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PRODUCTION AND MARKETING OF PLYWOOD IN THAILAND

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บทคัดย่อ

ในการศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาถึงการผลิตและการตลาดของไม้อัดในประเทศไทย จากการศึกษาพบว่าในปี พ.ศ. 2543 มีโรงงานไม้อัด 21 โรง วัตถุดิบที่ใช้ในการผลิตไม้อัดคือ ไม้ท่อน ไม้บาง และกาว ในช่วงระหว่างปี พ.ศ. 2539-2543 พบว่ามีการใช้ไม้ท่อนสูงสุด 562,791 ม^{3}ในปี พ.ศ. 2543 และต่ำสุด 400,238 ม^{3}ในปี พ.ศ. 2540 สำหรับไม้บางใช้สูงสุด 6,101 ม^{3}ในปี พ.ศ. 2541 และต่ำสุด 2,594 ม^{3}ในปี พ.ศ. 2543 และปริมาณกาวที่ใช้สูงสุด 20,005 ตันในปี พ.ศ. 2543 และต่ำสุด 14,961 ตันในปี พ.ศ. 2541 ปัญหาเกี่ยวกับการผลิตไม้อัดที่พบได้แก่ 1) ความขาดแคลนวัตถุดิบ 2) ขาดแคลนแรงงาน 3) การดูแลและซ่อมบำรุงเครื่องจักร 4) ต้นทุนการผลิตสูง และ 5) กฎระเบียบทางราชการที่เกี่ยวข้อง

ช่องทางการตลาดของไม้อัดจะเป็นไปในลักษณะที่ว่าผู้ผลิตส่วนใหญ่จะขายไม้อัดผ่านตัวแทนจำหน่าย ไม้อัดที่ผลิตได้จะใช้บริโภคภายในประเทศ 90.38 เปอร์เซ็นต์ และที่เหลือ 9.62 เปอร์เซ็นต์ส่งจำหน่ายยังตลาดต่างประเทศปัญหาการตลาดที่ผู้ผลิตพบได้แก่ 1) ไม้อัดที่นำเข้าจากต่างประเทศมีราคาต่ำกว่าราคาไม้อัดที่ผลิตในประเทศ 2) ลูกค้าจ่ายเงินช้า 3) มีการขายตัดราคาและ 4) ตลาดรองรับไม้อัดมีจำกัด

ABSTRACT

The objectives of the study were to determine the production and marketing of plywood in Thailand. The results of the study indicated that there were 21 plywood mills in 2000. There are 3 kinds of raw materials being used for plywood production namely, veneer logs, veneers and glues. During the 5 years period (1996–2000) revealed that the highest and lowest amount of veneer logs using for plywood productions were 562,791 m^3 in 2000 and 400,238 m^3 in 1997, respectively. While the highest and lowest volume of veneers were 6,101 m^3 in 1998 and 2,594 m^3 in 2000, respectively. In addition, the highest and lowest volume of glues were 20,005 ton in 2000 and 14,961 ton in 1997, respectively. Plywood production problems faced by the producers could be categories into 5 topics 1) lack of raw material, 2) lack of labor, 3) machinery maintenance, 4) high production cost and 5) official regulation.

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The marketing channel of plywood showed that the producers distribute their most products directly to the distributors (wholesalers or retailers who have purchase plywood from producers by contract basis). About 90.38 percent of the total plywood production for domestic consumption and the rest of about 9.62 percent for foreign market. The marketing problems faced by the plywood producers had 4 topics 1) price of imported plywood was lower than the price of local plywood, 2) customer slow payment, 3) predatory price–cutting and 4) market limitation.

INTRODUCTION

The plywood manufacturing process is unique in the sense that a highly variable raw material is manufactured into a product that is stronger and more versatile than the wood from the original tree. Plywood is now used in structural component in building in competition with steel and concrete (FAO, 1983). About 75 % of the plywood consumed was used in construction, 20 % in furniture manufacture and 5 % in other uses such as containers and advertising boards (Royal Forest Department, 1993). There were 21 plywood mills in Thailand. Most of the mills situated in Bangkok, surrounding Central, and South provinces (Information office, 1996). The total capacity of plywood mills is about 450,000-500,000 m^3. Individual mill annual capacity ranges from 200-50,000 m^3, the average being 21,000 m^3. Raw material of plywood industry has been dependent on imported log since the logging ban (Royal Forest Department, 1993). Suksard and Hoamuangkaew (1998) indicated that the projection of demand, supply and average wholesale price of plywood for the year 1998-2007. It is shown that in 1998 the demand, supply and average wholesale price of plywood were about 366,021 m^3, 232,524 m^3 and 718 baht/sheet, respectively, and at the end of the projection period, the corresponding values will be 780,417 m^3, 456,777,m^3 and 1,141 baht/sheet, respectively. However, the plywood always plays an important role in Thai economy.

