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Comparison of Timber Trade Patterns between Japan and Korea

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The difference of the wood consuming patterns between Japan and Korea has caused the different trends in wood import. In the case of Japan, the volume of logs imported has been markedly reduced after 1980 because of the environmental problems, and then the volume of lumbers has been increasingly imported to replace the import reduction of the logs. Also, high added–value processing products have been rapidly increased with increases of the imported lumbers as affected by changes in the demand of wooden residence houses built with high quality of earthquake resistant wooden materials. However, in Korea, lower grade lumber and coniferous logs in low–price are needed instead of high quality wooden materials and lumbers because temporary wooden materials that does not need to be durability and high quality are mostly demanded. Therefore, amount of the logs imported in Korea was not greatly changed as comparing with that in Japan. Coniferous logs in lower–grade and lower–price were imported from USA in the 1980s, but then after the 1990s, the logs have been imported from *Radiata pine* in New Zealand. Although importing the lumber is in trend to be increased, but it is still low level. The portion of lumbers is still in 50% of total lumbers including the logs and the lumber, imported in Japan, while it is in only 10% of the total in Korea. Thus, the logs imported are still in important portions of domestic wood processing fields in Korea.

INTRODUCTION

The timber for lumbering materials is 41% of total volumes in timber demanded in Japan, and similarly it is 46% in Korea. Both countries, Japan and Korea, are wood importing countries. They are importing four–fifth of wood in total volume of supply and demand from other countries even though those countries are covered with the forest in two–third of their areas. Thus, wood demands and wood import patterns of both countries are similar because the wooden materials imported are in great portion.

However, according to the lumbers in use, most parts of lumbers demanded in Japan are used for constructional materials to build wooden houses. However, in Korea, those are used for civil engineering and construction materials. In this case, the lumbers are mostly used as temporary supporting materials for constructing multistoried buildings (Kim *et al.*, 1998; Rosemarie and Bob, 1999). The different types of wood demand patterns have affected the wood importing patterns in Japan and Korea with the influences of restriction and prohibition about natural wood production in worldwide (Araya, 1995).

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The objectives of this study were to investigate wood consuming patterns, and to analyze the characteristics of wood import patterns due to the differences of wood consuming patterns between Japan and Korea.

COMPARISON OF WOOD DEMAND PATTERNS BETWEEN JAPAN AND KOREA

1. Characteristics of wood consumption

Problems of housing shortage have been occurred in Korea, especially in large cities of Korea, because Korea has been rapidly industrialized and urbanized due to the economic development since the 1960s. To resolve the housing shortage problems, Korean government made a basic goal of housing policy to supply extensive housing units, which provides numerous residence house units in the short periods of time (Kim and Chun, 1999). In particular, after finishing the government project to build 2.0 million housing units (year 1988–1992), the units of brand–new residence houses were increased about 6.5 times (0.75 million units) in 1990 as comparing with the number of housing units in 1970. As the number of housing units is recalculated in the housing unit per a person based on the population of Korea (45 million), the numbers of residence houses in Korea were as similar as those in Japan. However, the constructional materials used in the residence houses are mostly steel rods and steel frame concretes.

Table 1 shows total floor areas of the brand–new residence houses built in 2000 based on three different constructional types, such as wooden houses, steel framed reinforced concrete structural houses, and others. The total floor areas of residence houses in Japan were 120 million m^2 that covered with 54% for wooden houses and 46% for steel framed reinforced concrete structural houses (CRI, 2001), while those in Korea were 81 million m^2 that included 93% for steel framed reinforced concrete structural houses and only 0.2% for wooden houses (NSO, 2002) (Table 1). This information indicates that most of residence houses in Korea are non–wooden structures. Also, the residence houses newly built in 2000 were 43 million units that included 77% for multistoried apartments, 15% for townhouses, and 8% for single house units, especially wooden houses newly built were only 1,000 units. However, the residence houses newly built in Japan were 123 million units in 2000, and the wooden houses were 45% of total unit numbers. Thus, the difference of structural characteristics in the residence houses between Japan and Korea has caused the difference of wood consuming pattern between two countries, especially in

Table 1. Building floor area by construction material in Japan and Korea, 2000 (1,000 m^2).

Country	Total	Wooden house	Steel framed reinforced concrete structural house	Other
Japan	119,879	64,531	55,185	162
	100.0%	53.8%	46.0%	0.2%
Korea	81,059	178	75,292	5,588
	100.0%	0.2%	92.9%	6.9%

Source: Construction Research Institute, Japan 2001 Construction statistics annual report.
National Statistical Office, Korea 2002 [Online].http://www.nso.go.kr.

Korea; wood has been used as interior materials rather than as structural materials for the residence houses (Choi *et al.*, 2003).

