

Forest Resource and Forest Products Industry in Philippines

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1. Forest Resource in Philippines

It is important to grasp the past, present and future situation of forest resource in Philippines in order to analyze the Philippine forest product industries. But it is quite difficult to get satisfiable data about forest area and growing stock in Philippines. There is time series data about woodland area defined by national government, but it doesn't assure that actually trees are standing. Therefore only way to describe the resource situation is by integrating the fragmentary data

The total land area of Philippines is about 30bil ha. The long term transition of forest area is as Table 1., and recent natural forest situation is as table 2. They show in Philippines the depletion of forest resource has begun in early period after the world war II, and the large part of domestic old growth forest resource had already disappeared. In 1992 all logging in virgin forest was banned, so from 1991 old growth area of dipterocarp has stopped decreasing in the statistical data. But the other natural forest has still continued degradation.

In Philippines national government had provided concessions named TLA to the concessioners. TLA areas was more than 8 mil ha at the peak year in 1977, but recently by the depletion of natural forest the area was drastically dropped into 1.46 mil ha in 1996. After 1992 concessioners have harvested from secondary forest which is categorized in residual of dipterocarp, but even in the secondary forest harvesting condition has been aggravated year by year, it has become too expensive for economic activity.

Table 1. Transition of Forest Area in Philippines after the 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*

Besides the natural forest area there are some other possibility of trees stand. One is the plantation area of government and industrial plantation area. Another is community based forest or plantation by farmers. As for the former agencies area reforested is as Table 3. Plantation species are fast growing species. But it is difficult

Table 2 Recent Situation 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

to understand the present situation of planted land from these data and the annual growth rate of fast growing species there because how many percent of them have grown up and will become possible to harvest in future are not clarified. There are

Table 3. Area reforested by the government and private sectors

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

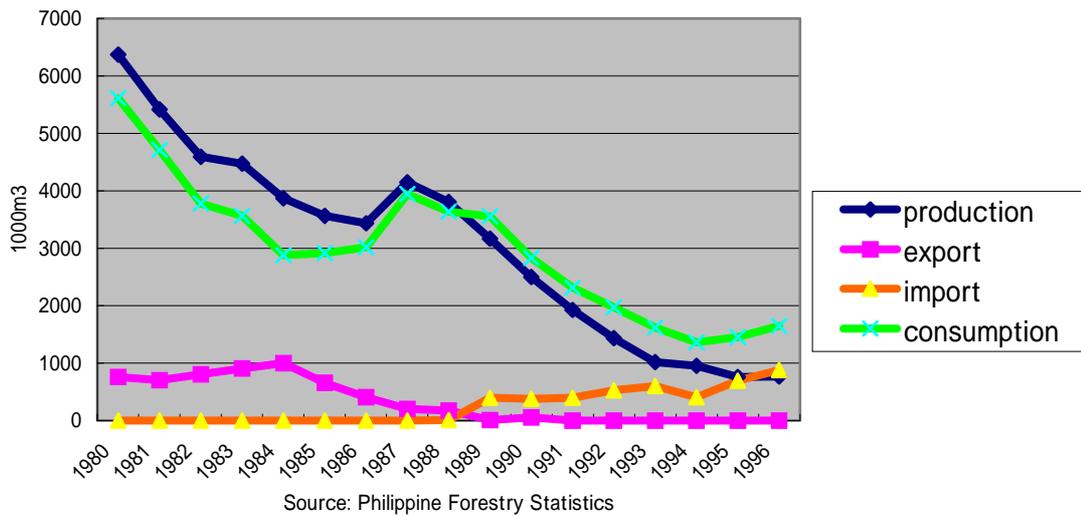
field researches that large part of them were already slashed and burned.¹

As for the latter agencies there is no statistical data about how many hectares were planted by individual farmers. It may be as large as or larger amount than governmental plantation and industrial plantation. Therefore this category can't be able to be skipped in the outlook of the forest resource in Philippines.

2. Log Production and Trade

Transition of production, consumption, import² and export of log in Philippines is as Figure 1. The peak of production or export of log in Philippines was the first half of 1970's. Although log production has been exceeded 10mil m³ early in 1970's, after that it began to decrease drastically. In 1980 production was 6.4mil m³, in 1985 it became 3.6mil m³. Export of log also dropped from 8.4 mil m³ in 1970 to 0.76 mil m³ 1980. In 1986 log export was finally banned, and in 1987 the government announced that it would not issue any new TLA.

Figure1. Log Production & Trade



¹ For example Y. Seki(1996a) and Y. Seki(1996b)

² In Philippine Forestry Statistics there are separated data between sawlog and pulpwood for production and export, but import volume is not categorized separately. Also in Foreign Trade Statistics of the Philippines, the amount of import of sawlog and pulpwood can't be divided.

