Chapter 5
China's Forest Products Markets [1]

Highlights

- *China's domestic demand for wood products is growing rapidly due to the rising standard of living of its 1.3 billion people.*
- *Because of extreme lack of forest resources and strong demand, China now ranks as the world's third-largest importer of forest products, importing nearly one-third of its forest products consumption.*
- *After the economic reform and opening to the outside world, the production and trade of major forest products has increased considerably and has accelerated with foreign investment.*
- *For natural forest protection programme, the annual production of roundwood will be halved between 1998 and 2000, and be further reduced by 2003. The shortfall in domestic harvest volume is being replaced by imports.*
- *Although 5 million hectares are planted per year, the forest land cover is only 17%. A structural shortage is forecast in 2010 when China is expected to import 50% of its forest products demand, of which almost 70% will be from temperate and boreal sources.*
- *Sawnwood consumption and production rank third in the world.*
- *Although per capita consumption is less than half the world average, China's production and consumption of paper and paperboard is second only to that of the United States.*
- *Since 1998, by value, forest products have been the greatest commodity imported by China.*
- *Sources of softwood log imports have changed from North America to Russia and New Zealand. Hardwood logs still come from the United States, Russia and increasingly from Europe, especially in 2000 following the European windstorm volumes.*
- *Furniture exports, of which 50% were wooden, more than doubled in value from 1997 to 1999, reaching $2.7 billion. The major destination was the United States.*
- *Wood-based panels production increased 42% in 1999 from 1998 and plywood imports decreased as a result, by 38% in volume.*

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- *Paper manufacturing is increasing substantially. Imports of pulp and waste paper rose and paper imports decreased by 23% in 1999.*
- *A growing volume (5 million m^3 in 1999) of roundwood, both domestic and imported, is used for cultivation of edible fungi.*

Secretariat introduction

The secretariat would like to thank the co-authors of this special chapter, Drs. Kunshan Shi and Fengming Lin and Mr. Zhisheng Xu of the Chinese Academy of Forestry in Beijing. Dr. Shi is a Forestry Information Researcher and Director of the Research Institute of Scientific and Technological Information on Forestry and just completed an outlook study on China's forest products markets in 2010 for the ITTO (some preliminary results are presented here). Dr. Lin is a Forest Industry Researcher and Vice Director of the Tropical Forest Product Information and Consultation Center of China. Mr. Xu is an assistant to Dr. Shi and he performed the translation of the text.

The Chinese Academy of Forestry, founded in 1958, is a comprehensive research institution affiliated with the State Forestry Administration. The Academy has 9 research institutes, 4 experimental centres and 3 research and development centres, which are located in 10 provinces. Research interests cover all forestry-related subjects, mechanical and chemical processing of forest products, utilization of forest products, application of new and advanced technologies, biotechnology, remote sensing, geographical information systems, global positioning systems, system engineering and information networks. Over 1,700 academic and technical staff were working at the academy at the beginning of 1998 (Source: http://www.forestry.ac.cn/yjg/yjg.htm)

The secretariat found this information on a fast-emerging forest products consuming nation to be quite enlightening. This chapter is one of a continuing series of special chapters in the Review which features a country's forest products markets, either a trading partner or competitor, from outside the ECE region.

5.1 General socio-economic development

5.1.1 Population and employment

By the end of 1999 the total population of China was 1.3 billion, of which 30.9% was living in cities and towns. Annual natural growth is 0.9%. The total number of employed is 705.9 million, of which 10.1 million work in cities and towns. The registered unemployment rate is 3.1%.

5.1.2 Gross domestic product and people's income

The GDP in 1999 was nearly $1,000 billion, up 7.1% over the previous year. The per capita disposable income of the country's urban families in 1999 was 5854 yuan ($708), 9.3% higher than the previous year.

The price of goods has decreased in successive years because market demand is insufficient. In 1999, consumer prices decreased by 1.4%, and the total level of retail prices for goods decreased by 3%.

5.1.3 Exchange rate of the yuan and foreign exchange reserves

The exchange rate of the yuan remains stable. In 1999, the exchange rate of the yuan to the United States dollar was 8.2793:1, as compared to 8.2794:1 in 1998. Foreign exchange reserves increased steadily reaching $154.7 billion at the end of 1999, compared with $145.0 billion in 1998 and $139.9 billion in 1997.

5.1.4 International trade

The total value of trade (import and export) in 1999 was $360.7 billion, up 11.3% over the last year. Of this, the export value was $194.9 billion, the favourable balance of trade was $29.1 billion. The import of forest products in terms of value was $8.0 billion, ranking first place of all commodities.

5.1.5 Influence of the Asian financial crisis on China's economy

The Asian financial crisis of 1997 and 1998 had an enormous influence on China's economy, especially on exports. In this crisis, while the currencies of some Asian countries depreciated considerably, China made efforts to maintain the stability of the exchange rate of the yuan. Therefore, China's export commodity prices lacked competitiveness, causing China's export value to drop by 12.9% to Asian nations, (by 4.3% to Japan and 30.2% to Korea) during the first half of 1998, compared with the

same period of the previous year. The rate of growth of Chinese exports slid drastically. Total exports increased by only 0.5% over the previous year, and growth rate dropped by 20.4 percentage points compared with the previous year.

5.1.6 The role of forestry in national economy

The total production value of forestry in the state-owned institutions in 1998 amounted to around $33.3 billion, representing about 2% of gross national product in China. Total employees in state-owned forestry institutions in 1998 were around 2.3 million. If non State-owned institutions, which are significant, were included, the percentage would be greater.

5.2 Forest resources

5.2.1 Forest area

According to the Fifth National Forest Inventory (1994-1998), published in 2000, the total forest area of China[2] accounts for 153.6 million hectares, covering 16.5% of the land area. Per capita forest area is only 0.12ha. Of the total forest area, forest stand amounts to 134.3 million hectares, making up 87.4%; exploitable forest, 20.22 million hectares, representing 13.1%; bamboo forest, 4.21 million hectares, accounting for 2.9%. Of the forest stand area, 50.7% is softwood forest, while hardwood forest accounts for 49.3%.

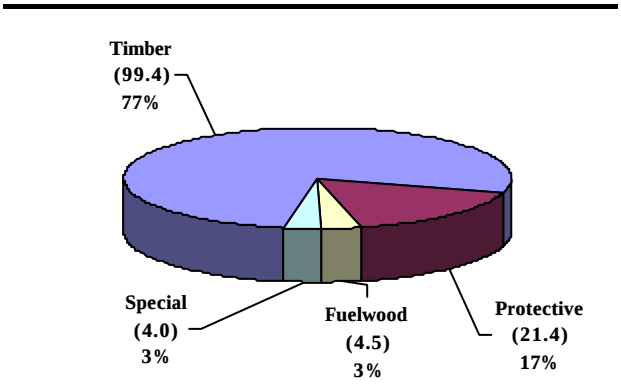
5.2.2 Growing stock

The total growing stock is 11.3 billion m^3, of which 10.1 billion m^3 or 89.2% are forest growing stock, while the balance is the growing stock of open woodland (1.2%), single trees (6.2%) and plantations (3.4%) (graphs 5.2.1 and 5.2.2).

GRAPH 5.2.1

Forest categories in China, 1999

(Million ha)

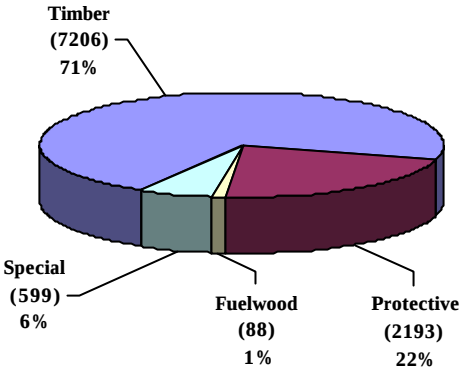


Source: China Forestry Statistical Yearbook, 1999.

GRAPH 5.2.2

Forest growing stock in China by forest categories, 1999

(Million m^3)



Source : China Forestry Yearbook, 1999.

5.2.3 Forest category

Forest is usually divided into four categories according to its use: commercial timber forest, protective forest, fuelwood forest and special-purpose forest. The commercial timber forests are sources of industrial roundwood and non-wood forest products. Protective forests guard against floods and may be reserved for other purposes. Special-purpose forests are reserves for scientific research and environmental protection.

5.2.4 Forest ownership

42% of the total forest area is owned by the State, while 58% is owned collectively. As far as growing stock is concerned, the percentage is 75% and 25% respectively.

5.2.5 Increment and consumption of the forest resources

The annual net increment of the forest is 457.5 million cubic meters with a net rate of growth of 3.8%; the annual average net consumption is 370.7 million cubic meters with a net rate of consumption of 3.1%.

