

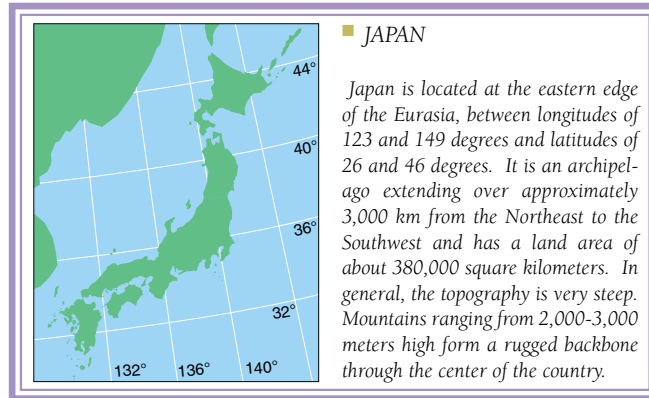
FORESTRY IN JAPAN



SEVEN
ITEMS
INTRODUCING
JAPANESE FORESTS
AND
FORESTRY

1. FOREST RESOURCES

2/3 OF JAPAN IS COVERED CREATING A LAND OF G



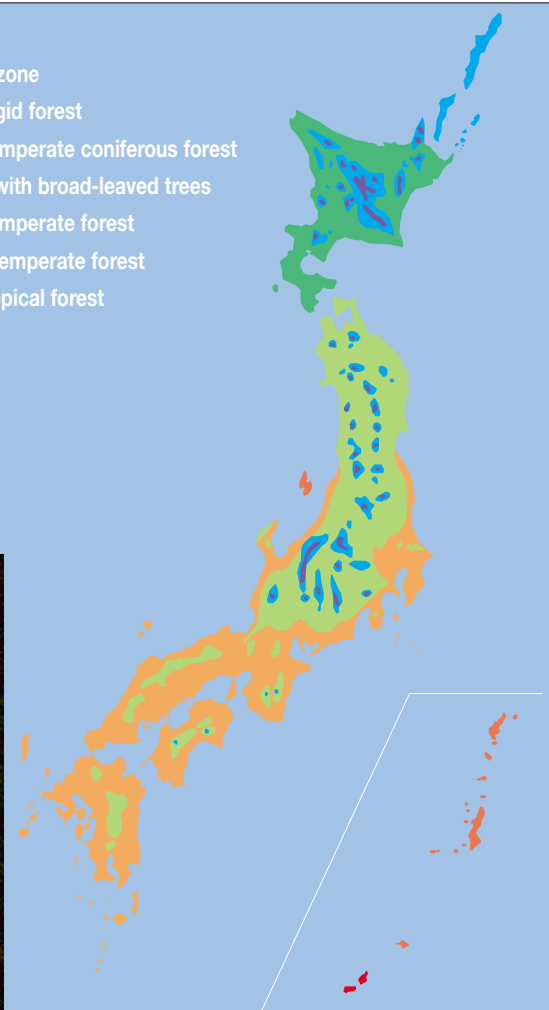
1. Variety of Forests Range from Sub-tropical Forests to Alpine Forests.

Japan has a wet monsoon climate and experiences distinct seasonal changes between the four seasons of spring, summer, autumn and winter. Also, meteorological conditions vary because of the latitudinal difference, dividing the forests into six types. Moreover, since high mountains range through the center of the country, it is possible to find vertical variation in forest types even in areas at the same latitude. Thus the forests are extremely rich in variation.



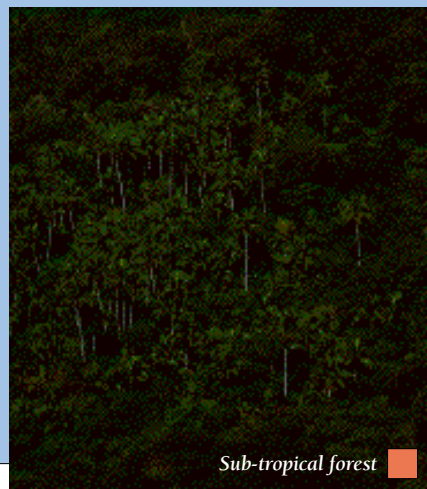
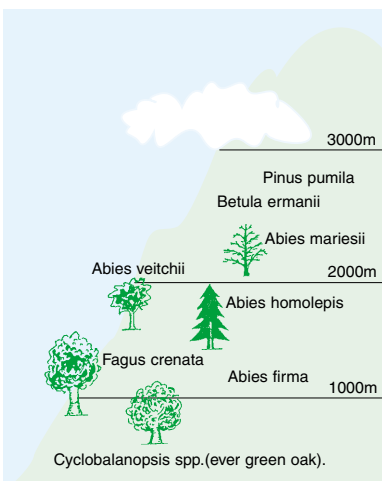
The Distribution of Japan's Forests

- Alpine zone
- Sub-frigid forest
- Cool temperate coniferous forest mixed with broad-leaved trees
- Cool temperate forest
- Warm temperate forest
- Sub-tropical forest



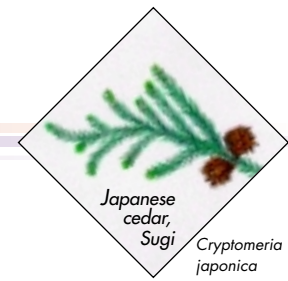
Effects of Altitude on Vegetation

The example of Norikuradake mountain (3,026m)



WITH FORESTS

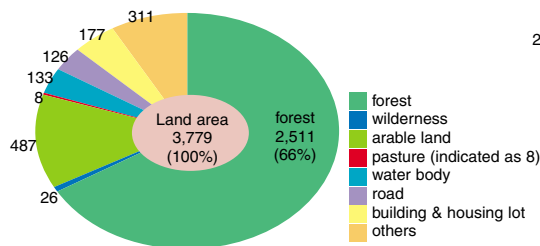
REENERY.



2. $\frac{2}{3}$ of the Land is Covered with Forests of which 41% Consists of Plantations.

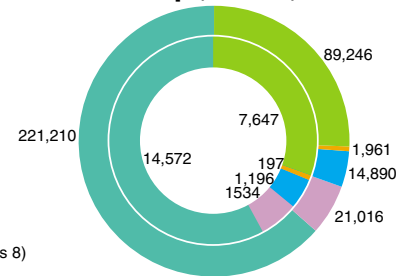
Approximately 10 million hectares of plantations have been established since the end of World War II for the rehabilitation of degraded land and the expansion of the timber industry. Felling is restricted in both plantation and natural forests wherever these fill a crucial role in protection of public benefits and services.

■ Current land use in Japan (Total: 3779. Unit: 10,000ha)



Note: The area of forest is not same as one in the next graph due to the difference of definition of forest.
Source: Land White Paper 2000. Ministry of Land and Transportation

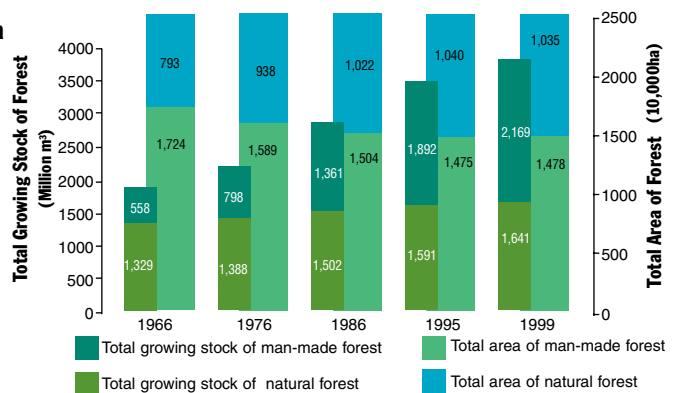
■ Forest areas classified according to ownership (March 1995)



Note: Inside circular is area (unit: 1,000ha) Outside circular is Growing stock (unit: 1,000m³)
Source: The Basic Plan for Forest Resources

Approximately 70% of plantations are less than 40 years old and therefore need sustained nurturing.