At the same time import of log began to increase. In 1996 the amount of import was exceed production quantity. The larger part of imported logs were sawlog and veneerlog, and from the production volume of wood pulp pulpwood should have been imported around 240 thousand m³. Major exporter countries are listed in Table 4. They are the countries which exported more than 10 thousand m³ to Philippines in 1995. Malaysia, New Zealand, and Papua New Guinea are major exporters. It also shows the CIF price of imported log from these countries. In 1995 the prices are around 100US\$/m³, but there are rather large differences among these countries.⁴

Table 4. Import of Log

m3	Import Amount (m3)		CIF Price/m3 (US\$)	
	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

3. Lumber

3.1 Production and Trade

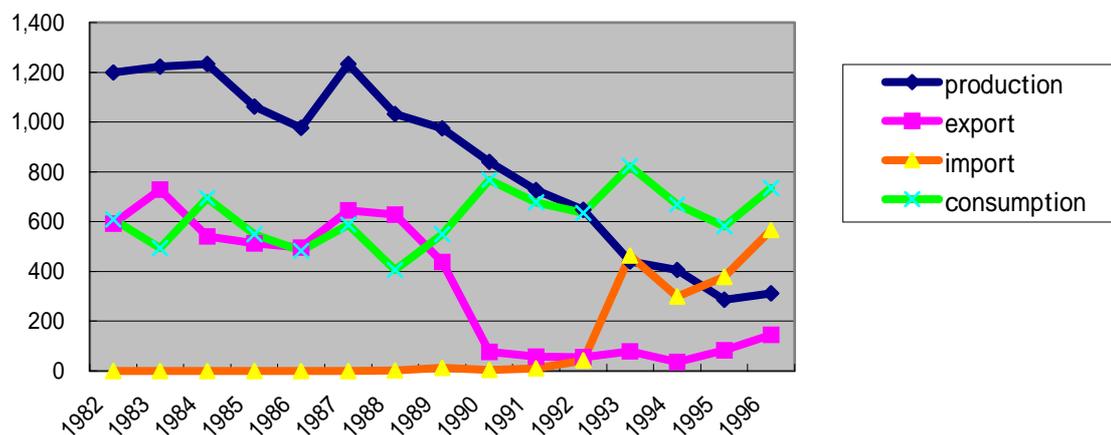
Domestic production and trade of lumber basically follows the trend of raw material. According to Figure 2., and domestic production of lumber was declined following the depletion of natural forest. It has been compensated by imported lumber in 1990's. The domestic consumption has not decreased than in 1980's, rather goes along at the higher

³ Calculation will be explained in footnote .

⁴ 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.

level between 600 and 800 thousand m³ in 1990's. In 1989 low manufactured lumber⁵ exports were banned, so the export has drastically declined. In 1990 the most

Figure 2. Lumber Production & Trade



Source: Philippine Forestry Statistics

part of export lumber went to Taiwan.

The countries Philippines imports lumber are as Table 5. It shows major export countries are Malaysia, Brazil and U.S. and CIF prices of import were around US\$ 200 in 1995 though products of U.S. were much expensive.

Table 5. Import 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
Saba	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

⁵ 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 lumber between rough or unworked form which not allowed to be exported and finished, i.e. passed through planners or sanders, grooved, tongued, profiled, etc. or kiln-dried, which is allowed to be exported.

3.2 Production Capacity and Log supply

Total number of active sawmills in Philippines in 1996 was 61. It has decreased by the difficulty of supply of raw material.

Table 6. Production Capacity of Sawmills

Unit= 1000m ³	total		with concession		without concession	
	number	daily rated capa*365d ays	number	daily rated capa*365 days	number	daily rated capa*365 days
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 National Capital Region. Mills of veneer, plywood, pulp and paper usually have sawmills as annexes⁶ because logs that are not needed by these mills go to sawmills to processed into lumber. These logs usually account for 60-70% of entire harvest of timber. Generally the production facilities are old and out of date, so the aspect is on the restructuring stage.

3.3 Consumption structure of Lumber

In Philippines lumber is used as construction materials for building and houses, as structure 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.

3.3 Production Cost and Recovery Rate

The recovery rate of lumber is about 60%. The production cost of lumber is as Table

⁶ Therefore the detail description about material supply and market structure will be shown in the section of Plywood and Veneer industry.

7.