2. Characteristics of wood demand

Total volume of wood supply and demand in Japan was 101 million m^3 in year 2000. Volume of wood consumption in same year was 99 million m^3 except the consumption for fire–materials and shiitake mushroom plantings. The usage of wood in Japan was 48% for pulp chips, 41% for lumber materials, 14% for plywood, and 2% for others, while in Korea the amount of wood consumption in same year was 27 million m^3, and the usage of wood was 46% for lumber materials, 41% for pulp chips, 12% for plywood, and 1% for others. The patterns of wood demands were very similar between Japan and Korea (Table 2).

However, based on the demands of lumbers in use, the total shipment of lumbers in Japan was 17.23 million m^3 in 2000, which was mostly used for house constructional materials in wooden houses. In details, it was used with 80% for constructional materials, 11% for wooden boxes and packing materials, and 4% for engineering constructional materials (Table 3). Unfortunately, there is no official statistical information about the demand of lumbers in Korea since 1995. Park *et al.* (1995) reported the investigation results about the consumption of wooden materials in 1993. Those results present that the total shipment of lumbers were 4.2 million m^3. In detail, it was used with 57% for civil engineering and constructional materials, 15% for house constructional materials, 10% for wooden boxes and packing materials, and 17% for others. Also, the Korea Forest Research Institute reported that 73% of the lumbers have been used for concrete mold or tem-

Table 2. Demand structure of wood in Japan and Korea, 2000 (1,000 m^3).

Country	Total	Lumber	Pulp & Chip	Plywood	Other
Japan	99,260 100.0%	40,946 41.3%	42,186 42.5%	13,825 13.9%	2,303 2.3%
Korea	27,970 100.0%	12,848 45.9%	11,486 41.1%	3,356 12.0%	280 10.0%

Source: Forest Agency, Japan 2002 Table of wood demand and supply.
Forest Service, Korea 2002 The current state of wood demand and supply

Table 3. End use markets of lumber product in Japan and Korea (1,000 m^3).

Country	Total	Construction	Civil engineering	Packaging	Other
Japan	17,231 100.0%	13,813 80.2%	698 4.1%	1,862 10.8%	856 4.9%
Korea	4,197 100.0%	642 15.3%	2,405 57.3%	420 10.0%	730 17.4%

Source: The Statistics and Information Department, the Ministry of Agriculture, Forestry, and Fisheries of Japan 2002 Wood supply and demand report.
Park *et al* 1995 Current pattern of timber consumption in Korea, *FRI. J. For. Sci.*, 52: 111–123.

porary constructional materials (Kim *et al.*, 1998). The information indicates that the demands of lumbers between Japan and Korea are clearly different. The plywood demanded in Japan was used with 53% for house constructional materials, 16% for furniture, and 8% for fittings, whereas that in Korea was used with 36% for engineering constructional materials, 37% for furniture, and 18% for fittings, in particular, the plywood produced domestically in Korea are used with more than 90% for concrete molds.

CHANGES OF WOOD TRADE PATTERN IN THE WORLD

Forest problem has been considered as a global environmental problem after confirming serious decreases of tropical forest that was informed by U.S. special committee report, "The Earth in A.D. 2000", in 1980 (Ando, 1996). After this time, the environmental function of the forest has being very important subject at the United Nations Conferences related to environmental issues that focused on the absorption of CO_2 and the preservation of biodiversity, especially in tropical forests. In 1992, the United Nations Conference on Environment and Development (UNCED) was held to discuss about those types of serious global environmental problems. At the conference, "Agenda 21" that included detail plan of action in all fields to prevent the decrease of forest and "Principle about the Forest" which was the first global agreement containing the continuous management for all forests in tropical, temperate, and frigid zones were adopted (Yorimitsu, 1999). Also, in 1990, the International Tropical Timber Organization (ITTO) made a decision that was the wood produced from the forest where is in continuous management should be only traded by 2000, and in 1992, the standard and index for continuous management of the tropical forests were adopted (Araya, 1996; Murasima and Araya, 2000).

On the other hand, felling natural forest has been regulated in USA since the protection of spotted owl lived in the natural forest in Northwest area of U.S. was performed in the mid end of the 1980s. It has markedly influenced the wood processing industry. These types of changes dealing with the forest have affected to step forward to continuous management of the forests. The felling regulation for the natural forest decreased the supply of high quality timber from the natural forests, and then the production of logs was

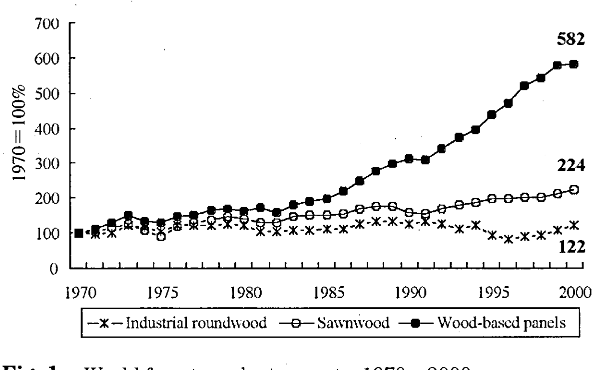

Fig. 1. World forest product exports, 1970～2000.
Source: FAO, 2002 FAOSTAT DATABASE.

