

4. Transformation of Nature in Japan and Initiatives for its Restoration

4-1. Japan: A Forest-Rich Nation Buying Up Global Timber

One of the World's Most-Forested Countries

Although Japan is often seen as an urbanized, industrial powerhouse, the nation in fact boasts an extremely high level of forest coverage. Of the nation's total area of 37.79 million hectares, 25.1 million hectares or 66.4% is covered by forest, making Japan the third most-forested developed country behind only Finland and Sweden (Forestry Agency 2012). Compared with the 30% global average forest coverage rate, Japan's forest coverage is clearly extremely high.

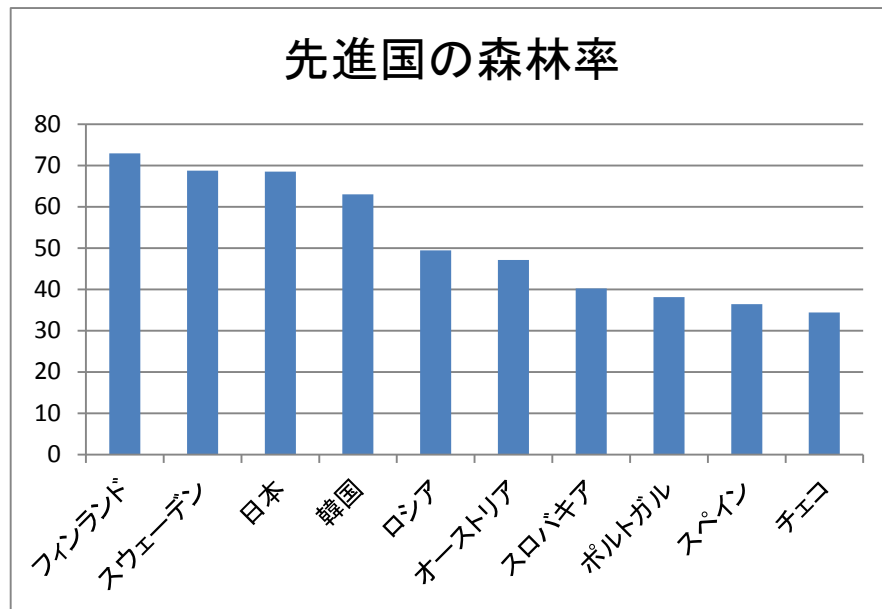


Figure 1: Forest Area Percentage among Industrialized Countries (based on FAO 2010)
(left to right) Finland, Sweden, Japan, South Korea, Russia, Australia, Slovakia, Portugal, Spain, Czech Republic

An island nation surrounded by ocean, Japan is a mountainous land with steep terrain. Coupled with abundant rain and humidity, this results in conditions conducive to forest growth almost all around the nation. Japan is a narrow country running more than 4,000 km north to south with diverse climatic conditions. To the far south is Okinawa, near Taiwan with a subtropical climate; in the north is Hokkaido, near Siberia with a subarctic climate. As a result, natural forests in Japan range from subtropical forests including mangroves, to temperate evergreen broadleaf forests, cold temperate deciduous forests, and subarctic coniferous forests. Japan is host to very diverse natural vegetation, so much so that Japan is said to be a biodiversity hot spot. However, today 10 million hectares, or up to 40% of the nation's forest area, is made up of man-made conifer forests. This has been caused, as will be described later, by the planting of limited types of conifer species deemed to be of economic value and funded with the help of government subsidies.



A man-made forest on the left compared to a natural forest on the right.

Role of Local *Satoyama* in Supporting Agriculture and Livelihoods

In Japan, the mountains and hills that provide for agriculture and underpin people's lives in nearby communities are called *satoyama*. These *satoyama* have played an important role in Japanese agriculture and in supporting people's daily lives.

Although modernization has reached a fairly advanced stage in Japan, it was not uncommon even in recent years to see people, especially in agricultural areas, using various *satoyama* resources in agriculture and in their lives. For example, *satoyama* supplied many resources that helped in many areas: coal and wood used for cooking, heating bathwater, and heating homes; natural fertilizer for farming; food for farm animals; materials for agriculture and construction; a wealth of mountain vegetables and mushrooms; nuts and fruits including chestnuts, walnuts, and mountain grapes eaten as food; and herbs used for medicinal purposes. Wildlife and insects including boar, deer, pheasants, and bee larvae occupied very important positions as food sources in mountain villages. This way of using forests was common across Asia, and Japan was no exception until some 40 or 50 years ago. Trees from *satoyama* were consistently and sustainably used and this use was well planned. Some trees were selectively preserved, and new trees were planted as needed. As such, *satoyama* were more like secondary forests that were created in accordance and in harmony with the local climate, rather than virgin forests or monoculture plantations.