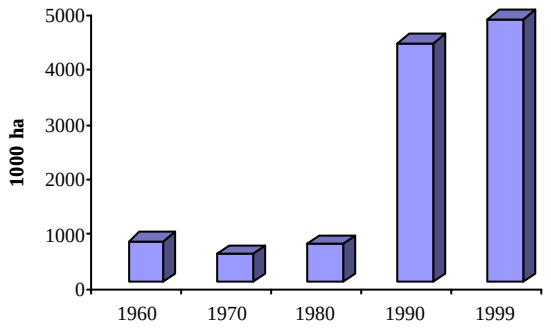
[2] *Throughout this chapter, statistics do not cover Taiwan Province of China.*

5.2.6 Plantation s

By the end of 1999, the total area of plantations in China amounted to about 46.6 million hectares, covering 30.4% of the total forest area. However, the growing stock of plantations is only 1.0 billion cubic meters, accounting for less than 10% of the total growing stock. In the last five years, the average annual planting area fell to 4.8 million hectares. Most of the plantations are in the stage of young and middle-aged stands.

GRAPH 5.2.3

Annual planting areas in China, 1960-1999



Source: China Forestry Statistical Yearbook, 1999.

5.2.7 Nature reserves and forest parks

As of the end of 1998, the number of nature reserves of China totaled 1,146, with an area of 88.1 million hectares, covering 8.8% of the State's total area. Of all the nature reserves, 137 are classified as national level. There are now 870 forest parks of various levels, with a total area of 7.5 million hectares, representing 0.8% of the total territory of which 292 are national forest parks, with an area of 5.3 million hectares.

5.3 Institutional framework

5.3.1 Organizational structure of forestry management

China's forestry institutions are set up at five levels:

- *the State Forestry Administration (former Ministry of Forestry) in the central government;*
- *forestry departments at the provincial level;*
- *forestry bureaux at the regional level;*
- *forestry bureaux at the county level; and*
- *forestry stations at the township level.*

5.3.2 Forest regulations and policies

The Forest Law of the People's Republic of China, formally promulgated in 1984, is the most important law governing almost every aspect of forestry. With the approval of the State Council the former Ministry of Forestry promulgated the regulations for implementing the Forest Law of the People's Republic of China in 1986. Among other important forestry related laws and regulations are: Law of Water and Soil Conservation of the People's Republic of China; Regulations on the Protection of Terrestrial Wildlife; Provisional Regulations on Forest Management; Urban Greening Regulations; Regulations of the PRC on Nature Reserves; Regulations on Forest Park Management; and the Forestry Action Plan for China's Agenda 21.

In 1981, the Fourth Session of the Fifth National People's Congress adopted the Resolution on National Compulsory Tree Planting Campaign which states that "wherever possible, every Chinese citizen, 11 years old and over, excluding the old, weak, sick and disabled, should plant 3 to 5 trees per year in light of the specific local conditions, or accomplish an equivalent amount of work in seedling production, forest management and protection and other greening activities." By the end of 1998, 30 billion trees had been planted by 6 billion man-hours during the campaign.

Announced in June 2000, a National Plan of Ecological Environmental Construction issued by the State Council and the Tenth Five-year Plan (2001-2005) has set targets for afforestation. China plans to plant 11.5 million hectares of trees by 2005, 23 million hectares by 2010, and 46 million hectares by 2030 to bring the forest coverage to 18.2%, 19.4%, and 24%, respectively.

5.3.3 Natural forest protection

To reverse the deterioration of environment in some key areas, such as headwaters of the Yangzi River, Songhuajiang River and Nenjiang River, the Chinese Government decided to put in place the natural forest protection programme in 1998. According to this programme, the annual production of roundwood will be reduced by 12.4 million m^3 or 46% from the year 1998 to 2000 and be further reduced by 3.6 million m^3 in the second phase by the year 2003.

5.4 Analysis and development of production of China's major forest products, 1981 to 1999

After the reform and opening to the outside world, along with rapid and continuous development of national economy, the production of major forest products, including roundwood, sawnwood, panels, pulp, paper and paperboard and furniture, increased considerably. Because of changes in domestic forest resources and market demands, however, the increasing rates of production were significantly different among forest products.

Changes of production of different products over the period from 1981 to 1999 are described below.

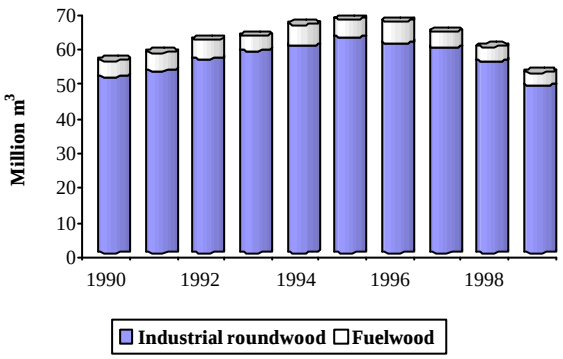
5.4.1 Changes in roundwood production

Roundwood production has been continuously declining (graph 5.4.1). The reason for this situation is that the Chinese Government has implemented the Natural Forest Protection Policy in the whole nation and greatly reduced roundwood production.

According to statistics provided by the State Forestry Administration, the total roundwood production in China was 52.3 million m³ in 1999, 6% higher than in 1981 but 12% less than in 1998. Of the total, the production of industrial roundwood was 48.5 million m³, 14.1% higher than in 1981 and 12.7% less than in 1998. The production of fuelwood was 3.9 million m³, 43.9% less and 5.1% higher than in 1981 and 1998 respectively.

GRAPH 5.4.1

Roundwood production in China, 1990-1999



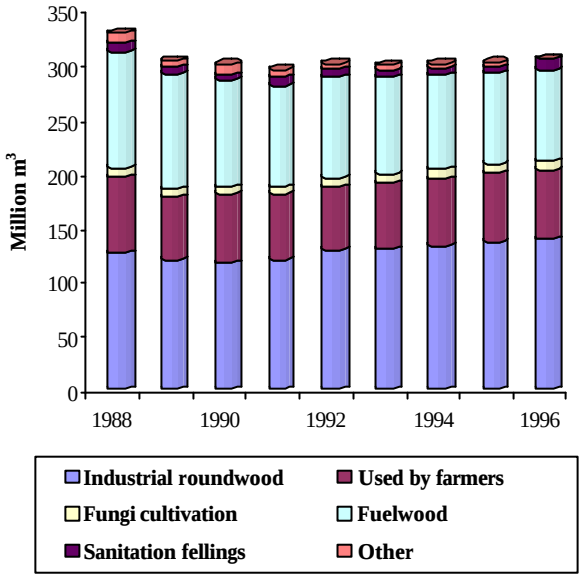
Source: The State Forestry Administration of China, 2000.

Since the official figures of roundwood production in China can not fully reflect the actual situation, experts generally adopted the "method of reverse reckoning" to estimate roundwood production. This method estimates the roundwood production based on the actual consumption of forest resources.

China's consumption statistics of forest resources come mainly from two kinds of surveys of national forest resources. The first is the "Survey of Consumption Volume and Consumption Structure of China's Forest Resources" normally produced each year by Resources Department of the former Ministry of Forestry, which ceased during the last two years. The second survey is the national forest inventory performed every 5 years by the Institute of Forestry Planning and Design under the State Forestry Administration. According to the survey of consumption volume and consumption structure of forest resources, the production of commercial roundwood in 1996 should be 83.9 million m³. This is based on the conversion rate of 61% between the production of commercial roundwood and its consumption of forest standing volume. The total production of industrial roundwood would be much higher, about 129.3 million m³, if the roundwood used by farmers and the cultivation[3] sector were included (graph 5.4.2). Substantial volumes of roundwood were lost in sanitation cuttings following floods and fires.

GRAPH 5.4.2

Roundwood utilization in China, 1988-1996



Source: Survey of consumption volume and consumption

New statistics indicate that the data of the first survey method are generally lower than the data of the second survey method (forest inventory, implemented every 5 years). It is estimated by experts concerned that the data of the first survey method accounts for only some 86% of the second survey method. According to the national forest resources inventory (1994-1999) completed in 2000, China's average annual net increment of forest trees accounts for 457.5 million m³. The net consumption of the country's forests was 370.7 million, increased by 50.8 million m³, compared with the previous inventory stage.

If the consumption of trees around houses, villages, road sides and water courses and canals, and sanitation fellings is not taken into account, the annual national

[3] *Large volumes of roundwood are used in the cultivation of edible fungi, both as a substrate and also to build necessary structures.*

average net consumption of forest resources under the scope of cutting quota management would be some 344 million m³. This means that the annual national average production of roundwood in 1994-1998 period accounts to some 250 million m³. When 30% of fuelwood consumption (about 75 million m³) is subtracted, the production of industrial roundwood is about 175 million m³.