■ Transition of forest area and growing stock



Source: Forestry Statistic



Cool temperate forest

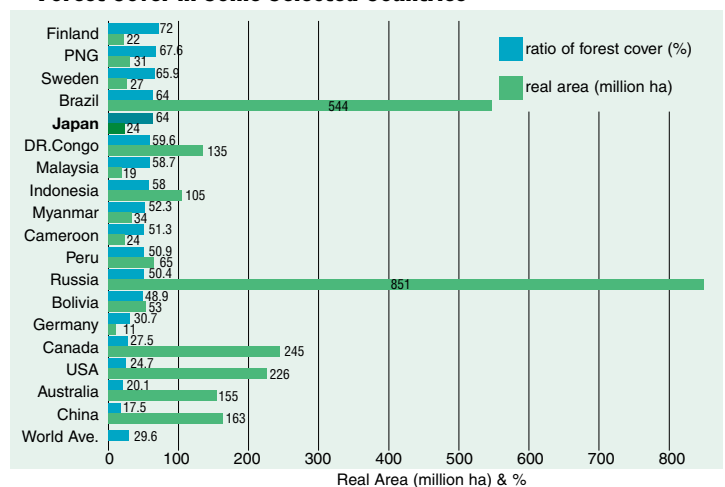


Warm temperate forest

3. In terms of land area, Japan is one of the densely-forested countries in the world. However, due to a high population, forest area per capita is relatively low.

Among temperate countries, only Finland and Sweden surpass Japan in terms of ratio of forest cover. But because of its large population, the forest area per capita is a mere 0.2 hectare or about a fourth of the global average.

■ Forest Cover in Some Selected Countries



Source: FAO Production Yearbook

THE PUBLIC FUNCTIONS INCREASINGLY IMPORTA

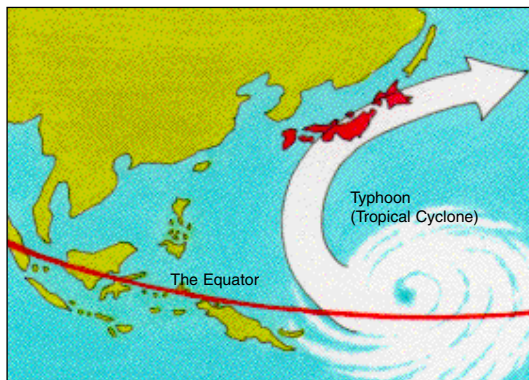
2. THE PUBLIC BENEFIT OF FORESTS

1.

Japan is exposed to earthquakes, typhoons and blizzards. Forests perform an indispensable role in safeguarding human life, property and soil against these natural disasters.

At an average, 1,700mm per annum, rainfall in Japan is two times the global average. The normal rainy season occurs from June to July, while typhoon risk is greatest in September. Mountain ranges comprising the central backbone of the country occupy 70% of the land area. Downstream run-off from this rugged terrain leads to frequent floods and landslides. This condition is further exacerbated by damage from volcanoes. Japan has 83 volcanoes, accounting for 10% of all active volcanoes in the world.

■ Typhoon Routes



An average of 10 typhoons per year strike Japan which lies directly in the path of these violent tropical storms originating near the equator. The intense rainfall from typhoons causes enormous damage to life, homes and public infrastructure. For instance, a record of 5,000 lives were lost during a typhoon which struck Japan in 1959.



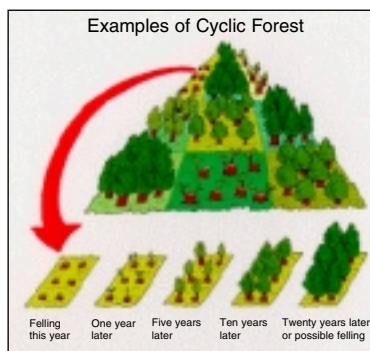
■ The Structure of the Earth's Crust in the Japan Region

Japan is said to have been created as a result of orogenic movement and volcanic activity occurring repeatedly over hundreds of millions of years. The country is located where the ocean plates dive under the continental plates, often resulting in violent movements of the earth's crust. From 10 to 50 earthquakes each year are intense enough to be felt by the people. In 1995, Japan was hit by an enormous earthquake in which approximately 6,000 people lost their lives.

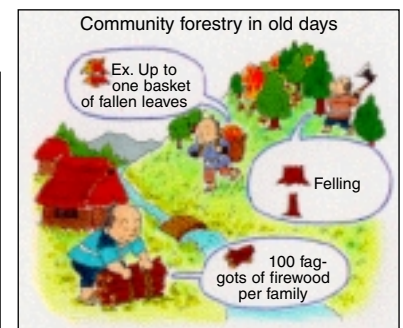
2. *Japan has preserved its land while utilizing the forests effectively for decades.*

Living under conditions of steep topography, high rainfall and frequent earthquakes, the people of Japan have long ago developed a keen appreciation of the direct role played by forests in mitigating natural disaster. Protection of upstream forests receives very high priority, especially amongst farmers dependent on irrigation water and plant nutrient outflows of healthy forest ecosystems. Realizing the crucial importance of forests, management systems have evolved that are consistent with the concept of sustained yield, striking a healthy balance between forest extraction and the capacity to regenerate both goods and services.

■ The Concept of Sustained Yields



Community forestry.....Villagers cooperated to utilize their forests within sustainable limits.



Cyclic forest.....For example, if 20 year old trees are harvested as fuel wood, only one twentieth of the forest land area would be cut in one year so the forest could be utilized with a 20 year harvest cycle.

OF FORESTS ARE BECOMING



NT.

3. *Enactment of the Forest Law about 100 years ago strengthened the legal framework for systematic preservation and tending of forests to protect the livelihood of the people.*



The history of organized initiatives to conserve forests dates back to the beginning of the Edo Era (1600's) with the designation of specific forest areas for water conservation and sand stabilization. Official orders were issued placing restrictions on felling and exploitation in order to prevent forest degradation. The struggle to conserve forests was sustained through the centuries and eventually gave birth to the Forest Law enacted in 1897 establishing a nationwide forest protection system.

Seventeen (17) public interest criteria serve as the basis for establishment of protection forests.

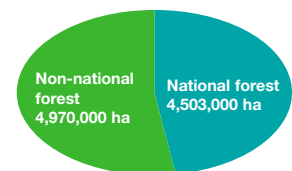
■ Various protection forests are safeguarding the people's livelihood.

The term "protection forests" refers to areas specifically set aside by the Ministry of Agriculture, Forestry and Fisheries or by prefectural governments to conserve water and wildlife, prevent soil erosion and landslides, and protect the living environment. Infringement of the rules governing protection forests, such as prohibitions against felling, are punishable under the law which is vigorously enforced. Concurrently, tax exemptions, guarantees against loss due to freezing of timber assets and other incentives are provided to promote forest conservation.

■ Types of Protection Forest

Conservation of water resource	Fog break
Control of erosion and sedimentation	Control of avalanche
Prevention against land collapse	Prevention against falling rocks
Control of shifting sand	Fire break
Wind break	Conservation of fisheries resource
Flood control	Contribution to navigation
Prevention against tidal damage	Contribution to public health
Drought control	Contribution to scenic beauty
Snow break	

■ Total Area of Protection Forest



Source: Forestry White Paper 2000

■ Implementation of soil conservation work has been intensified, particularly in sites where some degraded land or mountain streams have the potential for causing disaster.

Construction of check dams and hillside work are the principal soil conservation activities.

Tree planting, combined with appropriate construction measures, are being carried out for ecological restoration and also to stimulate awareness and interest in the conservation of forests. The forests established as part of this process are managed as protection forests.

