Chapter 4
FOREST RESOURCES AND THE FOREST PRODUCTS INDUSTRY IN THE PHILIPPINES

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Contents

1. Forest Resources in the Philippines

It is important to assess the past, present and future situation of forest resources in the Philippines in order to analyze the Philippine forest product industries. But it is quite difficult to obtain satisfactory data about forest area and growing stock in the Philippines. Time series data exist about woodland areas defined by national government, but there is no assurance that trees are actually standing on these woodlands. Therefore, the only way to describe the resource situation is by integrating fragmentary data

The total land area of the Philippines is about 30 billion ha. The long term trend of forest area is shown in Table 1, and the recent natural forest status is shown in Table 2. The tables reveal that the depletion of forest resources in the Philippines began early after World War II, and a large part of domestic old growth forest resources had already disappeared. Because all logging in virgin forests was banned in 1992, the area of old growth dipterocarp stopped decreasing in the statistical data from 1991, but other natural forests have continued to be degraded.

The national government provided concessions named TLA to concessionaires. Their area was more than 8 million ha in the peak year of 1977, but recently owing to the depletion of natural forests the area drastically dropped to 1.46 million ha in 1996. After 1992 concessionaires have harvested from secondary forests that are categorized as residual dipterocarp, but even in the secondary forests, harvesting condition have worsened year by year, and harvesting has become too expensive for economic activity.

Table 1. Trend of Forest Area in the Philippines after World War II

	Forest Area (1000ha)	% of land area
1950	14,730	49.1
1957	13,290	44.3
1969	10,470	34.9
1976	9,000	30.0
1980	7,770	25.9
1987	6,660	22.2

source: Y. Seki (1994) *History and Structure of deforestation in Pilippines*

In addition to the natural forest areas there are stands of trees, including plantations made by the government, industry, and community-based forests or plantations made by farmers. Government and industry plantations are shown in Table 3. In plantations fast growing species are planted, but it is difficult to assess the current status of planted land from these data and annual growth rates of fast growing species, because it is not clear what percentage of trees planted actually grow and will be harvestable in the future. Some field research indicates that a large

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part of these areas have already been slashed and burned.[2]

No statistical data is available about area in communal or farmer plantations, which may be as large as or larger than governmental and industrial plantation. Accordingly, this category cannot be able to be ignored in the outlook of the forest resources in the Philippines.

Table 2 Recent Status of Natural Forest Area.

unit=ha	1988	1989	1990	1991	1996
Forest Total	6,460,600	6,307,400	6,158,800	6,015,400	5,493,148
Production Forest					
Protection Forest					
Dipterocarp	4,401,100	4,272,900	4,148,800	4,029,200	3,616,948
Old Growth	988,300	922,000	861,200	804,900	804,900
Residual	3,412,800	3,350,900	3,287,600	3,224,300	2,812,048
Pine	238,800	237,600	236,400	235,100	229,200
Closed	129,600	129,000	128,300	127,700	124,500
Open	109,200	108,600	108,100	107,400	104,700
Submarginal	544,200	535,800	527,400	519,500	482,000
Mossy	1,137,400	1,125,400	1,113,700	1,102,400	1,049,900
Mangrove	139,100	135,700	132,500	129,200	115,100
1/including submarginal					
source: Philippine Forestry Statistics					

Table 3. Area reforested by the government and private sector

unit=ha	Total	government	industrial plantation
1976	31,733	23,228	8,505
1977	53,263	33,365	19,898
1978	78,425	44,686	33,739
1979	79,397	51,858	27,539
1980	60,516	39,881	20,635
1981	64,541	33,296	31,245
1982	63,262	35,201	28,061
1983	78,538	42,239	36,299
1984	38,935	16,088	22,847
1985	24,231	12,684	11,547
1986	32,998	24,426	8,572
1987	39,811	28,843	10,968
1988	64,183	31,226	32,957
1989	131,404	89,452	41,952
1990	191,663	153,949	37,714
1991	93,039	73,602	19,437
1992	40,593	24,304	16,289
1993	19,211	6,347	12,864
1994	49,551	18,032	31,519
1995	65,233	21,841	43,392
1996	46,096	18,869	27,227
source:Philippine forestry Statistics			

2. Log Production and Trade

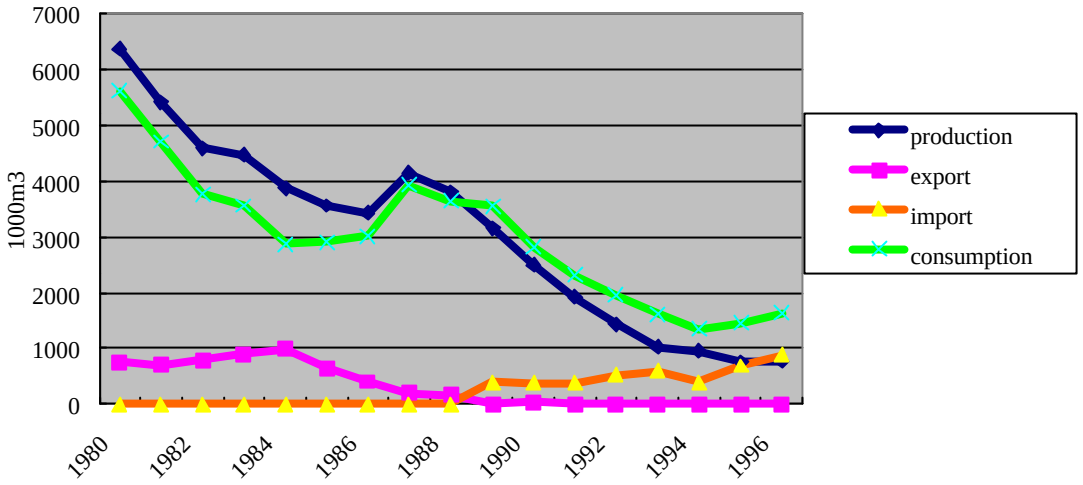
Trends of production, consumption, import[3] and export of log in the Philippines are shown in

[2] For example, Y. Seki (1996a) and Y. Seki (1996b)

[3] In Philippine Forestry Statistics there are separate data for sawlog and pulpwood for production

Figure 1. The peak of production or export of logs in the Philippines was the first half of 1970s. Although log production exceeded 10 million m^3 early in the 1970s, after that it began to decrease drastically. In 1980 production was 6.4 million m^3, and in 1985 it dropped to 3.6 million m^3. Export of logs also dropped from 8.4 million m^3 in 1970 to 0.76 million m^3 in 1980. In 1986 log exports was

Figure1. Log Production & Trade



Source: Philippine Forestry Statistics

finally banned, and in 1987 the government announced that it would not issue any new TLAs.

