion of wood demand, along with the development of wood supply capacity, following the "Forest and Forestry Revitalization Plan."

For the expansion of wood demand, new sectors of wood use should be developed, in addition to the traditional demand in housing sector. Improvement of domestic wood supply system is also important for the replacement of imported wood products by domestic wood products.

It is also important to note that the expansion of wood demand would also contribute to further development of Japan's "wood culture," which was nurtured in the long period of time, as well as economic development.

2. Wood Demand Expansion to Date

2.1. Housing Sector

Approximately 40% of Japan's wood demand is used for construction. In particular, the trend of new housing starts of wooden houses significantly influences wood demand as a whole.

In Japan's traditional wooden houses, approximately 0.20 m^3 wood is used for each 1 m^2 of floor area. The share of domestic/imported wood in traditional wooden houses differs among the parts of wooden structure (Fig.1-6). On the average, the share of domestic wood is as low as 30% or less. Therefore, domestic wood has margin to expand its demand in the housing sector.

Under such circumstances, the Forestry Agency began to implement the "New Wood Products Distribution and Processing Project" and the "New Wood Production Project" for the stable supply of wood products to major housing companies or local home builders with lower costs. As a result, major housing companies began to use domestic wood more aggressively in their business activities. Also, plywood mills began to use large amount of domestic wood for softwood plywood production. The share of domestic wood in material inputs of plywood mills reached as high as 64% in 2009.

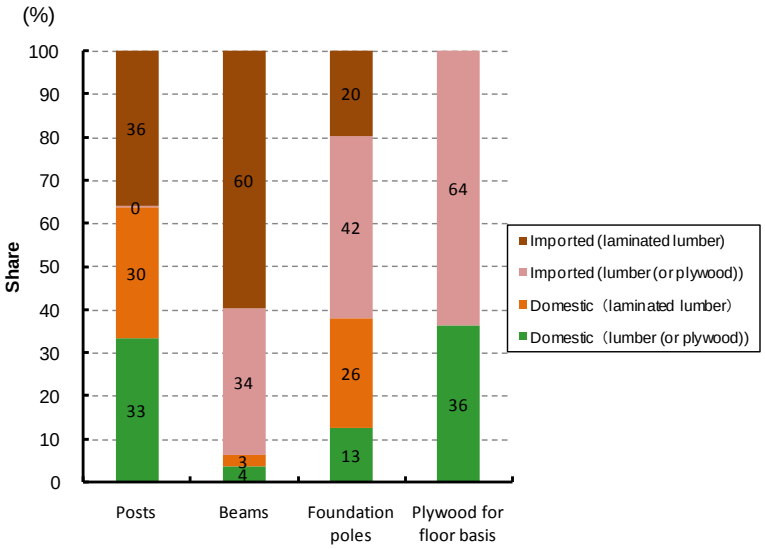


Fig.1-6: Share of domestic/imported wood in each part of traditional wooden houses in Japan

Further, the Forestry Agency is promoting local housing projects through the cooperation among forest owners, log producers, lumber producers, and local home builders, who are willing to use local wood products. Local governments are also promoting the use of local wood in housing sector.

2.2. Other Sectors

After the revision of the Building Standard Law in 1987, large scale buildings with wooden structure were allowed to be built with wooden structure. Also, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) began to promote wooden structure and wooden interior in school buildings from 1985.

Since 2003, the MAFF is promoting wooden structure and wooden interior in its own office buildings, wood use in civil engineering projects, and procurement of wooden products, under its fundamental principle of "wooden structure, wooden interior, and wooden products."

As for civil engineering projects, the Forestry Agency added popular wooden structure, including wooden fence, to the public construction work standard specifications. The "Green Procurement Act" in 2001 also promotes the use of small-diameter thinned logs for public construction projects. Private companies also developed new construction techniques with wood products, including the ground reinforcement technique with wood stakes.

As for daily necessities, office equipment, paper for printing, envelopes, name cards, and paper bottles for drink which are produced from thinned wood are beginning to be used. As for energy supply, chips and wooden pellets are becoming more popular. Finally, wood products exports are increasing since 2001, with the major targets of China and Korea.

3. Current Topics on Wood Demand Expansion

3.1. Wooden Public Buildings

3.1.1. Recent trend

The share of wooden buildings in public buildings is lower than that of buildings in general (Fig.1-7). This is because the central government and local governments promoted non-wood building structure for the prevention of disaster after the World War II.

In May 2010, the new legislation to promote wood use in public building was adopted in the Diet, put into force in October.

The Basic Plan under the new legislation turned the previous “non-wood policy” to the “wooden structure and wooden interior decoration as long as possible.” The plan promotes wooden structure for the lower height building which are exempt from fire resistant structure.

In 2009, The MEXT and the Forestry Agency established the “study team on wooden school buildings.” The team studied possible measures to promote wood use in school institutions to publish a booklet on the points for attention to implement the projects and the case studies on wooden school buildings.

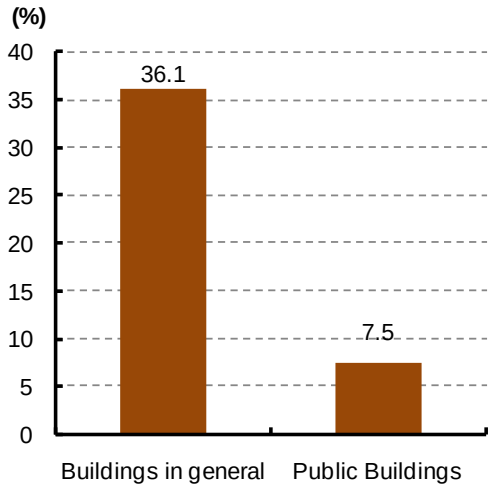


Fig. 1-7: Share of wooden structure in public buildings

3.1.2. Analysis

Generally, public buildings require higher fire-resistant performance. Wood products can be used for public buildings as long as those products satisfy the performance standards.

Also, the costs of wooden structure buildings can be equivalent to those of reinforced concrete (RC) structure buildings (Table 1-1). However, the costs of wooden public buildings tend to become higher, due to the lack of past experiences, use of specialized components, and too many considerations on design.

For the development of wooden public buildings, large amount of wood satisfying various standards, including long length, large diameter, JAS standard, legality and sustainability, need to be procured for a very short period of time limited by the fiscal policy of governments.

However, the supply of wood products for wooden public buildings is insufficient. For example, the ratio of artificially dried lumber in domestic lumber production is as low as 30%. The share of JAS certified lumber mills is also as low as 10%.

Further, staffs in governments or designers in building design office do not have enough knowledge on large scale wooden building construction.

Type	Size	Construction costs (million yen)	
		Wood	RC
Office building	One-storied（500㎡）	117	127
	Two-storied（500㎡）	142	145
School building	One-storied（500㎡）	98	102
	Two-storied（1,500㎡）	377	341

Note: Construction costs are estimation for building with each structure under the same conditions.

Table 1-1: Construction costs of public buildings with wood and reinforced concrete (RC) structures

3.1.3. Challenges

Based upon above analyses, following measures need to be implemented.

- Introduction of wooden structure for low-rise public buildings, and introduction of wooden interior decoration for all public buildings.
- Cost reduction through standardization of size and structure of buildings.
- Improvement of wood products supply suitable for public buildings.
- Promotion of wooden structure to local governmental staffs or designers in building design office. Development of specialists on wooden buildings.
- Revision of standard on wooden buildings, in response to the development of wood use technology.

3.2. Energy Use of Wood Biomass

3.2.1. Current Trend

In response to the "Renewable Portfolio Standard Law" in 2002, which requires electric power companies to procure electricity produced from renewable energy for certain quantity, the number of thermal power plants which use wood biomass with coal for power generation is increasing.

The Ministry of Economy, Trade and Industry (METI) is studying the introduction of the "Feed in Tariff System" for renewable energy, including power generation from biomass.

Further, wood biomass use is now given a "credit" on carbon emission reduction, under the "Domestic Credit System" and the "Offset Credit (J-VER) System."

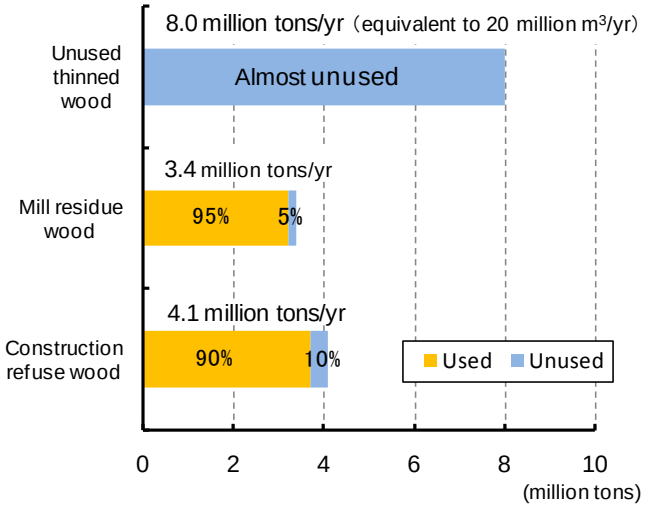


Fig.1-8: Production and utilization of wood biomass

3.2.2. Analysis

Among the variety of wood biomasses, most of "mill residue wood" and "construction refuse wood" are already almost fully utilized. Therefore, the use of "unused thinned wood" is inevitable for the promotion of energy use of wood biomass (Fig.1-8). However, the cost of collection, transportation, and processing of "unused thinned wood" is still very high.

The prices of wood biomass per heat value are mostly equivalent to those of fossil fuels (Fig.1-9). However, the introduction costs of wood biomass burners are much higher than those of fossil fuel burners.

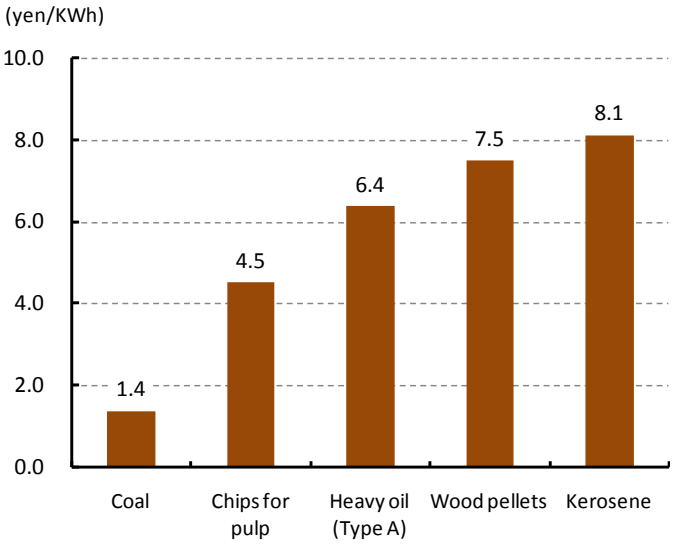


Fig.1-9: Prices per heat value for wood biomass and fossil fuels

Among the combustion system of wood chips, heat supply with chip boiler is more efficient than "gasifying heat and electricity supply system" or "steam power generation system."