decreased with changes of timber sources that were from the natural forests to the artificial forests. Moreover, the wooden materials became to being high–added value processing product because there was in difficulty to produce the high quality products of lumbers and plywood using low–quality of raw materials (Araya, 2000; Murashima and Araya, 2000). In the developing countries, felling the logs was reduced, and the export of the logs was strictly regulated to improve the wood processing industry and to protect their environment. Therefore, the wood trade patterns in the world were changed from the log trade (sources from the natural forest to the artificial forest) to wood products trade that especially focused on the production and export of high–added value products (Fig. 1).

COMPARISON OF WOOD IMPORT PATTERNS BETWEEN JAPAN AND KOREA

1. Development of wood import

The import portions of total wood supply in Japan was 13% in 1960, 68% in 1980, and, 82% in 2000. It has been continuously increased, and then the wood supply was mostly dependent upon volume of the imported woods rather than domestic self–support for wood demand. After conducting the emergency counter plan for wood price stability in 1961, the import of wood was 10.75 million m^3 in same year, and then it was doubled, 25.04 million m^3, in 1966 (Murasima, 2001). In 1969, it was 50% of total wood demands. It was different types of wood import pattern because the previous imported wood item was mostly *lauan* lumbers for a processing trade and acquisition of foreign currencies.

From the beginning of the 1970s, the imported wood was increased because the exchange rate system was changed from the fixed system to the fluctuating system that caused the price competitiveness for the imported wood was much improved. Moreover, the open market policy in Japan was asked by the Unites States in the mid end of 1980s, and then the deployment of a strong currency rate for yen against the dollar was caused

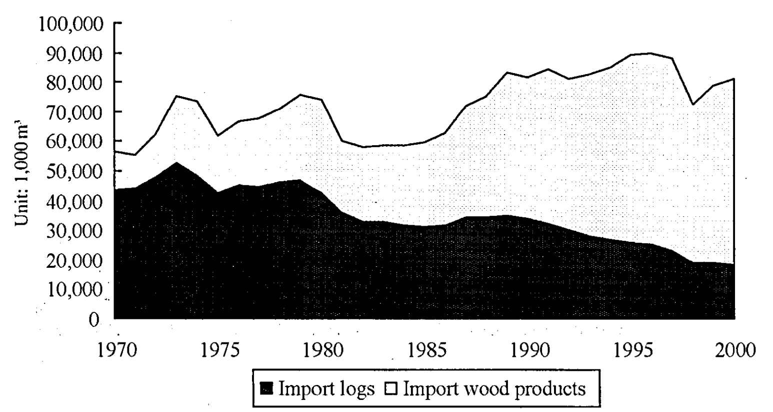

Fig. 2. Wood imports pattern in Japan, 1970～2000.
Source: Forest Agency, Japan 2001 Table of timber demand and supply.

by Plaza Accord in 1985 (Murasima, 1994; Sato, 2001). It had influenced that the price competitiveness of the imported wood products was much more improved. Therefore, the volume of wood imported was 59.83 million m^3 in 1985, and it was markedly increased to 83.26 million m^3 in 1989. In 1987, the portion of the imported wood product was more than 52% of total wood imported (Fig. 2).

In 1990, the wood tariff rate was largely decreased because the GATT U.R. for the inauguration of WTO agreement was performed (Yoneyama, 1994). Thus, the amount of wood imported was 89.84 million m^3 in 1996, which was the largest volume of wood imported. At this time, the portion of the imported wood product was more than 72% of total wood imported.

The volume of wood imported in Korea was influenced by the specialization for plywood industry in the itemization of export products in 1964 as a part of the economic development project that started in 1962. Thereafter, the imported wood materials were rapidly increased for the plywood processing trade, and then the imported wood was 13 million m^3 in 1979. However, the regulation of logs export has been performed by the countries that supply the wood resources, due to protect their forest resources and develop of their forest–product business from the beginning of the 1980s. Therefore, the plywood business of Korea in the world markets was dropped down, and then volume of the logs imported for use of plywood processing was quickly decreased in 1982, and it was 0.93 million m^3 (Joung and Nagata, 1995).