At the same time imports of logs began to increase. In 1996 the amount of imports exceeded production quantity. The larger part of imported logs were sawlog and veneer log, and from the production volume of wood pulp pulpwood should imports wereabout 240,000 m^3[4]. Major exporter countries are listed in Table 4. They are the countries which exported more than 10,000 m^3 to the Philippines in 1995. Malaysia, New Zealand, and Papua New Guinea are major exporters. It also shows the CIF price of imported logs from these countries. In 1995 the prices were around US$100U/$m^3$, but there were rather large differences among these countries.[5]

3. Lumber

3.1 Production and Trade

Domestic production and trade of lumber basically follows the trend of raw materials. According to Figure 2, domestic production of lumber declined following the depletion of natural forests, but this was compensated by imported lumber in the 1990s. The domestic consumption has not decreased to the level of the 1980s, but rather rose to a higher level of between 600,000 and 800,000 m^3 in the 1990s. In 1989 the export of unprocessed wood[6] exports were banned, so the export drastically declined. In 1990 most of exported lumber went to Taiwan.

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and export, but import volume is not categorized separately. Also in Foreign Trade Statistics of the Philippines, the amount of imports of sawlog and pulpwood are not separated.

[4] Calculation will be explained in footnote.

[5] One of the reasons of it seems that the importers and traders are not accustomed to clarify the prices in their invoice as mentioned later, the statistical office will not grasp the accurate value of prices.

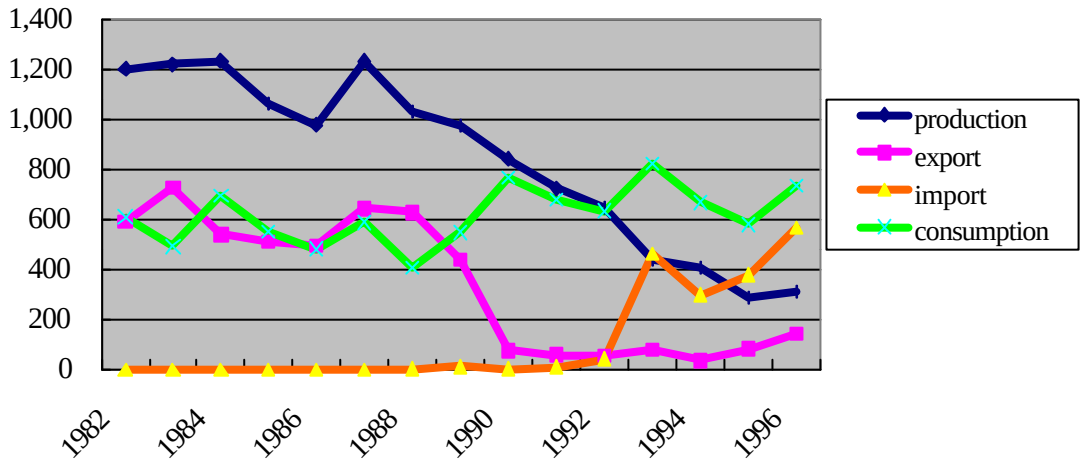
[6] DENR defines lumber as solid wood not further manufactured other than sawing , resawing and passing lengthwise through a standard planing machine, crosscut to length. DENR distinguishes between rough or unworked wood, which cannot be exported, and finished wood products, i.e. those passed through planers or sanders, grooved, tongued, profiled, etc. ,or kiln-dried, which are allowed to be exported.

Table 4. Import of Log

	Import Amount (m3)		CIF Price/m3 (US$)	
m3	1990	1995	1990	1995
Australia	0	10,879		93.6
Brazil	0	19,498		122.0
Ghana	0	22,163		91.2
Japan	13	16,517	1066.8	92.7
Peninsula Malaysia	86,138	80,085	84.5	105.7
Sarawak	201,923	134,559	94.4	119.2
NZ & Western Samoa	16,940	104,634	87.5	70.3
Papua New Guinea	0	113,602		134.3
Solomon Islands	0	72,694		121.5
South African Rep.	0	74,131		132.0
U.S.	55	32,263	529.0	225.6
others	35,941	13,929		
total	341,010	694,954		

Source: Foreign Trade Statistics of the Philippines

Figure 2. Lumber Poduction & Trade



Source: Philippine Forestry Statistics

The countries from which the Philippines imports lumber are shown in Table 5. It shows that the major export countries are Malaysia, Brazil and the U.S. and CIF import prices were around US$200 in 1995 though products from the U.S. were much more expensive.

Table 5. Imports of Lumber

Lumber	Import amount (m3)		US$/m3	
	1990	1995	1990	1995
Brazil	0	57,394		208.7
Peninsula Malaysia	0	221,971		203.2
Sabah	0	12,625		224.5
Sarawak	0	37,178		170.7
U.S.	2,986	26,383	687.2	330.9
others	484	22,980		
total	3,470	378,531		

Source: Foreign Trade Statistics of the Philippines

3.2 Production Capacity and Log supply

The total number of active sawmills in the Philippines in 1996 was 61. It had decreased as a result of the difficulty of obtaining a supply of raw material.

Table 6. Production Capacity of Sawmills

	total		with concession		without concession	
Unit= 1000m3	number	daily rated capa*365days	number	daily rated capa*365days	number	daily rated capa*365days
1976	325	6570	153	3285	172	3285
1980	209	4015	124	2555	85	1460
1985	174	2920	89	1825	85	1095
1990	152	2555	51	1095	101	1460
1995	78	1460	29	730	49	730
1996	61	1095	21	730	40	365

Source: Philippine Forestry Statistics

Almost 85% of actively operating sawmills are located outside of the National Capital Region. Mills of veneer, plywood, pulp and paper usually have sawmills as annexes[7] because logs that are not needed by these mills go to sawmills to be processed into lumber. These logs usually account for 60-70% of the entire harvest of timber. Generally the production facilities are old and out of date, so restructuring is a current issue.