Table 7. Production Cost of Sawnwood

Item	US\$/m3
Direct low 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

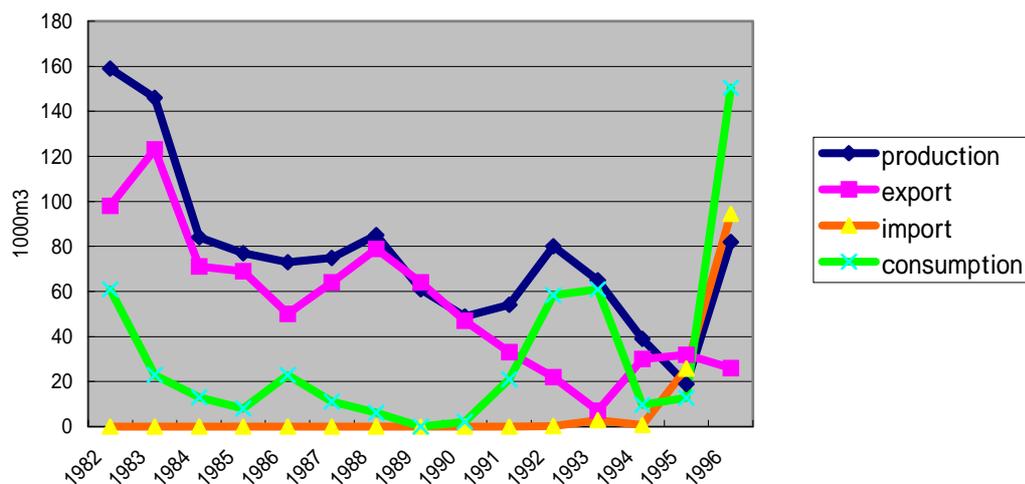
By another data the production costs are US\$205/m³ and gross profit is US\$36/m³. So the gross profit rate is 15%. The rate is said higher than plywood.

4.Veneer and Plywood

4.1 Production and Trade

The Transition of production and trade of veneer and plywood are as Figure 3. and 4. Production volume of veneer was 242 thousand m³ in 1970, and it rose to the peak of 660 thousand m³ in 1980. At this period the export volume was 127 thousand m³ in

Figure 3. Production and Trade of Veneer



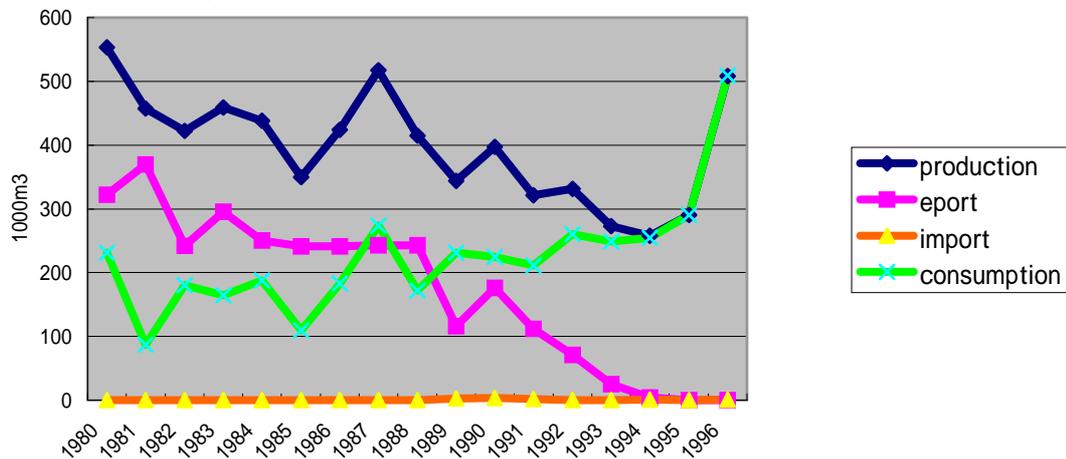
Source: PhilippineForestry Statistics

1970, and 164 thousand m³ in 1980, therefore larger part seemed to go to the domestic

market for the material of plywood and other wood processed goods. Since the beginning of 1980's, production volume declined drastically because of degradation of natural forest resource. It happened especially in the domestic market. During 1980's production of veneer was almost for export. From late 1980's export volume declined, and instead of that the import of veneer have increased from 1990's.

As for plywood production volume was at the peak of 732 thousand m³ in 1972, and at that time almost part which was 692 thousand m³ went abroad. After that both of production and export have declined. Consumption in the domestic market continued to be fluctuated 100 thousand m³ and 200 thousand m³ during late 1970's and 1980's. From late 1980's the production has gradually concentrated to the domestic market. From the beginning of 1990's domestic market has bubbled until the Asian crisis.

