

# **The Rising of Forest Product Industry in China and Its Contribution to the World**

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## **Abstract**

The forest product industry in China has become a large global manufacturer with a bright future by constant demand. Being a manufacturing center of the world has many effects, such as providing jobs, encouraging forest plantation, improving the development of new countryside, becoming the development engine of world forest product and increasing recycling.

It will take about twenty years for China's forest product industry to be really strong. Shifting from GDP\$2,400 per person to over GDP\$10,000 is a historical developing period at which labor intensive industry shall be transitioned to capital intensive and technological intensive industry, from external-oriented to internal demand-pull, from small firm to a modernized multinational forestry-industry-commerce integration corporation with independent intellectual property rights. China's forest product industry can then contribute much further to the global forest industry.

**Keywords:** China's forest product industry, manufacturing center, demand-pull, bright future, job provider, forestation, new countryside construction, development engine, recycle

## **Introduction**

The rising of forest product industry in China and its rapid expansion with a strong footprint of extensive economic mode have astonished the world. This is an important historical period for China. In the coming fifty years, there are great opportunities such as continuous enhancement of demand, inflow of global factors of production and industrial transfer. Moreover, tough challenges will have to be faced including globalization and multi-dimensions of market-orientation. China's forest product industry should grasp the opportunities, foster strengths and circumvent weaknesses, exceed its own limits and grow from large to strong.

### **1. Chinese Forest Product Industry Has Become World Manufacturing Center.**

For the past twenty years of development, China's forest product industry has become world manufacturing center, considering the quantity of main products, diversion of market, scale of mainstream enterprises, level of equipment, process technology, management concept, product variety and quality, brand building, it is and has been brought in line with international practice. We are marching on the way from being large to becoming strong.

Total forest products top the list in the world

Total product value of forest product in 2007 is RMB 1250 billion Yuan, 603.4 billion Yuan for forest product manufacturing industry [1], in which 299.1 billion Yuan goes to timber processing.

Timber output 69.77million m<sup>3</sup>.

Bamboo output 1.398 billion units.

Sawn timber 28.29 million m<sup>3</sup>.

Total output of wood-based panel is 88.39 million m<sup>3</sup>, including the output of plywood by 35.62 million m<sup>3</sup>, which is 30.5% more than last year and accounts for 40.3% of the total output of wood-based panel. The output of fiber board is 27.3 million m<sup>3</sup>. The output of particle board is 8.29 million m<sup>3</sup>;

Wooden floor is 361million m<sup>2</sup>;

Gum rosin is 1.06 million ton, turpentine 108,000 ton;

Paper GT-7

Camphor 14,000 ton, extract is 13,000 ton, and shellac 3,430 ton;

The output of paper and paper board is 77.87 million ton.

There is quite a diversity of forest products in China and an endless stream of new products.

## **1.2 Continuous and strong increase of production**

*Table 1 shows the increasing rate of the year for 2007 from 2006*

Type	Total Value	timber output	Sawn timber output	plywood	Fiber board	Other boards	Bamboo	rosin	Paper board
%	17.7	5.5	13.78	30.52	10.67	23.61	6.55	29.3	18.1

The output of China machine-made paper and paper board increased 5.68 times from 1990 to 2008.

## **1.3 The main products of Chinese forest product industry have been changed from net importer to net exporter while meeting domestic requirement.**

For example, plywood (table 2), solid wood floor and laminated flooring exported over 20 million m<sup>2</sup> respectively. The export of our wooden furniture has been the top of the list in the world. The export of veneer, block board, wooden door, wooden molding, bamboo and rattan products and forest products is also increasing. The export of Chinese gum rosin accounts for 60% of the world total value. The export of paper and paper products is 4.329 million ton.

## **1.4 Globalization and ownership structure adjustment has been widespread and deep going in this area.**

With the shape withdrawal of state-owned capital from general competitive sectors, foreign capital and non-governmental capital became the main investment team in forest product industry, such as Wall Street investment banks including Morgan Stanley, Goldman Sachs Group and IFC etc. Foreign capital invested in various product manufacturing fields, equipment manufacturing and material forest base plantation industry, for instance, Kronospan Group invested not only in MDF and solid wooden floor production line, but also held stocks of Shanghai Wood-based Panel Machinery Manufacturing Company.