3.3Consumption structure of Lumber

In the Philippines lumber is used as construction materials for building and house construction, as structural materials in mining tunnels, as form and scaffolding materials in infrastructure construction. It is used as basic materials for the manufacture of furniture and cabinets, do-it-yourself articles, builders' joinery and carpentry of wood, doors, windows and their frames, tableware and kitchenware of wood, statuettes and other ornaments of wood, packing cases, boxes, crates, casks, tool bodies, toys and parquet panels as well as core for plywood. Around 80% of lumber is used for construction purposes.

3.4 Production Cost and Recovery Rate

The recovery rate of lumber is about 60%. The production cost of lumber shown in Table 7.

Table 7. Production Cost of Sawnwood

Item	US$/m^3
Direct raw materials	150.7
Direct labour	5.6
Manufacturing overhead	16.9
Packaging supplies	0.5
Freight cost from millsite to Manila	15.3
Depreciation	4.4
Tax-10%	20.4
Total Unit Cost	213.7
Administrative Expenses	5.1
Selling Expenses	5.1
Selling Price(Wholesale)	223.872

Source: Philippines Wood Producers Association

[7] Therefore the detail description about material supply and market structure will be shown in the section of Plywood and Veneer industry.

By other data the production costs are US$205/m3 and gross profit is US$36/m3. So the gross profit rate is 15%. The rate is said to be higher than plywood.

4 Veneer and Plywood

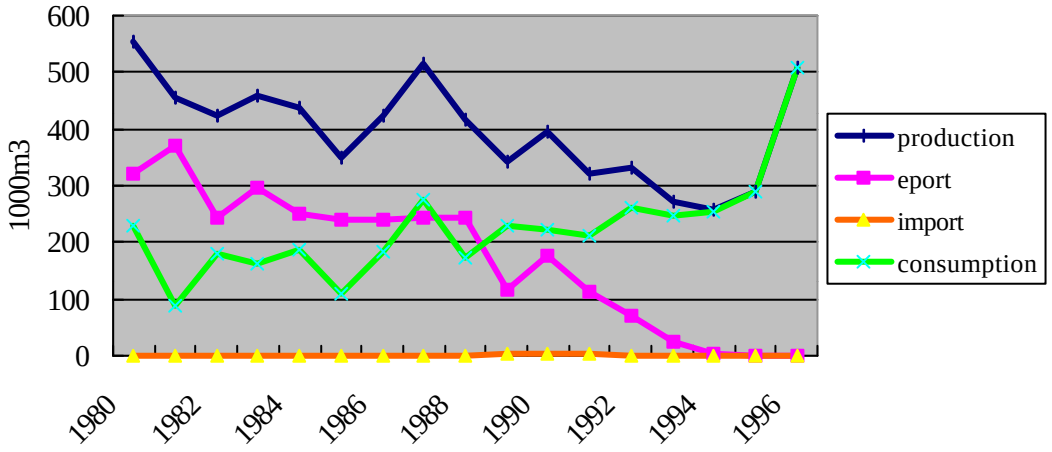
4.1 Production and Trade

The trends of production and trade of veneer and plywood shown in Figures 3 and 4. Production volume of veneer was 242,000 m^3 in 1970, and it rose to the peak of 660,000 m^3 in 1980. At this period the export volume was 127,000 m^3 in 1970, and 164,0000m^3 in 1980; the larger part seemed to go to the domestic market for the material of plywood and other wood processed goods. Since the beginning of the 1980s, production volume declined drastically because of degradation of natural forest resources. It happened especially in the domestic market. During the 1980s the production of veneer was almost all for export. From the late 1980s export volume declined, and instead the import of veneer increased in the 1990s.

Plywood production volume was at the peak of 732,000 m^3 in 1972, and at that time the majority, 692,000 m^3, went abroad. After that both production and exports declined. Consumption in the domestic market continued to fluctuate between 100,000 m^3 and 200,000 m^3 during the late 1970s and 1980s. From the late 1980s the production gradually became concentrated on the domestic market. From the beginning of the 1990s the domestic market was strong until the Asian crisis.

The countries to which the Philippines exported more than 10,000 m^3 of veneer in 1995 were Hong Kong and the U.S. The FOB prices were US$378/ m^3 and US$438/ m^3. No country imported more than 10,000 m^3 of Philippine plywood in 1995.

Figure 4. Production and Trade of Plywood



Source: Philippine Forestry Statistics

4.2 Material Supply of plywood

Figure 1 showed the production volume of logs as the material of veneer and plywood has declined. As Table 4 indicated the major exporting countries of sawlogs to the Philippines are Malaysia, Papua New Guinea, New Zealand, South Africa, the Solomon Islands, and so on.

Plywood companies which have concessions recently obtain and use raw material logs in the following manners[8]. Plywood consist of core and face panels. Core panels are generally made of *Albijia falcataria* which were harvested from plantation forests. This is a fast growing species, with a rotation period of 13-15 years. Other species which are used as core panels are *Acacia* and *Eucalyptus deglupta*. They are also plantation species and the latter can be also used as face panel. Face panels are made of *lauan*, some of which was harvested the comapany's TLA concession and the rest from other concessionaires, farmers, or imported log or veneer from Papua New Guinea,

[8] From interviews of a few plywood companies in Manila and PWPA in November 1998.

Sabah, Sarawak, and the Solomon Islands.

In TLA concession areas since 1992 companies have harvested *lauan* from secondary forests[9]. But as a result of the degradation of forests, transportation costs have risen. Logging and transportation costs heavily depend on the distance between point of harvest and destination, because in the Philippines the transportation is usually by truck. An example is US$75-90/$m^3$, more than half of which is the cost of road construction and maintenance. Log prices of *lauan* from natural forests are US$110-130/$m^3$ depending on the diameter.

Facing the degradation of secondary forests, some plywood companies now considering obtaining IFMAs and establishing plantations to grow the material for core panels (*Albijia falcataria*, *Gmelina*, *Bugras* and *Acacia*) and sometimes face panels (*Eucalyptus deglupta* and others) But generally these plantation forests have not reached the harvestable stage.

Producers mainly obtain the raw material from local farmers, especially in Mindanao outside of their own concessions. They do not contract directly with local farmers, but rather local traders[10]. They buy the logs from local farmers by stumpage, and use employees to harvest and transport to the shipping point or plywood mills.