However, from the mid end of the 1980s, the demand of wood was rapidly increased because of the rapid increases of domestic civil engineering construction and house constructions (Youn, 1998). Also, the tariff rate for importing wood was sharply decreased because of the open–economy policy due to the liberalization of trade and a policy of low tariff in the WTO organization. With these reasons, the import of wood had been greatly increased, which was from 10.90 million m^3 in 1985 to 26.38 million m^3 in 2000. The portions of wood products imported were 52%, 60%, and 74% of total wood imported in 1980, 1990, and 2000, respectively (Fig. 3).

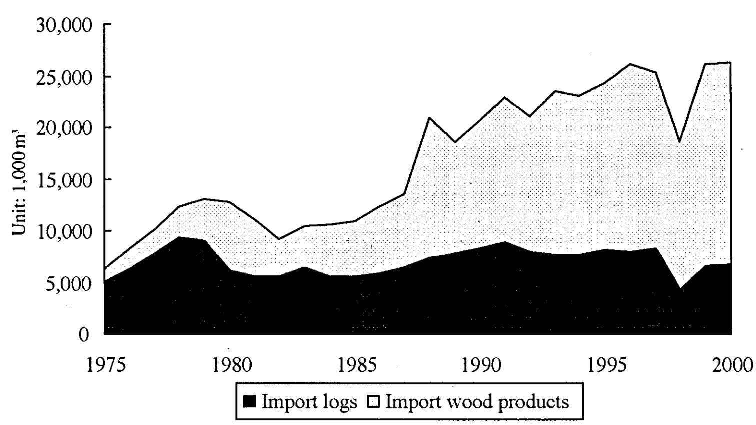

Fig. 3. Wood Imports pattern in Korea, 1975～2000.
Source: Forest Service, Korea 2001 Statistical yearbook of forestry.

2. Log importing pattern

In 1973, the largest volume, 52.49 million m^3, of the logs was imported in Japan. After that, the volume of logs imported was significantly decreased, such as 42.40 million m^3 in 1980, 33.86 million m^3 in 1990, and 18.01 million m^3 in 2000. The logs imported were used for lumber in 68% and plywood in 28%. The source of logs for lumber was coniferous trees imported mostly from the America and the North ocean areas, and the logs for plywood were imported from the Southeast Asia and North ocean areas.

The logs imported in Japan were mostly Southeast Asia (Tropical wood), North America (American wood), and Soviet Union (Siverian wood) until the 1960s. After that time, the importing sources of log had been changed by several impactions. Exporting the logs was regulated first by Indonesia from the mid end of the 1970s, and then other developing countries also increasingly restricted and prohibited the export of their logs after 1985. The import of tropical woods was sharply decreased from 1980. Import of the logs from North America was also decreased because felling the trees was regulated due to the protection of spotted owl in the forest from the mid end of 1980s. Furthermore, from the 1990s, the maintainable forest management had been spread out globally, and felling the trees in natural forests were regulated and prohibited in worldwide (Murasima and Araya, 2000). Thus, volume of the logs imported was continuously decreased. Especially, in 2000, the logs imported were 3.03 million m^3 with tropical woods (decreased 56% as comparing with those in 1980), 4.78 million m^3 with American woods (decreased 84% as comparing with those in 1980). Therefore, the sources of the logs imported were continuously replaced after the 1990s. The logs were increasingly imported from artificially planted forest in New Zealand and Africa and North ocean areas rather than from natural forest in Southeast Asia and North America (Fig. 4).

On the other hand, the log imported in Korea was 9.48 million m^3 in 1978, which was the largest volume imported. The imported logs was continuously decreased from 1980, and then it was 5.58 million m^3 in 1985. However, it tended to be increased again from the mid end of 1980s. From the beginning of the 1990s, it was maintained in approxi-

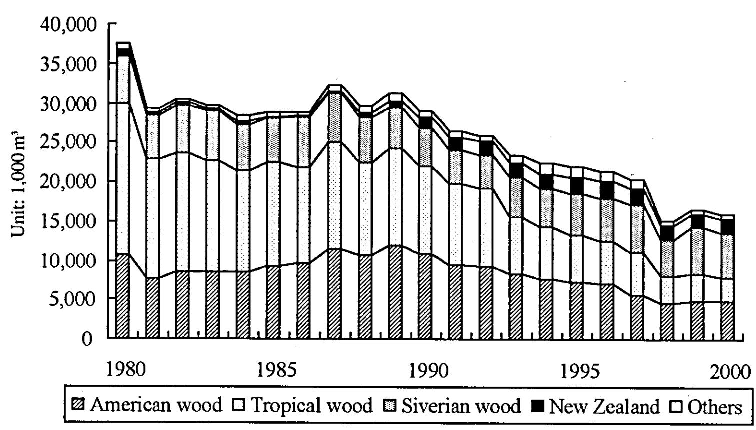

Fig. 4. Log imports by country of origin in Japan, 1975～2000.
Source: Forest Agency, Japan 2001 Forestry statistics directory.

mately 8.0 million m^3, and there was a specific decrease in the amount of the logs imported until the economic crisis was happened in the late of 1997. Thus, in 1998, the log imported was remarkably decreased to 4.37 million m^3 which is 47% decreased as comparing with that in previous year. In 2000, it was 6.74 million m^3 which was 61% for lumber and 19% for plywood. The logs for lumbering were mostly imported from New Zealand, Chile, and the United States, and those for plywood was obtained from Southeast Asia and New Zealand areas.