Although the supply volume of wood pellet is increasing, the production capacity of each plant is much smaller than that of European countries, because of the small size of lumber mills which supply material to the pellet plants. In fact, average production volume of pellet plants is 100-1,000 tons in Japan, while that in European countries is more than 10,000 tons. Therefore, competition between domestically produced wood pellets and imported wood pellets may become intensified in the near future.

3.2.3. Challenges

Based upon above analyses, following measures need to be implemented.

- Stable supply of unused thinned wood with lower costs.
- Development of demand for wood biomass through various policy measures.
- Reduction of initial costs for the introduction of wood biomass burners.
- Stable supply of wood pellets.
- Development of new technologies of fuel production from wood biomass.
- Improvement of consumer services.

Case study: Mixed use of wood biomass in thermal power plant

An electric power generation company "S" in *Niihama, Ehime* prefecture, initiated the use of wood chips in conjunction with coals for power generation. The wood chips are processed in its own facility from unused thinned wood collected from the area surrounding the power plants by its affiliated companies. The plant plans to use 12.5 thousand tons of unused thinned wood (mixture rate: 2.5%) annually.

Photo: Storage of unused thinned wood in thermal power plant

3.3. Wood Export

3.3.1. Current trend

The value of Japan's wood products exports has increased since 2001 (Fig.1-10). Most of exported products are highly processed products, including wood board or builders' joinery and carpentry of wood

The Japanese government is promoting the exports of value-added wood products to China and Korea. The Government is promoting Japan's wood products through exhibition in the housing trade shows in China and Korea.

In August 2010, the Japan Wood Products Export Promotion Council signed an agreement with the China's National

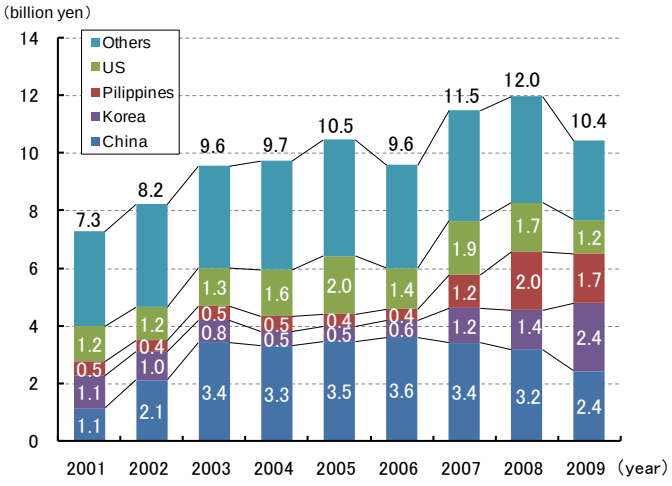


Fig.1-10: Value of wood exports from Japan

Standard Management Committee for the “Wooden Structure Design Standard.” The Council will participate in the revision process of the “Wooden Structure Design Standard” so that Japan’s wood species are included in the Standard.

3.3.2. Analysis

Japan’s wood products industry is slow to develop wood products for export, which take into consideration the consumers’ needs in the target countries. This is because most of wood products companies in Japan have been supplying wood products solely to domestic consumers.

In contrast, the US and Canada have been implementing comprehensive wood export strategy with the target of China, which incorporates both wood supply and technical assistance, for more than ten years, through the government and private sector cooperation.

In 2009, the Chinese Government announced the “Forest Products Industry Revitalization Plan” to maintain the world’s largest producer and exporter of furniture, wood-based panels, wood flooring, and wood doors. Through this plan, China is expected to further promote its wood import for the export of value-added products.

3.3.3. Challenges

Based upon above analyses, following measures need to be implemented.

- “Marketing” wood products, in response to the needs of consumers in the target countries.
- Investigation of the standards and regulations in the target countries for necessary revisions.
- Strong cooperation between public and private sectors for the promotion of wood exports.

4. Toward the New “Wood Culture”

4.1. Prerequisites for the wood demand expansion

For the wood demand expansion, following measures need to be implemented.

- Development of stable supply system of raw material (e.g. coordination and consolidation of forestry practices, expansion of forest road system, introduction of forestry machines, human resource development).
- Development of processing and distribution system of wood products.
- Promotion of Research and Development (e.g. development of new wood products and new wooden materials).
- Promotion of consumers’ understanding on wood use (e.g. national initiative on wood use promotion, wood use education, visualization of environmental contribution through wood use).
- Development of social scientists in wood use (e.g. specialists on distribution, marketing, or environmental impact assessment of wood use).
- Strong cooperation among stakeholders.

4.2. Toward the New “Wood Culture”

The expanded wood demand would contribute to forestry production activities and proper forest management.
For the expansion of wood demand, sustainable use of forest resources is very important. Forest resources need to be maintained by keeping the volume of demand taking into account of the volume of forest growth, and forests need to be conserved by replanting in harvested areas.
Japan is the country of “wood culture,” which fully makes use of various wood according to their characteristics. It is expected that the new “wood culture” is created through the efforts for wood demand expansion.

Chapter II Global Warming and Forest

1. Global warming

According to the IPCC's Fourth Assessment Report (AR4), warming of the climate system is unequivocal and very likely due to the observed increase in anthropogenic greenhouse gas concentrations. The Kyoto Protocol sets legally binding targets of greenhouse gas emission reduction by at least 5%, compared with the base year 1990 for developed countries, during the first commitment period 2008-2012. Japan's emission reduction commitment is 6%.

The total volume of Japan's greenhouse gas emission was 1.209 billion CO_2-tons in 2009, 5.7% decline from the previous year. This volume is 4.1% less than that of the base year of 1990 (Fig.2-1).

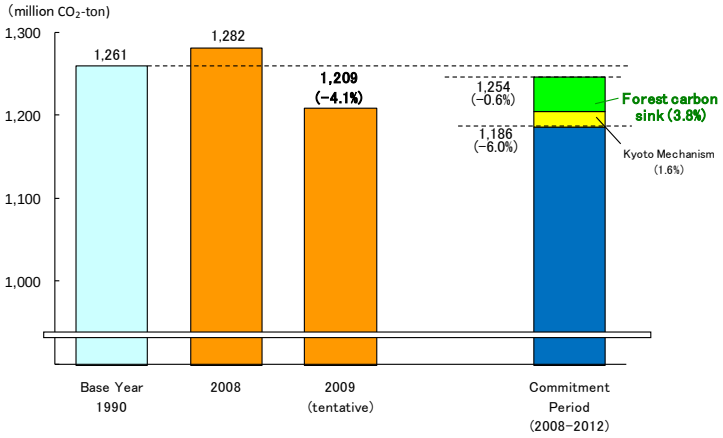


Fig.2-1: Japan's greenhouse gas emission for FY2009

2. Actions toward the achievement of the Kyoto Protocol Commitment

2.1. Promotion of forest sink activities

Under the Kyoto Protocol, greenhouse gas removals by sink resulting from "afforestation," "reforestation," and "forest management" may be accounted for to meet the emission reduction commitment. Japan sets the domestic target of removal by forest at 13 Mt-C/year (47.67 Mt-CO_2/year, or 3.8% of the volume of total emission in the base year).

To meet the removal target of 13 Mt-C/year through carbon sink, Japan has been conducting comprehensive measures including promotion of forest management, wood supply, and wood use.

2.2. Credit systems in forest related area

In Japan, several systems provide "credits" for emission reduction or carbons sink through the use of wood biomass or proper forest management.

As of December 2010, the "Domestic Credit System" has issued 35 thousand tons-CO_2 of credits for 44 forest-related projects, including the boiler fuel transition from fossil fuel to wood biomass, while the "Offset Credit (J-VER) System" has issued 35 thousand tons-CO_2 of credits for 26 forest-related projects including the fuel transition and proper forest management through thinning.

3. International Negotiations for Global Warming after 2013

Currently, negotiations on the international framework after 2013 are underway. The COP16 of UNFCCC, held in Cancun, Mexico, in November-December 2010, adopted the "Cancun Agreements" which took note of the emission reduction targets submitted by developed and developing countries as formal documents.

Regarding forest issues, the accounting approaches of forest sink and harvested wood products (HWP) and the issue of "reducing emissions from deforestation and forest degradation in developing countries (REDD-plus)" were discussed.
These issues will be discussed toward the COP17 in South Africa in November-December 2011.

Chapter III Forest Management

1. Forest Management

1.1. Multiple functions of forests

Forests have multiple functional roles, including carbon sequestration and biodiversity conservation. In order to fulfill those functions, it is necessary to develop vigorous and diversified forests.

1.2. Forest resources

Two third of Japan's land area is covered with forests. The total area of forests is 25 million hectares. Approximately 40% of these forests are artificially planted forests. The major species of planted forests are *sugi*, *hinoki*, and *karamatsu* (larch). The ownership of forests can be divided into approximately 60% for private owners, 30% for national government, and 10% for local governments.

The total volume of forest resources reached 4.4 billion m^3 in 2007 (Fig.3-1). The forest resources in planted forests are now at the stage for intensive use.

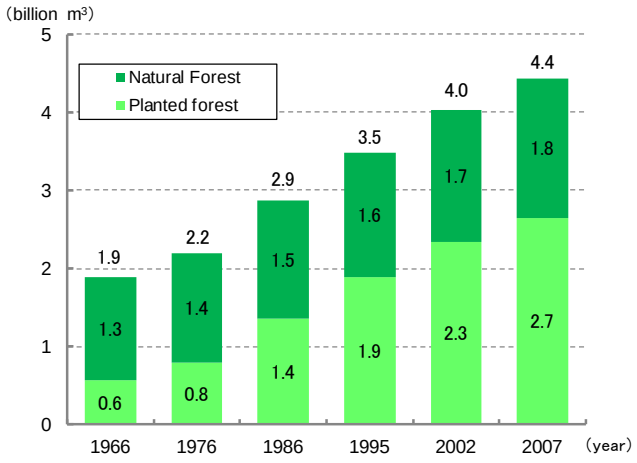


Fig.3-1: Forest resources in Japan

1.3. Forest management

In order to maintain the multiple functional roles of forests, forests need to be properly managed and conserved.

The Forestry Agency is promoting "thinning" through the assistance for joint thinning projects among forest owners, construction of forest road, and use of thinned wood for public works, with the goal of 3.3 million hectares of thinning during 2007-2012. In 2009, total area of thinned forests was 590 thousand hectares (Fig.3-2).

In Japan, the "Japanese cedar (*sugi*) pollinosis" is acknowledged as a nationwide problem. The Forestry Agency is promoting the conversion of cedar forests to less-pollen cedar forests, through the development and expansion of less-pollen Japanese cedar variations.