Today companies are considering establishing their own large industrial plantations from which they will obtain logs. If they can secure an adequate supply of much cheaper imported logs, they will depend on imported material instead. Considering the stability of a supply of cheap material, think it would be better to obtain the logs from their own plantations and domestic log suppliers.

4.3 Production Capacity

Based on interviews with the Philippine Wood Producers Association in 1995 the number of plywood companies was 23 companies and 40 registered plants (25 plywood and 5 veneer factories)[11]. Among them 23 plants were at Mindanao. Agusan, Surigao, Misamis Oriental, Davao and Zamboanga. Plywood production is a part of a large integrated industry, comprising plantations, sawmills, and pulp and paper production. But only a few companies have logging concessions toady. In Philippine Forestry Statistics there were 31plywood plants and 6 veneer plants in 1995, indicating that the percentage of active plywood and veneer plants was low.

According to the Development Bank of the Philippines (1994) most of the plywood plants are quite old, and only minor investments have been made in the subsector, generally, a major part of the mills need modernization and retooling. The main reason of the age is that Philippine plywood mills were built to utilize the large diameter logs from old growth forests where logging has been banned, therefore the recovery rates were very low.

Employment in 1995 was 23,000 employees. An average of logging workers in one typical plywood factories was 800 people (512 skilled and 128 unskilled workers).

4.4 Market System of Plywood in the Philippines

Most of the firms are family owned. Now the most of the owners are Chinese. Not only makers but also most of the wholesalers and the retailers of plywood are Chinese. Therefore the market system is affected by Chinese customs[12].

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[9] Some companies have changed concession from from TLA to IFMA. IFMA is plantation concession of degraded natural forest, where the concessionaire can clearcut the stumpage, and must regenerate by plantation. But on IFMA plantation there is serious concern with conflict with local land occupants.

[10] One factory contracts one or two traders and leave all the arrangement of the purchase to them. Because conflicts often occur about the position of land and stumpage between local farmers, if companies get directly involved, the transaction costs become expensive.

[11] Total capital costs of 22 operating mills were as follows. Installed capital equipment was P 4,337 million, land by zonal valuation was P 66 million, and building and other assets were P 36 million. Therefore total assets were P 4,337 million (P 200 million/ factory).

[12] Chinese do not use invoices with the description of volume and price at the time of delivery of materials, medium goods and final goods. They use delivery receipts which only indicate volume of goods because of their reliability about payment. So at the time of settlement they can manipulate

Major distribution routes are as follows. Plywood producers sell their products to large scale wholesalers. They sometimes sell to secondary wholesalers, but usually sell to retailers like a timber dealer.

The construction sector in the Philippines uses about 80% of the plywood volume. Private and government housing projects, building industry and the informal sector are the main users.[13] Plywood is used in frameworks, ceilings, partitions, paneling, side panels, built-in cabinets and flush doors among others. Most of the plywood is used in places where it is not visible or the surface is painted so that lower quality plywood can be used. The furniture industry uses about 10% of the volume of plywood produced. Typical uses are for goods such as cabinets, drawers, dressers and table tops.

The price decision makers of plywood are wholesalers. They can obtain credit and loans from banks[14] and lend the funds with interest to the plywood makers. In the Philippines usually plywood companies have limited operation funds of their own, therefore it is crucial to obtain the loans from wholesalers. Buying and selling between makers and wholesalers are usually arranged one by one, and the latter can take leadership in their price negotiation. Plywood makers have their association once a month to decide their target wholesale prices, but prices actually dealt are sure to be lower than the target prices.

Between the wholesalers and retailers payment is by post-dated check whose settlement is around a month later, therefore wholesalers are also predominant over retailers.

Plywood companies in the Philippines have mostly focused on the domestic market partly because their output is of too low quality to satisfy foreign consumers, and if they want to target the foreign market, they will have to invest large amounts of money. Domestic markets are very simple because demand is concentrated on the plywood with 5mm×4''×8''. Another reason is that the domestic market has been protected from imported goods by the high tariff ratio, which was 50% for plywood until 1995. But recently the Asian economic crisis, depletion of material of natural forests, and foreign pressure of free trade, plywood companies are forced to deal with various types of structure change.

4.5 Production Costs and Recovery Rates

The recovery rate of veneer is 50% and plywood is 43% in Philippine Forestry Statistics. By another source recovery rate of plywood is 52-53%. The production costs of Veneer and Plywood are as Table 8 and Table 9.

Recently the gross profit rate has dropped dramatically to 2.5-5%. If another threat, such as lower tariffs and/or more expensive raw materials, confronts the plywood industry , some of them will no longer be able to operate.

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their revenue and costs rather freely.

[13] In Philippines there are not separate categories of the construction companies and the housing companies. Usually construction companies also work as developers which develop large scale housing lots. Real estate agents are under the umbrella of construction companies. There are not agents like building contractor's offices (*komuten*) as in Japan. When individuals want to build houses, they have to hire carpenters and buy wood material from lumbermen by themselves. Therefore in Philippines retailers are the main route to deliver lumber and plywood to end-users except large scale construction companies which buy from wholesalers.

[14] In the Philippines interest rates are extremely high and plywood companies have difficulty to borrowing operating funds directly from banks, as explained later. Today plywood companies borrow their operating funds from wholesalers at interest rates of around 18% per year.