The wood import patterns between Japan and Korea were different because the portion of the logs imported in Korea was much greater than that in Japan. The reason is that the wood industry in Korea was developed with plywood processing trade. The plywood processing business was the most important part of the wood industries in Korea after performing the economic development project began in 1962. Thus, the large volume of tropical woods was imported for plywood processing, and it was major wood materials imported until 1970, and the tropical woods for plywood processing was 71% of total logs imported (Kim, 1991). The source countries for tropical woods were Malaysia and Philippines till the 1960s. After that time, those source countries were replaced to Indonesia, and 50% of total tropical woods were imported from Indonesia after 1972, but after the second oil crisis, Malaysia became main import source country for the logs because Indonesia government prohibited the export of the logs to perform the policy of wood processing industrialization and to protect their environment.

From the 1980s, the plywood industry in Korea was rapidly declined because of internal and external problems. Internally, labor cost was increased with economic growth of Korea, and externally the export of the logs in Malaysia was regulated and prohibited, which caused the cost of the logs was markedly increased. Therefore, the logs for plywood processing imported from Southeast Asia were 6.67 million m^3 in 1979, 3.48 million m^3 in 1990, and 0.64 million m^3 in 2000, which are 73%, 28%, and 19% of total logs imported, respectively. This information indicates that the import of tropical woods as a major source of the logs was almost ended.

In contrast with a rapid reduction of the import for tropical woods, the demand of the logs for lumbering that used as temporary constructional materials were rapidly increased after the 1980s because of the governmental plan of extensive housing construction and the special demands due to the preparation for Seoul Olympic Games (Youn, 1998). The demands of wood in Korea was mostly for temporary structural materials to construct buildings and multistoried townhouses, and thus Korean lumbermen had favored inexpensive logs instead of expensive tropical woods that used for plywood processing. However, the logs were still major importing materials even though the sources of the log spices were changed from tropical woods to U.S. coniferous timbers. Thus, during the 1980's, the coniferous timbers from the United States were major logs imported, which was 39% of total in 1989, but large volume of the logs from the United States was continuously decreased during the 1990s with increasing the price of logs in the world market due to the felling regulation of log in Northwest forest area in the United States after 1989 (Rosemarie and Bob, 1999). The logs imported were 3.07 million m^3 in 1989, 0.80 million m^3 in 1995, and 0.31 million m^3 in 2000.

After reducing the import of the logs from the United States, The source countries for importing the logs had been changed to various places. Inexpensive logs, such as *Radiata* *pine* were imported from New Zealand and Chile. The logs imported from New Zealand were markedly increased from 1.29 million m^3 in 1990 to 2.3 million m^3 in 2000 that was 41% of total logs imported (Table. 4). Thus, Korea was one of the world leading import countries for *Radiata pine* timbers. On the other hand, Korea had imported a quite amount of the logs from various source countries, such as Russia, Austria, the Republic of South Africa, European countries, Brazil, China, and Ghana. The logs obtained from tropical hardwoods were also increasingly imported from Papua New Guinea (P.N.G.) and Solomon Island, while the tropical woods imported from Malaysia were decreased.

Increases of the logs imported from New Zealand were caused by using coniferous logs for lumbers including others, and even for plywood processing from 1992. The logs sources for plywood processing were tropical woods in 100% until 1980, but from 1992,

Table 4. Log imports by country of origin in Korea, 1970~2000 (1,000 m^3).

Item		1970	1975	1980	1985	1990	1995	1998	1999	2000
Hardwood	Sub-total	2,852	4,661	4,486	3,328	3,483	1,656	632	841	934
	Philippines	888	264	82	67	–	–	–	–	–
	Malaysia	1,487	1,628	2,474	2,308	2,912	656	227	354	320
	P.N.G.	–	–	133	841	571	997	404	486	316
	Indonesia	477	2,769	1,817	12	–	3	1	1	–
	Others	–	–	–	–	–	–	–	–	165
Softwood	Sub-total	303	458	1,655	2,350	4,450	6,573	3,378	5,782	5,801
	USA	236	448	1,043	1,494	2,971	803	286	361	311
	New Zealand	56	–	185	99	1,290	3,003	2,071	3,397	3,186
	Others	11	10	427	757	541	2,767	1,381	2,024	2,304
Total		3,155	5,119	6,141	5,578	8,285	8,229	4,370	6,623	6,735

Source: Forest Service, Korea 2001 Statistical yearbook of forestry.