Big Paper making factories of the world have been all in China and they started from forest plantation like UPM, STORAENSO, APP, Oji Paper and Raja Garuda Mas. Also, companies from Holland, Japan, Korea and Spain invested in Chinese gum rosin industry. There are more than 10 companies that have come into the sector. Some of them take it as their main product. Forest product industry companies have financed through the stock market. And the Stock Capitals are raising the professional quality of the trade. It is not only a capital raising resource, but it also shifts the companies to a new level in many parts including corporate legal person managerial structures, transparency of information disclosure and the business performance when facing strict management of capital market and the supervision of stock holders, and they are leading representatives of the advanced manufacturer of forest product industry.

With the aid of foreign capital and non-government capital, a new phase appears in China's forest product industry, i.e. the existence of multi-ownership economy with mixed ownership economy as mainstream.

### **1.5 Equipment modernization**

Most of the imported production lines are 21<sup>st</sup> century advanced like MDF and laminated floor. There are now 640 production lines of MDF with total productivity of 28,476,000 m<sup>3</sup>. Among them 44 production lines of 4,770,000 m<sup>3</sup> are newly constructed in 2008, and 61 are imported consisting of multi-opening, continuous single opening and continuous roller pressing. The productivity accounts for 20% of the total.

### **1.6 Large-scale raises key enterprises' level**

At present, average productive scale of plywood enterprises in China is nearly reaches 7000 m<sup>3</sup>, which is two times of that in 1990. There are more than 180 plywood enterprises with productivity over 20,000 m<sup>3</sup> in China. MDF and HDF board enterprises increased single-line production capacity shapely by introducing large-scaled continuous flat pressing production line. And the annual output of the largest enterprise is 1.5 million m<sup>3</sup>.

There are three production lines with single output over 200,000 m<sup>3</sup>, and the largest one is over 500,00 m<sup>3</sup>.

Large-scale enhanced the reliability and stability of production and reduced rejection rate, consumption of raw material and energy and environmental pollution. Meanwhile, the more share of large-scaled wood-based panel enterprises is, their product quality,

resources and energy consumption, management and technology, etc have reached world advance level.

*Table 2 Average Scale of newly-built MDF board production line recent years through out China [2]*

year	Production line	Total productivity (per year) (10,000 m <sup>3</sup> )	Average Single line Productivity (per year) (10,000 m <sup>3</sup> )
Before 2001	287	817	Less than 3
2002	40	181	About 4.5
2003	52	284	About 5.5
2008	44	477	About 10.8

## **2. Continuous Strong Demand Indicates a Bright Prospect of Development.**

The developing engine of forest product industry, similar to other trades, is consumption, investment and export. Since the reform and opening policy, our GDP has been increasing 9.7% yearly for thirty years. Experts predict that in the next ten years average GDP will be in accordance with an average of 8% growth rate which will mostly be driven by domestic investment and consumption. Such a huge scale of need in a country in the history of the world economy is really very rare. [3]. It is a great opportunity and historical period for the development of our modernization construction, as well as forest product industry. Sustained and rapid development of national economy effectively drives the demand of forest products.

### **2.1 From a consumption point of view, market demand, which is encouraged by steady rise of people's living standards, is increasing greatly.**

*Table 3 Per capita disposable income changes of China's urban areas (RMB)*

Year/income	East	Middle	West
1978	372	337	341
2004	11523	7829	8001

**2.2 Net population increase leads to a rise in demands.** The newly increased population in our country is 11,000,000 to 12,000,000, and the newly increased purchasing power is 63-65 billion RMB.

### **2.3 The rapid growth of urbanization**

By the end of 2007, the population in urban areas is 594 million and the level of urbanization is 44.9% which increased 0.95 annually during 25 years. It is indicated that the average increasing rate is 0.81-1 percent in the coming 10 to 15 years. There are now 655 cities and 20,000 organic towns in China [4].

### **2.4 House building becomes one of the pillar industries of national economy**

The annual growth rate for investment and building is between 20%-30% in recent years; In 1978 construction industry accounted for 3.8% of GDP. In 1991, 4.7%, and 6.7% in 2003; Take an example of city dwelling, the population is 190 million, and per capita housing area is less than 5 m<sup>2</sup>. In 2005, the population of city dwelling is 540 million, and per capita housing area is more than 26 m<sup>2</sup>;

Investment in real estate industry is 2854.3 billion, increased 32.2%;

Commercial house investment is 1801 billion, increased 32.1%;

Commercial house sale is 761.93 million m<sup>2</sup>, increased 23.2%, among them commercial house

residential is 691.04 million m<sup>2</sup>, increased 24.7%. Commercial house area completed 582.36 million

m<sup>2</sup>, increased 4.3%.

Real estate industry will be going into a high-speed growth period in the coming 5-10 years. Forest products will mainly be used for building and the decoration.