Table 8. Production Costs of Veneer

Item	US$/m3
peeler logs	116.4
direct labour	16.1
Electricity	5.7
Depreciation	1.6
Spare parts	4.8
Other consumables	5.3
Other costs	14.6
Total Unit Cost	164.5
Selling Expenses	4.0
Total cost to Produce and Sell	168.5

Source: Philippines Wood Producers Association

Table 9. Production Costs of Plywood

Item	US$/m3
Peeler logs (imported)	122.3
Glue	16.1
direct labour	18.6
Electricity	6.6
Packaging supplies	1.9
Depreciation	16.8
Spare parts	5.6
Other consumables	6.1
Other costs	2.5
Total Unit Cost	196.4
Selling Expenses	9.3
Total cost to Produce and Sell	205.7

Source: Philippines Wood Producers Association

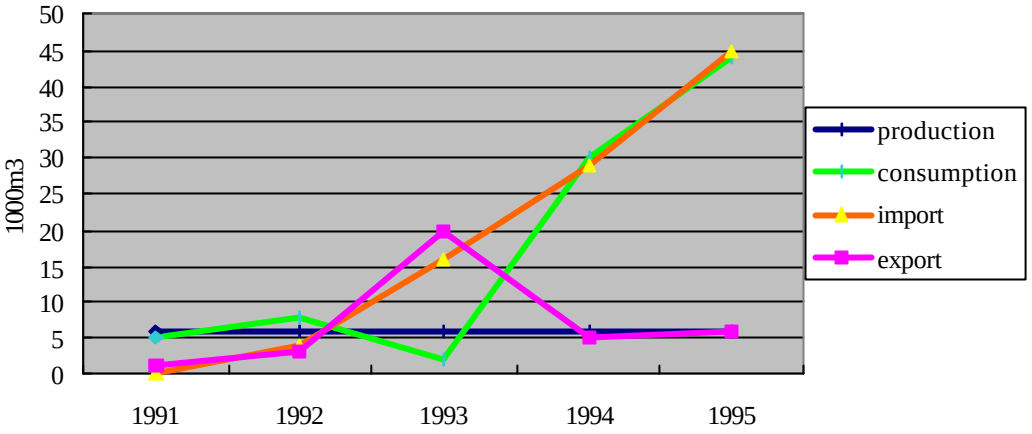
5. Particleboard and Fiber Board

5.1 Production and Trade

There are no reliable data about production and consumption of particleboard and fiberboard. According to Yearbook of Forest Products by FAO production volume of particleboard has not changed from the 1980s until now. Recently import volume has started to increase. Also fiberboard import volume has increased while domestic producers have withdrawn from operation. Table 10 and Table 11 show that the major exporting country of particleboard to the Philippines is Indonesia, and those of fiberboard are China and Thailand.

According to interviews in the Philippines forest products companies do not hold hope for the production of particleboard and fiberboard, because of problems with technology, raw material supply and production costs.

Figure 5. Production and Trade of Particleboard



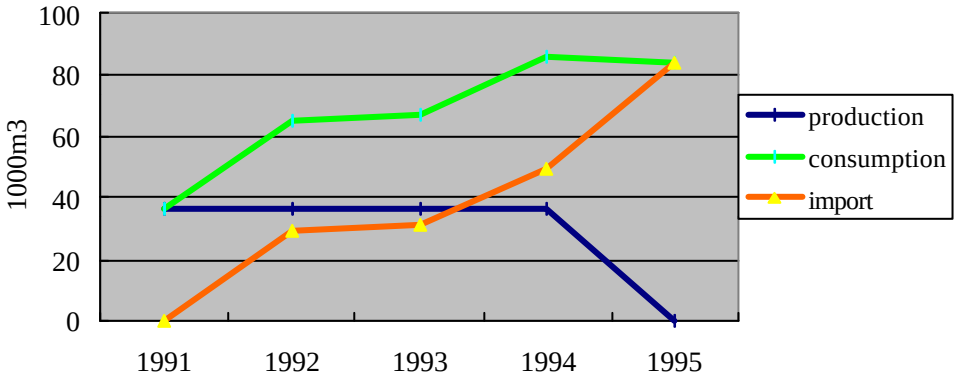
Source: FAO/Yearbook of Forest Products

Table 10. Sources of Imports of Particleboard

Particleboard	Import Volume (ton)	CIF Price/m3 (US$)
	1995	1995
Australia	2,115	69.2
China	1,612	443.5
Indonesia	18,376	273.9
Malaysia	1,621	351.2
Poland	2,580	171.5
Other Europe	1,232	
Other north America	387	
Other ocean	212	
Other Asia	649	
Other countries	144	
total	28,929	

Source: Foreign Trade Statistics of the Philippines

Figure 6. Produciton and Trade of Fiber Board



Source: FAO/ Yearbook of Forest Products

Table 11. Sources of Imports of Fiberboard

Fiberboard	Import Volume (ton)	CIF Price/m3 (US$)
	1995	1995
China	26,783	217.8
Hong Kong	1,474	294.3
Italy	1,948	536.4
Malaysia	2,524	549.6
NZ & Western Samoa	2,534	584.6
Singapore	1,276	605.5
Thailand	7,069	232.6
Other Europe	440	
Other North America	371	
Other Oceania	138	
Other Asia	273	
Other countries	113	
total	44,943	

Source: Foreign Trade Statistics of the Philippines

5.2 Production Capacity

According to a report of PWPA there were 5 plants operating with a total production capacity of particleboard of 112,427 m^3 in 1997. BOI approved 10 more particleboard plants projects. In the case of fiberboard there is only one existing fiberboard plant, with a capacity of about 30,000 m^3/year, of which about 90% of production is hardboard. But compared with production volume capacity the level of actual operation is small.

5.3 Production Cost

Production costs of particleboard are as shown in Table 12. The gross profit rate is now 11.8%. Because the price of imported particleboard of the same quality is US$182/$m^3$, if domestic products face with perfect competition with their foreign counterparts, gross profit rates will drop to extremely low levels.

Table 12. Production Costs of Particleboard

	US$/m3
Wood Chip	36
Glue	57.24
Direct Labor	15.6
Indirect Labor	2.4
Fuels-bunker	14.4
Electricity	29.16
Depreciation	14.4
Spare parts and Maintenance	2.4
Total Cost	171.6
Administrative Expenses	4.8
Selling Expenses	3.6
Total Cost to Produce and Sell	180