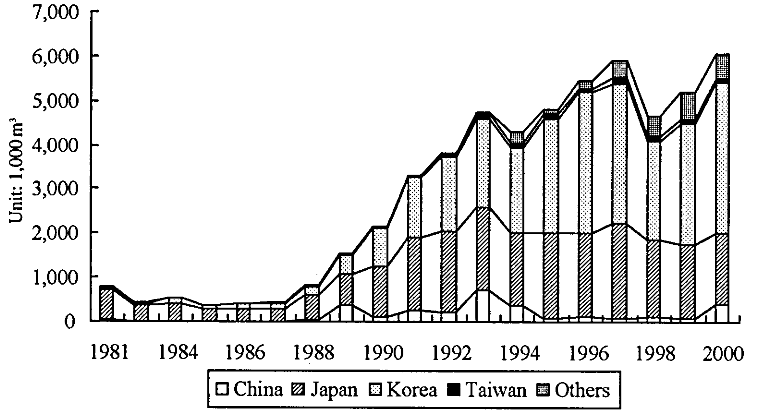

Fig. 5. Exports of logs by main Countries of destination in New Zealand, 1981 ~2000.
Source: New Zealand Ministry of Agriculture and Forest 2001 New Zealand Forestry Statistics 2000.

coniferous logs were began to use for it. The portions of coniferous logs were 5%, 30%, and 63% of total logs imported in 1993, 1995, and 2000, respectively. Also, the portions of the logs imported from New Zealand were continuously increased, which were 3%, 30%, and 55% of total log imported in 1993, 1995, and 2000, respectively. Recently, *Radiata pine* has been increasingly used for raw materials of PB and MDF even though the scrap woods were still used for them. In 2000, total volume of the logs exported by New Zealand was 6.08 million m^3, 56% (3.4 million m^3) of them was imported by Korea, and 27% (1.63 million m^3) of them was imported by Japan, which indicates that more than 80% of total logs exported by New Zealand were imported by two countries (Fig. 5). However, the logs imported from New Zealand were used for different purposes between Japan and Korea. The logs were used mainly for packing materials in Japan, whereas they were used mostly for lumbering materials in Korea.

3. Import pattern of wood products

Wood products have been produced in Japan because the price competitiveness of the import wood products was stronger due to the open market policy affected by MOSS agreement and the occurrence of strong yen against the dollar influenced by the Plaza Accord in the 1980s. After the 1980s, import of the logs was rapidly decreased due to the restriction and prohibition for exporting the logs, whereas the lumbers imported were continuously increased, which were 5.18 million m^3 in 1985, 8.89 million m^3 in 1990, and 12.59 million m^3 in 1997. Most of lumbers imported were from North America. Volumes of the lumbers imported ware 4.11 million m^3 (74%) in 1980, 6.46 million m^3 (73%) in 1990, 7.84 million m^3 (68%) in 1998, and 5.52 million m^3 (56%) in 2000. In particular, the lumbers imported from Canada were stood in the greatest portions of them, which were 2.56, 3.68, and 5.91 million m^3 in 1980, 1990, and 1995, respectively. Also, the lumbers imported from European countries were continuously increased to replace the source from the United States even though they were almost none till 1980 (Araya, 1996). The amount of the lumbers imported from those countries were 0.85 million m^3 in 1995 and

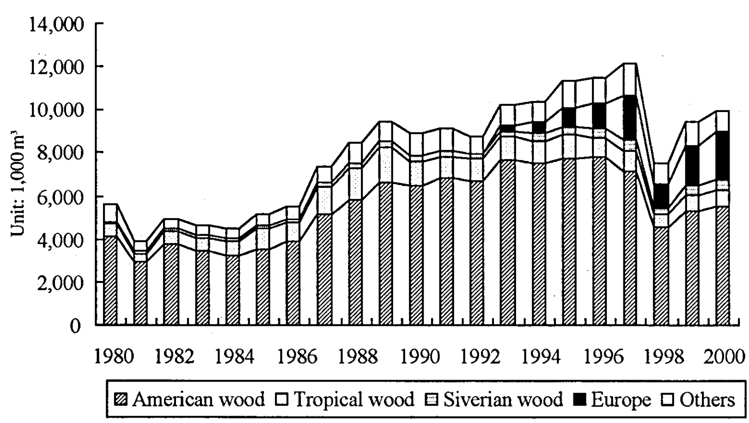

Fig. 6. Lumber imports by country of origin in Japan, 1980～2000.
Source: Forest Agency, Japan 2001 Forestry statistics directory.

2.19 million m^3 in 2000. Those from New Zealand and Chile which are artificially planted sources were also increasingly imported even though they were quantitatively few (Fig. 6).