Figure 4. Production and Trade of Plywood



Source: Philippine Forestry Statistics

The countries to which Philippines exported veneer in 1995 more than 10,000 m³ were Hong Kong and U.S. The FOB prices per m³ were US\$378/ m³ and US\$438/ m³. There was no country which imported Philippine plywood more than 10,000 m³ in 1995.

4.2 Material Supply of plywood

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

Actually plywood companies which have concession recently obtain and use the

material log as following manners⁷. Plywood is consist of core and face panel. Core panel are generally made of Albijia Falcataria which were harvested plantation forest. It is one of the fast growing species, and rotation period is 13-15 years. Other species which are used as core panel are Acacia and Eucalyptus degrupta. They are also plantation species and the latter can be also used as face panel. Face panels are made of Lauan some of which had harvested from their own TLA concession and the others come from other concessioneer or farmers, or imported log or veneer which are from Papua New Guinea, Saba, Sarawak, and Solomon Islands.

In TLA concession area since 1992 the companies have harvested Lauan from secondary forests⁸. But by degradation of forest, transportation costs has risen. Logging and transportation costs heavily depend on the distance from harvested point to shipping one because in Philippines transportation to shipping point is usually by truck. An example is US\$75-90/ m³, more than half of which is the costs of road construction and maintenance. Log prices of Lauan from natural forest are US\$110-130/ m³ according to the diameter.

In the situation of degradation of secondary forest some of the plywood companies now consider to get IFMA and construct the plantation forest to grow the material of core panel(Albijia Falcataria, Gimlina, Bugras and Acacia) and sometimes face panel (Eucalyptus degrupta, and etc.) But generally these plantation forests have not still become harvestable stage.

They mainly get the material from local farmers especially in Mindanao outside of their own concession. They don't directly contract with local farmers, but contract local traders⁹. They buy the logs from local farmers by stumpage, and they use employees to harvest and transport to the shipping point or plywood mills.

Now the transition of material supply, and companies consider whether they construct

⁷ It is from interviews to a few plywood companies in Manila and PWPA in November in 1998.

⁸ Some companies have changed concession from TLA to IFMA. IFMA is plantation concession of degraded natural forest, and concessioneer can clearcut the stumpage, and must regenerate by plantation. But on IFMA plantation there is serious concern with conflict with local land occupants.

⁹ One factory contract one or two traders and leave all the arrangement of the purchase to them. Because there often happen the conflict about the position of land and stumpage between local farmers, so if companies directly relate to the problem, the arrangement costs become expensive.

their own large industry plantation from which they get the material log. If they can get enough amount of much cheaper imported log, they will depend on the imported material. Considering the stability of secure the supply of cheap material, they estimate it's better to get the log from their own plantation and from domestic log suppliers.

4.3 Production Capacity

By the interview to Philippine Wood Producers Association in 1995 the number of plywood companies was 23 companies and 40 registered plants (25 plywood and 5 veneer factories)¹⁰. Among them 23 plants are at Mindanao. Agusan, Surigao, Misamis Oriental, Davao and Zamboanga. Plywood production is a part of a large integrated industry, comprising of plantations, sawmills, and pulp and paper production. But only a few companies have logging concession now. In Philippine Forestry Statistics the number of plant of plywood were 31, and veneer were 6 in 1995. It indicates percentage of active plywood and veneer plants were low.

By Development Bank of the Philippines (1994) most of the plywood plants are quit old, and only minor investments have been made in the subsector, generally, a major part of the mills need modernization and retooling. Main reason of the oldness is because Philippine plywood mills were built to utilize the large diameter logs from old growth forests where logging has been banned, therefore the recovery rate become very low.

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

4.4 Market System of Plywood in 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 market system is affected by Chinese customs¹¹.

¹⁰ Total capital costs of 22 operating mill were as follows. Installed capital equipment was P 4337 mill, Land by zonal valuation was P 66 mill, and building and other assets was P 36 mill. Therefore total asset was P 4337 mill (P 200 mill/ factory).

¹¹ Chinese don't use invoice 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 their revenue and costs rather freely.

Major distribution route is as follows. Plywood producers sell their products to large scale wholesalers. They sometimes sell to the secondary wholesalers, but usually sell to the 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.¹² Plywood is used in frameworks, ceilings, partitions, panelling, 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 credit loan from banks¹³ and lend the fund with interest to the plywood makers. In Philippines usually plywood companies have little own operation fund, therefore it is crucial to obtain the loan from wholesalers. Buy and sell between makers and wholesalers are usually 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 Philippines have mostly focused on the domestic market partly because their output are of too low quality to satisfy the foreign consumers, and if they want to target the foreign market, they will have to invest large amount of money.