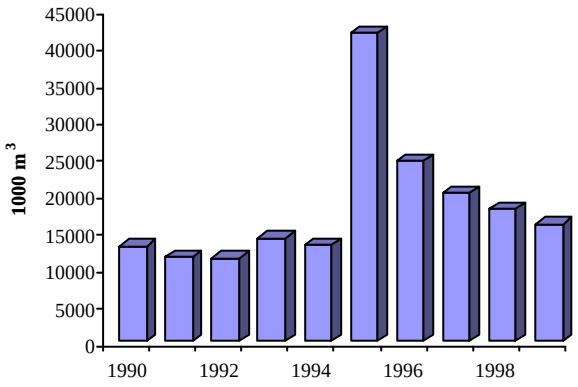
5.4.2 Production of China's major forest products

5.4.2.1 Sawnwood

According to the preliminary statistics by the State Administration of China, the production of sawnwood was 15.9 million m³ [4] in 1999, 21.9% higher than in 1981 and 11.3% less than in the preceding year.

GRAPH 5.4.3

Sawnwood production in China, 1990-1999



Note: 1995 figures were from the third national industrial census, and the statistical scope was incomplete in preceding years; 1998 statistics do not include the production of non-state owned firms with annual production under 5 million Yuan.

Source: China's State Administration of Forestry, 2000.

5.4.2.2 Panels

The production of wood-based panels was 15.0 million m³, 14 times higher than in 1981 and 42.3% higher than in the preceding year (graph 5.4.4). The production of plywood was 7.3 million m³, 20 times higher than in 1981 and 63% higher than in the preceding year. The production of fibreboard was 3.9 million m³, 6.8 times higher than in 1981 and 77.9% higher than in the preceding year. The production of particle board was 2.4 million m³, 31 times higher than in 1981 and 9.4% lower than in the preceding year.

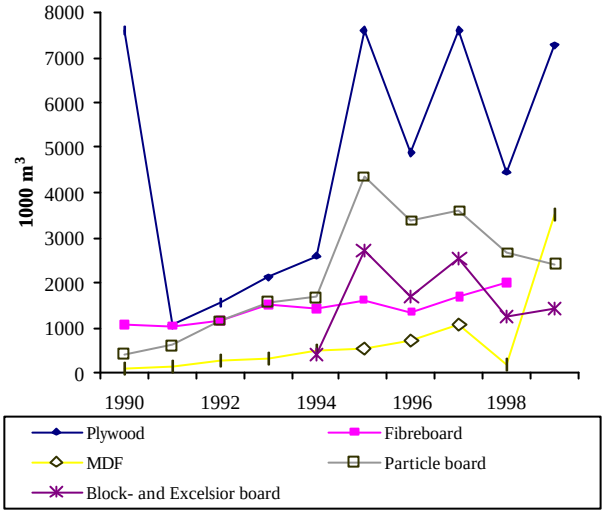
[4] *Note: the production data of all forest products in 1999 are preliminary estimates.*

5.4.2.3 Pulp

According to statistics by the State Administration of Light Industry, the production of pulp was 17.2 million m.t. in 1999, 4.2 times higher than in 1981 and 4.3% higher than in the preceding year.

GRAPH 5.4.4

Wood-based panels production in China, 1990-1999



Note: 1995 figures were from the third national industrial census, and the statistical scope was incomplete in preceding years; 1998 statistics do not include the production of non-state owned firms with annual production under 5 million Yuan.

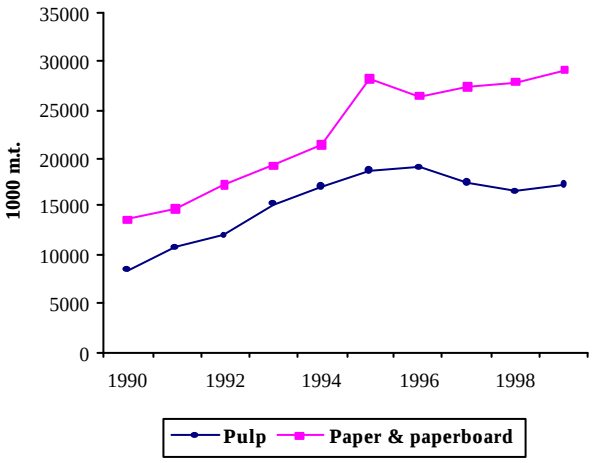
Source: China's State Administration of Forestry, 2000.

5.4.2.4 Paper and paperboard.

The production of paper and paperboard was 29

GRAPH 5.4.5

Production of pulp, paper and paperboard in China, 1990-1999



Note: 90% of pulp is made of straw; 1998 statistics do not include the production of non-state owned firms with annual production under 5 million Yuan.

Source: China's State Administration of Forestry, 2000.

million m.t., 5.4 times higher than in 1981 and 4.3% higher than in the preceding year (graph 5.4.5).

5.4.2.5 Furniture

The value of furniture production reached $10.5 billion in China in 1998, an increase of 12% over 1997, and further increased to $12.1 billion in 1999, with an increase of 14.9% over 1998 (table 5.4.1).

In the statistics of table 5.4.1, the production of all forest products was substantially higher in 1995 than in the preceding years. However, the production in 1998 was significantly lower than in the preceding year. This does not reflect actual changes of production, but rather these aberrations are due to changes of statistical procedures. Production in 1995 was substantially higher than in the preceding year chiefly because of an incomplete statistical scope in the preceding years. Production in 1998 and 1999 was lower than in the preceding year because of a reduction in the statistical scope, namely because statistics of 1998 and 1999 did not include the production of non-State-owned firms with annual production value under 5 million yuan.

Based on the analysis of continuous growth of China's national economy in recent years and the improvement of standard of living, the production of China's major forest products, except for sawnwood, should be higher than the statistical data for 1997. According to investigations, inadequate statistical systems and large numbers of private enterprises which made false reports on production to avoid taxes were also important factors which damaged the accuracy of statistical data.

Limited by statistical systems and methods, sawnwood production data for past years do not reflect the actual production situation of sawnwood in China. At present, the main problems are that large numbers of sawnwood consumers buy roundwood and process it themselves. In

TABLE 5.4.1

Production of China's major forest products, 1981-1999

(1,000 m^3)

Year	Sawn wood	Wood-based panels						Pulp [3] (1,000 m.t.)	Paper & paper board (1,000 m.t.)	Furniture[7] (1,000 pieces)
		Total	Ply wood	Fibreboard		Particle board	Other wood-based panels[2]			
				Total	MDF					
1981	13,010	996	351	568	-	77	-	4,060	5,400	
1985	15,910	1,615	5,390	950	50	182	-	6,150	9,110	116,410
1990	12,850	2,359	7,590	1,172	87	428	-	8,350	13,720	163,720
1991	11,420	2,842	1,054	1,174	137	614	-	10,750	14,790	214,380
1992	11,190	4,167	1,565	1,445	286	1,159	-	11,990	17,250	216,500
1993	14,010	5,505	2,125	1,810	310	1,571	-	15,290	19,140	308,670
1994	12,940	6,647	2,606	1,930	500	1,682	429	17,050	21,380	505,140
1995[1]	41,840	16,846	7,593	2,164	537	4,351	2,738	18,620	28,120	618,650
1996	24,420	12,032	4,903	2,055	695	3,383	1,692	19,036	26,380	501,640
1997	20,120	16,484	7,585	2,759	1,059	3,604	2,537	17,366	27,330	438,940
1998[5,6]	17,880	10,563	4,465	2,195	2,000	2,663	1,240	16,520	27,800	87,006
1999[6]	15,860	15,031	7,276	3,906	3,500	2,410	1,439	17,230	29,000	100,006

1 *Figures in 1995 were from the third national industrial census. The chief reason for substantially higher production of sawnwood and wood-based panels than the preceding years was an incomplete statistical scope in preceding years, which did not include small manufacturers.*

2 *Blockboard and excelsior board.*

3 *Total pulp. Woodpulp accounts for only 10% as pulp is mainly made from straw.*

4 *Of which wooden furniture accounts for 329.6 million pieces, 75% of total volume.*

1998 Statistics do not include the production of non State-owned firms with annual production value under 5 million yuan.

6 *The statistical data of furniture in 1998 and 1999 were production value in billion yuan.*

7 *Wood and non-wood furniture combined.*

Source: China's State Administration of Forestry, 2000.

addition, enterprises operated by local people process roundwood and then use the sawnwood, which results in production not counted into China's total production of sawnwood.

5.5 Development of China's forest product trade from 1981 to 1999

5.5.1 Main characteristics of trade

China's forest product trade expanded and developed along with implementing the policy of reform and opening-up. China's forest products trade has always been small in volume and formerly the trade partners were limited to the Soviet Union and some countries in Eastern Europe. China's forest products trade over the past twenty years shows that forest product trade has played a very important role in national economic development and in satisfying people's living needs. The forest product trade has the following obvious characteristics.