An important characteristics of wood products imported in Japan is that import of high-added value products was increased with increasing import of the lumbers after 1990. As a point of view in laminated lumbers, the common laminated timbers imported were 0.02 million m^3 in 1992, 0.04 million m^3 in 1995, and 0.11 million m^3 in 2000. Also, structural laminated timbers imported were greatly increased to 0.32 million m^3 in 1996 due to the special demand caused by Great Hansin Earthquake in 1995 and in 0.44 million m^3 in 2000 due to the law of housing quality improvement enforced in 1999 as comparing with the volume of structural laminated timber imported in 1992, which was 0.02 million m^3 (Murasima and Araya, 2000). Other wood products were also continuously increased. Volumes of plywood imported were 2.96 million m^3 in 1992 and 5.33 million m^3 in 1997. Particle Board (PB) imported was 0.13 million m^3 in 1992 and 0.64 million m^3 in 1997. MDF was imported 0.01 million m^3 in 1992 and 0.34 million m^3 in 1997. Also, the import of fittings and furniture was tended to be increased (Table 5).

Table 5. Imports of wood products by volume in Japan, 1992～2000.

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000
Laminated timber (1,000 m^3)	18	17	29	43	68	95	66	89	106
Structural laminated timber (1,000 m^3)	21	59	89	148	319	289	149	271	446
Plywood (1,000 m^3)	2,958	4,089	4,045	4,349	5,314	5,326	3,872	4,802	4,927
Particle Board (1,000 m^3)	125	179	347	361	553	643	411	380	385
MDF (1,000 t)	97	161	251	234	296	340	252	309	318
Door & window frame (1,000 t)	6	7	10	15	25	28	21	24	26
Furniture & alcove post (t)	44	635	1,062	1,620	1,651	631	549	400	685
Building products (1,000 t)	16	22	32	48	77	70	62	80	89

Source: Japan wood products information & research center. 2001 *Wood information*, 121: 16–22.

On the other hand, import of the lumbers in the wood products was increased in Korea with decreasing the import of the logs due to the demand of near raw materials instead of high-added value products, but it was not as large as those imported in Japan. From the 1980s, the import of lumbers was continuously increased from 0.14 million m^3 in 1980, 0.95 million m^3 in 1991, and 1.16 million m^3 in 1996 because of the increase of domestic labor cost and the export regulation of the logs for lumbering, whereas it was decreased to 0.73 million m^3 in 2000 due to the economic crisis. In the case of Japan, the main source countries for importing lumbers were North America, while those for Korea were Southeast countries, such as Malaysia and Indonesia, rather than North America because constructional interior materials and furniture materials were mainly imported (Table. 6).

Figure 7 presents the wood import patterns between Japan and Korea as influenced by the change of importing materials which is from the log import to the lumbers import. The information indicates that the portions of lumbers imported in Japan were continuously increased, which was 13%, 27%, and 27% of total wooden materials imported in

Table 6. Lumber imports by country of origin in Korea, 1988~2000 (1,000 m³).

Country	1988	1991	1995	1996	1997	1998	1999	2000
Malaysia	368	733	468	423	305	161	188	162
Indonesia	209	9	53	77	78	98	127	173
USA	49	71	195	200	176	43	74	62
Chile	–	–	44	137	133	47	80	45
China	–	–	46	58	49	39	46	115
New Zealand	–	–	61	100	96	44	80	39
Others	81	133	149	166	148	48	102	133
Total	707	946	1,016	1,161	985	480	697	729

Source: Forest service, Korea 1990, 1998, 2001 Statistical yearbook of forestry.

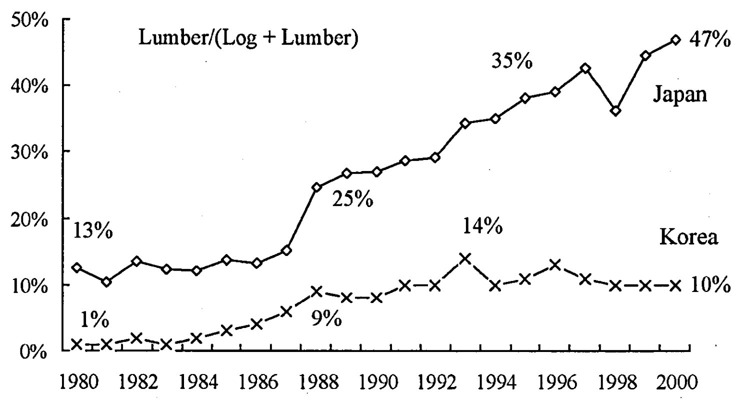

Fig. 7. Trend of lumber imports ratio in Japan and Korea, 1990~2000.

Table 7. Imports of wood products by volume in Korea, 1992~2000.