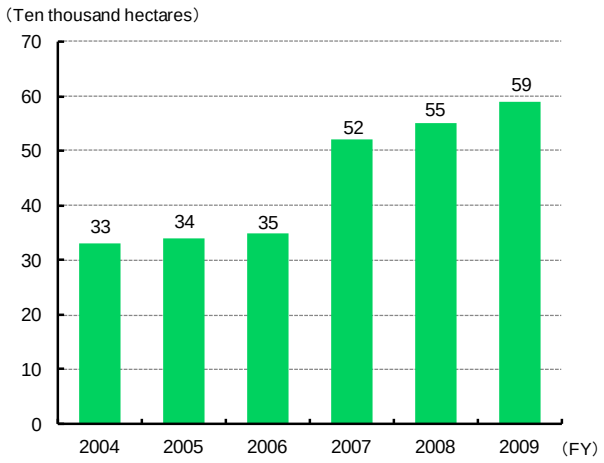


Fig.3-2: Area of thinned forests in Japan

1.4. Conservation of Forest Biodiversity

In October 2010, the COP10 to the Convention on Biological Diversity was held in Nagoya, Aichi prefecture. The Conference adopted the "Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets," the global targets for the effective implementation of the Convention and the "Nagoya Protocol" on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.

The Forestry Agency is promoting conservation of forest biodiversity, through fixed point observation

research, development of technique to comprehend forest vegetation, and promotion of those activities, in response to the proposals from the “Forest biodiversity Working Group” in 2009.

1.5. Revision of forest planning system

The Forestry Agency is considering possible revision of forest planning system, including the introduction of “forest management plan” which will be developed by multiple forest owners for large part of forest area, and introduction of system to assure proper forest management.

1.6. People’s participation in forest management

The number of civil organizations of “forest volunteers” reached 2,677 in 2009. These voluntary organizations have willingness to participate in voluntary forestry activities. Also, many private companies are interested in forest management and conservation, as a part of their corporate social responsibility (CSR) activities.

Many prefectural governments have introduced local taxation schemes exclusively used for forest management and conservation activities. Kochi prefecture introduced such system for the first time in 2003. As of 2010, the number of prefectures with similar schemes reached 30

The Forestry Agency is also promoting “environmental education in forests” through planting of seedling, thinning of forests, and observation of wild plants and animals. The Agency is also promoting the revitalization of “*satoyama*” (community forests in rural areas) as a field of experimental study on forest and forestry.

2. Forest Conservation and Disaster Control

2.1. Conservation Forests

Under the Forest Act, forests providing particularly important public benefits, including securing water resource and preventing disasters, are designated as “conservation forests.” As of 2009, the total area of conservation forest reached 11.96 million hectares, or 48% of total forest area and 32% of total land area in Japan. In the “conservation forests,” general forest management is allowed with specific limitations for each type of conservation forests.

2.2. Disaster control

In 2010, heavy rainfall in the rainy season caused severe natural disasters in mountainous regions, including large-scale landslide and avalanche. In response to such disasters, the Forestry Agency conducted forest conservation works through the development of disaster control facilities and forest stands.

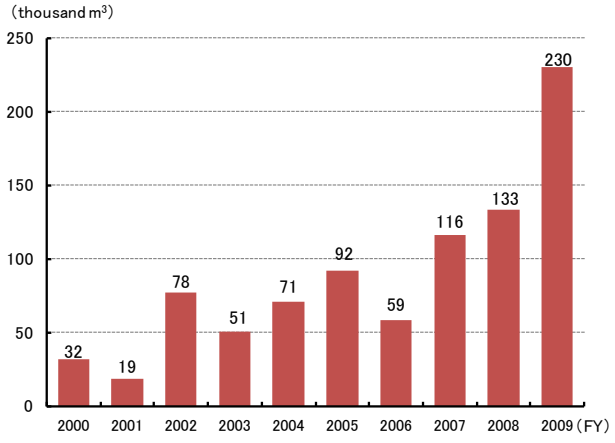


Fig.3-3: Damaged volume of *Quercus* spp. trees by *Platypus quecivorus*

2.3. Pest, disease and wildlife control

The volume of pine wood damaged by pinewood nematode (*Bursaphelenchus xylophilus*) has declined to 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 Forestry Agency is implementing “preventive measures” through spread

of chemicals and “combating measures” through logging and fumigating of damaged trees.

In 2009, damages of *Quercus* spp. trees caused by oak platypodid beetle (*Platypus quercivorus*) have been found in Tokyo, Aomori, Iwate, Gunma, and Shizuoka prefectures for the first time. The number of prefectures with those damage reached 29. The Forestry Agency is combating the beetle through logging and fumigating of damaged trees and development of preventive measures (Fig.3-3).

The major animal causing forest damage is deer, followed by bears. Approximately 70% of damaged forest areas are caused by der. The Forestry Agency is addressing damage by deer through installation of preventive fences and control of the number of deer population.

3. International Cooperation

3.1. Sates of World Forest

During 2000-2010, world forest area declined by 5.21 million hectares annually, according to FAO. In Africa and South America, 3.00 million hectares of forests decreased annually, while in Asia, 2.24 million hectares increased annually.

3.2. Promotion of sustainable forest management

For the promotion of sustainable forest management, development of “criteria and indicators” has made progress through various international processes. Japan belongs to the “Montreal Process” in which developed countries other than European countries participate. In the 21st Meeting of the Montreal Process, member countries shared experiences in the application of criteria and indicators.

Illegal logging substantially hinders the efforts for sustainable forest management. The Japanese Government is promoting international efforts to combat illegal logging under the fundamental principle “illegally harvested timber should not be used.”

The year 2011 is the “International Year of Forests.” The Forestry Agency will hold various ceremonies and symposia under the national theme of the Year, “Walk in Forests”

3.3. Japan’s cooperation initiatives

Japan is promoting international cooperation for the sustainable forest management in developing countries, through bilateral and multilateral schemes including technical and financial assistance.

Case study: Development of wood traceability system in Indonesia

Indonesia and Japan cooperatively developed wood traceability system as a measure to combat illegal logging. The system traces the flow of wood from logging site to plywood mills by use of “two-dimensional barcodes.”

Photo: Putting “two-dimensional barcodes” on logged trunk.

Chapter IV Forestry and Rural Mountain Communities

1. Forestry

1.1. Value of forestry production

In 2009, the value of gross forestry production was 412.2 billion yen, or 36% of its record high in 1980. Among the gross production value, wood production accounts for 45%, while mushroom production for 53% (Fig.4-1).

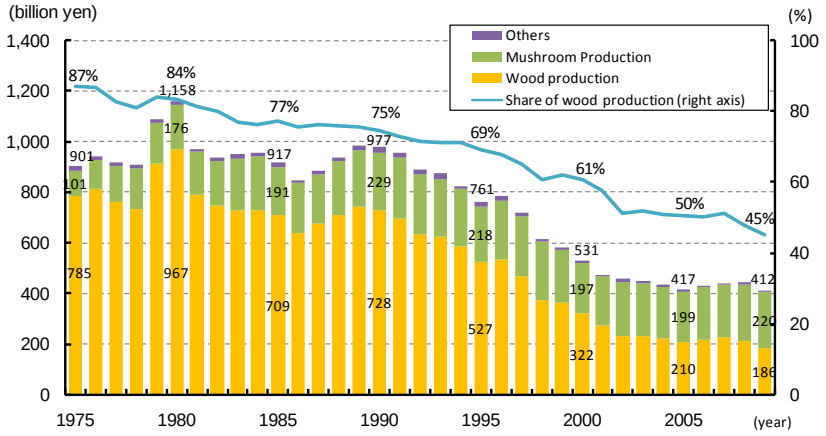


Fig.4-1: Value of gross forestry production

1.2. Forestry management

In 2008, the average income of forest owners from forestry activities was as low as one hundred thousand yen, or 190 thousand yen decline from the previous year. This decline is attributed to the decline of income from log sales. Among the household forestry management organizations, only 1.7% of them depend on forestry as their major household income category.

In Japan, most of forests are owned by large number of small scale forest owners. Further, the costs for growing forests are very high. Forest owners tend to be reluctant in forestry practice including logging and planting, due to its low profitability.

1.3. Forestry contractors

In Japan, forestry contractors consist of three categories: forest owners themselves, the Forest Owners' Cooperatives, and private forestry contractors. Among those categories, the Forest Owners' Cooperatives are major forestry contractors, conducting more than a half of forestry practices including planting, weeding, and thinning in Japan (Fig.4-2). In October 2010, the National Federation of Forest Owners' Cooperative Associations adopted its policy to put the "proposal-based coordination and consolidation of forestry practices" as their priority activity.

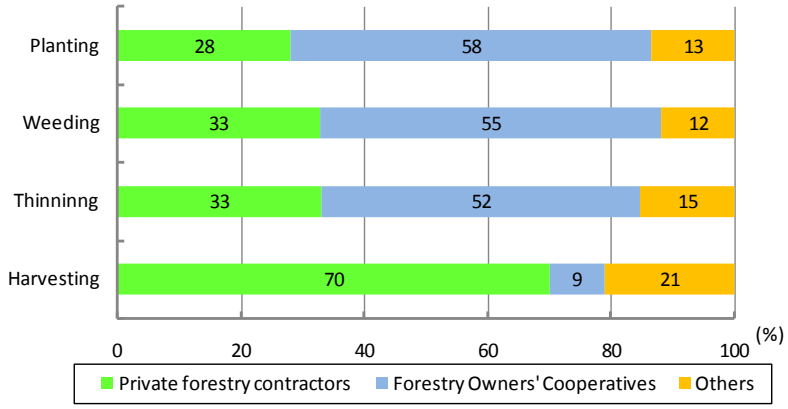


Fig.4-2: Share of contracted forest operation areas by categories of contractors

In J apan, the scale of private forestry contractors is relatively small. According to the Census of Agriculture and Forestry in 2010, 83% of private forestry contractors produce only less than 5,000 m^3 per year (Fig.4-3).

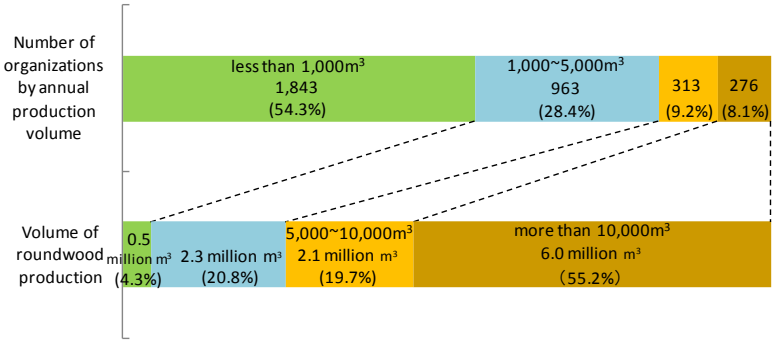


Fig.4-3: Number of forest management organizations by annual production volume and volume of roundwood production

In some regions, both forestry contractors and civil engineering companies cooperatively conduct forestry practices and construct forest road network. Such movements could contribute to the assurance of forestry workers and revitalization of economy in rural mountain communities.