Check dams - Structures are built to prevent the collapse of slopes, especially adjacent to mountain streams and where the dangers of avalanche and disastrous rocks or mud slides are prevalent.

Hillside work - Appropriate structures are built to conserve soil, thus supporting complimentary reforestation and helping ensure successful establishment of tree cover, while concurrently reducing the risk of slides and related disasters.

4. *Various activities and systems have emerged to bond people with forests.*

Increasingly, the largely urban Japanese population is perceiving forests as a repository of intangible values, as well as a refuge where one may experience relaxation, the opportunity to breathe fresh, commune with nature and interact with villagers who preserve cherished traditions. There is a convergence of concern over personal health and health of the ecosystem.

■ People seek to enrich their lives by interacting with nature Efforts to create forests are spreading.



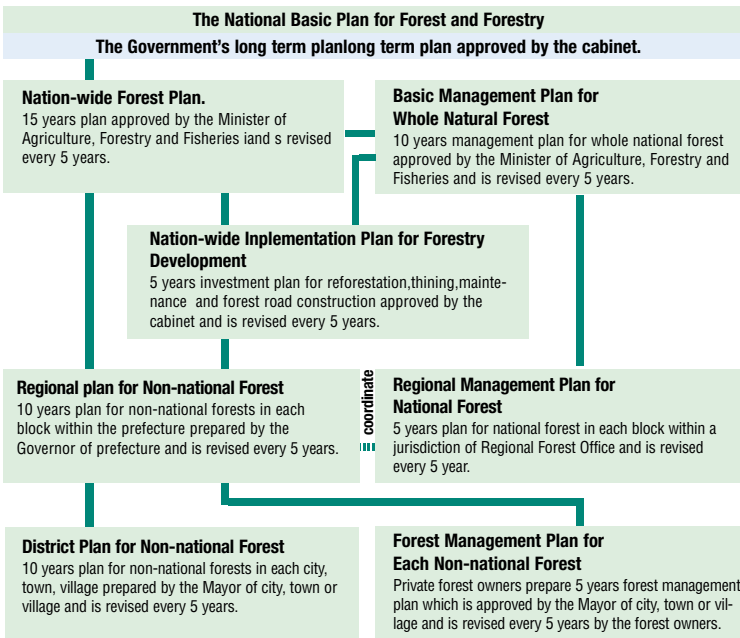
3. FOREST MANAGEMENT SYSTEM

TO ENSURE SUSTAINABILITY DIV ARE BEING APPLIED, BASED ON S

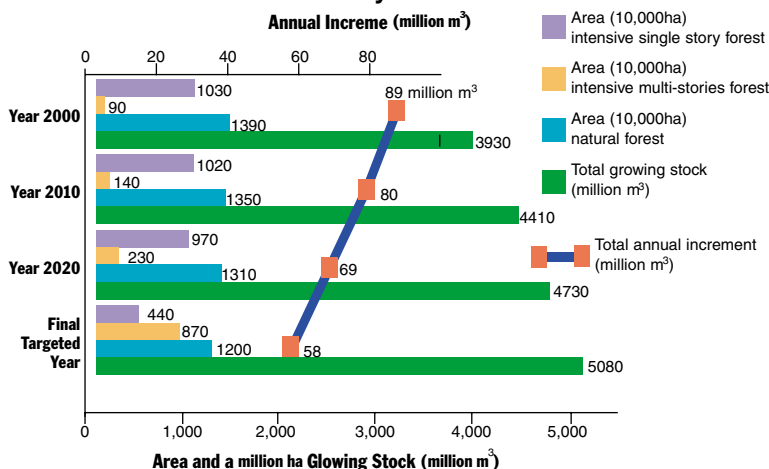
1. *The Forest Planning System of Japan, creates a framework for forest development and management, with- in the context of long-term visions.*

Forests grow very slowly and if degradation occurs, restoration is a difficult, time-consuming process. Thus, a long-term view and sustained commitment are essential. The Basic Plan of Forest Resources establishes long-term targets at the macro-level which include both directions and technological guidelines. In addition, plans are formulated by national, prefectural and local authorities, and private forest owners.

■ The Forest Planning System



■ Basic Plan for Forest and Forestry

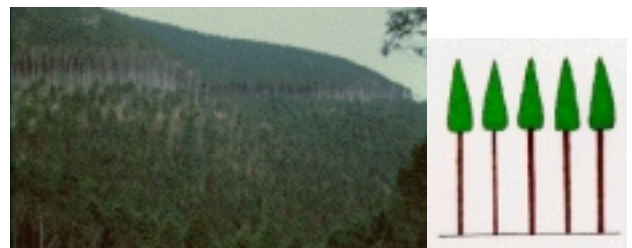


2. *Various kinds of forest management systems are being practiced consistent with forest utilization objectives.*

■ Intensively managed forest

Single story forest

Intensive management is applied in both natural and man-made forests. The final result is a stand of trees with relatively uniform height and spacing. Harvesting is done in small clear-cut patches surrounded by intact forest cover.

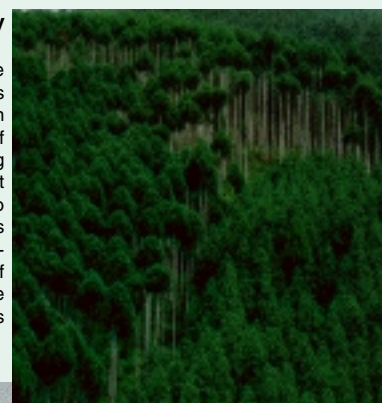


■ Distinctive forestries in several places in Japan

Distinctive forestries have developed, making certain sites famous for their locally-unique features. Because of the many uses for wood in the Japanese culture, the development of

Kitayama Forestry

(Kyoto prefecture)...cedar... planted specifically to produce decorative poles. 5,000 trees are planted per hectare, with an equivalent harvesting target of 5,000 trees. Heavy pruning results in logs having almost uniform diameter from top to bottom. The poles are used as columns to decorate the corners of rooms. Production of these high-quality decorative poles has been practiced in this area since ancient times.



Forestry in Mimikawa Watershed

(Miyazaki prefecture)...cedar... warm moist conditions result in fast-growth and early maturity. Forests in this watershed produce low-priced timber that is matched with the homogeneity and large volume processing approach pursued in Miyazaki. Downstream linkage is provided through an integrated timber supply organization covering everything from logging to milling, distribution and sales.



ERSE FOREST MANAGEMENT SYSTEMS

SYSTEMATIC FOREST PLANNING.



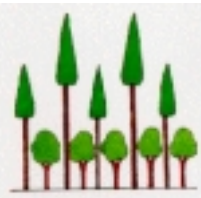
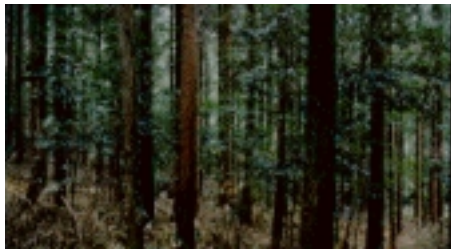
Reforestation and forest maintenance have been part of the Japanese culture for over 400 years, and in some areas for as long as 600 years. Ten (10) million hectares of plantations established after World War II are now approaching maturity.

Multi-storey forest management places emphasis on a low-impact harvest system which helps ensure that mountainsides are not denuded. Rational management of natural forests, combined with diverse systems, provide off-site environmental benefits while still seeking to maintain financial viability.

Multi-storey forest

Forests are selectively harvested and result in the development of mixed stands of trees having different heights and more than one species, consistent with the "Intensive Management System for Multi-storey Forests".

"Intensive Management" is a generic term for operations such as planting, enrichment, pruning, weeding, liberation cutting and thinning. Plantations consist primarily of fast-growing species with straight trunks producing high-value timber such as cedar and cypress. These are often inter-planted with other species such as pine and larch.