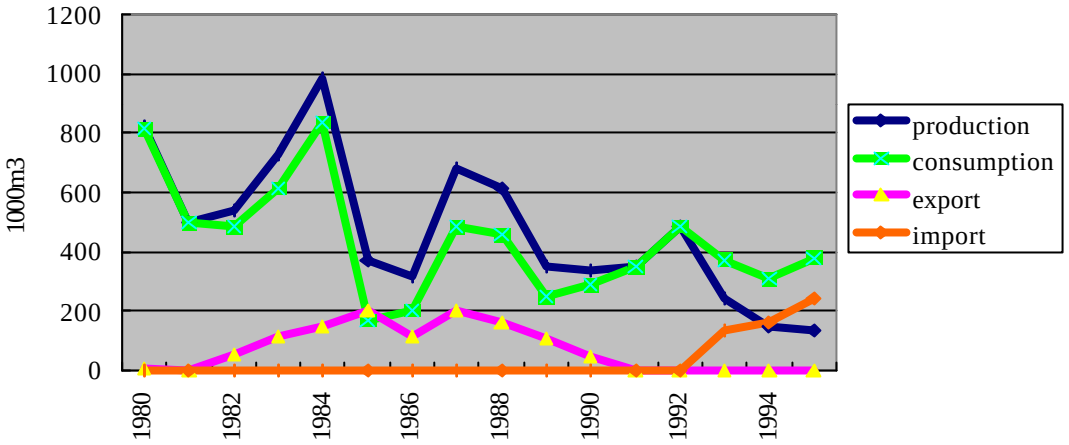
Source: Philippines Wood Producers Association

6 Pulp and Paper

6.1 Production and Trade of Pulpwood and Wood Pulp

According to Figure 7, based on the Yearbook of Forest Products by FAO and Philippine Forestry Statistics, production volume of pulpwood has declined though largely fluctuating. In the middle of the 1980s exports temporary increased, but soon shrunk because of degradation of domestic natural forests. The line which indicates import volume is conjectured under certain

Figure 7. Production and Trade of Pulpwood



Source:FAO/ Yearbook of Forest products, (export volume) Philippine Forestry Statistics

assumptions[15] because there are no separate data of the pulpwood and sawlog import. From this inference domestic consumption has been around 400,000 m3 since late 1980s.

Figure 8 shows that the production of wood pulp in the Philippines has been stable at around 150,000 tons since the 198's though it dropped in 1993 and 1994. Import volume has also been stable since the 1980s, and a large part of imported wood pulp has been coniferous wood pulp. Major exporting countries are shown in Table 13.

Table 13. Import of Wood Pulp

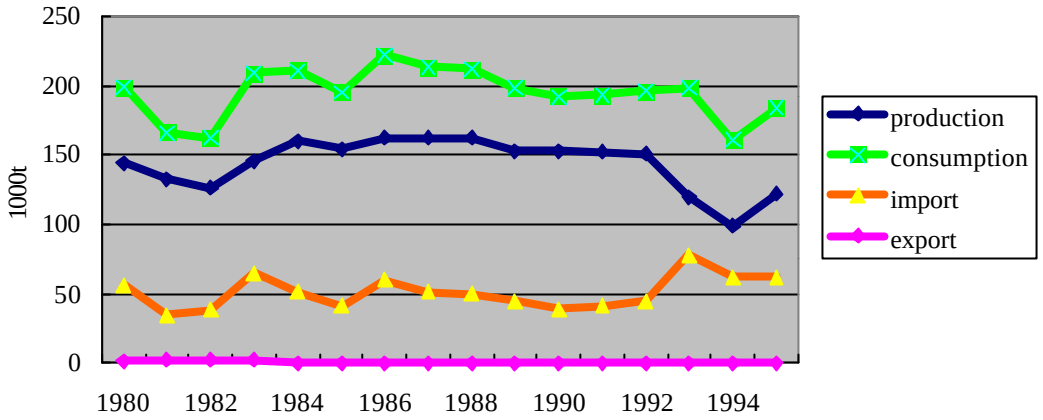
Wood Pulp	Import Volume (t)		CIF Price/t(US$)	
	1990	1995	1990	1995
Canada	6,151	11,428	782.7	843.9
Indonesia	596	11,069	749.0	801.1
Mozambique	7,401	0	680.7	
NZ & Western Samoa	12,252	10,896	619.2	769.7
South African Rep.	0	7,997		777.3
U.S.	4,880	14,362	652.8	871.3
other countries	7,833	10,463		
total	39,113	66,215		

Source: Foreign Trade Statistics of the Philippines

The most important characteristic of supply of raw material for paper and paperboard in the Philippines is a large amount of import of waste paper. According to the FAO statistics annual domestic production of waste paper has been constantly 54,000 tons and import volume has been about 250,000 tons in the 1990s. Major exporters are shown in Table 14.

[15] The amount of pulpwood input to produce 1 ton of wood pulp is assumed to be 3.11 m^3 from the percentages of each kind of pulp used in pulp mills in the Philippines in 1996 by FAO(1995) and pulpwood amount required to produce 1 ton of each kind of wood pulp in 1996 by Japan Paper Association (1998).

Figure 8. Production and Trade of Wood Pulp



Source: FAO/Yearbook of Forest Products

Table 14. Import of Waste Paper

Waste Paper	Import Volume (t)		CIF Price/t (US$)	
	1990	1995	1990	1995
Australia	6,699	16,706	234.4	131.0
Hong Kong	40,162	55,731	150.9	151.6
Singapore	14,878	22,343	200.1	288.7
U.S.	132,053	168,592	165.2	352.5
other countries	19,393	30,012		
total	213,186	293,385		

Source: Foreign Trade Statistics of the Philippines

6.2 Industrial Structure of Pulp and Paper in the Philippines

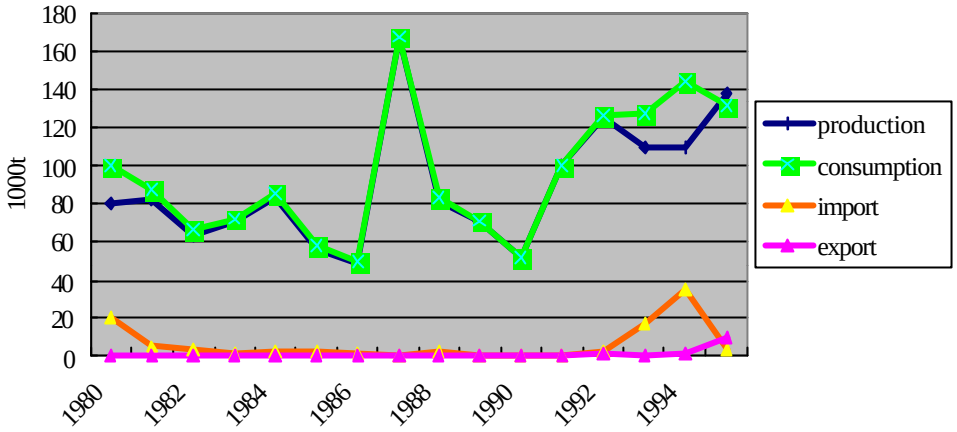
In 1997 there were 38 paper mills in the Philippines. Among them there was only one integrated paper mill, which has a plant producing wood pulp from pulpwood. All of the other paper mills are using waste paper and imported virgin pulp, because domestic production costs of virgin pulp are too expensive to compete with imported virgin pulp. Also the production of printing and writing paper of high quality is not competitive with Indonesia and Taiwan. The Philippines imports a lot of printing and writing paper, and cuts the papers in the domestic factories to deliver to the market. Therefore domestic paper companies are now focusing on the production of low quality paper and paperboard from waste paper.