¹² In Philippines there are not separate categories of the construction companies and the housing companies. Usually construction companies also work as developers which develop the large scale housing lots. Real estate agents are under the umbrella of construction companies. There are not agents like building contractor's offices (Komu-ten) 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.

¹³ In Philippines the interest rates are extremely high and plywood companies are difficult to rent their operation fund directly from banks as explained later. Now plywood companies rent their operation fund from wholesalers with around 18% of interest per year.

Domestic market are very simple because demand is concentrated on the plywood with 5mm×4”×8”. Another reason is that domestic market has been protected from imported goods by the high tariff ratio which was 50% for plywood till 1995. But recently Asian crisis, depletion of material of natural forests, foreign pressure of free trade plywood companies are forced the structure change in various aspects.

4.5 Production Costs and Recovery Rate

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.

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

Recently gross profit rate has extremely dropped into 2.5-5%. If another pressure for example lower tariff and /or more expensive raw material attack to the plywood industry now, some of them will no longer be able to operate.

5. Particleboard and Fiber Board

5.1 Production and Trade

There are no reliable data about production and consumption of particleboard and fiber board. According to Yearbook of Forest Products by FAO production volume of particleboard has not changed from 1980's till now. Recently import volume has started

Figure 5. Production and Trade of Particleboard

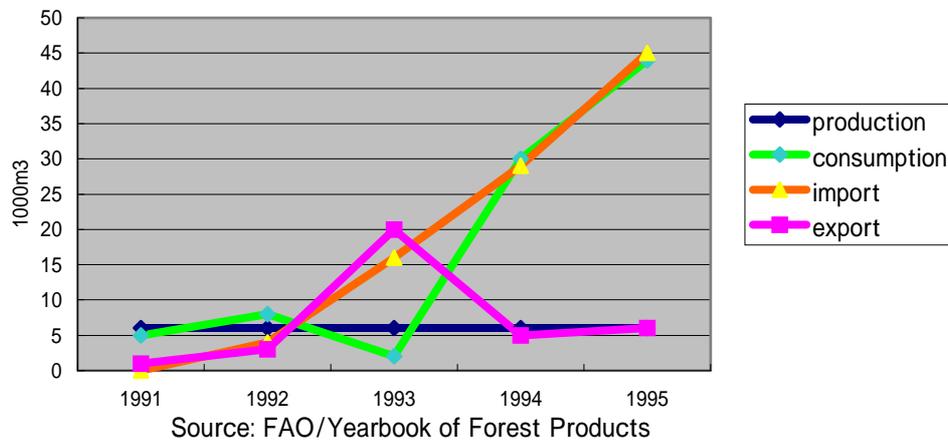
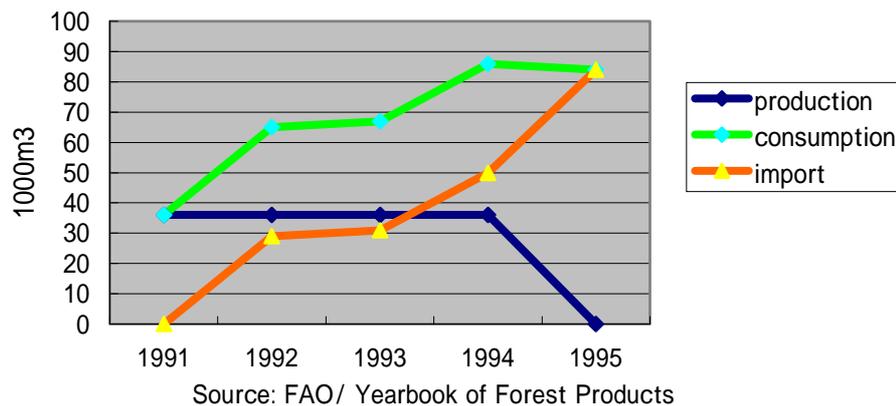


Figure 6. Production and Trade of Fiber Board



to increase. Also about fiber board import volume has increased although domestic producers have been withdrawn from operation. Table 10. and Table 11. show that major exporting country of particleboard to Philippines is Indonesia, and those of fiberboard are China and Thailand.

According to the interview in Philippines forest products companies don't have hope

for the production of particleboard and fiberboard by the problems of technique, raw material supply and production costs.

Table 10. Import 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

Table 11. Import 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 and production capacity of particleboard were 112,427m³ in 1997. BOI approved 10 more particleboard plants projects. In the case of fiberboard the existing fiberboard plant is one. It has a capacity of about 30,000m³/year. Its product is about 90% hardboard. But comparing

with actual production volume, capacity actually operating is only a small part.