The objectives of this study were to investigate the production and marketing of plywood in Thailand.

METHODOLOGY

Data collection

1. Primary data. Primary data was obtained from the presurvey and use the questionnaires to interview the plywood the entrepreneurs. Number of targeted entrepreneurs was 21. The study period started from October 1999 to July 2000.

2. Secondary data. The secondary data were gathered from various sources such as Royal Forest Department, Food and Agriculture Organization of the United Nations, Department of Custom and Thai Plywood Company Limited.

Steps in data collection

The first step will be started from the literature review, interviewing the relevant informants and then to conduct the field surveys for collecting the primary data. The steps were represented as follows :

1. Determination the field areas, collecting preliminary information from government and private agencies concerning with plywood industry. The designed questionnaire had been pretested with Thai Plywood Company Limited. Then it was revised to suit for the further use.

2. To employ the revised questionnaire for interviewing the targeted plywood entrepreneurs.

3. Recheck the accuracy and reliability of the obtained data.

Data analysis

Descriptive analysis. This part describes general information of plywood production and marketing of plywood, and used simple

statistical analysis, such as percentage and mean.

RESULTS AND DISCUSSION

General information of plywood production

In 2000, there are 7 plywood mills in Nonthaburi, 4 mills in Samut Sakhorn, 3 mills in Pathum Thani and Bangkok each, and 1 mill in Ayuttaya, Samut Prakan, Phang Nga and Yala province each. Thai Plywood Company Limited is the first mill in Thailand, it was government enterprise, and established in 1957, while all of the rest were privately entreprises.

Raw material

The plywood industry was mainly depended on imported log since the logging ban. Nowsday, there are two sources of veneer logs for plywood production namely, domestic production and importation from the rest of the world. Mostly raw material to be used for domestic plywood productions were rubber wood and other species of logs came from private plantations. The species of forest trees used for producing plywood were *Hevea brasiliensis* Muel. Arg., *Tetrameles nudiflora* R.Br., *Bombax anceps* Pierre, *Durio* spp. and *Pterocymbium* spp. Species of imported logs to be used for plywood production were *Tectona grandis* Linn.f, *Dipterocarpus* spp., *Dillenia* spp., *Shorea curtisil* Dyer ex King, *Pinus radiata* and others.

Table 1 showed that there are 3 kinds of raw materials used for plywood production namely, logs, veneer and glue. During the 5 years period (1996-2000) revealed that the highest and lowest amount of veneer logs using for plywood production were 562,791 m^3 in 2000 and 462,662 m^3 in 1996, respectively. For the species of veneer logs used can be categorized into 4 main groups namely, teak, pine, rubberwood and others.

The highest quantity and percentage of the veneers teak logs used in 1998, 1999 and 2000 were fixed at 2,500 m^3, and 0.57 percent in 1998, respectively. Whereas, the lowest quantity and percentage of veneer logs were used in 1995 and 1997 were 1,250 m^3, and 0.27 percent in 1996, respectively. All of the veneer logs were imported from Myanmar.

Pine logs is *Pinus radiata,* which imported from New Zealand. It's highest volume and percentage were 38,280 m^3 in 1999 and 2000, and 7.39 percent in 1999, respectively. The lowest quantity and percentage found in 1997 were 17,659 m^3 and 4.41 percent, respectively.

The peak amount and percentage of rubberwood logs used were 379,853 m^3 in 2000 and 69.17 percent in 1999, respectively. The lowest quantity and percentage of logs used were 262,008 m^3 in 1996 and 52.51 percent in 1997, respectively. The entire logs were came from Southern region.

The highest volume and percentage of the other logs species were 176,382 m^3 in 1996 and 38.12 percent in 1996, respectively. Whereas it's lowest volume and percentage were 118,967 m^3 and 22.96 percent in 1999, respectively. They came from many sources namely, Laos, Myanmar, Malaysia, Indonesia, Papua New Guinea and others.

The highest and lowest volumes for veneers were 6,101 m^3 in 1998 and 2,594 m^3 in 2000, respectively. There are 2 sources of veneer supply were local domestic and oversea markets. Most veneer was imported from Indonesia, Malaysia Laos, and Myanmar.

The highest and lowest volumes for glues were 20,005 tons in 2000 and 14,961 tons in 1997, respectively. Most glue was domestically produced and the rest imported from Malaysia.