1.4. Forestry workforce

The number of forestry workforce has been declining, reaching 47,000 in 2005. Although the share of aged workforce (aged 65 or older) is as high as 26%, the ratio of young workforce (aged 35 or younger) is on the rise.

The Forestry Agency is conducting the “Green Employment” project, which educates introductory skills and knowledge of forestry to the new entrants to forestry. Thanks to the project, the number of new entrants into forestry was 3.964 in 2009, or 18% increase from the previous year (Fig.4-4).

The Forestry Agency also revised the “Fundamental Policy for Ensuring Forestry Workforce” in 2010, which promotes career development of forestry workforce.

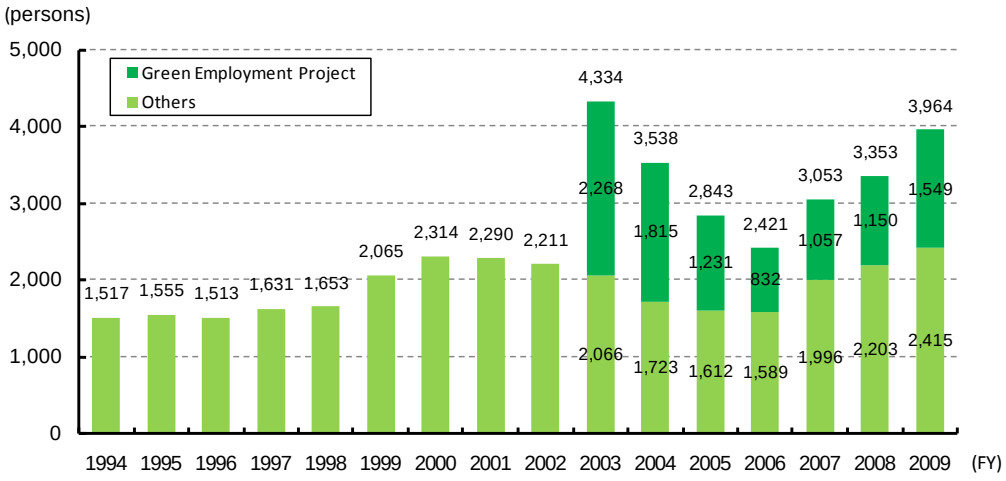


Fig.4-4: Number of new entrants to forestry workforce

2. Forestry Revitalization Projects

2.1. Effective and stable forestry management

For the improvement of productivity in forestry, “coordination and consolidation of forestry practices” is very important. Such activities will coordinate a number of small forest owners and conduct forestry practices in a large scale.

In particular, the Forestry Agency promotes the “proposal-based coordination and consolidation of forestry practices” in which private forestry contractors propose consolidated forestry practices to multiple forest owners.

In 2011, the Forestry Agency introduced the “forest management and environmental conservation direct payment system,” in order to directly support forest owners and contractors who will conduct consolidated forest management in large scale. The system also support forestry practices including thinning for wood use and development of forest road network (Fig.4-5).

Further, the Forestry Agency established the standards of the “wood transportation road” for truck and the “log salvage road” for forestry machines, for the acceleration of the development of “durable and simple forest road network.”

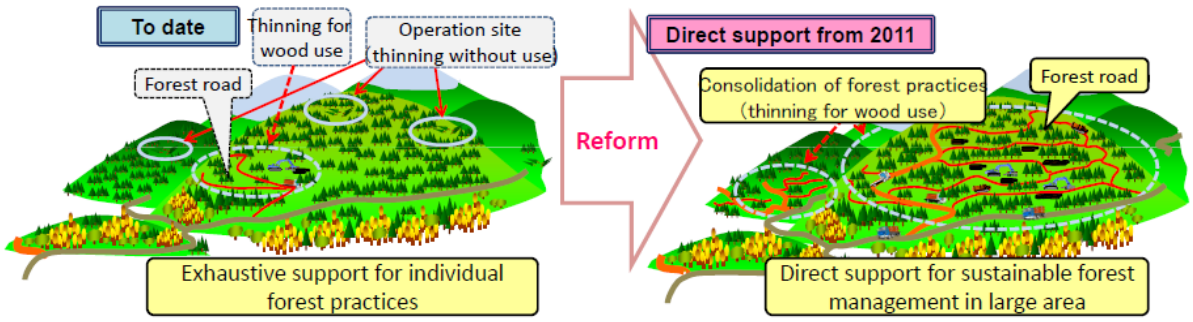


Fig.4-5: “Forest management and environmental conservation direct support system”

2.2. Human resource development

In 2010, the Forestry Agency developed the fundamental policy of human resource development, the “Human Resource Development Master Plan,” for the development of human resources with special knowledge and skills necessary for the promotion of coordination and consolidation of forestry practices.

Since 2007, the Forestry Agency has been implementing the training course for the “forestry practice planners,” who will draft the “forestry practice proposal” and develop consensus among many forest owners.

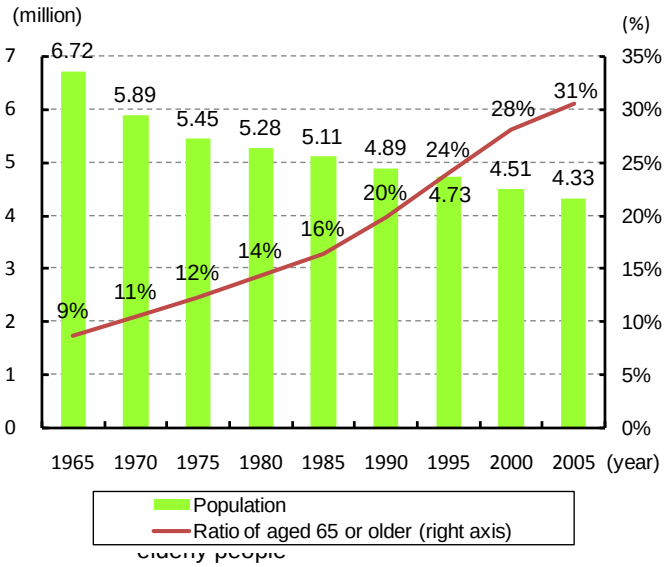
In 2011, the Agency initiated a training course for the development of “Foresters” who will plan and advise local forestry activities. The certification program of “Foresters” will start from 2013.

3. Rural Mountain Communities

3.1. Current situation

The rural mountain communities cover 50% of total land area, or 60% of total forest area, in Japan. However, living infrastructure is underdeveloped and population continues to decline and become older in those areas (Fig.4-6). In such areas, public benefits of forests might be adversely affected due to the lack of proper forest management.

Those areas need to be maintained through forestry production activities for the fulfillment of multi functional roles of forests.



3.2. Revitalization of Rural Mountain Communities

In order to maintain the community function of rural mountain communities, promotion of settlements from urban areas, improvement of community infrastructures, and creation of job opportunities are important.. To this end, the Forestry Agency promotes communication between rural mountain communities and urban areas, and supports settlement initiatives through the creation of job opportunities in new businesses utilizing forest resources.

In April 2009, the “Support Center for Revitalization of Mountainous Areas” was established, with the objective to enhance the communication between mountainous communities and urban business enterprises, through matching needs of both sides. Such communications are expected to become popular through CSR activities by private companies, based upon the accomplishments of the Center.

Case study: Matching between urban business enterprises and mountainous communities by the “Support Center for Revitalization of Mountainous Areas”

The major copy machine maker “C” conducted the “offset” of the CO_2 emission from their production activities with the credit produced from forest management activities, as a part of its corporate social responsibility (CSR) activities.

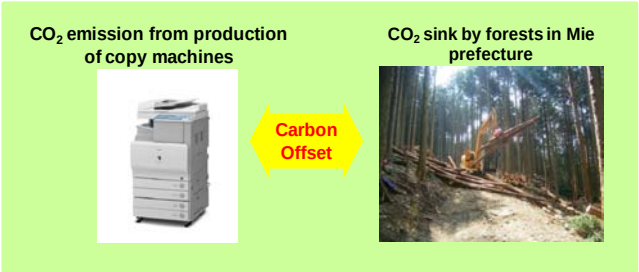


Figure: Carbon offset through intermediation of the Support Center for Revitalization of Mountainous Areas

Chapter V　Wood Demand/Supply and Wood Products Industry

1.　Wood Demand and Supply

1.1. World wood demand and supply

The total volume of industrial roundwood consumption in the world is on the rise in the long term. However, in 2009, the volume of industrial roundwood consumption declined to 1.4 billion m^3, or 8% drop from the previous year, due to the global financial crisis beginning in autumn 2008.

As for the world wood trade, China increased imports of industrial roundwood and exports of plywood, while Russia decreased exports of industrial roundwood.　These two countries have strong influence on the flow of world wood trade (Fig.5-1,2).