5.5.1.1 Trade focussed on imports

Because of China's extreme lack of forest resources, with average standing timber volume of only 8.6 m^3 per capita (only 14% of the average world level), the forest products trade is mainly unilateral import trade with little export. In 1998, for example, the import volume of six chief categories, namely roundwood, sawnwood, plywood, veneer, pulp and waste paper, and paper and paperboard, reached $6.3 billion, while the export volume of these same products reached only $335 million, equivalent to only 5.3% of the import volume.

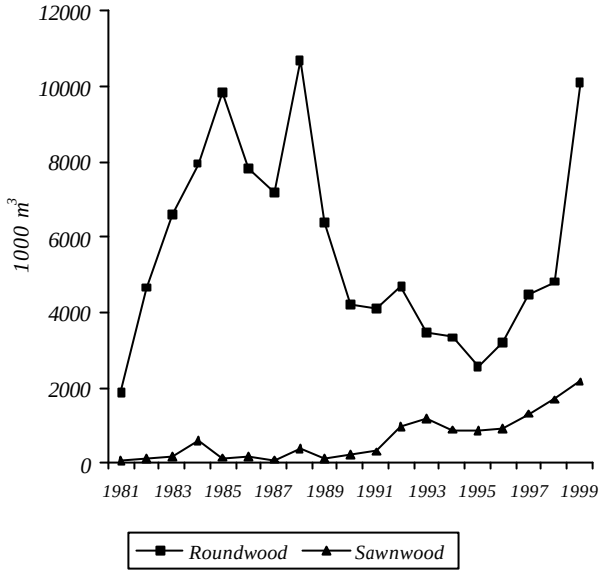
China's imports of forest products over the last 2 decades have expanded dramatically. Reduced domestic harvests combined with greater and greater production capacity have led to an explosion of roundwood imports, more than doubling in 1999 to over 10 million m^3 (graphs 5.5.1 and 5.5.2).

Sawnwood imports also expanded over the last two decades and accelerated in the last two years (graphs 5.5.1 and 5.5.2). Plywood manufacturing capacity is increasing, partly through foreign investments necessitating higher veneer log imports but reducing plywood imports. Plywood imports have fell back in 1999 to a level of 10 years ago (graphs 5.5.3 and 5.5.4).

Paper manufacturing capacity is also increasing, again due to joint ventures and foreign investment, and imports of pulp and waste paper for pulping doubled from 1997 to 1999 (graphs 5.5.5 and 5.5.6). Despite increased manufacturing, the skyrocketing demand for paper products has resulted in growing imports of paper and paperboard.

GRAPH 5.5.1

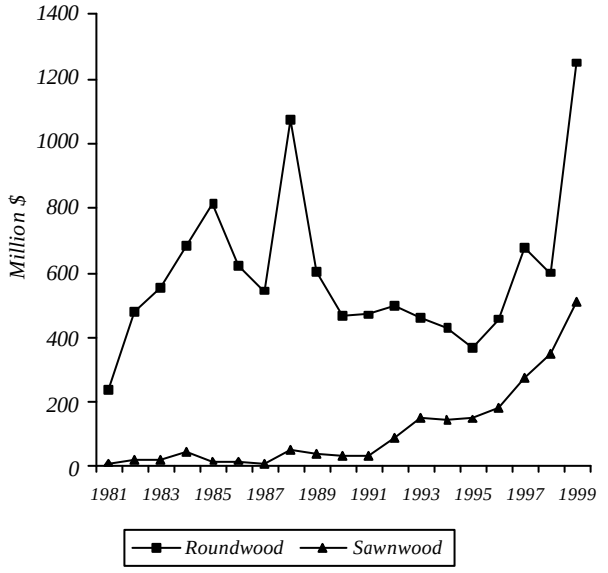
China's roundwood and sawnwood imports by volume, 1981-1999



Source : Chinese Customs, 1999.

GRAPH 5.5.2

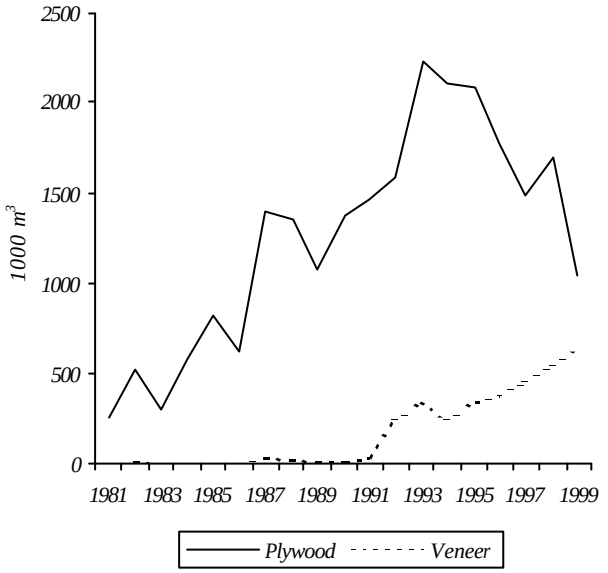
China's roundwood and sawnwood imports by value, 1981-1999



Source : Chinese Customs, 1999.

GRAPH 5.5.3

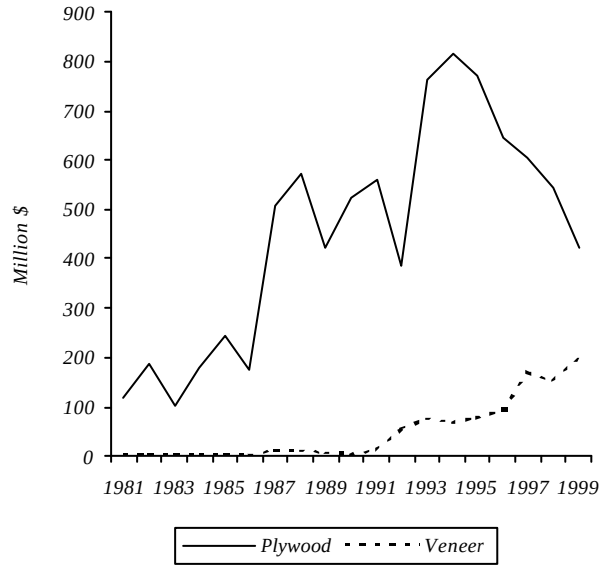
China's imports of plywood and veneer by volume, 1981-1999



Source: Chinese Customs, 2000.

GRAPH 5.5.4

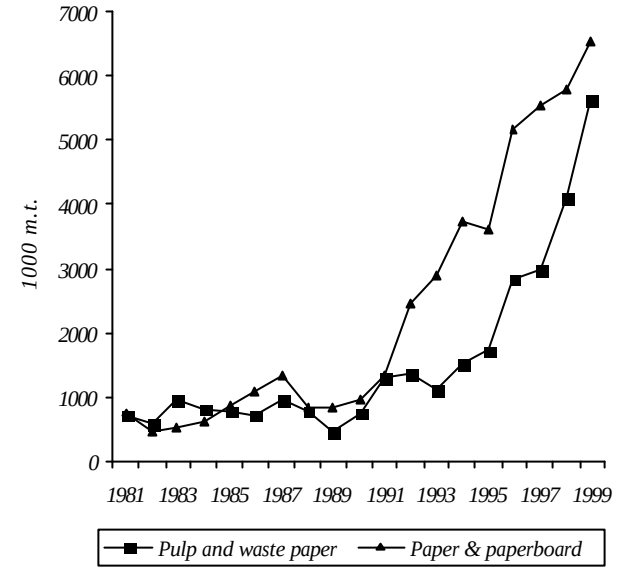
China's imports of plywood and veneer by value, 1981-1999



Source: Chinese Customs, 2000.

GRAPH 5.5.5

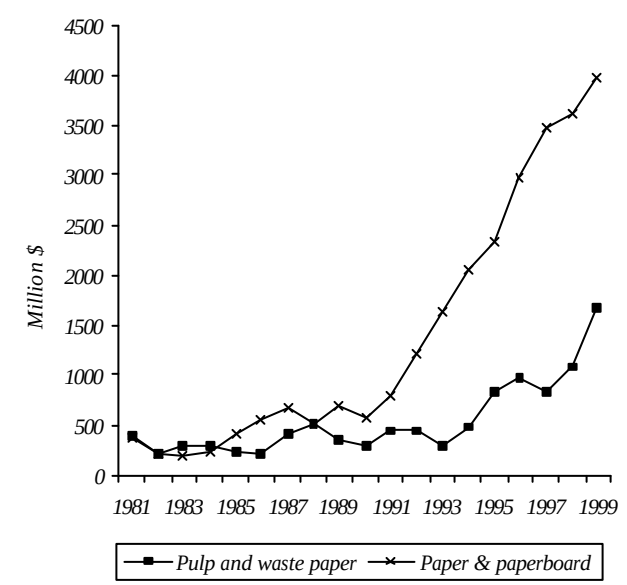
China's imports of pulp, waste paper and paperboard by volume, 1981-1999



Source: Chinese Customs, 2000.