The role of *satoyama* began to change drastically in the 1960s, due to the modernization of agriculture and lifestyle as well as changes in fuel usage. People started to depend more on fossil fuels and commercial fertilizers imported from overseas for agriculture. Consequently, forests were used less as a source of natural resources. People's way of life changed also. Many farmers left their farms to join companies and work for wages. With fewer people using these *satoyama* forests as sources of natural resources for agriculture and to support them in their daily lives, the role of *satoyama* rapidly changed.

Rapid Proliferation of Man-Made Forests

In the 1960s, as *satoyama* lost their agricultural value, the Japanese government threw its weight behind policies to expand afforestation nationwide. At that time, there was a shortage of lumber due to the overharvesting of lumber during World War II. This scarcity drove up prices as demand surged in conjunction with the construction accompanying Japan's economic growth. Swathes of natural

forests filled with non-uniform trees deemed unsuitable for construction were cleared. In their place were planted more construction-friendly varieties of trees, such as conifer trees including cypress and cedar. The government also provided financial aid for planting these coniferous forests. During this period, the number of man-made forests increased by 30% in only 20 years, with their area reaching 10 million hectares. This was accompanied by a 15% drop in natural forest coverage area. In this way, *satoyama* that no longer fulfilled its original role of supporting local agriculture was replaced by the planting of cypress and cedar trees with expectations that these would have economic value in the future.

Domestic Timber Prices Fall and Forests are Devastated after Lifting the Ban on Foreign Timber Imports

To meet the high timber demand in Japan, the Japanese government lifted the ban on importing foreign timber in 1964 while at the same time using subsidies for conifer trees to promote its policy of increased afforestation. Massive quantities of foreign timber began to be imported into Japan as a stable yet low-cost resource, and domestic timber prices soared. Coupled with the rise in the value of the yen, Japan's timber self-sufficiency plunged to 31% in 1980 before falling to around 20% in 1990—all of this from a level of around 95% in 1955. The cheap imported materials kept lowering the prices of domestic timber from 1980 onward, and discouraged many owners of planted forests of Japanese cedar and cypress from managing and expanding their businesses.

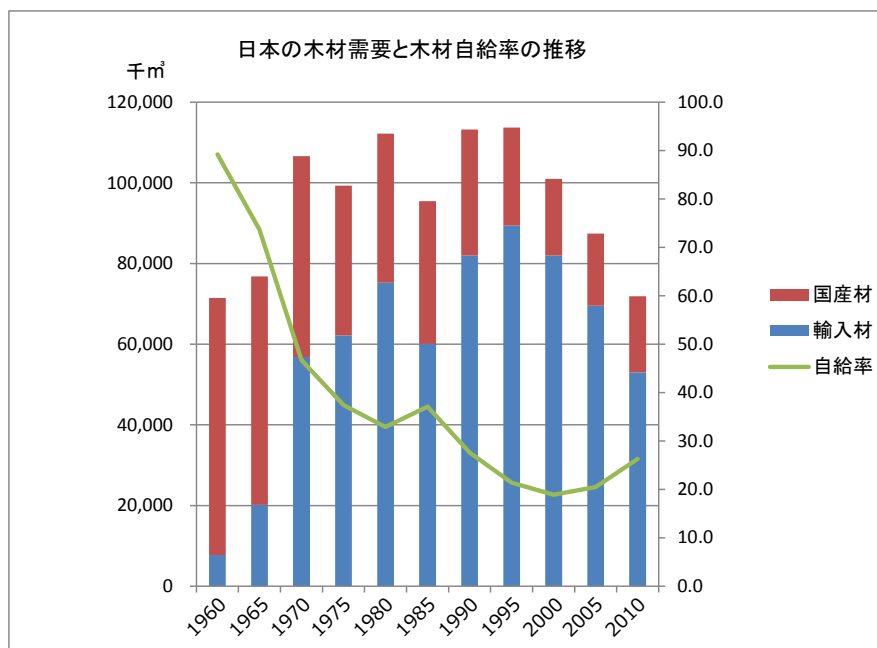


Figure 2: Change in domestic timber self-sufficiency (Unit: 1,000m³)

Red: domestic lumber

Blue: imported lumber

Green: self-sufficiency ratio

Natural forests can be left unattended without falling out of balance. Planted man-made forests, however, require ongoing maintenance and management as brush needs to be cleared and branches cut, especially when the forests are high-density, monoculture forests. Owners of man-made forests who were discouraged by the depreciating value of their timber, generally neglected to care for their forests after receiving subsidies from the government for only the initial planting process. As a result, forest owners' eagerness to engage in forestry was sapped by slumping prices, and they planted

forests seeking subsidies. But because they failed to follow through and manage them, man-made forests have been abandoned nationwide. This situation created areas of densely packed thin trees of similar height, which further contributed to lower timber prices. In addition, these weaker trees were susceptible to volatile weather such as typhoons and heavy rains, contributing to disasters such as landslides and forest damage.