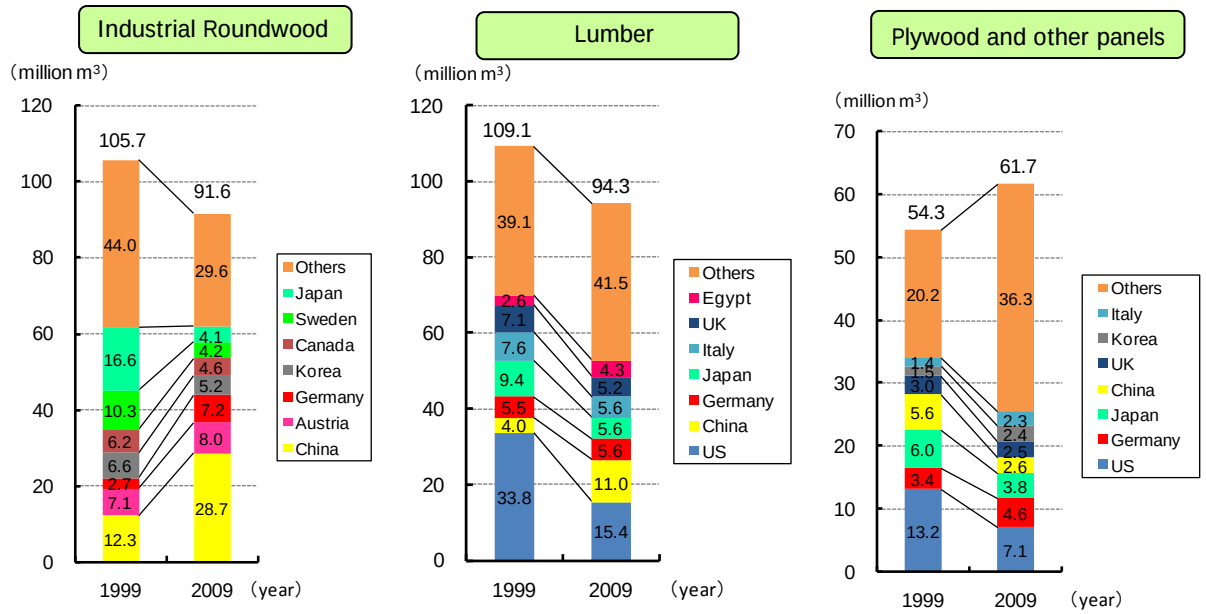


Fig.5-1: World imports of wood products in 1999 and 2009

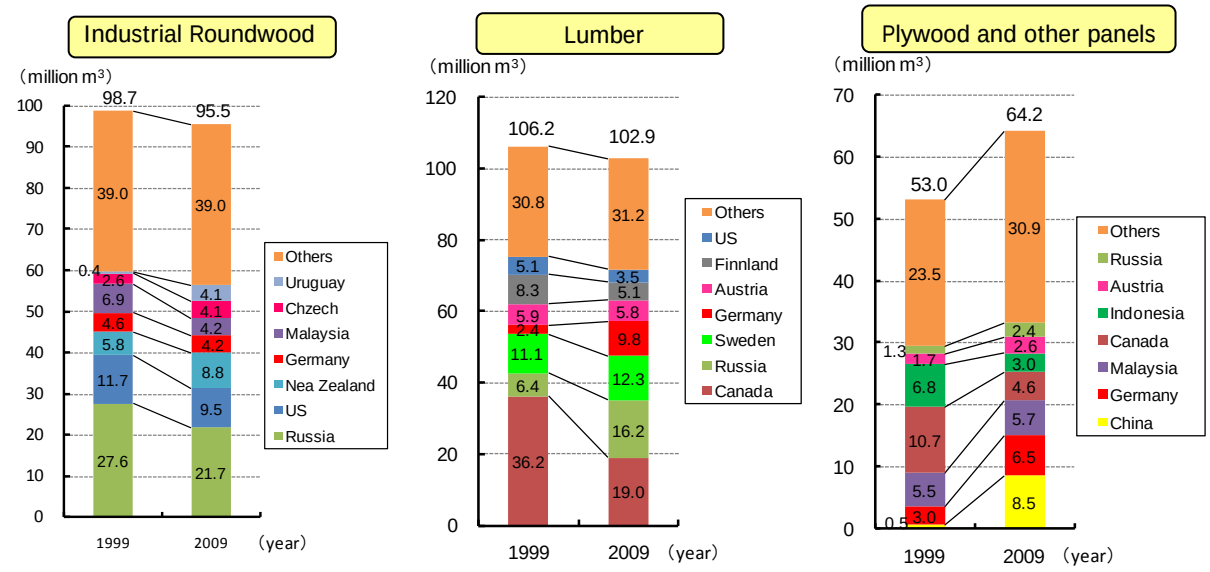


Fig.5-2: World exports of wood products in 1999 and 2009

1.2. Wood demand and supply in Japan

In 2009, Japan's wood demand decreased by 19% from the previous year, reaching 63.21 million m^3, due to the downturn of economic activity beginning in autumn 2008.

Among the wood supply, the volume of domestic wood decreased by 6%, reaching 17.59 million m^3, while that of imported wood decreased by 23%, reaching 45.62 million m^3. As a result, the self-sufficiency rate of wood reached as high as 27.8% for 2009 (Fig.5-3).

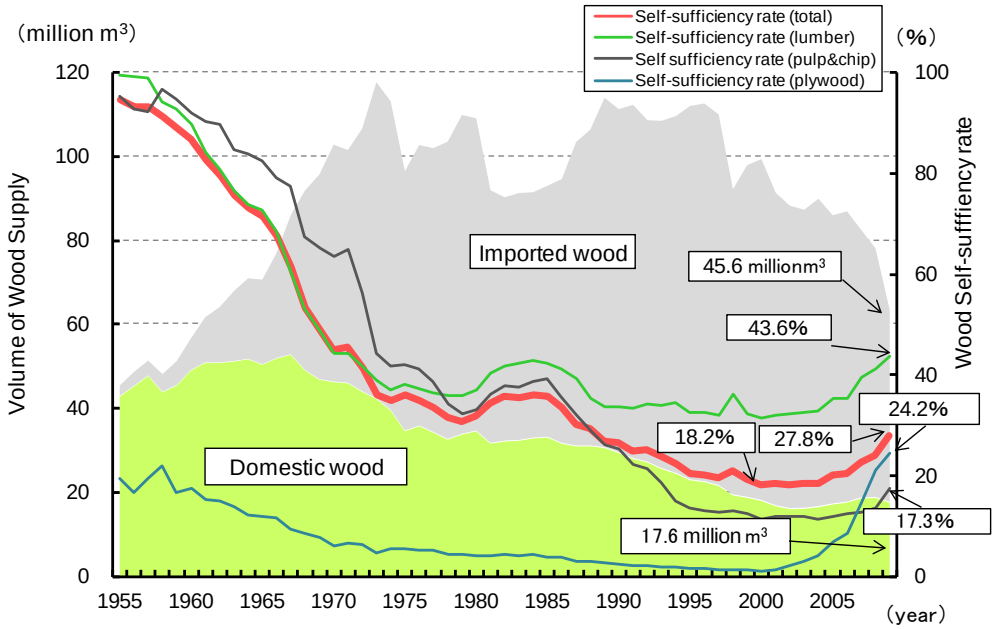


Fig.5-3: Wood supply and wood sufficiency rates in Japan

As for imported wood, the volume of wood imports decreased for all categories in 2009, compared with ten years before. In particular, imports of roundwood from Russia, lumber from Canada, and plywood from Indonesia substantially decreased (Fig.5-4).

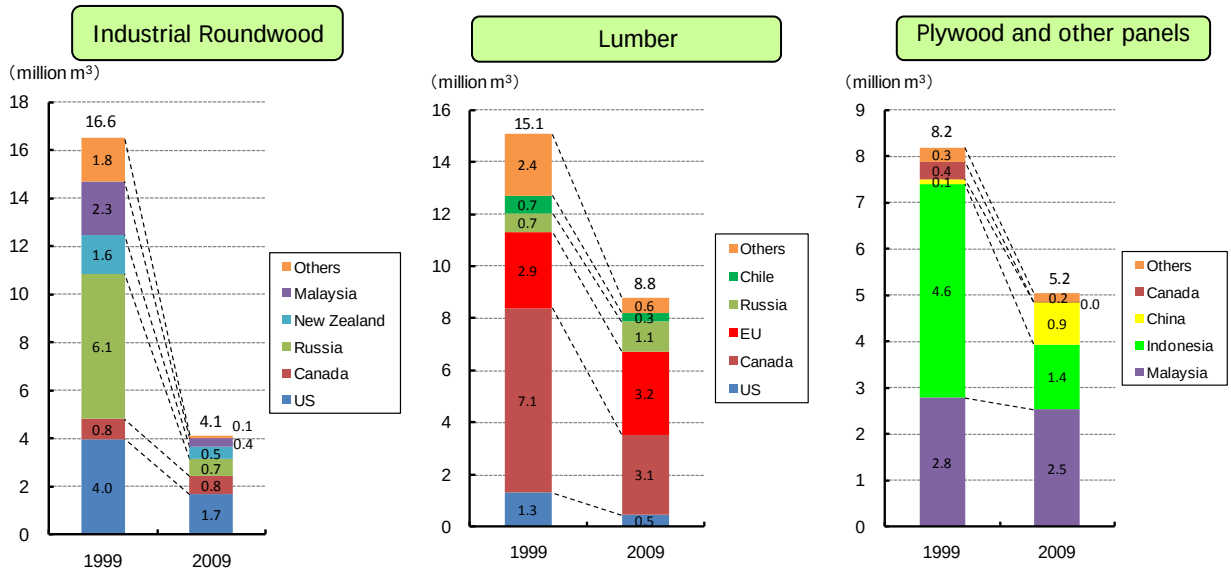


Fig.5-4: Japan's imports of wood products in 1999 and 2009

1.3. Wood prices

In 2010, wood prices for all categories significantly increased from the previous year, when those prices sharply dropped by the worldwide economic crisis.

1.4. Wood from responsible forest management

As a measure to promote the use of wood produced from responsible forest management, use of legally produced wood and forest certifications are becoming popular in Japan. However, the ratio of forest certified by certification schemes is still very low in Japan, compared with other developed countries.

1.5. Non-wood forest products

Non-wood forest products include mushrooms, wild vegetables, edible nuts, and charcoals. These products are very important for local economy. In 2009, the value of non-wood forest products production was 28.91 billion yen, 90% of which account for mushrooms. Recently, imports of fresh *shiitake* mushrooms from China decreased, while its domestic production is on the rise.

2. Wood Products Industry

2.1. Wood products industry

In 2009, the number of new housing starts significantly increased to 810 thousand units from the previous year. The share of wooden structure in new housing starts was 57%.

As for lumber production, large scale mills are becoming dominant. Such mills, which account for only 7% of total number of mills, consume 58% of total material inputs. In addition, the share of domestic wood in total material inputs is also on the rise.

As for plywood production, the share of domestic wood in material input of domestic plywood mills is on the rise, reaching 64% in 2009 (Fig.5-5).

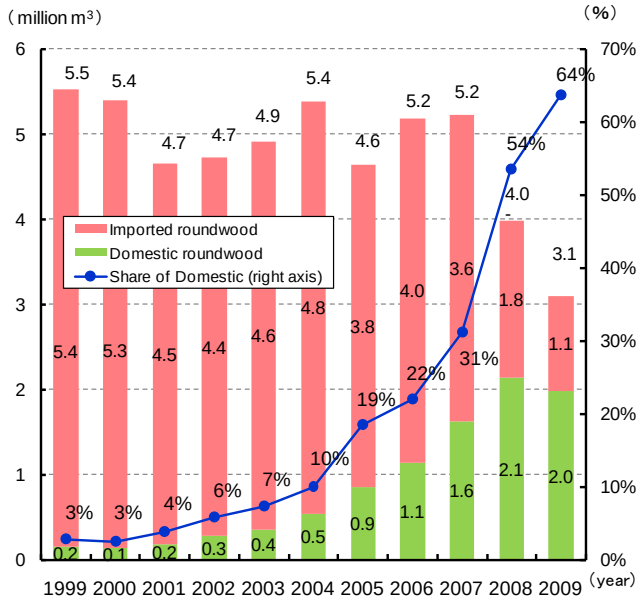


Fig.5-5: Material inputs for plywood production and share of domestic roundwood

2.2. Use of domestic wood

In response to the improvement of domestic log processing technologies and uncertain situation of wood imports, sawmills and plywood mills are converting their material inputs from imported wood to domestic wood. The situation surrounding domestic wood is drastically changing.

The “New Wood Production Projects” intends to promote stable supply of wood products to major housing companies or local home builders with lower costs. Under this project, the use of domestic wood in the model areas increased from 1.32 million m^3 in 2005 to 1.64 million m^3 in 2009.

Chapter VI National Forest Management

1. Roles of National Forests

National Forests cover 30% of total forest area in Japan (Fig.6-1). National Forests have vital roles in providing safety and security with local people, through such multiple functions of forest as prevention of land erosion, alleviation of flood, or mitigation of global warming.