5.3 Production Cost

Production costs of Particleboard is as follows. Gross profit rate is now 11.8%. Price of imported particleboard with the same kind of quality is US\$182/m³. If domestic products will face with the perfect competition with foreign counterpart, gross profit rate will drop into extremely low level.

Table 12. Production Cost of Particleboard

	US\$/m ³
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 Expences	4.8
Selling Expences	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. by Yearbook of Forest Products by FAO and Philippine Forestry Statistics, production volume of pulpwood has been declined though largely fluctuated. In the middle of 1980's export was temporary increased, but soon shrunk because of degradation of domestic natural forests. The line which indicates import volume is conjectured one under the certain assumptions¹⁴ because there are no separate data of the pulpwood and sawlog import. From this inference the domestic consumption has

¹⁴ The amount of pulpwood input to produce 1 ton of wood pulp is assumed 3.11 m³ from the percentages of each kind of pulp occupying the pulp mills capacity in 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).

been around 400 thousand m³ since late 1980's.

Figure 8. shows that production of wood pulp in Philippines has been stable around 150 thousand ton from 1980's though it dropped in 1993 and 1994. Import volume has also been stable from 1980's, and large part of imported wood pulp has been conifer

Figure 7. Production and Trade of Pulpwood

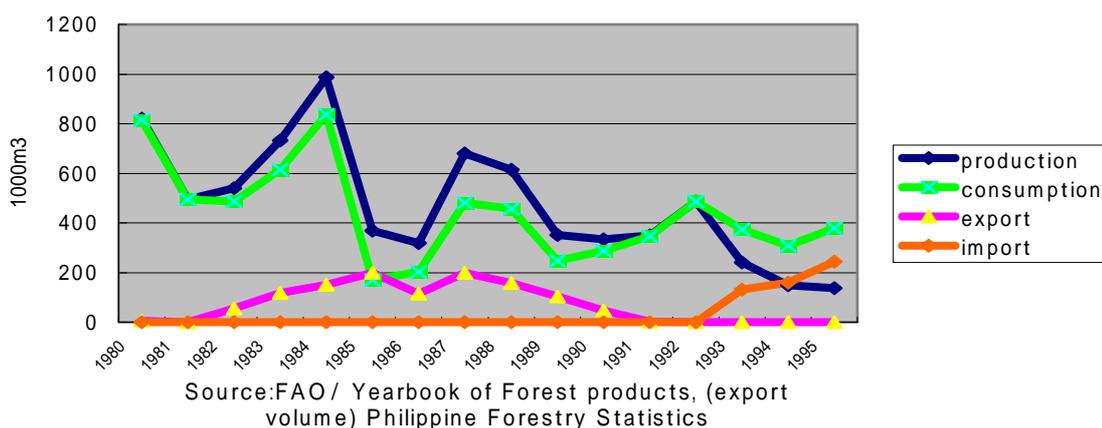


Figure 8. Production and Trade of Wood Pulp

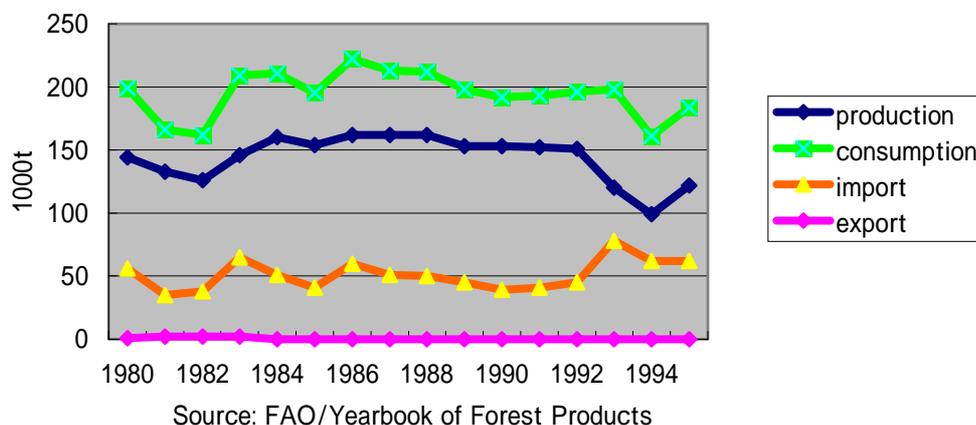


Table 13. Import of Wood Pulp

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

wood pulp. Major exporting countries are as Table 13.

The most important characteristics of supply of material for paper and paperboard in 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 thousand tons and import volume has been about 250 thousand tons in 1990's. Major exporters are as Table 14.