Bringing Back the Forgotten Roles of Mountains

Japan is a nation blessed with abundant rain and there is a proverb that says, “The fields and mountains will take care of themselves.” In a place like Japan with a wealth of precipitation, the climatic conditions are such that, left to their own devices, natural forests will sprout. Indeed, Japan is incredibly fortunate to have such a robust environment. Natural forests can grow and maintain themselves; they can also host a rich array of biodiversity. Fundamentally, the government lifting its ban on foreign timber coupled with its policy of forest expansion led to clearing of natural forests and increased the nationwide spread of planted monoculture conifer forests. This is what caused domestic timber prices to tank. As a result, many artificial, planted forests fell into a state of disrepair. They were ravaged by a lack of attention and contributed to natural disasters. Both the forest owners as well as the government, which invested in planting these forests, were left in debt. Until 1996, the government provided financial aid to forest owners to encourage the planting of conifer trees as part of its forest-development policy. These subsidies also promoted the planting of artificial forests in inappropriate areas such as on steep inclines and at high altitudes.

In recent years, the value of forests has been revisited. Increasingly, they are valued not only in terms of their economic worth, but from many perspectives including disaster prevention and water regulation, biodiversity conservation and recreational usage. When it comes to assessing forest value across these many facets natural forests are generally highly regarded and man-made forests regarded as inferior. In short, the national afforestation efforts and the flood of imported foreign timber destroyed the economic value of Japanese forests and led to much land being replaced with artificial forests that have minimal value in terms of biodiversity.

Japan: A Leading Importer of Timber

When speaking with people from overseas, they sometimes ask why Japan does not harvest its own forests and if the reason Japan imports timber from other countries is to preserve its own forests. In reality, the Japanese government, in particular the Forestry Agency, would like to see greater use of domestic timber and has in fact been formulating strategies to encourage the use of domestic timber. However, most of the natural forests that would have been able to provide a significant volume of timber are now gone while the man-made forests that were planted at immense cost and effort are now largely abandoned and in a dilapidated and ruinous state. As the planted forests are predominantly cypress and cedar, the potential uses for timber from these forests are very limited. Also, the steep terrain of these forests makes it very costly to transport timber in Japan making it difficult for forest owners to turn a profit as timber prices continue to fall.

Industries such as the construction and furniture industries that use much timber already depend on imported foreign timber, as this offers greater choice at lower cost. Although Japan is a heavily forested country with a high ratio of planted forest, it can only satisfy just less than 30% of domestic timber demand with wood from domestic forests. This is certainly an improvement over past figures

of 20%, but it does not appear likely that Japan will be able to achieve the government's stated goal of 50% self-sufficiency any time soon. One thing that might help the situation is for Japan to adopt legislation akin to that in the European Union, United States and Australia that bans the import of illegally harvested timber. Getting rid of illegally harvested timber or even timber that is possibly illegally harvested could serve to increase domestic timber prices and support the domestic forestry industry. As a country that is a heavy importer of timber, this is an issue that needs to be addressed anyway. As both the government and the forestry industry are usually skeptical of new ideas, however, they are very slow to take action and implement legal and regulatory changes.

Toward Forestry and Forest Conservation Independent of Plantation Forests

In the definition expounded by the Food and Agriculture Organization (FAO), there is no distinction made between man-made planted forests and natural forests. According to the FAO, China's forested areas have increased in the recent years, but this is because of increased plantation forests. These new forests are often plantations mainly for paper manufacturing and timber. As such, they cannot be expected to yield much in terms of biodiversity. Since there is a vast difference in terms of both content and function when comparing planted and natural forests, the two should be regarded separately. Natural forests and planted forests are similar in some respects yet very different when it comes to ecology and use by residents. This is something that must not be forgotten. In addition, an increase in planted forests alone will be incapable of supporting existing ecosystems or even the diverse needs of people.

Along the Mekong River, many natural forests have been converted into rubber, eucalyptus and palm oil monoculture plantations. In Japan, 58% of the forests are privately owned with the rights retained by residents. However, most of the forests in Southeast Asia are owned by the state. Citizens' rights to use these natural forests are traditionally recognized, but these rights are often lost when policies outlining forest use rights are enacted and forests are transformed into plantations managed by corporations. This can ignite conflict between the local residents and the governments. It also exacerbates economic disparity as it further impoverishes the poor who depend on forest resources.

Although people tend to regard tropical forests as something far away, in Japan, we need to remember that the products grown and made from timber harvested from tropical plantations, including paper, palm oil and rubber, in fact support our comfortable lives. It is important that we remind ourselves that the everyday necessities upon which we depend come from finite resources, so that we do not waste them. In addition, it is important to actively maintain and effectively use the existing planted forests in Japan while searching for methods to minimize our dependence on and lessen the excessive burden we place upon the natural forests of the world, including tropical forests.

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Sayoko Inuma (Global Environmental Forum)