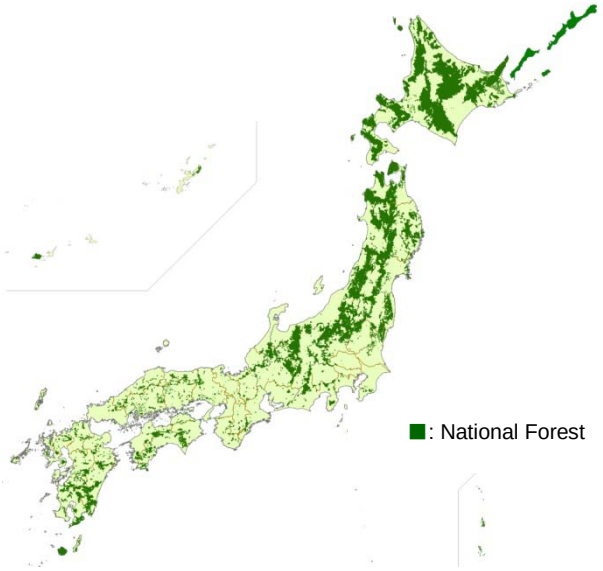


Fig.6-1: Location of National Forests

2. Management as “Forests for People”

The National Forest Management is managing and conserving the National Forests under the fundamental principle of “Forests for People,” in order to satisfy various expectations from people in the society.

Each National Forest is categorized into one of three functional types by its expected functions.

The National Forest Management conducts forest management in National Forests for the fulfillment of multi functional roles of forest, including long-term wood production management, multiple storied forest management, or broadleaf forest management.

Almost 90% of National Forests are designated as “conservation forests” under the Forest Law, for the provision of public benefits including land conservation and water resource conservation. In the “conservation forests,” general forest management is allowed with specific limitations for each type of conservation forests. The National Forest Management also conducts “forest conservation works,” such as restoration of devastated forests.

The National Forest Management promotes forest management in cooperation with the private sector. Recently, the National Forest Management is promoting the forest management system with road system and forestry machines, and the establishment of “cooperative forest management area” through cooperation with private forests.

The National Forest Management also provides National Forests to various organizations as their activity fields, such as “forests for students,” “forest for voluntary groups,” or “forests for corporations.” Further, the National Forest Management also nurtures local forest resources used for local cultural ceremonies or local historical wooden buildings, respecting local culture and history.

The National Forest Management is promoting thinning of National Forests to meet the removal target under the Kyoto Protocol. In 2009, the National Forest Management

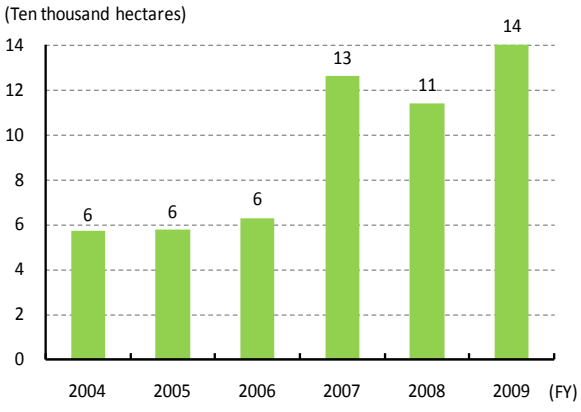


Fig.6-2: Thinned areas in National Forests

conducted 140 thousand hectares of thinning in National Forests (Fig.6-2). The National Forest Management is also promoting wood use in forest civil engineering works.

National Forests have vital roles in the conservation of biodiversity as a network of ecosystems. The National Forest Management designates National Forests with diverse forest ecosystems as “protected forests,” or “green corridor” which connects several “protected forests.”

National Forests play an important role in stable supply of domestic wood, providing approximately 20% of total domestic wood supply. The National Forest Management is promoting stable wood supply through the agreement with major wood processing companies, such as large-scale lumber mills or plywood factories. Such stable wood supply from National Forests would enable those companies to rationalize their processing lines or reduce production costs.

3. Reform of the National Forest Management

The National Forest Management has been making efforts to restore fiscal stability by ensuring income from sales of wood and other properties, and implementing effective forest management through private consignment. As a result, the National Forest Management has been succeeding in keeping financial balance without external borrowing since FY 2004.

The “Forest and Forestry Revitalization Plan” in December 2009 declared to study the reform of the National Forest Management from the Special Account system to the General Account of the Government. Further, the “budget screening” by the Government Revitalization Unit concluded that the Special Account of the National Forest Management to be abolished and incorporated into the General Account. In response to these assessments, the National Forest Management is conducting study on possible revision of the Special Account system of the National Forest Management.

Appendix

1. Forestry-related Fundamental Figures

Items	Unit	1980	1990	1995	2000	2005	2006	2007	2008	2009
i Gross domestic product (GDP)	billion yen	242,838.7	442,781.0	495,165.5	502,989.9	501,734.4	507,364.8	515,520.4	504,377.6	470,936.7
Forestry	billion yen	826.0	661.2	695.8	886.5	446.4	477.5	497.3	437.9	387.4
Forestry / GDP	%	0.34	0.15	0.14	0.18	0.09	0.09	0.10	0.09	0.08
ii Total number of workers	million	55.36	62.49	64.57	64.46	63.56	63.82	64.12	63.85	62.82
Forestry	million	0.19	0.11	0.09	0.07	0.06	0.06	0.05	0.06	0.06
Forestry / Total No. of workers	%	0.34	0.18	0.14	0.11	0.09	0.09	0.08	0.09	0.10
iii Area of national land of Japan	million ha	37.77	37.77	37.78	37.79	37.79	37.79	37.79	37.79	37.79
iv Forest area	million ha	25.28	25.21	25.15	25.15	25.12	25.12	25.10	25.10	25.10
Forest / National land	%	67.8	67.6	67.5	67.5	67.4	67.4	67.3	67.3	67.3
v Conservation forest area	million ha	7.32	8.30	8.57	8.93	11.65	11.76	11.88	11.91	11.96
Conservation forest / Forest	%	29.0	32.9	34.1	35.5	46.4	46.8	47.3	47.5	47.7
vi Growing stock of forest	billion m^3	2.5	3.1	3.5	3.5	4.0	4.0	4.4	4.4	4.4
vii Industrial wood supply/consumption	million m^3	108.96	111.16	111.92	99.26	85.86	86.79	82.36	77.97	63.21
Domestic production	million m^3	34.56	29.37	22.92	18.02	17.18	17.62	18.63	18.73	17.59
Import	million m^3	74.41	81.79	89.01	81.24	68.68	69.17	63.74	59.23	45.62
Self-sufficiency rate	%	31.7	26.4	20.5	18.2	20.0	20.3	22.6	24.0	27.8
viii New housing starts	million units	1.27	1.71	1.47	1.23	1.24	1.29	1.06	1.09	0.79
Wooden structure rate	%	59.2	42.6	45.3	45.2	43.9	43.3	47.6	47.3	54.6

Source: i: Cabinet Office "SNA (System of National Accounts)," ii: Ministry of Internal Affairs and Communications "Labor Force Survey"
iii: Ministry of Land, Infrastructure, Transport and Tourism "Statistics reports of Administratives"
iv, v, vi: Forestry Agency, vii: Forestry Agency "Wood Demand and Supply Chart," viii: MLIT "Statistics on Building Construction Starts"
Notes 1: "Protection forest area" in "v" refers to the actual area measurement.
2: "Industrial wood supply/consumption," "Domestic production" and "Import" in "vii" refer to the volume in log equivalent.

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

(Billion Yen)

Items	1990	1995	2000	2005	2006	2007	2008	2009
Gross domestic product	442,781	495,166	502,990	501,734	507,365	515,520	504,378	470,937
Industries	416,272	463,956	468,062	465,356	467,176	471,953	458,212	423,165
Agriculture ,forestry and fishing	10,916	9,346	8,896	7,628	7,437	7,326	7,192	6,659
Forestry	661	696	887	446	478	497	438	387
Mining	1,121	861	627	488	435	348	311	300
Manufacturing	117,316	114,669	111,439	107,877	107,766	109,090	102,982	84,732
Pulp ,paper and paper products	3,365	3,399	3,237	2,922	2,564	2,435	2,474	2,349
Wood and wooden products	1,516	1,469	1,240	960	890	836	793	658
Construction	43,439	40,850	37,130	31,861	31,849	31,444	29,998	29,230
Electricity ,gas and water supply	11,232	13,329	13,576	12,051	11,565	10,280	9,000	10,890
Wholesale and retail trade	58,324	75,788	70,661	69,065	68,234	69,906	69,326	59,015
Finance and insurance	30,827	31,964	30,445	34,940	35,207	34,317	29,852	27,357
Real estate	43,051	53,757	57,864	60,100	60,465	61,292	61,806	62,305
Transport and communications	29,090	35,264	34,821	33,612	33,524	34,130	34,115	31,999
Service activities	70,955	88,129	102,604	107,733	110,695	113,822	113,630	110,678
Others	26,509	31,209	34,928	36,379	40,189	43,567	46,165	47,772

Source: Cabinet Office "SNA (System of National Accounts)"
Note: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

3. Gross Forestry Output

(Billion Yen)

Item	1990	1995	2000	2005	2006	2007	2008	2009
Gross forestry output	977.14	760.55	531.10	416.77	431.93	441.42	444.87	412.22
Log production	728.14	526.61	322.13	210.23	216.85	225.56	213.30	186.07
Softwood	552.50	436.76	265.33	177.41	183.67	195.18	180.39	156.09
Japanese Cedar	215.02	187.39	123.78	87.53	92.56	102.88	94.12	81.60
Hardwood	168.70	86.02	54.72	31.71	32.19	29.38	32.05	29.22
Wood fuel production	8.26	7.93	6.16	6.09	5.60	5.48	5.05	4.91
Mashroom production	229.43	218.32	196.89	198.50	207.05	208.30	223.98	220.02
Forestry by-product	11.32	7.70	5.92	1.96	2.43	2.08	2.55	1.22
Forestry income produced	702.48	532.91	351.87	245.60	248.59	246.37	241.61	219.30

Source: MAFF "Report of Statistics on Forestry Income Produced"
Note: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

4. Current State of Forest Resources

(1,000ha, Million m^3)

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	Area
Total			25,097	4,431.74	10,347	2,651.31	13,383	1,779.39	1,208	1.04	159
National forest	Subtotal		7,686	1,078.27	2,364	423.61	4,691	653.81	631	0.86	0
	Under the Forestry Agency's jurisdiction	Subtotal	7,623	1,070.90	2,355	420.82	4,646	649.23	622	0.86	0
		State-owned	7,513	1,051.90	2,267	402.02	4,643	649.03	603	0.85	0
		Government reforestation	101	19.01	88	18.80	2	0.20	10	0.00	0
		Others	9	0.00	0	0.00	0	0.00	9	0.00	0
	Under other agency's jurisdiction		63	7.37	9	2.80	45	4.57	9	0.00	0
Private and public forest	Subtotal		17,411	3,353.47	7,983	2,227.70	8,693	1,125.59	577	0.18	159
	Public forest	Subtotal	2,830	484.33	1,247	294.62	1,449	189.63	128	0.08	6
		Prefecture	1,188	190.35	464	100.66	667	89.68	56	0.01	1
		Minicipality	1,642	293.98	783	193.96	782	99.95	72	0.07	5
	Private forest		14,535	2,863.51	6,724	1,930.60	7,217	932.81	445	0.10	150
	Others		46	5.63	12	2.48	27	3.15	4	0.00	3

Source: Forestry Agency

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: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

4: Figures are as of March 31, 2007.