Natural forest

The Natural Forest Management System aims at preserving the inherent vitality and bio-diversity of indigenous species, primarily to achieve environmental objectives. For instance, felling is controlled in the interests of land conservation, protecting the natural environment and species composition. (In addition to numerous hardwood species such as beech and oaks, the Natural Forest Management System maintains and supplements existing conifers such as pine and fir.)



The Forestry Basic Law and the Forest law

Various laws have been enacted in relation to forestry up to the present time. However the most important among these are the Forestry Basic Laws, which clarified the fundamental policy objectives in relation to the development of forestry, and the Forest Law which became the law constituting the core of forestry legislation. Also the forest planning system is based on these laws.

technical know-how on proper use has flourished. Certain areas have become reputed for high-value timber having special qualities.

Hokkaido's natural forest management system Careful selective cutting has developed vigorous, healthy mixed species forests containing both hardwoods and conifers such as spruce, fir, oak, ash, etc. Methods are modeled on the Boreal forests with management inputs following local adaptations of a shelterwood system.



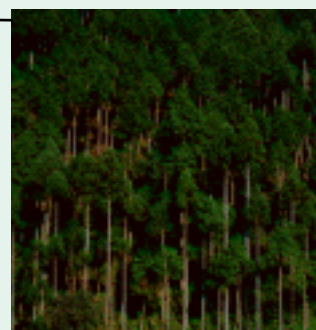
Aomori Thujopsis Forest management system

Multi-storey forests have been developed through application of a selective cutting system for Thujopsis which is one of the most durable conifers originating in Japan. Sustainable management dates back to early times. The area is famous for the natural beauty of its "Femelwald" forest.



Yoshino Forestry

(Nara prefecture, Mie prefecture). . .cedar, cypress. . .A dense spacing with as many as 10,000 trees planted per hectare has kept growth in check. This forest is producing high quality timber with narrow age rings.



Imasu Forestry

(Gifu prefecture)...cedar, cypress...Harvesting is done when girths attain a prescribed size, followed immediately by replanting. There is no clear-cutting. The resulting stand contains trees ranging from 1 to 100 years. Good quality timber has been produced since 200 years ago.

4.
THE CULTURE
OF WOOD AND
THE
UTILIZATION OF
TIMBER

IN JAPAN THE EFFICIENT HAS IMPORTANT CULTURE

1. *Horyuji, the world's oldest building constructed of wood is still in existence.*



During the Asuka and Nara periods (607-793) when the foundations of the Japanese nation were first solidified, the development of techniques for the efficient use of wood flourished. Many large wooden buildings were constructed one after another, with Horyuji providing an outstanding example. This venerable structure was built with timber from trees estimated to be 1,000 years old. Furthermore, no nails or iron fittings were used in construction.

■ **Horyuji - the oldest wooden building existing in the world.**

Horyuji, built approximately 1,300 years ago, still exists today in Nara.

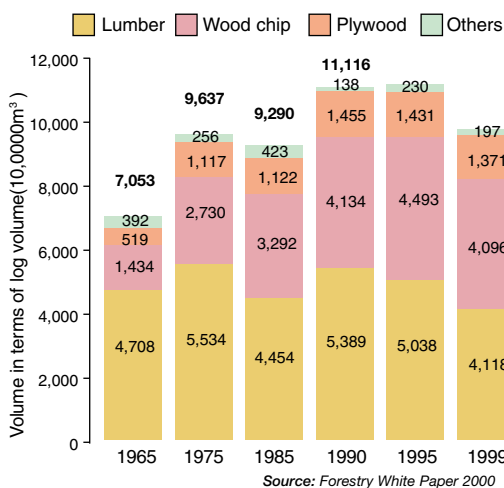
2. *The construction combine the best*

It can be said that traditional Japanese wooden houses are built following a traditional construction method called the "pole and beam system". These methods use wood to build the skeleton structure of columns, beams, girders, bracing and so on. About 1,000 small pieces are used just to assemble the frame, and the most suitable quality timber is chosen for each part. Numerous openings are incorporated in the design to accommodate the high humidity of the Japanese climate.



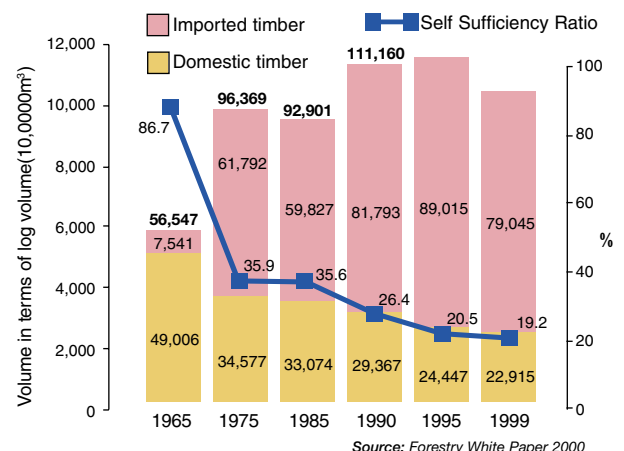
3. *The annual timber demand in Japan is approximately 110 million cubic meters of which 78% is imported timber.*

■ **Trend of Timber Demand**



The timber demand is approximately 110 million cubic meters per year or about one cubic meter per capita, which has been relatively stable in recent years. About 60% of this is lumber and plywood to be used in construction. In recent years the demand for lumber is decreasing while the demand for plywood and wood chip are increasing.

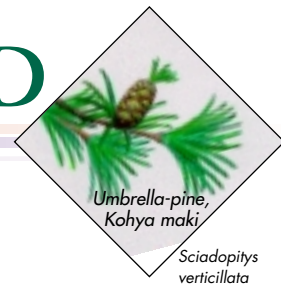
■ **Trend of Timber Supply**



Plantations established after World War II are still young and Japan also suffers from a scarcity of hardwood resources. Thus imports provide 78% of the huge volume of wood used each year. About 72% of imports consist of processed timber.