GRAPH 5.5.6

China's imports of pulp, waste paper and paperboard by value, 1981-1999



Source: Chinese Customs, 2000.

5.5.1.2 Import value of forest products ranks first among all of China's commodities imported

During the period 1981-1992, China had a total cumulative import of $22.05 billion of forest products representing 2.5% of total value of commodity imports. If calculated according to the value of commodity imports, forest products imports ranked fourth, the first three being steel products, grain and chemical fertilizers. However, over the last few years, with the changes of domestic resources and market demands, the structure of commodity imports has changed tremendously. In 1999, forest products took the first place among the various import commodities (table 5.5.1).

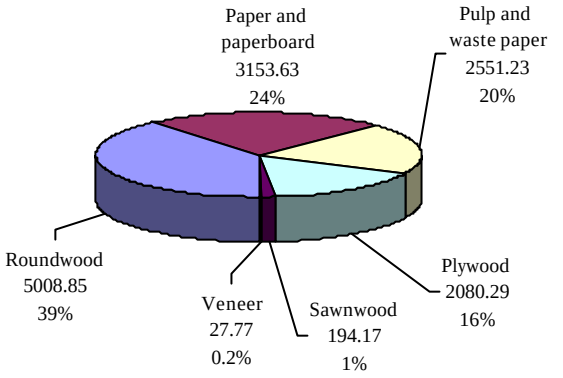
Along with the rapid increase of forest product imports, their proportion to the import volume of all commodities also increased greatly. For example, during the period 1981-1992, the average share of all imports amounted to only some 2.5%, but in the years 1996 and 1997, it had increased to 3.8% and 4.2% respectively, and it further elevated to 4.5% in 1998. In 1998, if all forest products imported were converted into roundwood, the total import volume exceeded 50 million m^3, equivalent to about one quarter of the total consumption of China's industrial roundwood.

5.5.1.3 Structure of forest products imports

During the period 1981-1988, China's forest products imports were mainly roundwood, the accumulated import value in 8 years was about $5 billion, representing 38.5% of total import value of forest products in the same period ($13 billion) (graph 5.5.7). Total value of forest products imports rose from $1.1 billion in 1981 to $2.8 billion in 1988 to $8 billion in 1999.

Over the last several years, due to the increasing number of countries restricting export of roundwood, prices of roundwood are rising continuously. In addition, the demand structure in China's market has changed and the structure of imported forest products in China also changed correspondingly, By 1998, paper and paperboard took the first place (56.8%) in the total import volume of forest products. Next were pulp and waste paper, roundwood, sawnwood, plywood and veneer respectively (graph 5.5.8).

GRAPH 5.5.7
China's major forest product imports cumulative, 1981-1988
($ million, %)



Source: Chinese Customs, 2000.

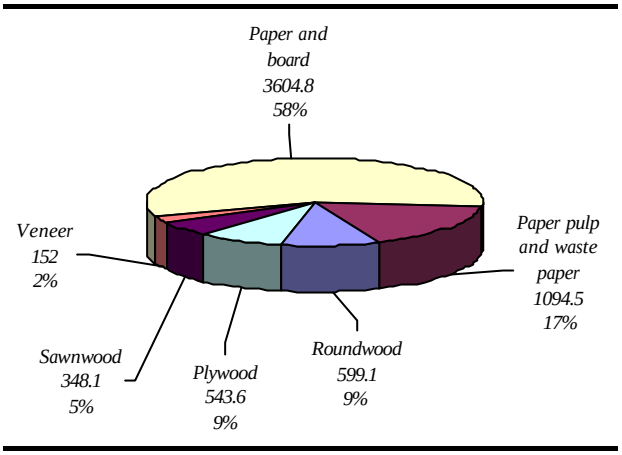
TABLE 5.5.1

Volume, value and ranking of major commodity imports in China, 1997-1999

	1997			1998			1999		
Commodity	Volume	Value $ million	Value ranking	Volume	Value $ million	Value ranking	Volume	Value $ million	Value ranking
Forest products, total	16,927	6,030	3	14,358	6,340	1	26,134	8,030	1
Crude oil (1000 ton)	59,260	9,140	1	49,060	5,680	3	57,430	7,340	2
Steel products (1000 ton)	13,230	6,520	2	12,420	6,290	2	14,860	7,010	3
Aircraft (unit)	73	2,580	5	81	2,600	4	74	2,320	4
Fertilizers (1000 ton)	16,490	2,990	4	13,850	2,510	5	13,350	2,250	5
Total imports		142,360			140,170			165,720	

Source: China's Customs, 2000.

GRAPH 5.5.8
China's major forest product imports in 1998
($ million, %)



Source: Chinese Customs, 2000.

5.5.1.4 The international position of China's import trade of forest products increases gradually

According to FAO's statistics, the import volume of industrial roundwood in China (including Taiwan Province of China and excluding Hong Kong SAR, similarly hereafter) in 1997 reached 8.9 million m^3, (in which the import volume of Taiwan Province was about 1.8 million m^3, according to ITTO), ranking third in the world, just behind Japan and Korea. The import volume of wood panels reached 6.5 million m^3 (in which the import volume of plywood in Taiwan Province was about 997 thousand m^3, ITTO), ranking third in the world, just behind the United States and Japan. The import volume of paper and paperboard was about 10.5 million m.t. (in which the import volume of Taiwan Province was 4.5 million ton, PPI), ranking second in the world, just behind the United States. The import volume of waste paper reached 3.4 million tons, ranking first in the world; the import volume of wood pulp was 2.5 million tons, ranking fifth in the world. In China, the import value of forest products increased from $4.5 billion in 1991 (seventh place) to $12.4 billion in 1997 ranking it third in the world behind the United States and Japan. World-wide, the percentage of China's import value of forest products in the global import volume of forest products increased from 4.2% in 1991 to 8.6% in 1997 (table 5.5.2).

5.5.1.5 China imports forest products from more countries and regions

(i) Imports of temperate forest products

Roundwood. In the past, most softwood roundwood, mainly Douglas fir and hemlock, was imported from the United States. From 1988 to 1989, for example, the share of softwood roundwood imported from the United States, was 62% in the total import volume. However, because United States roundwood became expensive, softwood roundwood imports increased rapidly from Russia, Korea, Canada (mainly hemlock), and New Zealand (mainly radiata pine). Now Russia supplies the greatest amount of roundwood, mainly Korean pine, Mongolian Scots pine, and a small amount of hardwood roundwood (table 5.5.3). China imported a small amount of temperate hardwood roundwood, which included ash and xylosma from Russia, maple, cherry and oak from the United

TABLE 5.5.2

China's import value of forest products and the changes of its precedence in global imports of forest products in 1991 and 1997

Country	Total import value ($ billion)		Percentage (%)		Ranking	
	1991	1997	1991	1997	1991	1997
United States	12.9	24.0	12	16.6	1	1
Japan	12.6	17.2	11.8	11.9	2	2
China	4.5	12.4	4.2	8.6	7	3
Germany	12.6	12.0	11.8	8.3	3	4
United Kingdom	9.0	10.0	8.4	6.9	4	5
Italy	6.4	6.8	6.0	4.7	5	6
France	5.8	5.3	5.4	3.7	6	7
World	107.3	144.3	100.0	100.0		

Note: If the import value of Taiwan Province of China, which was $2.7 billion, was excluded from the total value of China, China's total import value of forest products in 1997 would rank fifth in the world.

Source: FAO, 1998.

TABLE 5.5.3

China's roundwood import sources, 1996-1998

(1,000 m^3)

Country	1996			1997			1998		
	Imports (1,000 m^3)	Share (%)	Ranking	Imports (1,000 m^3)	Share (%)	Ranking	Imports (1,000 m^3)	Share (%)	Ranking
Russia	529	16.6	3	949	21.2	2	1,578	32.8	1
Malaysia	554	17.4	2	733	16.4	3	1,061	22.1	2
Gabon	695	21.8	1	1,024	22.9	1	593	12.3	3
Cameroon	62	1.9	8	320	7.2	5	234	4.9	4
Korea D.P.R	275	8.6	5	356	8.0	4	219	4.5	5
Equatorial Guinea	75	2.3	7	228	5.1	6	202	4.2	6
Papua New Guinea	152	4.8	6	183	4.1	8	185	3.8	7
Myanmar	455	14.3	4	206	4.6	7	182	3.8	8

Source: Chinese Customs, 1999.

States, and beech from Europe (mainly Germany).

Pulp, and paper and paperboard. These products used to be imported mainly from Canada and the United States, and secondly from northern Europe. Because of lower prices, imports from Russia and Chile increased vigorously recently. Imports of bleached sulphate softwood pulp and bleached sulphate hardwood pulp from Russia now exceed that from Canada and the United States.