Pulp and paper plants need much time and much money to set up. If a firm wants to expand the production capacity, it will take around 3 years to set up the new facilities. The incentive of the investment of Philippine paper companies has been undermined in each period since the 1970s. In the Marcos era companies' concern was the threat of being taken over by the government. In the Aquino era the instability of the supply of energy was a bottleneck of investment. After the Ramos became president, the incentive of investment rose until the Asian crisis.

6.3 Production and Trade of Paper and Paperboard

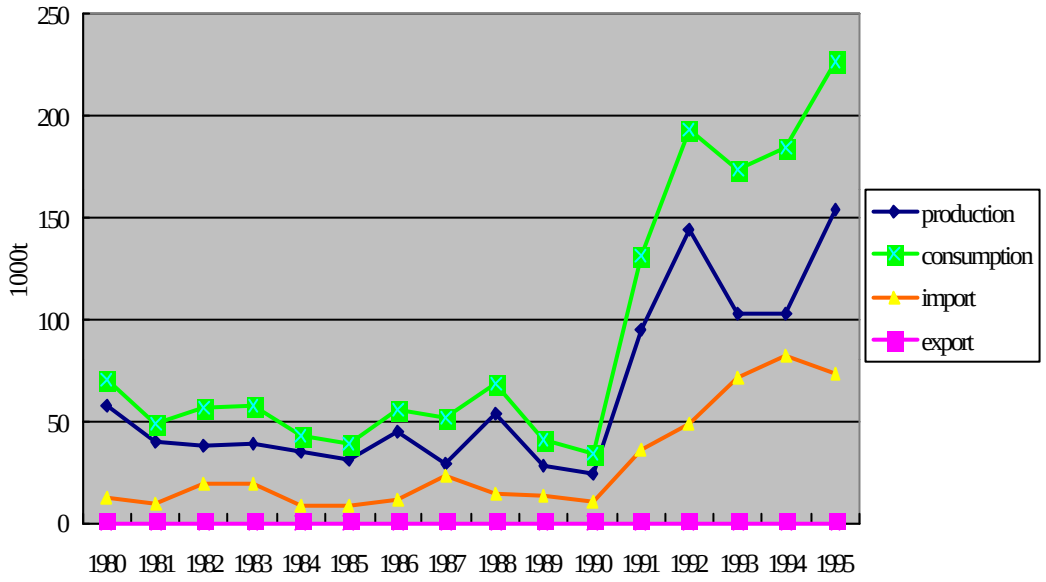
The production and trade situations of each kind of paper are shown in Figures 9-12. In the case of writing and printing paper, and wrapping and packing paper and paperboard, imports have rather compensated the low quality of domestic goods. Newsprint, household and sanitary paper are basically produced and consumed in the domestic market.

Figure 9. Production and Trade of Newsprint



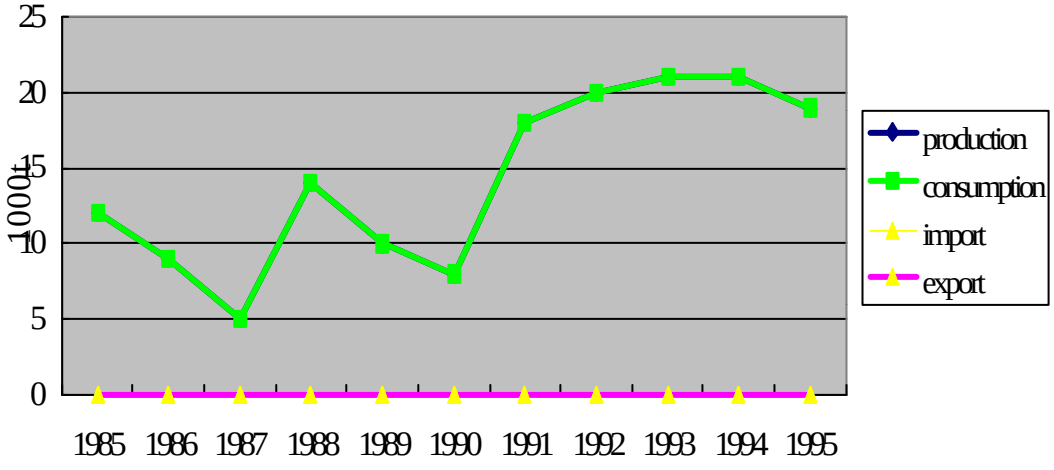
Source: FAO/Yearbook of Forest Products

Figure 10. Production and Trade of Printing & Writing Paper



Source: FAO/Yearbook of Forest Products

Figure 11. Production of Household & Sanitary paper



Source: FAO/Yearbook of Forest Products

Table 15. Import of printing and writing paper

Printing & Writing Paper	Import Volume (t)		CIF Price/t (US$)	
	1990	1995	1990	1995
Taiwan	453	5,566	667.6	881.5
Finland	262	7,902	2327.1	985.5
Germany	1,153	5,979	722.7	1165.1
Hong Kong	82	6,695	1074.1	1246.8
Indonesia	12	10,391	1161.8	870.6
Japan	1,239	11,394	1274.4	1338.5
U.S.	1,100	9,702	825.9	1148.9
other counties	7,053	21,597		
total	11,355	79,225		

Source: Foreign Trade Statistics of the Philippines

Table 16. Import of Wrapping and Packing Paper and Paperboard

Wrapping & Packing Paper and Paperboard	Import Volume (t)		CIF Price/t (US$)	
	1990	1995	1990	1995
Canada	9,626	18,169	459	583.0
Taiwan	10,768	37,202	642	812.3
Finland	10,646	9,702	568	644.7
Germany	17,297	13,085	480	847.7
Indonesia	537	10,897	504	682.8
Japan	12,084	27,053	968	996.6
Sweden	12,698	4,636	578	717.0
U.S.	113,008	128,728	540	798.7
other countries	31,268	39,588		
total	217,933	289,060		