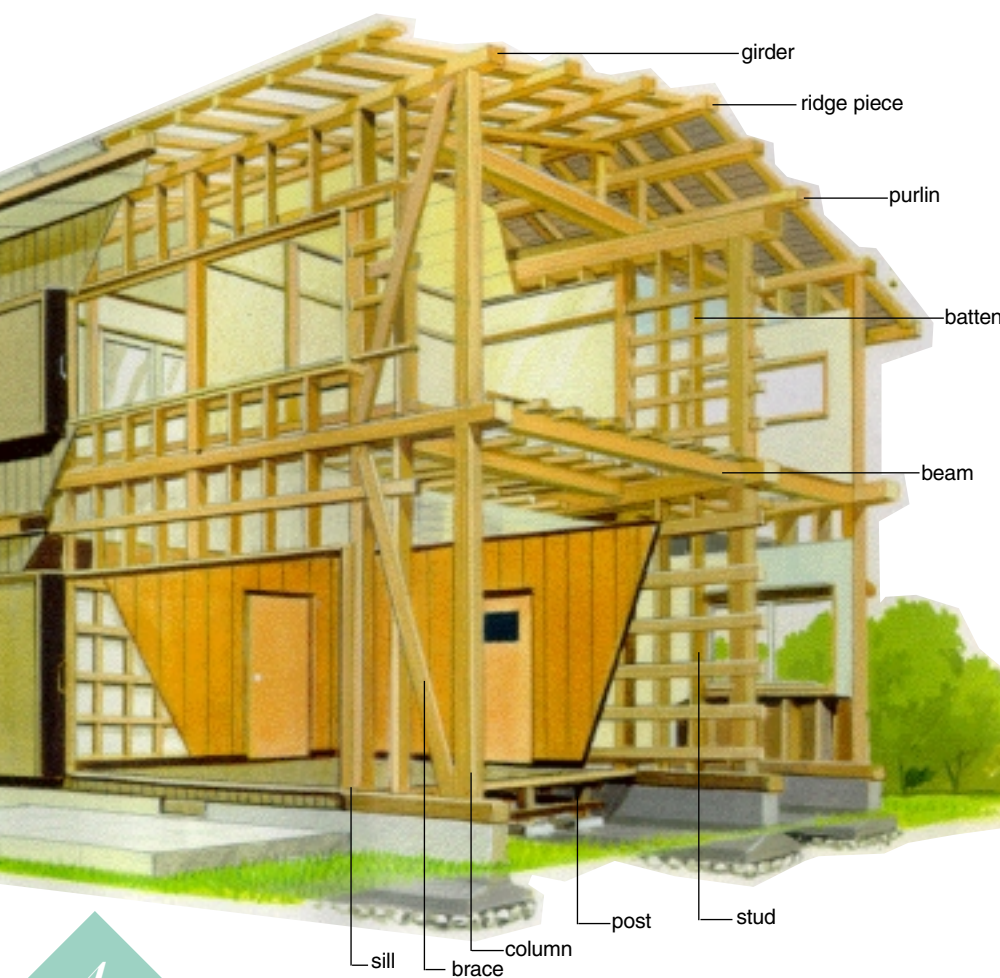
AND CAREFUL USE OF WOOD

AL DIMENSIONS.



of traditional Japanese wooden houses utilizes techniques which use of the strength and beauty of wood.

Techniques which make the best use of timber have been put together in traditional wooden houses. The traditional home construction method



■ Interiors of Japanese rooms



Wood used for ceilings. . . Timber whose texture and color match is beautiful, includes cedar, cypress, paulownia, cherry, Zelkova.

Wood used for joinery. . . Fir, cedar, cypress, Thujopsis, spruce, cherry, oak, etc.

Exposed poles and studs is a special feature of Japanese homes. This responds to a keen appreciation of the beauty and sense of peace conveyed by the texture, natural color and placement of wood poles and studs on wall surfaces.

Wood used for sills. . . Timber which doesn't perish easily, includes cypress, Thujopsis, Sciadopitys, chestnut

Wood used for poles. . . Timber which is strong and has a fine wood texture, includes cypress, cedar, spruce, Thujopsis, hemlock

4. Reverence for nature, global environmental issues and health concerns are encouraging a renewed interest in the merits of wood.



Even the buildings of elementary schools which were mostly constructed of concrete, are now increasingly being built out of timber.

Plastic, concrete, iron and other artificial materials have become a dominant feature of construction in Japan over the last 30 to 40 years. In recent times however, a growing concern over the use of finite resources is propelling a trend towards greater reliance on wood because it is a renewable resource. Planting and use of wood to satisfy the basic human need for shelter also has important environmental dimensions such as the fixation of CO₂ to mitigate global warming, while concurrently helping ensure the vitality of natural forces. For instance, the sense of calmness that pervades when one is surrounded by natural materials such as wood has a profound influence on emotions and psychological well-being including mental health. Wood's practical advantages of ability to adjust to changes in humidity, moderate elasticity, insulation and sterilization properties, combine with the intangible but important benefits one gains by simply touching a smooth wooden surface, and deriving pleasure from the beauty of its grain and color.

5. NATIONAL FORESTS

MANAGEMENT OF THE NATIONAL FORESTS PUBLIC DEMANDS FOR INTENSIFICATION

1. The national forest is managed within the context of a fundamental policy based on the classification of functions derived from the forest and a watershed control system.

Classification of national forest is intended to clearly define and prioritize functional objectives in three broad categories: (1) Coexisting with forest and people; (2) Conservation of soil and water; (3) Sustainable utilization of forest resources. In the national forest which has function of first and second one (1 and 2), the management system is promoted under the consideration of public interest. In the national forest which has the last function (3) is managed based on the principle of effective timber production without serious negative impact on environments.



Land conservation forests

Summary of classification by functions of national forest

Classification by Functions		Area million ha	principal	Management method
Conservation of water resources	Utilization for public interests			
	Coexisting with forest and people	205 27%	Preservation of natural environments; Maintenance of the ecosystem; Protection of flora and fauna; Ensuring and promoting the aesthetic and recreational benefits of forest; Raising environmental awareness; Improving public health; Preserving cultural and spiritual values;	Sustained and vigorous protection; Pre-servation of natural conditions; Care and tending of wildlife and enrichment planting if necessary; Landscape improvement; Establishment of recreational facilities; Encouraging eco-tourism and events ; Disseminating information about natural resources;
	Conservation of soil and water	410 54%	Disaster prevention in hilly areas; Water conservation; Protecting against degradation of the living environment;	Development of multi-story forest and mixed species ; Establishment of wind-breaks and vegetative or structural erosion control measurers ;
	Sustainable utilization of forest resources	144 19%	Emphasizing effective timber production without serious negative impact on environments;	Identification of appropriate areas for establishment of timber production forests; Improvement of silvicultural systems; Appropriate research and development; Monitoring timber supply and demand;

2. National forest management emphasizes the provision of public services such as land conservation, water conservation, and the preservation of natural environments.

Implementation of control and management in national preserved forest which maintain primeval natural environments; the development of "Recreational forests" which provide opportunities for people to learn about natural forests; and so on.

The Preserved Forests (March 2000)

Classification	Objective	Number	Area (ha)
1. Protected areas for forest ecosystems	Protection of the ecosystems of forests, wildlife and genetic resources.	26	320
2. Forests for the conservation of genetic resources.	Conservation of genetic resources of all flora and fauna comprising the forest ecosystem	10	29
3. Forest for the preservation of the genetic resources of tree species.	Protection of gene pool of timbers species and endangered species	331	9
4. Forests for the protection of plant colonies	Protection of rare plants and trees in high mountains that are valuable for scientific research	354	119
5. Forests for the protection of specified creature habitats	Protection of the habitats and breeding areas of rare and endangered fauna	31	16
6. Forests for the protection of specified geographical features etc.	Protection against erosion of unique landforms and geological features such as types of rock, joint of rock, spring areas and glaciated places.	33	30
7. Forests for the local culture	Protection of local forests that have cultural, spiritual and symbolic significance.	32	2
Total		817	526

Source: Forestry White Paper 2000

NATIONAL FOREST RESPONDS TO THE MODERNIZATION AND DIVERSIFICATION.



3. *The systematic and sustainable supply of forest products*

Measures to ensure the systematic and sustainable supply of forest products go hand-in-hand with long-term planning focusing on market demand and response to needs of consumers.

- Examples on ways to reconcile timber supply and market-driven demand based on consumer needs
 - Timber extraction in dimensions that respond to market trends
 - Promoting systems which ensure stable supplies of timber
- Examples on initiatives to illustrate effective application of various forest products
 - Holding "Forest Uniqueness Expo's", marketing of sawmill waste, roots, stumps and dead standing timber in the forests
 - Marketing a soft drink manufactured from the sap of trees such as cherry, and bark of the Eye drop tree (Acer sp.)
- Examples on ways to expand markets
 - Establishment of dispersed marketing outlets for "Dried Logs".
 - Promoting the use of timber for construction of public buildings and interior decoration of homes



Space utilization forests



■ Types of integrated operations for the Coexisting Forest



Forest improvement for recreational purposes
 Promotion of the "Human Green Plan", an integrated approach to utilization of forest space
 Organization of "nature encounter" visits
 Widespread dissemination of forestry information to school children
 Providing funds to support promotion and improvement of forest environments in recreation forests
 Development of models for interaction with forests, such as Family Forest Gardens
 Encouragement of forest fraternities whose members imbibe principles of forest conservation
 Guidance in the wise use of forest space

4. *Contributing to the development of rural and upland communities.*

The provision of employment opportunities in public work projects; supplying timber products for local people and the rental of national forest land for schools, roads, dams and other public uses.