**2.5 World furniture Center is moving to China.** The total product value of China's furniture industry in 2007 is 430 billion. The predicted total product value in 2008 is 500 billion and export will be 20 billion dollars.

**2.6 There are more and more product varieties and export zones.** Some products have gained competitive capacity, and some manufacturers have set up warehouses in foreign countries, had direct sale branches and factories. As the living labor increases, the exports

grow. And the export of paper is growing faster and stronger in our country.

### **3. The Significant of China's being World Manufacturing Center**

#### **3.1 Provide jobs**

I think forest product industry is basically a labor intensive industry, especially when industry chain moves upwards into the industry of plantation forest and material harvesting, transportation, and take the labor intensive as the key links; plantation in the hills, digging, planting, fertilizing within the first three years, harvesting, plywood: peeling, nature drying, veneer handling, scarfing etc.; Block board, wooden doors, wooden Windows, wood molding, bamboo crafts; Wooden flooring: solid wood manual quality control, hand planer, solid wood compound base material, etc.

If we divide the total product value of forest product by overall labor productivity 42,633 RMB per person per year of forest enterprises [9], we can get that the job availability is 29.32 million (more in reality). Among them, 14.15 million jobs are needed for forest manufacturing industry. Especially it is quite helpful to the poor people living in the mountain area (56% of the total population), ethnic minority area and other remote areas.

Japanese Nomura Research Institute Ltd. executive director said [5]: there are 490 million working-age populations in rural areas in China. 180 million go to find work in township and village enterprises, and the rest 310 million stay in the rural areas. However, only 170 million is needed from the arable land point, therefore there are 140 million surplus labor forces. So it is quite important to provide job opportunities for the countryside population. Most of the forest industry in China located in mountain area, forest industry job opportunities help releasing the huge pressure of unemployment, contribute to the peace and harmony of the rural areas and relieve some poverty of the countryside in China. It is also meaningful to the world.

#### **3.2. Driving forestation growth**

Forestation in Waste Hills and lands has been accomplished 3,907,7 00 hectares in 2007, more than 6,000,000 hectares in some years. Rapid development of the forest product industry demands large number of wood, which drove the plantation forest. This is the reason why plantation forest area in China is the largest in the world.

*Table 4 World maintain plantation area (10, 000 hectares)*

China	India	Russia	US	Japan	Indonesia	Brazil
5365	3258	1734	1624	1068	987	498

Maintain plantation area make a positive contribution to buffer global warming and carbon dioxide mitigation.

### **3.3 Promote new countryside construction**

People employed in forest product industry are 1,396,100 which consist mostly peasants. In recent years, various seedling bases, product manufacturing, auxiliary industry and distributing centers spread all over China and formed hundreds of concentrated City-and-Town Areas that have strong radiant and driving ability. The annual output value in some areas is several billion, which greatly promotes new countryside construction.

### **3.4. Become development engine of global forest product**

Every year we import 37 million m<sup>3</sup> of log, 6million m<sup>3</sup> of sawn timber, high-grade panels, furniture, and other related materials like decorative paper, wear-resistant paper, chemical raw materials and adhesives, lacquer and metal connecting fittings. What's more, we are the largest importer of equipment for furniture and panel processing in the past ten years, which not only provide a huge new market for global manufacturers but also offer the most at the best price in the world. One third of our forest products exports to the world which was mentioned above. Take paper for example in the following.

*Table 5 China paper pulp import & export*

Year	Import 10000t)	Import ratio (%)	Export 10000t)	Export ratio (%)
2003	603.4	14.6	2.5	30.3
2004	731.9	21.3	1.8	-30.2
2005	759.2	3.7	4.7	168.1
2006	795.8	4.8	7.5	58.9



*Table 6 China paper & paper board import & export*

Year	Import (10000t)	Import ratio (%)	Export (10000t)	Export ratio (%)
2003	635.8	0.4	114.4	54.8
2004	610.6	-4.0	101.3	-11.5
2005	521.0	-14.7	166.9	64.8
2006	436.1	-16.3	304.5	82.5
2007	397.8	-8.8	421.7	38.5

*Table 7 China Plywood import & export ( 10000 m<sup>3</sup> )*

Year	Import	Export
1997	148.9	
1998	169	
1999	109.2	
2000	100.3	68.98
2001	65	96.6
2005	58.4	554.3
2006		830