Sawnwood. China imports relatively small amounts of temperate sawnwood, which is mainly softwood from New Zealand and Russia, and hardwoods from the United States and Canada.

(ii) Imports of tropical forest products

Roundwood. Malaysia has been China's principal source of roundwood for many years, but because of the increasing prices, the import volume of roundwood from western Africa (mainly Gabon) increased vigorously in recent years. From 1996 to 1997, for example, the import volume of roundwood (mainly okoume) was always ranked first among all imported roundwood in China. After the financial crisis in south-eastern Asia, the prices of roundwood imported from Malaysia declined rapidly, and then in 1998 Malaysia became the main source of tropical roundwood again (table 5.5.3).

Sawnwood. China imports tropical sawnwood mainly from Malaysia and Indonesia. In 1998, for example, the import share from Malaysia was 48.3%, and from Indonesia was 38%.

Plywood and veneer. China imports plywood and veneer mainly from tropical countries. Indonesia and Malaysia have been the major exporters of plywood to China for many years. In 1998, the import volume of plywood from both countries together was 94% of China's total (tropical and non-tropical) plywood import volume, and 99.2% in China's total import volume for tropical plywood. Indonesia had a 57.3% market share and Malaysia had a 41.8% share. In 1998, China imported veneer mainly from Malaysia (64.6%) and Cambodia (28.3%), a small amount from the Philippines (3.8%) and Indonesia (3.1%).

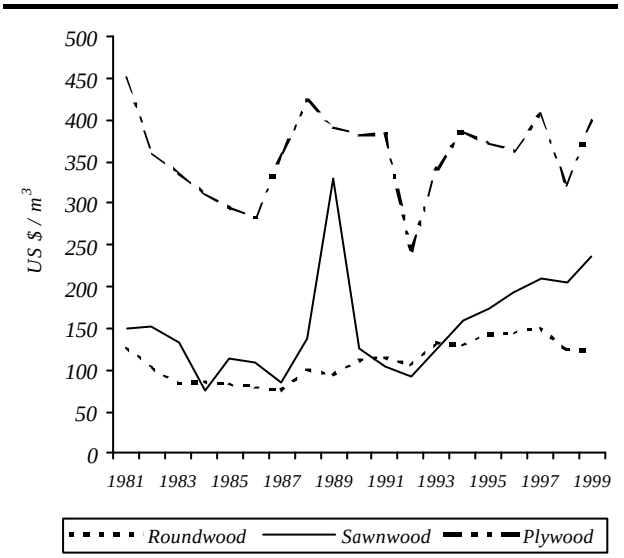
5.5.1.6 Import prices of roundwood and plywood declined significantly under the impact of the financial crisis in Asia

Since the beginning of the 1990s, the average prices of roundwood, sawnwood and plywood have shown an increasing trend in China. However, as a result of the financial crisis in southeastern Asia, the import prices of roundwood and plywood have declined significantly since 1998. This was because the economy and the timber demand declined from other main tropical importers, i.e. Japan and Korea.

The prices of roundwood and plywood decreased by 18.1% and 20.9% over 1997 respectively. However, the sawnwood price decreased only slightly mainly because tropical sawnwood took only a small proportion in total sawnwood. After 1999, along with the rapid economic rehabilitation of southeastern Asian countries, timber demand increased in Japan and Korea, and the prices of plywood and sawnwood rebounded and increased by 24.1% and 14.4% over 1998 respectively. The overall import price of roundwood in 1999, hardwood and softwood combined, remained lower than in 1998, because large quantities of Russian roundwood were imported. The roundwood price was much lower than for tropical roundwood (graph 5.5.9).

GRAPH 5.5.9

Prices of roundwood, sawnwood and plywood, 1981-1999



Source: Chinese Customs, 2000.

5.5.1.7 Export structure of forest products is being optimized and furniture has become the most important export

For a long period of time, non-timber forest products (such as fruit, chestnuts, and rubber) and rosin products were China's chief forest products export. The import volume of processed timber products was relatively small and included mainly primary products such as wood chips, sawnwood, chopsticks and toothpicks. Over the last several years, with the development of the forest products industry and the steady increase of foreign investment, exports of high value-added products such as furniture, paper and paperboard have been increasing steadily, with the export structure being continuously optimized (tables 5.5.4 and 5.5.5).

We can see from table 5.5.5 that the export value of paper and paperboard accounted for 40.1% in the total exports of forest products by China by 1996, and furniture took 34.8%. By 1998, the export value of furniture increased rapidly to $ 2.2 billion[5] far ahead of other commodities, which percentage in total export volume increased to 63.8%. Paper and paperboard decreased to the second place, making 28.8% in the total export value of forest products, but was ahead of other forest products in export value.

5.6 China's forests product trade in 1999

5.6.1 Forest products imports

In 1999, the total import value of the six chief categories of forest products reached $8.02 billion in China, which was 26.5% higher than in the preceding year, the second highest total so far recorded. Specific analysis for each category of forest products follows, according to the statistical data newly published by Chinese Customs.

TABLE 5.5.4

China's forest products exports (volume), 1995-1999

	1995	1996	1997	1998	1998	% Change 1998-1999
Roundwood (1,000 m^3)	97	64	63	32	23	-28
Wood chips (1,000 m.t.)	1,908	1,849	1,948	1,948	1,601	-18
Sawnwood (1,000 m^3)	408	383	388	258	355	+38
Plywood (1,000 m^3)	129	177	438	177	423	+139
Veneer (1,000 m.t.)	21	20	31	45	36	+16
Particle board (1,000 m.t.)	5	0.7	11	11	11	0
Fibreboard (1,000 m.t.)	44	3.9	26	14	13	-50
Wood pulp (1,000 m.t.)	27	1.7	13	20	5.7	-71
Waste paper (1,000 m.t.)	16	0.5	4	8	5	-37
Paper & paperboard (1,000 m.t.)	530	799	974	942	897	-5

Source: Chinese Customs, 1999.

[5] *Note: When sitting facilities were excluded, the export value of furniture was $1.4 billion in 1998, taking 40.9% in the total export value of forest products in the same year.*

TABLE 5.5.5

China's forest products exports (value), 1995-1999

($ 1,000)

	1995	1996	1997	1998	1999	% Change 1998-1999
Roundwood	47,153	29,373	29,455	12,459	8,007	-36
Wood chips	174,000	162,816	154,370	154,471	111,837	-28
Sawnwood	195,000	193,845	193,049	114,892	139,375	+21
Plywood	39,070	62,286	151,536	64,960	123,648	+90
Veneer	28,013	27,436	43,097	41,550	46,431	+12
Particle board	2,798	4,696	9,271	4,727	6,854	+45
Fibreboard	12,881	11,081	9,146	5,983	5,339	-11
Wood pulp	17,473	11,345	6,161	8,997	3,032	-66
Waste paper	1,702	460	311	1,000	410	-59
Paper & paperboard		807,066	1000,672	90,791	924,784	-7
Furniture [1]		700,372	1,295,278	2,190,163	2,707,814	+24

[1] *Furniture included seats and other furniture. If the seats were not included, the export value of furniture in 1998 was about $1.4 billion. China's total furniture imports in the same year was about $92.7 million; if the seats were not included, it was $31.7 million. In exported furniture, wooden furniture accounted for about 50%.*

Source: Chinese Customs, 1999.

5.6.1.1 Import volume of roundwood doubled and redoubled

China imported 10.14 million m^3 of roundwood in 1999 worth $1.25 billion, more than double the 1998 figure in volume and value. Of all imported roundwood, tropical roundwood was 4.91 million m^3, accounting for 48.4%, with an increase of 90.4% over 1998. The import value of tropical roundwood was $755.53 million, representing 60.5% of the total roundwood import value.

5.6.1.2 Import volume of plywood decreased considerably

The total plywood import volume and value of China in 1999 was 1.04 million m^3 ($415.9 million) decreasing by 38.4% and 23.5% respectively. China's production of plywood is increasing, necessitating greater veneer log imports (not all increases in capacity and production are currently reflected in official statistics). The main import sources for plywood were Indonesia and Malaysia. The plywood imports from these countries were 588,432 m^3 and 331,316 m^3 respectively, accounting for 56.4% and 31.8% of the total. Compared with 1998, the imports from Indonesia were down 56.5%, and from Malaysia, down 50.5%.

5.6.1.3 Imports of tropical sawnwood increased considerably

The import volume of sawnwood in 1999 was 2.18 million m^3, increasing by about 28% in 1997 and 1998. Its total import value was $513 million, increasing by 47.4% over 1998. Of all imported sawnwood, tropical was 1.29 million m^3, accounting for 59.1%, up 65.8% over 1998. Its increase was much more than that in 1997-1998 (17.6%). The total import value of tropical sawnwood was $321.54 million, accounting for 62.7% of the total sawnwood import, increasing by 96.3% over 1998.