■ Local Use of National Forest (March 2000)

Type	Number (100's)	Area (1000ha)	Proportion in total National forest (%)
Rental land	555	79	1
Profit sharing plantation	219	132	2
Commonly used forest	15	1,517	20
Total	789	1,728	23

Note: Rental land is for agriculture pasture, roads, facilities of electricity and communication etc.

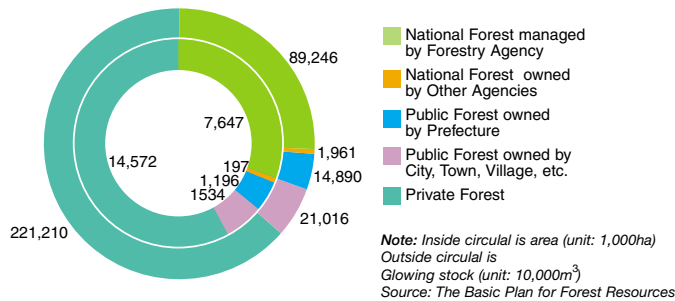
6. FOREST OWNERSHIP AND THE MANAGEMENT SITUATION

OVERVIEW AND CHALLENGE

1. Japan's forests can be classified into national forests owned by the government, and non-national forests owned by private and public bodies.

The present system of forest ownership was established during the Meiji period (about 100 years ago). It classifies into national ownership and non-national ownership. The national government is responsible for management of national forests. On the other hand, non-national forests are managed by prefectural and local government authorities, private citizens, companies and other non-government entities.

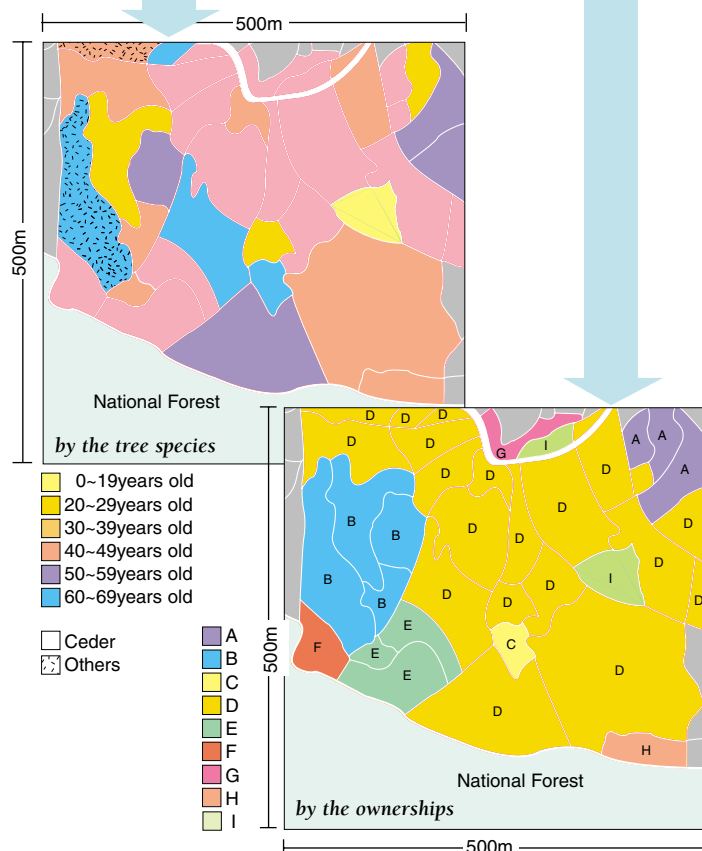
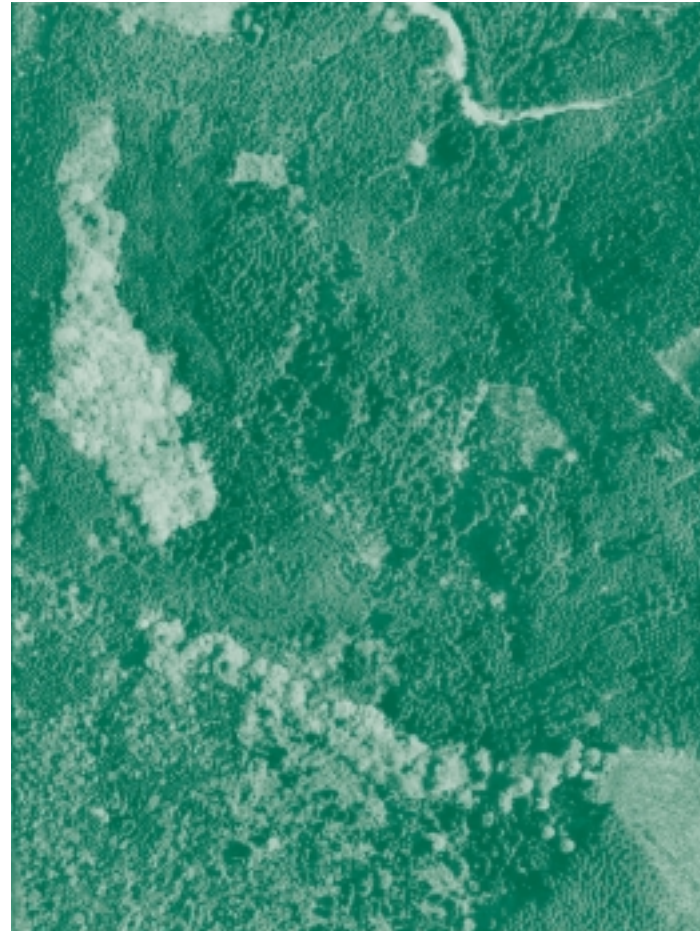
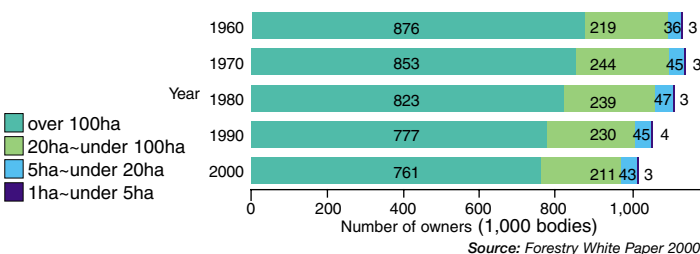
Forest Resources by Ownership



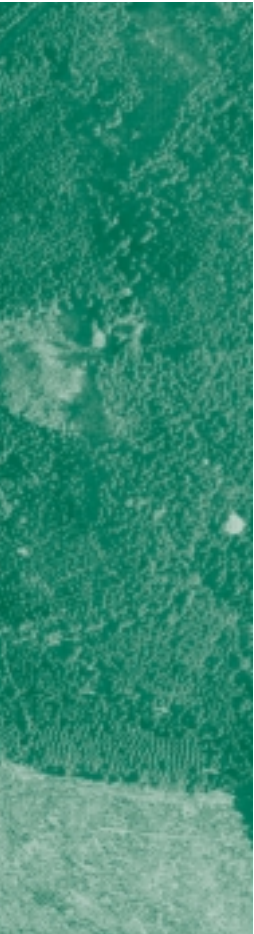
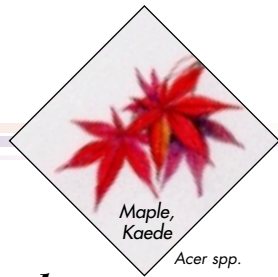
2. Small-scale individual forest owners comprise the majority of non-national forest proprietor.

There are approximately 2.9 million private owners of non-national forests. They are widely dispersed throughout Japan and typically manage small-scale operations covering less than 5 ha. However, factors such as steep slopes and complex topography make it difficult for the owners to achieve high productivity and rational use of their forests. Furthermore, compared with other industries, income from forestry is relatively low and not sufficient to provide basic financial needs. Thus large number of individual forest owners must seek outside employment to supplement income and only devote part of their time to forest management.