*Table 8 Countries and regions where China exported its plywood in 2006*

countries /regions	US	Japan	UK	Korea	Hong Kong China	Others(160 countries)
Quantity (10000m <sup>3</sup> )	218	63	54	52.5	24.7	418
Ratio (%)	26	7.6	6.5	6.3	3	50

*Table 9 Quantity of imported veneer, total value & unit price*

Year	1998	2002	2003	2004
Total imports (10000 m <sup>3</sup> )	53.87	28.67	22.34	15.41
Total imports (100millionUSD)	1.53	0.89	0.96	1.10
Average price USD/ m <sup>3</sup>	283.4	310.4	427.7	713.1

*Table 10 Countries where we imported veneer & ratio*

Year	1998	2002	2003	2004
countries / regions ratio	Malaysia 59.0	Malaysia 26.5	US 28.6	US 34.2
	Cambodia 25.8	US 24.4	Malaysia 19.8	Malaysia 9.7
	Philippine 3.3	Cambodia 11.1	Indonesia 7.8	Germany 9.5
	Indonesia 2.2	Taiwan 6.0	Taiwan 6.7	Taiwan 9.2
		Germany 5.7	Germany 6.3	Indonesia 6.1

### **3.5 Increasing Comprehensive Utilization Level**

#### **3.5.1 Recycle paper waste**

A UK government body who is in charge of reducing waste reveals a study [6]: sending old newspapers and plastic bottles for recycling from Britain to China will produce more carbon savings than placing them in landfills in Britain and make new goods.

Annual exports of paper waste for the last 10 years, mainly to India, China and Indonesia, have risen from 470,000 ton to 4.7 million ton, while exports of old plastic bottles have gone from under 40,000 ton to half a million ton. Researchers found out that each ton of

the waste reduces carbon dioxide emission 1300 kg to 1600 kg.

*Table 11 Paper waste imported by China*

Year	Import (10000t)	Import ratio (%)	Import price (\$/ton)	average Import price ratio (%)
2003	938.2	36.5	131.2	23.2
2004	1230.1	31.1	140.3	6.9
2005	1703.6	38.5	144.2	2.8
2006	1962.3	15.2	140	-2.9
2007	2256.2	15	179.2	27.9

*Table 12 Place where China imported paper waste in 2007*

Countries/ Regions	Import (10000ton)	Increase Ratio (%)
US	932.5	9
UK	272.3	28.8
Holland	156.7	21.7
Japan	316.7	-2.3
Hong Kong	107.3	9.4

### **3.5.2 High comprehensive utilization level of wood-based panel**

We must vigorously develop a circular economy and build a resource-conserving and environment friendly society to achieve hominy between economic growth and population, resources and environment. Adhere to both development and conservation, conservation priority principle, and vigorously promote energy-saving materials to strengthen the comprehensive utilization of resources in accordance with the reduction, recycling, resource-oriented principle.

The development of fiber board and particle board utilizes which is once considered waste materials such as sub-quality & small fuel wood, even tree roots.

Plywood board and floor board can promote the extensive use of tree species, increase the value of the former useless material and encourage plantation.

For example, the material used thirty years ago for plywood board in China is *alniphyllum fortunei*, changed to *choerospondias axillaries*, *schima superba*, masson pine, poplar tree, larch, eucalyptus. And the material for floor board was Chinese oak and teak 30 years ago, but now it is extended to Chinese locust, elm and eucalyptus. The starting diameter of timber is reduced from 26 cm to 8cm.

#### **4. The Development Prospect of China's Forest Product Industry**

##### **4.1 Golden developing period in the following twenty years.**

First, continuous growth of economics foundation leads to the boosting effect. Second, China is rich in human resources. There is comparative advantage in labor price. Since the development of human resources after the reform and opening policy, our country has become the largest one in human capital storage in the world. The total human capital storage of China shared world total increased from 17.6% in 1980 to 24.04% in 2003. It is 1.85 times of that in India, 2.76 times of that in US, 6.39 times of that in Russia and 7.91 times of that in Japan [7].

Moreover, the water and thermal elements of Chinese hills are suitable for fast-growing and high-yielding forest. China's productivity development level can be divided into east, middle and west regions. China's forest product industry characterized by labor intensive products should have another ten or twenty years of development space.

**4. 2 It will take about twenty years** for China's forest product industry to be really strong. Shifting from GDP\$2,400 per person to over GDP\$10,000 is a historical developing period at which labor intensive industry shall be transitioned to capital intensive and technological intensive industry, from external-oriented to internal demand-pull, from small firm to a modernized multinational forestry-industry-commerce integration corporation with independent intellectual property rights. China's forest product industry can then contribute much further to the global forest industry.

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