5. Planting Area Classified by Tree Species

(ha)

	Total	Softwood					Hardwood
		Japanese Cedar	Japanese Cypress	Pine	Japanese Larch	Others	
1990	(59,030)	(18,129)	(24,646)	(784)	(3,931)	(6,905)	(4,635)
	55,400	17,499	23,176	751	3,895	5,744	4,335
1995	(48,650)	(13,660)	(22,332)	(219)	(2,739)	(5,544)	(4,156)
	45,241	13,196	20,908	199	2,677	4,577	3,684
2000	(31,316)	(8,223)	(11,574)	(233)	(2,524)	(4,954)	(3,808)
	28,480	7,967	10,745	223	2,493	4,014	3,038
2005	(25,584)	(5,216)	(7,096)	(226)	(3,534)	(5,728)	(3,784)
	22,498	5,011	6,307	183	3,423	4,611	2,963
2006	(23,872)	(4,845)	(5,998)	(256)	(3,521)	(5,144)	(4,108)
	21,048	4,579	5,225	229	3,340	4,327	3,348
2007	(25,836)	(5,546)	(6,205)	(265)	(3,788)	(5,647)	(4,385)
	23,064	5,289	5,460	252	3,642	4,715	3,706
2008	(23,400)	(5,171)	(4,726)	(217)	(4,414)	(5,172)	(3,699)
	20,865	4,904	4,079	175	4,260	4,380	3,067
2009	(23,032)	(4,787)	(5,241)	(166)	(4,638)	(5,282)	(2,917)
	20,006	4,522	4,113	150	4,435	4,490	2,296

Source: Forestry Agency

Note 1: Figures do not include National Forest.

2: Figures in parenthes refer to the total area including the planting area under trees for multiple storied forest.

6. Planted Forest Area Classified by Age Classes

(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

Source: Forestry Agency

Note 1: Class XV contains the forests over it in 1985, class XVII contains the forests over it in 1989 and 1994, and class XIX contains the forests over it in 2001 and 2006.

2: Figures refer to the standing timber area defined in the Forest Law Article 5 and 7.2.

7. Thinned Area and Use of Thinned Wood

	Thinned area (1,000ha)			Used volume of thinned wood (million m^3)					
					Private and public forest				National forest
	Total	Private and public forest	National forest	Total	Subtotal	Sawmwood	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	586	446	140	6.37	4.23	2.57	0.48	1.18	2.14

Source: Forestry Agency

Note: Used volume is in log equivalent.

			1990	1995	2000	2002	2003	2004	2005	2006
Private and public forest	Thinned area (1,000ha)		277	215	304	314	312	277	281	282
	Used volume of thinned wood (million m^3)	Total	2.34	1.83	2.74	2.79	2.83	2.84	2.84	3.24
		Sawmwood	1.70	1.25	1.95	1.90	1.85	1.84	1.81	1.96
		Roundwood	0.37	0.34	0.41	0.44	0.50	0.45	0.41	0.48
		Others	0.26	0.24	0.38	0.45	0.48	0.55	0.62	0.80

Source: Forestry Agency

Note: Used volume is in log equivalent.

8. Forest Area by Owners

	2010	
	ha	%
Total	17,627,335	100.0
Private	13,590,186	77.1
Public	3,389,618	19.2
Prefecture	1,242,080	7.0
Public corporation	436,296	2.5
Municipality	1,404,452	8.0
Property ward	306,790	1.7
Japan Green Resources Agency	647,531	3.7

Source: MAFF"2010 Census of Agriculture and Forestry"

Note 1: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

2: Japan Green Resources Agency broke up on Apr. 1, 2008, and Forestry and Forest Products Reserch Institute took over its ownership.

9. Number of Forest Owners and their Forest Area

	Total		0ha		-3ha		3-5ha		5-20ha		20-50ha		50-100ha		100ha-	
	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)
Total	139,997	5,173,928	1,302	-	1,340	1,649	40,973	149,088	69,170	638,308	17,854	508,963	4,883	320,201	4,475	3,555,720
Corporation	6,957	1,523,136	788	-	138	173	604	2,285	1,901	20,288	1,244	39,458	829	57,606	1,453	1,403,326
Private Company	2,473	826,377	505	-	76	94	188	691	611	6,269	372	11,282	199	13,295	522	794,747
Cooperative	3,151	503,279	245	-	57	71	182	701	773	8,870	666	21,635	498	34,987	730	437,014
Agricultural cooperative	94	24,221	-	-	-	-	4	15	16	202	22	741	10	754	42	22,509
Forestry cooperative	2,280	297,430	225	-	54	68	82	317	464	5,541	476	15,620	404	28,404	575	247,479
Other cooperatives	777	181,628	20	-	3	4	96	369	293	3,127	168	5,273	84	5,829	113	167,026
Other corporations	1,333	193,480	38	-	5	8	234	893	517	5,149	206	6,542	132	9,324	201	171,565
Non-corporation	131,371	2,040,618	512	-	1,201	1,473	40,315	146,594	67,039	615,372	16,385	462,176	3,831	246,619	2,088	568,383
Individual	125,242	1,770,923	352	-	1,165	1,426	39,016	141,710	64,301	588,487	15,360	430,675	3,407	217,530	1,641	391,095
Public	1,669	1,610,174	2	-	1	2	54	208	230	2,648	225	7,329	223	15,976	934	1,584,011

Source: MAFF"2010 Census of Agriculture and Forestry"

10. Log Production

(1,000 m^3, %)

			1990	1995	2000	2005	2006	2007	2008	2009	Year-on-year rate(%)
Total			27,145	21,242	17,034	16,166	16,609	17,650	17,709	16,619	▲ 6.2
By tree species	Softwood	Subtotal	17,646 (65)	16,575 (78)	13,707 (80)	13,695 (85)	14,017 (84)	15,162 (86)	14,975 (85)	13,976 (84)	▲ 6.7
		Japanese Cedar(Sugi)			7,671	7,756	8,059	8,848	8,755	8,263	▲ 5.6
		for Sawnwood			7,258 <57>	6,737 <58>	6,753 <58>	7,175 <60>	6,782 <61>	6,352 <62>	▲ 6.3
		Japanese Cypress(Hinoki)			2,273	2,014	1,991	1,986	1,886	1,957	3.8
		Red pine(Akamatsu), Black pine(Kuromatsu)	-	-	1,034	783	811	794	815	704	▲ 13.6
		Japanese Larch(Karamatsu), Yeddo spruce(Ezomatsu), Todomatsu(*Abies sachalinensis*)			2,410	2,910	2,952	3,295	3,286	2,821	▲ 14.2
		Others			319	232	204	239	233	231	▲ 0.9
	Hardwood		9,499 (35)	4,667 (22)	3,327 (20)	2,471 (15)	2,592 (16)	2,488 (14)	2,734 (15)	2,643 (16)	▲ 3.3
By use	Sawnwood		18,023 (66)	16,252 (77)	12,798 (75)	11,571 (72)	11,645 (70)	11,981 (68)	11,110 (63)	10,243 (62)	▲ 7.8
	Plywood		354 (1)	228 (1)	138 (1)	863 (5)	1,144 (7)	1,632 (9)	2,137 (12)	1,979 (12)	▲ 7.4
	Chips		8,768 (32)	4,762 (22)	4,098 (24)	3,732 (23)	3,820 (23)	4,037 (23)	4,462 (25)	4,397 (26)	▲ 1.5

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

Note 1: Figures in parenthes refer to the parcentage of total volume.

2: Figures in < > refre to the percentage of the volume for Sawnwood.

3: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

11. Wood Supply/Demand Chart (in log equivalent)

(1,000m^3)

Supply \ Demand		Demand: Total	Industrial use: Subtotal	Sawnwood	Pulp and chips	Plywood	Others	Mushroom cultivation	Fuel
Supply	Total	(5,662) 64,799	(5,662) 63,210	23,513	(5,662) 29,006	8,163	2,528	543	1,047
	Roundwood	(5,662) 23,010	(5,662) 23,010	14,714	(5,662) 4,826	3,107	362		
	Forest residue	219	219		219				
	Import of wood products	39,981	39,981	8,799	23,961	5,056	2,166		
	Mushroom cultivation	543						543	
	Fuel	1,047							1,047
Domestic production	Total	18,274	17,587	10,243	5,025	1,979	340	543	145
	Roundwood	17,368	17,368	10,243	4,806	1,979	340		
	Forest residue	219	219		219				
	Mushroom cultivation	543						543	
	Fuel	145							145
Import Wood products	Total	46,525	45,622	13,270	23,981	6,184	2,188		902
	Roundwood	5,641	5,641	4,471	20	1,128	22		
	Subtotal	39,981	39,981	8,799	23,961	5,056	2,166		
	Sawnwood	8,799	8,799	8,799					
	Pulp	5,496	5,496		5,496				
	Chips	18,465	18,465		18,465				
	Plywood	5,056	5,056			5,056			
	Others	2,166	2,166				2,166		
	Fuel	902							902

Supply \ Demand		Domestic consumption: Total	Industrial use: Subtotal	Sawnwood	Pulp and chips	Plywood	Others	Mushroom cultivation	Fuel: Subtotal	Charcoal	Firewood
Supply	Total	(5,662) 64,096	(5,662) 62,514	23,444	(5,662) 28,476	8,120	2,474	543	1,039	936	104
	Roundwood	(5,662) 22,314	(5,662) 22,314	14,645	(5,662) 4,296	3,065	308				
	Forest residue	219	219		219						
	Import of wood products	39,981	39,981	8,799	23,961	5,056	2,166				
	Mushroom cultivation	543						543			
	Fuel	1,039							1,039	936	104
Domestic production	Total	17,573	16,894	10,175	4,495	1,938	285	543	137	110	28
	Roundwood	16,675	16,675	10,175	4,276	1,938	285				
	Forest residue	219	219		219						
	Mushroom cultivation	543						543			
	Fuel	137							137	110	28
Import Wood products	Total	46,522	45,620	13,269	23,981	6,182	2,188		902	826	76
	Roundwood	5,639	5,639	4,471	20	1,126	22				
	Subtotal	39,981	39,981	8,799	23,961	5,056	2,166				
	Sawnwood	8,799	8,799	8,799							
	Pulp	5,496	5,496		5,496						
	Chips	18,465	18,465		18,465						
	Plywood	5,056	5,056			5,056					
	Others	2,166	2,166				2,166				
	Fuel	902							902	826	76

Supply \ Demand		Export: Total	Industrial use: Subtotal	Sawnwood	Pulp and chips	Plywood	Others	Fuel
Supply	Total	703	696	69	530	42	55	8
	Roundwood	696	696	69	530	42	55	
	Forest residue							
	Import of wood products							
	Mushroom cultivation							
	Fuel	8						8
Domestic production	Total	701	694	68	530	41	55	8
	Roundwood	694	694	68	530	41	55	
	Forest residue							
	Mushroom cultivation							
	Fuel	8						8
Import Wood products	Total	2	2	0		2	0	
	Roundwood	2	2	0		2	0	
	Subtotal							
	Sawnwood							
	Pulp							
	Chips							
	Plywood							
	Others							
	Fuel							

Source: Forestry Agency "Wood demand and supply chart"

Note 1: Figures in parenthes refer to the volume of pulp and chips from saw mill residue or construction waste, and the volume is included in that of sawnwood or plywood or others. So it isn't included in total and subtotal.