Private Forest Ownership (categorized)



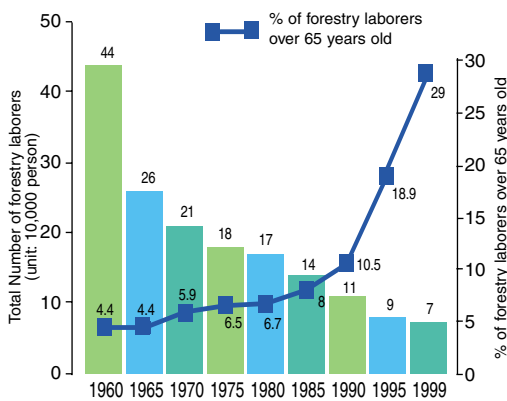
ES OF THE FORESTRY SECTOR.



The manifold forests in Japan

3. Depopulation and economic recession in upland villages are having negative impact on the maintenance and management of forests.

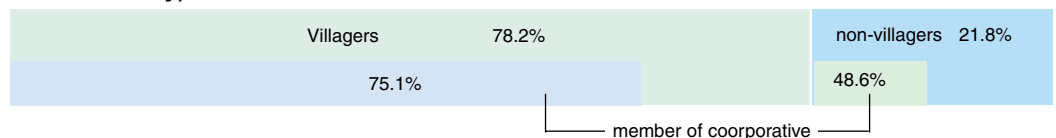
Total number of forestry laborers and aging trends



Source: Forestry White Paper 2000

Various factors pose serious dis-incentives to efficient forest management and impact negatively on profits. Higher wages in urban centers lure away young workers in the highly-productive age group who are urgently needed for plantation maintenance and timber extraction. Those left behind are primarily older-aged workers no longer in their prime. Depressed prices of timber and changes in the timber demand structure are additional problems. Consequently forest production activities have stagnated, thus further reducing economic vitality at the village level and fueling urban migration. Forest owners are responding through measures that promote collaboration and seek economy-of-scale opportunities. More than 1,500 "Forest Owners Cooperative" organizations have been established and now manage more than 70% of all non-national forests. Approximately 1,700,000 small-scale owners are members of these cooperatives which presently employ over 40,000 workers. The Forest Owners Cooperatives provide a mechanism for training, recruitment of workers and appropriate mechanization to reduce costs and improve financial viability.

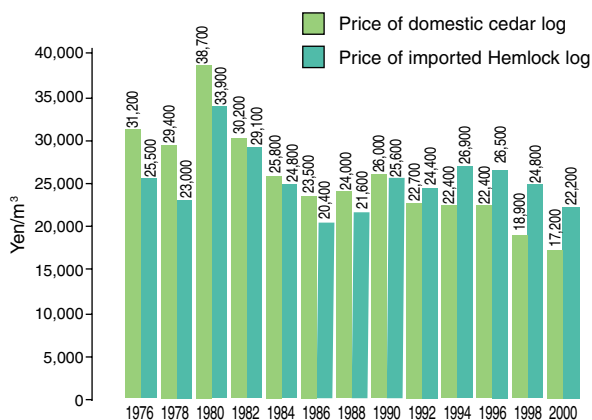
Private forests are owned by;



4. Due to declining prices of timber in recent years, domestic timber producers find it difficult to maintain profitability.

Higher wages have increased the costs of reforestation and plantation maintenance. Furthermore, the high value of the yen has encouraged importation which compete with local production. Forest products from other countries now provide most of the timber used in Japan. These factors have combined to push down prices of domestic timber and discourage investment in forestry activities.

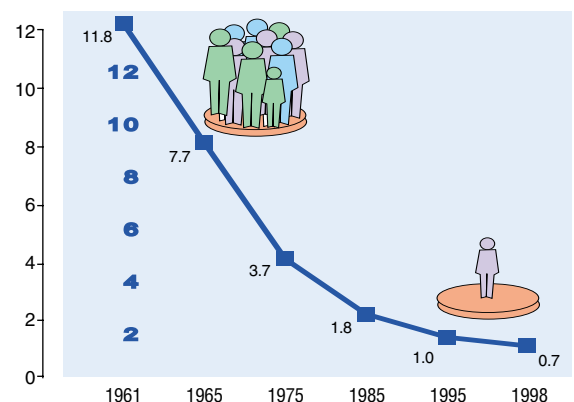
Log Prices Delivered to Mill Site (Unit: yen/m³)



* Timber price per one cubic metre delivered to millsite.

Source: Forestry Statistics 2000

Capability of Employment of Logging Laborer by Stampage Price of 1m³ Cedar tree (Unit: persons/m³)



Source: Forestry White Paper 2000

7.
INTERNATIONAL
COOPERATION

JAPAN IS COOPERATING IN CONSERVE AND DEVELOPMENT



Holding a seminar in a development study

For more than forty years, Japan has launched, financed and sustained international greening initiatives implemented by governments and non-government organizations.

Resent Japan's Cooperation with Partner Countries in Forestry Sector



Field of plantation in "The Erosion Control and Afforestation Project in Watersheds of Semi-Arid Area, Chile"

Note:

Symbol of Type:

- Project Type Technical Cooperation (by JICA)
- Demonstrative Research Project (by JICA)
- ◆ Developmental Study (survey & planning) (by JICA)
- * Grant of Fund (by MFA)
- ▲ Loan of Fund (by JBIC= former OECF)

- Argentina** ◆ The Forest Resources Management Study at Chaco
- Benin** ◆ Study on Cartography

- Inventory and Management of Classified Forest in Northern Area**
- Bolivia** ● Afforestation and Erosion Control Project in the Valley of Tarija
- Brazil** ● Brazilian Amazon Forest Research Project
- ◆ Master Plan Study on Degraded Land Restoration in the State of Para
- ◆ Development Survey of the Forest Resources
- Brunei** ◆ Development Survey of the Forest Resources
- Burkina Faso** * Improvement of Local Nurseries
- Chile** ● Watershed Conservation and Afforestation Project for Semi-Arid Zone
- China** ● Model Afforestation Project in Sichuan
- Research Project on Timber from Man-made Forest
- ◆ Study on Reforestation in Anning Watershed in Sicuan
- * Improvement of Forestation Equipment for Conservation of Water & Soil in the Upper Stream of Hanjiang River
- * Afforestation for Conservation of Middle Stream of Huang He
- Dominican Rep.** ◆ Master Plan Study on Watershed Management in the Upper Area of the Savanna Yegua Dam
- Ecuador** ◆ The Forest Resources Management Study in Baja Verapaz
- Ethiopia** ◆ Study on Forest Resources in the South Western Part
- Ghana** ◆ Study on Reserve Forest Management in Transitional Zone
- Guatemala** ◆ The Master Plan Study on Forest Management in Baja Verapaz
- Honduras** ◆ The Forest Resources Management and Development Study in Tenpassenti
- India** ▲ Afforestation Project (Social Forestry) in Aravalli Hills in Rajasthan State
- ▲ Indira Gandhi Canal Area Afforestation Project (Social Forestry) in Rajasthan State
- ▲ Gujarat Afforestation Development Project (Social Forestry) in Gujarat State
- ▲ Eastern Karnataka Afforestation Project (Social Forestry) in Karnataka State
- ▲ Tamil Nadu Afforestation Project (Social Forestry) in Tamil Nadu State
- Indonesia** ● Mangrove Information Center Project
- Biodiversity Conservation Project (Phase II)
- Forest Tree Improvement Project (Phase II)
- Development of Sustainable Mangrove Management Project
- ◆ Study on Land Rehabilitation of Semi-arid in East Nusa Tenggara
- ◆ Upland Plantation and Land Development Project at Chitaric Watershed
- ◆ Kanpar-Indragiri River Basin Development Project
- ◆ Study for Social Forestry and Agro-forestry
- ◆ Study on Development Project in the Upper Musi Watershed
- ◆ Study on Critical Land and Protection Forest Rehabilitation at Tandano Watershed
- * Rehabilitation of the Degraded National Park by Forest Fire
- * Founding of Forest Tree Improvement Centre

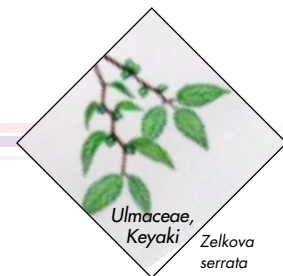


Tree Measurement (transfer of technique) in a development study

Soil survey in a development study



IN VARIOUS WAYS TO HELP THE WORLD FORESTS.