The veneer import of China in 1999 was 641,293 m^3, which was up 19.6% over 1998, a bit higher than that from 1997 to 1998 (18.1%). The total import value of veneer was $204.98 million, increasing by 34.8% over 1998. Of all veneer import, 95.9% were from tropical countries with 615,244 m^3. The total import value of tropical veneer reached $184.85 million, accounting for 90.2% of the total veneer import.

5.6.1.4 Characteristics of imports

In 1999, China imported 3.1 million tons of pulp, which was 40.9% higher than in the preceding year; imported 2.52 million ton of waste paper, which was 92.5% higher than in the preceding year; and cost $1.66 billion for both pulp and waste paper, which was 51.6% higher than in the preceding year. 6.52 million tons of paper and paperboard were imported, which was 12.9% higher than in the preceding year; and $3.98 billion was cost, which was 10.8% higher than in the preceding year. However, the import volume of paper products decreased from 507.4 thousand tons in the preceding year to 390.1 thousand tons, with a decrease of 23.1%. Paper manufacturing capacity has increased substantially in recent years and further increases are expected.

The above-mentioned conditions indicated the improvement in the structure of China's forest product import, which was mainly shown in the following aspects: First, the import volumes of roundwood and waste paper,

which are raw material commodities, rose sharply, by 110.2% and 92.6% respectively, while the rate of growth in 1997 and 1998 was only 7.9% and 18.3% respectively.

Second, the imports of plywood and paper product, which are finished commodities, decreased greatly by 38.4% and 23.1% respectively. This case rarely took place before in China's importing history.

Third, the increasing rates of imports of semi-finished products such as sawnwood, veneer, paper and paperboard maintained normally, which were the same as that in 1998 (the increasing rates for paper and paperboard were 12.9% in 1999 and 4.5% in 1998).

In 1999, the imports of roundwood and waste paper increased rapidly, while that of plywood and paper products decreased sharply. Reasons for this situation are summed up as follows:

The Natural Forest Protection Programme launched by the central government increased the shortage of large diameter roundwood for the domestic markets. The conflicts between supply and demand were aggravated especially with respect to roundwood for plywood, roundwood for sawnwood, roundwood for interior housing decoration, and roundwood for furniture.

After the Chinese government implemented new import tariffs on roundwood (0%), sawnwood (0%), plywood (15%), veneer (5-15%) and paper (12-20%), and relaxed restrictions on the companies engaging in timber import, economic interest drove a large number of enterprises and individuals which had never engaged in timber trade to rush into the field of timber circulation. This was a main reason for blind importing, disordered competition, and suddenly overstocked timber at ports.

China expressed a serious shortage of domestic wood pulp, and had to import partial foreign wood pulp to satisfy the needs of domestic markets for wood pulp. This trend of trade would continue further.

Domestic plywood enterprises could use low-price imported roundwood to produce plywood which were competitive with foreign plywood in both price and quality.

Along with the economic recovery of major plywood importing countries, such as Japan and Korea, and the increase of plywood demand, prices of plywood from south Asia, rebounded considerably. The average price C.I.F of plywood in China, for example, increased from $321/m^3$ in 1998 to $400/m^3$ in 1999, an increase of 24%.

5.6.2 Forest product exports

In 1999, China exported a total of $1.36 billion of the six chief categories of forest products, (i.e. roundwood, sawnwood, plywood, veneer, pulp, waste paper, and paper and paper products), which increased by 10% over 1998. However, when exports of furniture and wood chips were included, the total export value reached $4.19 billion, which increased by 17.2% over 1998. The export value of furniture reached $2.7 billion, which increased by 23.7% over 1998, which percentage in the total export value increased from 61.2% to 64.6%. In the meantime, exports

TABLE 5.6.1

China's forest product exports, 1999

Commodity	Volume	% Change 1998-1999	Value ($ 1,000)	% Change 1998-1999
Roundwood (1,000 m^3)	23.0	-28.1	8007	-35.7
Wood chips (1,000 m.t.)	1,601	-17.8	111,837	-27.6
Sawnwood (1,000 m^3)	355	37.6	139,375	21.3
Plywood (1,000 m^3)	423	139.0	123,648	90.3
Veneer (1,000 m.t.)	36	16.1	46,431	11.7
Particle board (1,000 m.t.)	11	0	6,854	45.0
Fibreboard (1,000 m.t.)	13	-50	5,339	-10.8
Wood pulp (1,000 m.t.)	5.7	-71.2	3,032	-66.3
Waste paper (1,000 m.t.)	5	-37.5	410	-59.0
Paper & paperboard [1] (1,000 m.t.)	897	-4.8	924,784	-6.7
Furniture [2]	N.A.	N.A.	2,707,814	23.6
Total			4,189,367	17.2

1 *Values for paper and paperboard were estimated according to average import price of the same year; paper products were included (the same below);*

2 *Including seating and other furniture and components. Total export value of furniture, excluding seating, was $1.7 billion, of which, $784 million was exported to the United States. In exported furniture, wooden furniture accounted for about 60.7%.*

Source: Chinese Customs, 2000.

of pulp, waste paper, paper and paperboard all declined, especially pulp (-65.2%) (table 5.6.1). Nevertheless, exports of paper and paperboard still took a percentage as high as 22.1% in the total export value of forest products.

Over the last two or three years, furniture exports have developed rapidly, owing to large quantities of foreign funds invested in China. Almost all furniture enterprises in Hong Kong have transferred to the mainland of China, while furniture manufacturers in Taiwan and Singapore have also begun to transfer to the mainland of China because of the high costs of labour and land in their original places. These foreign enterprises concentrated mainly in the provinces of Guangdong, Jiangsu and Fujian, and used imported wood to produce finished or semi-finished products to export.

China exported furniture mainly to the United States. In 1999, for example, China exported $1.654 billion of furniture (excluding chairs), of which the export value to the United States was $784 million (47.4% of the total).

China exported wood chips mainly to Japan, and a small amount of wood chips to Korea and Taiwan.

5.7 Consumption of major forest products, with international comparisons

5.7.1 Consumption of industrial roundwood

Section 4.1 reported China's roundwood production. Since official statistical production cannot reflect fully China's actual situations of roundwood production, we calculated the country's production of industrial roundwood according to the consumption structure of forest resources. The production of China's industrial roundwood obtained by this method is estimated at about 156.5 million m^3 each year in the 1994-1998 period.

In 1998, China imported 10.14 million m^3 of roundwood, 2.18 million m^3 of sawnwood, 1.04 million m^3 of plywood, 641,293 m^3 of veneer, 5.61 million tons of pulp and waste paper and 6.52 million tons of paper and paperboard. If the above-mentioned commodities are converted to roundwood equivalent[6], then China imported in 1999 an equivalent of 71.68 million m^3 of industrial roundwood. Thus, China's actual consumption of industrial roundwood in 1999 was approximately 228.18 million m^3 with average per capita consumption of 0.18 m^3, and imported roundwood accounting for about 31.4% of the country's total consumption of industrial roundwood.

According to FAO statistics, the global top 5 consuming countries of industrial roundwood in 1997 were the United States, Canada, China, Brazil and Japan, China's consumption of industrial roundwood was only 113.88 million m^3 in 1997. Obviously, FAO's statistical figures were similar to what we estimated. Even according to our estimation, China's per capita consumption of industrial roundwood is behind both that of these industrial countries and the world average level.

5.7.2 Consumption of sawnwood

Reported production[7] of China's sawnwood in 1999 was 15.86 million m^3, and the import volume of sawnwood was 2.18 million m^3. The actual consumption of sawnwood for this year was 17.68 million m^3, with an annual sawnwood consumption of 0.014 m^3 per capita, after deducting exports of 355,000 m^3. Imported sawnwood accounted for 12.3% of total consumption of sawnwood.

According to estimation by FAO, China's production and consumption of sawnwood was 30 and 27.14 million m^3 respectively, ranking the third in the world, just behind the United States and Japan.

5.7.3 Consumption of wood-based panels

China's statistics on wood-based panels in 1998 changed in scope (not including the production of non State-owned firms with annual production value under 5 million yuan). China's total production of wood-based panels in 1999, 15.03 million m^3, decreased by 8.8% compared to in 1997. Imports of wood-based panels (including plywood, veneer, particleboard and fibreboard) in the same year was 2.09 million m^3, the actual consumption in 1999 was about 16.68 million m^3 after deducting 447,000 m^3 of total exports of the three above-mentioned three categories. Annual consumption of wood-based panels per capita was about 0.013 m^3. In the same year, imports accounted for 12.6% of the country's actual consumption of wood-based panels.

According to FAO's statistics, China's consumption of wood-based panels in 1997 was 19.15 million m^3, ranking second in the world, only behind the United States.