2: Forest residue refers to the branches or roots left in forests which are carried into plants for the purpose of use.

3: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

12. Wood Supply/Demand (in log equivalent)

(1,000m^3)

	Total supply/demand of wood	Wood for industrial use	Wood for fuel	Wood for mushroom cultivation	Wood (industrial use) demand				Wood supply		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
2006	88,306	86,791	979	535	33,032	36,907	13,720	3,131	17,617	69,174	20.3
2007	83,879	82,361	976	542	30,455	37,124	11,260	3,522	18,626	63,735	22.6
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

Source: Forestry Agency "Wood demand and supply chart"

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

2: "Self-sufficiency rate" = "Domestc Wood Supply" / "Imported Wood Supply" ×100

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

4: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

13. Domestic/Imported Wood Supply/Demand (in log equivalent)

(1,000m^3)

			1990	1995	2000	2005	2006	2007	2008	2009	Year-on-year rate(%)
Total wood supply/demand			113,242	113,698	101,006	87,423	88,306	83,879	79,518	64,799	▲ 18.5
Wood for industrial use			111,162	111,922	99,263	85,857	86,791	82,361	77,965	63,210	▲ 18.9
Wood for fuel			517	721	940	1,001	979	976	1,005	1,047	4.2
Wood for mushroom cultivation			1,563	1,055	803	565	535	542	548	543	▲ 0.9
Wood for industrial use	Total	Total	111,162	111,922	99,263	85,857	86,791	82,361	77,965	63,210	▲ 18.9
		Domestic Wood	29,369	22,916	18,022	17,176	17,617	18,626	18,731	17,587	▲ 6.1
		Imported Wood	81,793	89,006	81,241	68,681	69,174	63,735	59,234	45,622	▲ 23.0
		Self-sufficiency rate(%)	26.4	20.5	18.2	20.0	20.3	22.6	24.0	27.8	3.8
	Sawnwood	Subtotal	53,887	50,384	40,946	32,901	33,032	30,455	27,152	23,513	▲ 13.4
		Domestic Wood	18,023	16,252	12,798	11,571	11,645	11,981	11,110	10,243	▲ 7.8
		Imported Wood	35,864	34,132	28,148	21,330	21,387	18,474	16,042	13,270	▲ 17.3
		Self-sufficiency rate(%)	33.4	32.3	31.3	35.2	35.3	39.3	40.9	43.6	2.7
	Pulp and chips		(7,336)	(6,280)	(6,537)	(7,974)	(7,664)	(7,402)	(6,509)	(5,662)	▲ 13.0
		Subtotal	41,344	44,922	42,186	37,608	36,907	37,124	37,856	29,006	▲ 23.4
		Domestic Wood	10,373	5,989	4,749	4,426	4,496	4,673	5,113	5,025	▲ 1.7
		Imported Wood	30,971	38,933	37,437	33,181	32,412	32,451	32,743	23,981	▲ 26.8
		Self-sufficiency rate(%)	25.1	13.3	11.3	11.8	12.2	12.6	13.5	17.3	3.8
	Plywood	Subtotal	14,546	14,314	13,825	12,586	13,720	11,260	10,269	8,163	▲ 20.5
		Domestic Wood	354	228	138	863	1,144	1,632	2,137	1,979	▲ 7.4
		Imported Wood	14,192	14,086	13,687	11,723	12,576	9,628	8,132	6,184	▲ 24.0
		Self-sufficiency rate(%)	2.4	1.6	1.0	6.9	8.3	14.5	20.8	24.2	3.4
	Others	Subtotal	1,385	2,302	2,306	2,763	3,131	3,522	2,688	2,528	▲ 6.0
		Domestic Wood	619	447	337	316	332	340	370	340	▲ 8.1
		Imported Wood	766	1,855	1,969	2,447	2,799	3,182	2,317	2,188	▲ 5.6
		Self-sufficiency rate(%)	44.7	19.4	14.6	11.4	10.6	9.7	13.8	13.4	▲ 0.4

Source: Forestry Agency "Wood Demand and Supply Chart"

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

2: "Self-sufficiency rate(%)" = "Domestc Wood Supply" / "Total Wood Supply" ×100

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

4: Figures in parenthes refer to the volume of pulp and chips from saw mill residue or construction waste, and the volume is included in that of sawnwood or plywood or others. So it isn't included in total and subtotal.

5: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

14. Wood Supply by Country (in log equivalent)

(1,000m^3, %)

			1990	1995	2000	2005	2006	2007	2008	2009
Imported wood	North America	Subtotal	(35.0) 38,862	(34.2) 38,261	(28.9) 28,700	(18.8) 16,129	(19.0) 16,501	(17.3) 14,221	(17.9) 13,948	(18.2) 11,493
		U.S.	27,479	23,273	14,460	6,844	6,747	6,318	6,291	5,163
		Canada	11,383	14,987	14,240	9,285	9,754	7,904	7,657	6,330
	Southeast Asia	Subtotal	(18.4) 20,475	(14.7) 16,418	(13.7) 13,569	(12.2) 10,511	(12.2) 10,606	(10.3) 8,517	(9.8) 7,632	(9.6) 6,041
		Malaysia	13,389	7,601	6,690	5,888	6,590	5,285	4,959	3,755
		Indonesia	5,618	6,334	5,858	4,137	3,556	2,777	2,419	2,079
		Others	1,468	2,482	1,021	486	460	455	253	207
	Russia		(6.0) 6,661	(6.4) 7,131	(7.5) 7,429	(8.6) 7,411	(8.9) 7,705	(8.1) 6,712	(4.9) 3,795	(3.9) 2,449
	Europe		(0.5) 606	(2.2) 2,411	(4.7) 4,675	(6.9) 5,937	(7.5) 6,480	(6.9) 5,668	(5.5) 4,324	(6.9) 4,391
	Others	New Zealand	(3.0) 3,286	(3.8) 4,263	(4.4) 4,374	(3.4) 2,878	(3.0) 2,644	(3.5) 2,851	(3.8) 2,975	(3.3) 2,086
		Chile	(3.2) 3,553	(4.7) 5,311	(3.8) 3,795	(4.6) 3,952	(4.6) 4,010	(5.5) 4,498	(6.5) 5,049	(6.9) 4,389
		Australia	(4.4) 4,889	(6.6) 7,428	(8.7) 8,604	(10.2) 8,729	(10.3) 8,908	(12.1) 9,933	(12.8) 9,986	(10.6) 6,674
		China	(0.6) 617	(1.8) 2,061	(2.5) 2,445	(3.0) 2,544	(3.3) 2,897	(2.6) 2,121	(2.8) 2,156	(2.6) 1,647
		Others	(2.6) 2,844	(5.1) 5,721	(7.7) 7,651	(12.3) 10,591	(10.9) 9,422	(11.2) 9,215	(12.0) 9,370	(10.2) 6,451
	Subtotal		(73.6) 81,793	(79.5) 89,006	(81.8) 81,241	(80.0) 68,681	(79.7) 69,174	(77.4) 63,735	(76.0) 59,234	(72.2) 45,622
Domestic wood			(26.4) 29,369	(20.5) 22,916	(18.2) 18,022	(20.0) 17,176	(20.3) 17,617	(22.6) 18,626	(24.0) 18,731	(27.8) 17,587
Total			(100.0) 111,162	(100.0) 111,922	(100.0) 99,263	(100.0) 85,857	(100.0) 86,791	(100.0) 82,361	(100.0) 77,965	(100.0) 63,210

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

Note 1: FIgures refer to sum of domesic/imported roundwood and imported products (sawnwood, plywood, and pulp and chips) in log 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 parenthes refer to the parcentage of total volume.

5: Figures for the total may not agree with the sum of the each item due to the rounding-off in calculation.

15. Number of Mills/Factories and Production Volumes

		Unit	1990	1995	2000	2005	2006	2007	2008	2009
Sawnwood	Number of sawmills	plants	16,811	14,565	11,692	9,011	8,482	7,905	7,378	6,865
	Sawnwood shipments	1,000m^3	30,012	24,766	17,231	12,825	12,554	11,632	10,884	9,291
Plywood	Number of plywood mills	plants	522	455	354	271	263	248	233	208
	Inputs for plywood production	1,000m^3	9,839	7,321	5,401	4,636	5,183	5,227	3,986	3,107
	Common plywood production	1,000m^3			3,218	3,212	3,314	3,073	2,586	2,287
		(1,000m^2)	997,693	655,799						
	Special plywood production	1,000m^3			1,534	1,037	1,102	924	825	636
		(1,000m^2)	372,326	340,687						
Laminated wood	Number of laminated wood factories	plants	274	293	281	259	234	225	199	187
	Laminated wood production	1,000m^3	450	582	892	1,512	1,675	1,346	1,293	1,249
Wood chips	Number of wood chip mills	plants	4,494	3,535	2,657	2,040	1,971	1,857	1,744	1,663
	Wood chip production	1,000tons				6,005	5,899	5,894	5,797	5,129
		(1,000m^3)	16,640	11,226	10,851					

Source: MAFF "Wood demand and supply report", "Timber Statistic", Japan Laminated Wood Products Association

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

16. Number of Sawmills and Sawmill Employees

	1990	1995	2000	2005	2006	2007	2008	2009
Number of saw mills	16,811	14,565	11,692	9,011	8,482	7,905	7,378	6,865
-22.5kW	2,106	1,394	1,137	899	862	823	790	799
22.5-37.5	3,791	3,317	2,635	1,919	1,814	1,660	1,501	1,413
37.5-75.0	6,203	5,472	4,406	3,371	3,111	2,861	2,628	2,309
75.0-150.0	2,853	2,596	1,991	1,552	1,461	1,372	1,309	1,241
150.0-300.0	1,325	1,233	980	782	754	706	681	649
300.0kW-	533	553	543	488	480	483	469	454
Number of saw mill employees	124,195	104,197	73,625	49,159	45,389	42,127	38,260	34,970

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

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

Full text (in Japanese) of the “Annual Report on Forest and Forestry for FY2010” is available on the website of the Forestry Agency:

http://www.rinya.maff.go.jp/j/kikaku/hakusyo/22hakusho/zenbun.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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