Source: Foreign Trade Statistics of the Philippines

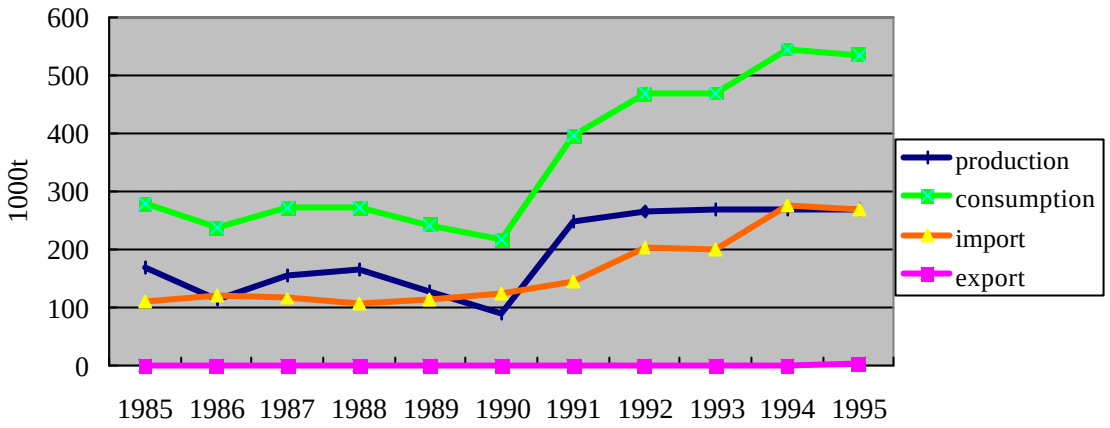
Major exporter of printing and writing paper, and wrapping and packing paper and paperboard are as Table 15 and Table16.

There is no statistical data about domestic prices of pulp and paper, but from the interview of paper companies the rough prices in 1990s about some items of paper were shown as follows.

Liner board…18000-21000 pesos/t (fluctuated from 15000-23500 pesos/t in the 1990s)
Corrugated medium…11500-13000 pesos/t(fluctuated from 9500-14500 pesos/t in 1990s)
Kraft for chemical bags plus cement bags….24000 pesos/t
*from interview to Mr. Ligot, president of PULPAPEL in November 17, 1998
Newsprint….(1990)18000 pesos/t (1996)20000 pesos/t
(1997)22000 pesos/t (1998) 25000 pesos/t
Kraft liner….(1990) 18000 pesos/t (1996) 16000 pesos/t
(1997) 17000 pesos/t (1998) 20000 pesos/t
*from interview to Mr. Alagon , PICOP in November 25, 1998

From these data the prices of imported goods are generally more expensive than domestic ones and it seems to indicate the domestic producers are concentrating their production on the paper and paperboard with lower quality and cheaper prices.

Figure 12. Production and Trade of Wrapping and Packing Paper and Paperboard



Source: FAO/Yearbook of Forest Products

6.4 Production Costs

Only the data of percentages of major elements consisting of production costs were available.

Fiber 20%
Energy 10%
Water 10%
Chemicals 10%
Wage 5%
Other elements including depreciation 45%

7 Emergency Issues for Recent Forest Industries in the Philippines

Now the domestic producers of forest producers are at a critical point which will determine their survival, because of the supply of cheap and fine material from natural forests has been depleted, and they cannot compete with inexpensive, high quality imported goods with their old facilities and low technology. Producers are especially focusing on the following issues.

7.1 Tariff Reductions

Forest products producers in the Philippines are concerned about the reduction of tariff rates on imported forest products. They were protected until now from international competition by high tariffs. In the case of plywood the tariff was 50% until 1995. But the Philippine government signed the ASEAN Common Effective Preferential Tariff (CEPT) Agreement in 1992, which requests member countries that have tariffs above 20% to reduced them to 20% within five to eight years from 1993. Thereafter they are to be reduced further to 0-5% within a 7 year period. Corresponding to this, from 1996 to 1997 tariff rates of plywood were reduced to 30%, and in 1998 became 20%. As mentioned in Section 4.5 the gross profit of plywood has been extremely low recently. If the tariffs drop further to 10%, domestic plywood companies will be devastated.

As for lumber, the tariff was 20% until 1997 and was scheduled to be reduced to 10% after 1998. The Philippine Wood Producers Association requested a moratorium on this reduction until 2000 for the producers to restructure the industry.

Today these domestic producers are anticipating a reduction of the cost of wood from domestic plantations, which are now growing.

7.2 Expectation for the supply of cheap domestic wood material

One of the most important issues of the domestic lumber and plywood producers is how they can obtain the cheap material from domestic forests or foreign markets. Supply from foreign

natural forests is generally regarded as shrinking gradually, therefore the domestic producers are looking forward to the increment of supply of cheap wood material from domestic plantation forests.

The following short estimation will prove that the domestic plantation forests will be sure to realize the supply of cheap wood material. By NFDO (1997) the reforestation costs of a governmental project in the Luzon in 1996 are 20,463.28 pesos/ha. The estimation of the average yield of fast growing species will be 160m^3/ha which will be able to be harvested in 8 years. Under these assumptions the reforestation costs are 127.9 pesos/m^3 which means 480.8 pesos/m^3 in the present value 8 years later. The harvesting and transportation costs are said to be 750 pesos/m^3 in the plantation forests; therefore the supply price will be 1,230.8 pesos/m^3, or US$ 29.5/m^3 at recent exchange rate. This estimation is for a governmental project; i for industrial plantations the costs will be a little cheaper.

However, domestic producers still have to wait for several years for the increase in supply of domestic wood material. Another problem will be how to change the material of face panels of plywood into the plantation species, although some species are possible to use.

Now facing the situation that its natural forests have completely been depleted, the Philippines is in transition to being a nation based on plantation forestry. In one possible scenario for the country, the domestic forest products industries could be supported in order to restore by reforestation the degraded forest lands. This is a similar situation with Japan. It will be necessary to reconsider tariff reductions and the free trade system of forest products from this point of view.

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