From ancient times to the present, Japan's culture has been characterized by close inter-action between people and forests not only to satisfy material needs but also driven by spiritual beliefs and cherished values. As a result, Japan has effectively established and maintained its forests, evolved and implemented appropriate soil and water conservation measures and developed efficient methods for processing and utilizing wood and other forest products. Through bilateral and multi-lateral cooperation, the Forestry Agency of Japan and the Japan International Cooperation Agency (JICA) have shared this technology with developing countries in collaborative efforts to achieve sustainable forest management. As part of its worldwide commitment in this regard, Japan is providing technical and financial assistance to follow-up activities of the Earth Summit in numerous countries across the globe, including international programs of the Food and Agriculture Organization (FAO), the International Tropical Timber Organization (ITTO) and NGOs.

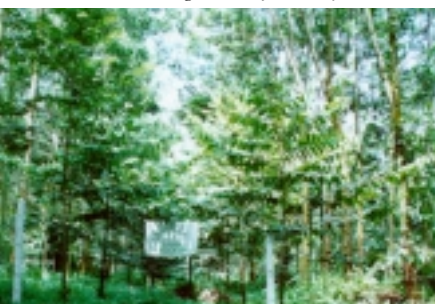


Interpretation of aerophotographs (transfer of technique) in a development study.



- * Afforestation and Improvement of Facilities
- ▲ Project for Afforestation in Citaric Water Resources Area
- Kenya** ● Social Forestry Development Project for Semi-arid Area
- * Establishment of Training Centro for Forestry and Nursery Practice
- Laos** ● Forest Conservation and Afforestation Project (Phase II)
- ◆ Study on Watershed Management Plan for Forest Conservation in Vangvieng District
- * Establishment of Reforestation Centro
- Madagascar** ◆ Feasibility Study on Watershed Management in Mantasoa and Tsiacompaniry
- Malaysia** ● Sabah Re-afforestation Technical Development and Training Project (A/C)
- Multi-storied Forest Management Project
- ◆ Master Plan Study on Forest Plantation Development in Northern Sabah
- ◆ Study on Forestry Development Plan in Northern Sabah
- ◆ Study on Forestry Development in Marak Parak in Northern Sabah
- Malawi** ◆ Master Plan Study on Sustainable Multiple-use Resources Management of the Nkhotakota Wildlife Reserve
- ◆ Master Plan Study on Watershed Rehabilitation in Middle Shire
- * Founding of Equipments for Forest Fire Control
- * Study on Sustainable Development of Forests in the Village of Sierra Juarez in Oaxaca
- Mexico** ◆ Forest Resources Management Study in Selenge Aimak
- Mongolia** ◆ Feasibility Study for the Forestry of Fire Woods and Charcoals
- Morocco** ● Community Development & Forest/Watershed Conservation Project (Phase II)
- Nepal** ◆ Master Plan Study on Forest Management for Disaster Prevention in the Northern Pacific Region
- Nicaragua** ● Canal Watershed Conservation Project
- Panama** ● Forest Research Project (Phase II F/U)
- P N G** ◆ Study on Reforestation Plan in the Eastern Region
- Paraguay** ◆ Study on the Marikina Watershed Development Project
- Philippines** ◆ The Mapping and Land Cover Assessment of Mangrove Areas Using Small Format Aerial Photo
- ◆ Master Plan Study for Watershed Management in Upper Magat and Cagayan River Basin
- ◆ Study on Forest Restoration in Romanian Plain
- Romania** ● Integrated Community Forestry Development Project
- Senegal** * Establishment of Nursery Centro in North-Eastern Zone
- Thailand** ● Reforestation and Extension Project in Northeast Thailand (Phase II)
- ◆ Feasibility Study on Mangrove Revival and Extension Project
- * Improvement of Nurseries and Reforestation in Coastal Zones
- Uruguay** ● Forest Products Testing Project
- Afforestation for Forest Tree Improvement Cooperation Project
- Vietnam** ● Afforestation Technology Development Project in Acid Sulphate Soil in Mekong Delta (F/U)
- ◆ Feasibility Study on Forest Management Plan in Central Highland
- ◆ Basic Study on the Project for Afforestation in Coastal Sandy Area in Southern Central Zone
- * Improvement of Equipments for Reforestation in Central Highland
- * Improvement of Equipments for Reforestation in North-Western Zone
- * Afforestation, Seedling Production and Improvement of Reforestation Equipments

Field of the plantation (remain two rows of *A. mangium* and plant two rows of *Shorea* spp.) in "Multi-storied Forest Management Project, Malaysia"



Besides activities abovementioned, many cooperative studies, operations and investments have been carried out by the MAFF, NGOs(e.g. JOFCA, JIFPRO, OISCA, etc.) and private enterprises in Japan for the bilateral and/or multilateral(e.g. FAO, ITTO, etc.) cooperation in the forest and forestry sector.

Note : The activities abovementioned have been carried out in mainly 1995 _ 2000.
Source : Data of JICA Yearly Report



Extension activities for participatory tree plantation in "Social Forestry Training Project, Kenya"

Main Tree Species in Japan

1.	2.	<i>Japanese name</i>	<i>Scientific name</i>	<i>English name etc.</i>
		1. SUGI	<i>Cryptomeria japonica</i>	Japanese cedar
		2. HINOKI	<i>Chamaecyparis obtusa</i>	Japanese cypress
		3. AKAMATSU	<i>Pinus densiflora</i>	red pine
		4. KARAMATSU	<i>Larix leptolepis</i>	Japanese larch
		5. EZOMATSU	<i>Picea jezoensis</i>	a kind of spruce in Hokkaido
		6. HIBA	<i>Thuja dolabrata</i>	Cupressaceae
		7. TSUGA	<i>Tsuga Sieboldii</i>	Japanese hemlock
		8. KOHYAMAKI	<i>Sciadopitys verticillata</i>	umbrella pine, Taxodiaceae
		9. URAJIROMOMI	<i>Abies homolepis</i>	a kind of fir in mountain of main island
		10. TODOMATSU	<i>Abies sachalinensis</i>	a kind of fir in Hokkaido
		11. KASHI group	<i>Quercus (=Cyclobalanopsis) spp.</i>	ever green oak
		12. NARA group	<i>Quercus spp.</i>	deciduous oak
		13. BUNA	<i>Fagus crenata</i>	Japanese beech
		14. KANBA group	<i>Betula spp.</i>	Japanese birch
		15. KUSUNOKI	<i>Cinnamomum camphora</i>	a kind of cinnamon
		16. KAEDE group	<i>Acer spp.</i>	maple group
		17. KEYAKI	<i>Zelkova serrata</i>	Ulmaceae
		18. SAKURA group	<i>Prunus spp.</i>	cherry group
		19. KURI	<i>Castanea crenata</i>	chest nut

Supervised by
FORESTRY AGENCY

Edited and Published by



**JAPAN OVERSEAS FORESTRY
CONSULTANTS ASSOCIATION**

Rinyu Building 3rd Floor,
1-7-12 Koraku, Bunkyo-ku
Tokyo, Japan

Phone. 03(5689)3435
Fax. 03(5689)3439
E-mail. jofca@mx1.alpha-web.ne.jp