Production of plywood

Production of plywood during 1996 – 2000 increased from 177,489 m^3 to 203,142 m^3. The highest amount and percentage of plywood production were 203,142 m^3 and 55.26 percent in 2000, respectively. While the lowest volume and percentage of plywood production were 152,364 m^3 and 42.24 percent in 1997, respectively (Table 2). In the point of view in

1996 the production of plywood in Thailand (178,000 m^3) sharing only about 0.32 percent of the world plywood production. In 1996 the most plywood production country was U.S.A. (16,975,000 m^3), followed by the Indonesia (9,575,000 m^3), China (8,463,000 m^3), Japan (4,421,000 m^3) and Malaysia (4,100,000 m^3) (Information office,1998).

Wood waste from plywood production can be used as raw materials for the fiberboard, particleboard and blockboard production; firewood, pole and others.

Table 1. Estimated amount of the raw materials for plywood production, 1996-2000.

Raw Material	Year				
	1996	1997	1998	1999	2000
1 Logs (m^3 (%))					
1.1 Teak logs	1,250(0.27)	1,250(0.31)	2,500(0.57)	2,500(0.48)	2,500(0.44)
1.2 Pine logs	23,022(4.98)	17,659(4.41)	26,499(6.04)	38,280(7.39)	38,280(6.80)
1.3 Rubberwood logs	262,008(56.63)	238,177(52.51)	287,930(65.63)	358,444(69.17)	379,853(67.49)
1.4 Other logs	176,382(38.12)	143,152(35.77)	121,77(27.76)	118,967(22.96)	142,158(25.26)
Total	462,662(100.00)	400,238(100.00)	438,700(100.00)	518,191(100.00)	562,791(100.00)
2. Veneers (m^3)	3,876	4,404	6,101	4,271	2,594
3 Glues (tons)	16,973	14,961	16,414	19,313	20,005

Table 2. Plywood production and capacity 1996-2000.

Year	Production (m^3)	Capacity (m^3)	% Production
1996	177,489	360,705	49.21
1997	152,364	360,705	42.24
1998	162,708	360,705	45.11
1999	185,961	360,705	51.55
2000	203,142	364,305	55.26

Production problems of plywood producers

The plywood production problems (Table 3) were as follows.

1. Lack of raw material. 71.43 percent of the total plywood producers faced the problem about the raw material dificult, especially veneer logs. After logging ban, the plywood industry has to dependency on the imported veneer logs. The shortage of veneer logs is become severe problem overtime. The highest and lowest percentage of plywood production of the producers who produced less than 50 percent of the full capacity were 70.00 percent in 1998 and 38.09 percent of them in 2000, respectively. Whereas the highest and lowest percentage of the average production were 55.76 percent in 2000 and 42.24 percent in 1997, respectively (Table 4).

2. Lack of labor. About 66.67 percent of the total plywood producers faced the labor, shortage problem this mainly due to the workers from northeastern region return home during the rice-harvesting period.

3. Machine maintenance. About 57.14 percent of machinery will addle, because most of the plymills used the second hand machinery. Sometimes, the producers have to stop their entreprise for a long periold in order to repairing the machinery .

4. High production cost. Approximately 57.14 percent of producers have high production cost, this mainly due to the most veneer logs used were come from the foreign country, namely, Laos, Indonesia and Malaysia, and the imported veneer logs price was rather expensive.

5. Official regulation. About 47.62 percent of producers faced the official regulation problems. Many sectors of state are responsible imported logs by ship. They inspected that the logs importation took quite a very long time, this will cause the logs importers (plywood producers) paid so high freight ship.

Table 3. Production problems of plywood producers.

Production problems	Number of plymills	Percent
1. Lack of raw material	15	71.43
2. Lack of labor	14	66.67
3. Machine maintenance	12	57.14
4. High production cost	12	57.14
5. Official regulation	10	47.62

Table 4. Percentage of plywood production, 1996–2000.

Production (%)	Number and percentage of plymill				
	1996	1997	1998	1999	2000
< 25	2(10.00)	4(20.00)	0	0	1(4.76)
25 – 50	9(45.00)	8(40.00)	14(70.00)	10(50.00)	7(33.33)
50 – 75	6(30.00)	6(30.00)	1(5.00)	4(20.00)	6(28.57)
> 75	3(15.00)	2(10.00)	5(25.00)	6(30.00)	7(33.33)
Total	20(100.00)	20(100.00)	20(100.00)	20(100.00)	21(100.00)
The lowest (%)	21.23	17.33	25.01	25.01	15.87
The highest (%)	100.00	91.72	84.93	100.00	100.00
Average (%)	49.21	42.24	45.11	51.55	55.76

Marketing of plywood

Marketing channels of plywood

Plywood from producers moves through various different channels until they reach the final markets. The marketing channel of plywood was represented in Figure 1.

Affiliates received 8.26 percent from plywood producers, out of this about 6.83

percent delivered to the distributors and the rest of 1.43 percent to foreign market, especially India.