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000
Veneer (1,000 m³)	–	–	75	61	102	407	101	121	246
Plywood (1,000 m³)	953	1,153	1,003	1,307	1,081	970	500	750	980
Particle Board (1,000 m³)	462	516	401	485	408	293	173	436	485
MDF (1,000 m³)	84	144	152	76	53	58	28	172	380
Molding (1,000 M/T)	–	–	86	100	117	95	36	29	33

Source: Forest service, Korea 1995, 1998, 2001 Statistical yearbook of forestry.

1980, 1990, and 2000, respectively. However, in Korea, it was only 3% in 1985 and 11% in 1990, thus the logs were still major importing wooden material in Korea (Fig. 7). As a point of view in the wood products in Korea, the wooden products were increasingly imported. Volume of plywood imported was almost none in 1980, but it had been continuously increased to 0.74 million m^3 in 1990 and 1.31 million m^3 in 1995. PB imported was

Table 8. Imports of all forest products by value in Korea, 1990～1999 (US$/Million).

Item	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Log	990	1,041	919	1,183	1,012	1,047	963	877	350	521
Lumber	167	228	250	452	373	409	465	453	166	261
Veneer	25	31	30	37	55	49	64	112	43	52
Flooring	15	24	38	63	90	114	142	120	36	28
Particle Board	74	75	72	91	72	91	77	54	25	55
MDF	27	25	28	56	69	40	26	25	10	42
Plywood	256	358	351	552	536	594	531	449	154	260
Building Products	10	20	32	48	67	80	111	101	34	32
Other	43	54	70	112	139	182	189	184	94	153
Total	1,607	1,856	1,790	2,594	2,413	2,606	2,568	2,375	912	1,404

Source: American Forest & Paper Association Korea office. 2001 Statistical data on imports of forest products in Korea.

0.06 million m^3 in 1985 and 0.49 million m^3 in 2000. MDF imported was 0.03 million m^3 in 1985 and 0.38 million m^3 in 2000 (Table. 7). However, the import pattern of wood product was recently changed. It was similar as that in Japan, which is increases in the import of constructional wood products, such as wooden windows, wooden window frames, and wooden doors, related to the secondary processing products. The expense for importing constructional products was only 1.0 to 2.0 million dollars in 1980, but it was rapidly increased to 8.0 million dollars in 1995 and 10 million dollars in 1996 (Table 8).

CONCLUSIONS

As comparing the wood import patterns between Japan and Korea, it is necessary to compare the wood consumption patterns in Japan and Korea. Differences of the wood consuming patterns between Japan and Korea are due to the difference of housing structures in those countries. In the case of Japan, the usage of lumbers including domestic and imported lumbers produced in Japan was 80% for constructional materials, 11% for packing materials, and 4% for civil engineering constructional materials. These results indicate that the demand of lumbers is a little for industrial demands, so that the wood consuming pattern is directly related to the general consumers. However, the demand of lumbers in Korea was mostly for the civil engineering constructional materials, such as temporary structural materials, to construct multistoried buildings. Thus, the logs imported were used for lumbering materials in 82%, such as civil engineering constructional materials, and also the logs were used for industrial materials after domestically processing them. Also, the wood products imported were directly supplied to the general consumers.

Therefore, the differences of the wood consuming patterns between Japan and Korea have caused the differences of the wood import patterns in two countries. The wood import pattern in Japan is that the import of lumbers was increased to replenish the import reduction of large quantity of the logs due to the protection of their environment after the 1980s. Also, the import pattern of wood products is that the import of high–added vale processing products, such as wood for engineering works and various components for secondary constructional materials, has been markedly increased with increasing the import of lumbers after 1992 because of increase in the demand of high quality of earthquake proof materials.

However, the import pattern in Korea is that the logs, such as low quality and low price wood, rather than high quality wood and high–added value processing products were needed to use as temporary structural materials and packing materials. Thus, the logs imported have not been changed in quantity. There were different sources of the logs based on different species of trees. The sources were tropical woods until the 1970s, coniferous timbers from the United States till the 1980s, and temperate forest coniferous timbers from New Zealand and other countries. Thus, the logs were still major imported materials in the lumbering and the processing business. Although the import of lumbers is recently increased, it is still in low quantity. The portion of lumbers imported in Korea was only 10% of total wood including the logs and the lumbers, but that in Japan was 47% of the total amounts imported.

According to the information presented above, the wood import patterns between Japan and Korea might be completely different. Moreover, the wood import pattern in Japan has been adapted to the changes of world wood trade pattern that focused on the export of high–added value processing products rather than the logs and primary processing products. However, the wood import pattern in Korea might not be adapted to the changes because of the difference of the wood demand pattern as comparing with that in Japan. Also, import of the finished products in the secondary processing is tended to be increased even though the logs are still major import materials with trade in different spices of the source trees.

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