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[6] *The conversion factors used here are: 70% for sawnwood, 50% for plywood and veneer, 1:4 for pulp and 1:5 for paper and paperboard.*

[7] *Sawnwood production is very decentralized in China, and many sawnwood users buy roundwood and process it themselves. Therefore, it is difficult to give complete statistics for China. The national sawnwood production officially published by relevant department over the years is considerably lower than the actual production.*

5.7.4 Consumpt ion of paper and paperboard

According to the statistics of China State Light Industry Bureau, the country's production of paper and paperboard in 1999 was 29 million tons, paper and paperboard imports in the same year were 6.52 million tons, and the actual consumption was 35.52 million tons after deducing exports of 897 thousand tons, ranking second in the world. Imports accounted for about 18.4% of total consumption. Annual consumption of paper and paperboard per capita was 28 kilograms, accounting for only 56% of the average consumption (50 kilograms per capita each year, 1997) in the whole world.

FAO statistics showed that China's consumption of paper and paperboard was 38.98 million m^3, ranking the second in the word, behind the United States. However, the annual consumption per capita was only 31 kilograms, accounting for 62% of the world's average per capita consumption (50 kilograms/year/person).

5.8 Projections of demand and supply of China's forest products to 2010

According to predictions by the Sector of Forest Resources Survey and Planning of China, the standing volume of forests in China will reach 11 billion m^3 by 2010, annual net increment will be maintained at 447 million m^3, annual consumption of forest resources will be 384 million m^3, and the predicted annual surplus (excess of increment over fellings) will be 63.19 million m^3. According to this prediction, China's capacity of industrial roundwood supply will be 180 million m^3 (including sawlogs and veneer logs, roundwood used by farmers, and roundwood used for cultivation of fungi) by 2010 (table 5.8.1).

According to the statistics and projections by relevant experts, China's industrial roundwood demand by 2010 will be about 360 million m^3. However, China's capacity of roundwood supply by then will be only 50% of the

TABLE 5.8.1

Projections of China's roundwood utilization to 2010

(1,000 m^3)

		1993	1995	2000	2010
Commercial	Forest resource consumption	154,710	165,230	186,570	212,180
	%	45	49	52	55
	Equivalent of roundwood production	94,370	100,790	113,810	129,430
	%	40	44	47	50
Fuelwood	Forest resource consumption [1]	112,080	91,410	91,290	91,280
	%	33	27	26	24
	Equivalent of roundwood production	95,270	77,700	77,600	77,590
	%	40	34	32	30
Wood consumed by farmers	Forest resource consumption [2]	70,140	73,340	74,880	74,060
	%	20	22	21	19
	Equivalent of roundwood production	42,780	44,740	45,680	45,180
	%	18	20	19	18
Wood used for fungi cultivation	Forest resource consumption [3]	6,880	5,640	5,880	6,470
	%	2	2	2	2
	Equivalent of roundwood production	5,850	4,800	5,000	5,500
	%	2	2	2	2
Total	Forest resource consumption	343,810	335,620	358620	383,990
	%	100	100	100	100
	Equivalent of roundwood production	238,270	228,030	242,090	257,700
	%	100	100	100	100

The recovery rate for wood used by cultivation sector and fuelwood is 85%.

2 The conversion rate between wood production and its consumption of tree standing volume for commercial wood and wood used by farmers themselves is 61%.

3 Roundwood used to grow edible fungi and to construct required structures.

Source: China's State Administration of Forestry

demands. Therefore, to reduce the pressure from consumption of forest resources, the Chinese government has decided to adopt the following measures to alleviate conflicts between demand and supply:

- *Expand the developing scale of the country's fast-growing and high-yielding plantation base for sawnwood;*
- *Expedite the pace of tending and structuring existing young and medium-aged forests;*
- *Expand industrial utilization of bamboo culms and agricultural residues;*
- *Adjust product structure, developing preferentially various kinds of composite wood products (laminated boards, finger-jointed wood, particle board, MDF, artificially combined veneer, and paper and paperboard) by using small-diameter, fast-growing tree species, wood residues, bamboo and agricultural residues as raw materials.*

Even if the above-mentioned measures are adopted, experts consider that the gap of 65 million m³ between supply and demand will remain.

China's forest resources will have a structural shortage by 2010. Especially rare will be large-diameter and high quality trees. There will be a severe shortage of some hardwood species. However, small-diameter trees will be in surplus.

Along with the improvement of people's standard of living and the rapid increase of demand for wood used in interior housing decoration and furnishing, the gap between supply and demand with respect of large-diameter roundwood of high quality (especially of rare hardwood trees) will increase further. As the demands can not be met by domestic timber resources in short term, international timber markets have to be relied on.

According to the foregoing projection and analysis, China's wood imports will not increase considerably in total volume, but will change significantly in imported varieties. Imports of pulp, and paper and paperboard will decline, while the imports of veneer, sawnwood and roundwood will continue to increase, which percentage in total import volume of wood will also be further increased.

The import volume of plywood will depend on competitive roundwood import prices and availability (mainly of tropical roundwood). If more countries forbid or restrict tropical roundwood export, the prices of roundwood and plywood will increase considerably, thus the import volume of plywood will not increase greatly, and the import volume may even decline. Under such conditions, plywood will be substituted by other materials, such as MDF and OSB[8], for its current uses. Large-diameter roundwood of high-quality, to be demanded by people, will not only include tropical hardwood, but may also be substituted by some temperate hardwood and softwood.

According to the projections made in our ITTO project, the gap between supply and demand of industrial roundwood will reach 64.4 million m³, and the shortage can only be resolved by higher imports of timber and timber products (table 5.8.2).

TABLE 5.8.2

Projections of Supply and Demand of China's Industrial Roundwood [1] in 2010

(1,000 m³)

Total supply and demand in 2010	
Total demand	*360,000*
Domestic supply	*180,000*
Gap	*180,000*
Substitution volume	
WBP	*75,000*
Bamboo	*14,000*
Recovery of waste paper [2]	*17,600*
Others	*9,000*
Total	*115,600*
Actual gap	*64,400*

1 Figure of fuelwood not available.

2 The proportion of woodpulp is calculated by 22%, the amount is 11 million tons, the recycling rate of waste paper is calculated by 40%, roundwood equivalent is 17.6 million m³.

Source: Report for ITTO Project 25/96 "China's forest production consumption and its demand for the market of international tropical forest products by 2010", 2000.

From table 5.8.3, we can see that, by 2010, China will have to import 64.5 million m³ of wood (converted in roundwood), which will include 43.9 million m³ of temperate wood (68.1%), and include 20.6 million m³ of tropical wood (31.9%). According to the projections, temperate wood will be imported mainly in the form of pulp, paper and paperboard (about 70.6% in the total import volume of temperate wood) and second in the form of roundwood (9.6 m³, about 21.9%). Tropical wood

8 According to recent statistics, there are six OSB manufacturers in China. The total designed manufacturing capacity of all the six manufacturers was 76800 m³ per year. But because the knowledge and experience of the properties, applications, and performance of OSB are not recognized by the Chinese market, sales have not been good. And since three mills have stopped production, the total manufacturing capacity of the six OSB manufacturers was actually only 30,000 m³.

will be imported mainly in the form of plywood, veneer, and "roundwood for plywood", making 83% altogether in the total import volume of tropical wood. However, the import volume of tropical sawnwood has great potential for increasing and could increase by 172% over 1999 volumes.

Based on the current situation of forest products trade in China, the distribution of forest resources in the world, and the patterns of production and trade of forest products in the world, it is estimated that China will import pulp, paper products, temperate roundwood and temperate sawnwood mainly from Russia, North America, northern Europe and New Zealand. Imports of pulp and paper products from developing countries such as Chile, Indonesia and Malaysia will increase significantly. Tropical forest products such as roundwood, plywood, veneer and sawnwood will be imported in large quantities from Malaysia, Indonesia, and Papua New Guinea, and from western African (such as Gabon, Cameroon, Equatorial Guinea, and Zaire).

TABLE 5.8.3

Forecast of China's imports of forest products, 2010

(1,000 m^3 timber equivalent [1])

	1999	2010	
		Total	of which: Tropical timber
Paper and paperboard	5,000	25,000	0
Paper pulp	1,500	6,000	0
Roundwood	10,140	15,100	5,500
Plywood [2]	3,800	7.600	7,600
Veneer	2,200	4,400	4,000
Sawnwood	4,480	6,400	3,500
Total	27,120	64,500	20,600

1 All supplies, demands, substitutes and imports are timber equivalent. The conversion factors for timber to wood-based panels 1:3, to waste paper 1:4, to paper and paperboard 1:5, to pulp 1:4, to plywood 1:2, to veneer 1:2 and to sawnwood 1:1.43.

2 We assumed that both import and export volumes of plywood are one-third of the total values of wood-based panel.

Source: Report for ITTO Project 25/96 "China's forest production consumption and its demand for the market of international tropical forest products by 2010", 2000.