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 Philippines

In 1997 the number of paper mills are 38 in Philippines. Among them the integrated paper mill which has a plant of producing wood pulp from pulpwood is only one. 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 production of printing and writing paper of high quality is not competitive with Indonesia and Taiwan. Philippines imports a lot of printing and writing paper, and cut 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.

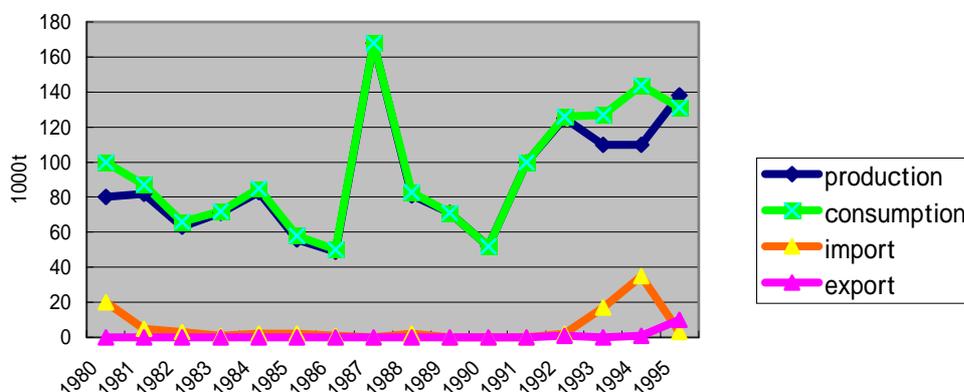
Pulp and paper plants needs much time and much money to set up. If a firm wants to expand the production capacity, it will take around 3 years to set up the new facilities. The incentive of the investment of Philippine paper companies has been undermined in each period from 1970's. In Marcos era companies' concern was possibility to be taken over by the government. In Akino era unstability of supply of energy was bottle neck of investment. After the president had changed into Ramos, incentive of investment went

up before Asian crisis.

6.3 Production and Trade of Paper and Paperboard

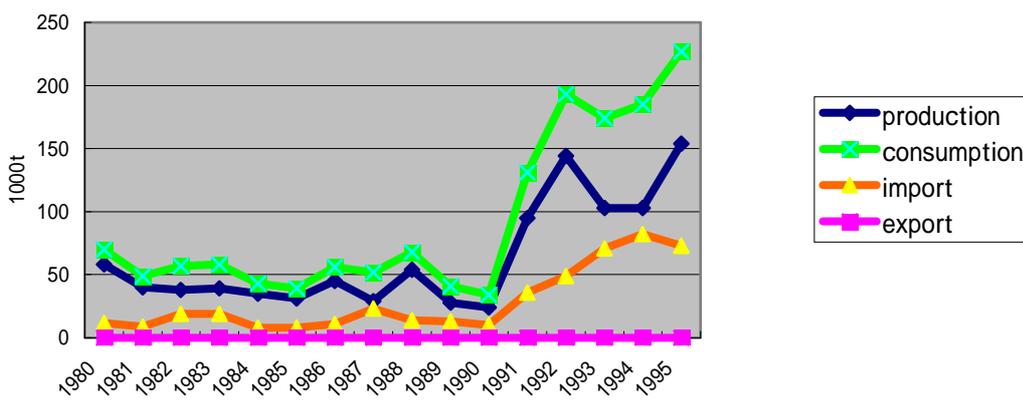
. The production and trade situations of each kind of paper are as Figure 9.-12. In the case of writing and printing paper, and wrapping and packing paper and paperboard import have rather compensated the low quality of domestic goods. Newsprint and household and sanitary paper are basically produced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

Figure 9. Production and Trade of Newsprint



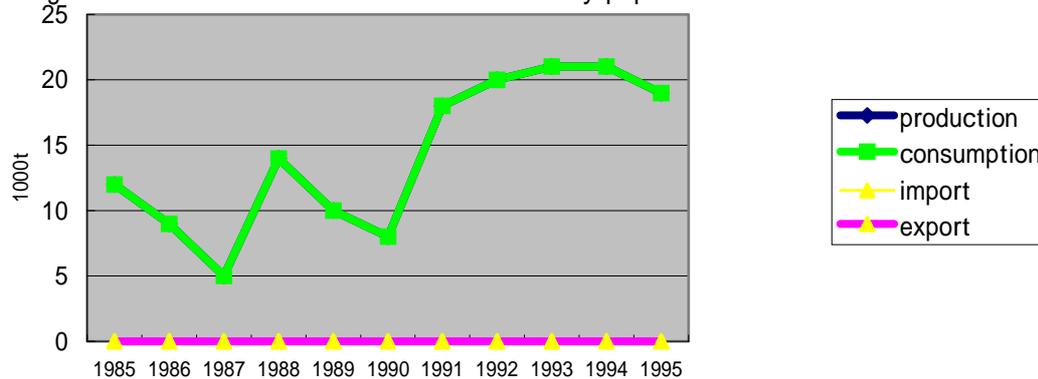
Source: FAO/Yearbook of Forest Products

Figure 10. Production and Trade of Printing & Writing Paper



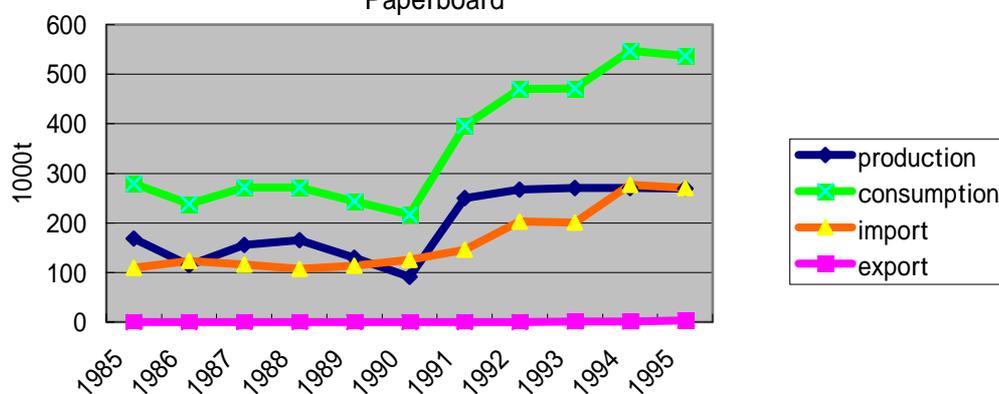
Source: FAO/Yearbook of Forest Products

Figure 11. Production of Household & Sanitary paper



Source: FAO/Yearbook of Forest Products

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



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 countries	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 1990's about some items of paper were shown as follows.

Liner board....18000-21000 pesos/t (fluctuated from 15000-23500 pesos/t in 1990's)

Corrugated medium....11500-13000 pesos/t (fluctuated from 9500-14500 pesos/t in 1990's)

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.

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 Philippines

Now the domestic producers of forest producers are standing on the critical point whether they can survive or not. Because the supply of cheap and fine material from

natural forest has been depleted, and they can't compete with the cheap imported goods with high quality by their old facilities and their low technique. Therefore the producers are especially focusing on the following issues.

7.1 Tariff Reduction

Forest products producers in Philippines have strong concern about the reduction of tariff rate of imported forest products because they were protected from international competition by the high rate of tariff before. In the case of plywood the tariff rate was 50% till 1995. But Philippines signed the Common Effective Preferential Tariff (CEPT) Agreement in ASEAN in 1992. It requests the member countries that the tariff rates above 20% on Products are to be reduced 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 it, from 1996 to 1997 tariff rate of plywood was down to 30%, and in 1998 it became 20%. As mentioned in section 4.5 the gross profit rate of plywood has been extremely low recently. If the tariff rate goes down to 10% now, domestic plywood companies will be deadly beaten.

As for the lumber, the tariff rate was 20% till 1997 and had been scheduled to reduce to 10% since 1998. Philippines Wood Producers Association requested the moratorium from reducing to 10% till 2000 for the producers to corresponding by the restructuring the industry structure.

Now these domestic producers are also waiting for the price reduction of wood material from plantation forests which are now at the growing period.

7.2 Expectation to 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 160m³/ha which will be able to be harvested in 8 years. Under these assumption the reforestation costs are 127.9 pesos/m³ which means 480.8 pesos/m³ in the present value in 8 years later. The harvesting and transportation costs are said 750 pesos/m³ in the plantation forests,

therefore the supply price will be 1230.8 pesos/m³. It is US\$ 29.5/m³ in recent exchange rate. This is the estimation of governmental project, so in the case of industrial plantation the costs will be a little cheaper.

But the domestic producers still have to wait for several years to the increment of supply of domestic wood material. There is another problem that how they change the material of face panels of plywood into the plantation species, although there are some species which are possible to use.

Now under the situation that the natural forests have completely depleted, Philippines is in the transition to change into the nation of plantation forestry. There seems to exist a scenario to support the domestic forest products industries in order to recover the degraded forest lands by reforestation in Philippines. It will be a similar situation with Japan. It will be necessary to reconsider the tariff reduction and the free trade system of forest products from this point of view.

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