83.51 percent of the total production from producers combined with 6.83 percent from affiliate (90.34%) flow directly to distributors (wholesaler and retailer). They have contract purchase of plywood with producers. Most of distributors were in Bangkok and vicinity, and then they supplied all to the retailers and consumers.

Approximately 8.19 percent of plywood from the producers' flow directly to overseas markets, such as Japan, Taiwan, Korea, Germany, France and United Kingdom.

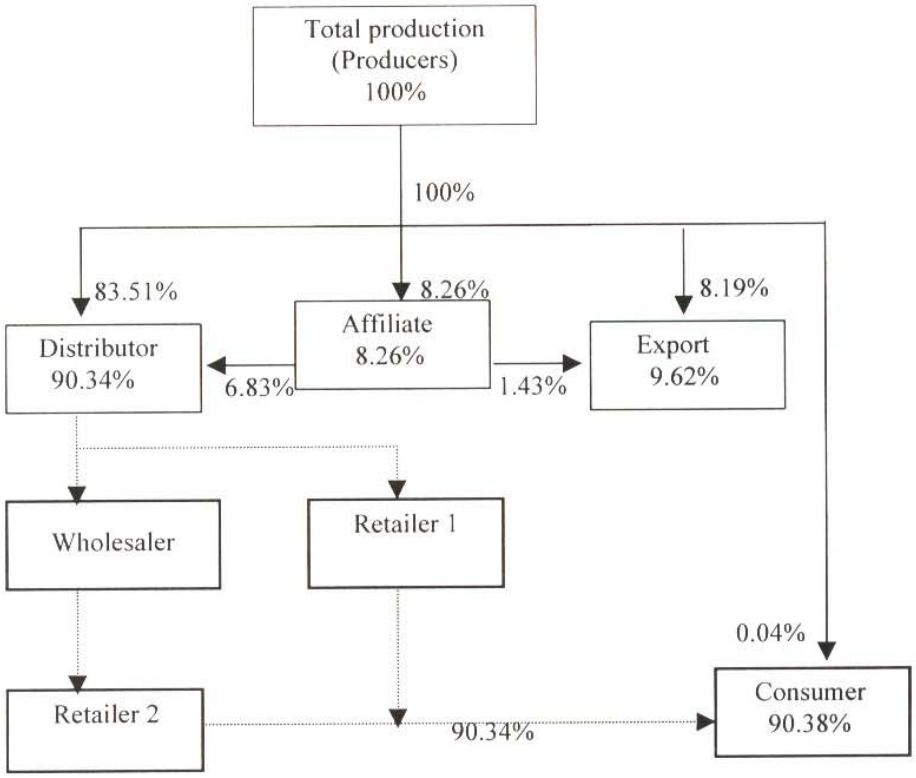

Figure 1. Marketing channel of plywood by plywood producers in Thailand.

Consumers received only 0.04 percent from producers and 90.34 percent from retailers. The marketing channel, indicated that 90.38 percent and 9.62 percent of the total plywood production were for domestic consumption and foreign trade, respectively.

Marketing problems of plywood producers

1. Price of imported plywood is low. About 42.86 percent of producers faced the problems about the low price of imported plywood from Laos, Indonesia and Malaysia. In such countries having lower cost of production than our country. Plywood importers have to pay 20 percent for the import duty however the imported plywood price was still cheaper than the

domestic price. Royal Forest Department (1993) indicated that the wood cost alone of domestically produced plywood was about USD 400 per m^3. In comparison, the sale price of Indonesia plywood was about USD 450 per m^3 CIF to Japan. This mean that without the imported duty, only USD 50 per m^3 would be left for glue, energy, labor and others production cost.

2. Customers slow payment. Producers provide term credit for customers about 30 – 90 days, but in fact, they could not pay in time. About 33.33 percent of producers faced with this problem.

3. Predatory price–cutting. Sometime, pricing of plywood in the market is low due to the plywood importer selling the product cheaper than the current price. The producers about 28.57 percent did not want to sell their products and storage the products until the current price is higher than the production cost.

4. Specific market. About 90.38 percent of total plywood production used for domestic consumption. Nowadays, Thailand faced with an economic crisis as well as the real property problems, these caused the widely impact on the construction material market. Thus, about 19.05 percent of the total plywood producers were also received such negative impact.

Table 5. Marketing problems of plywood producers.

Marketing problems	Number of plymills	Percent
1. Price of imported plywood is low	9	42.86
2. Customer slow payment	7	33.33
3. Predatory price – cutting	6	28.57
4. Specific market	4	19.05

CONCLUSION AND RECOMMENDATION

The results of the study indicated that there were 21 plywood mills in 2000. Thai Plywood Company Limited is the first mill in Thailand, it was government enterprise, while all of the rest were privately entreprises. There are 3 kinds of raw materials used for plywood production namely, veneer logs, veneer and glue. During the 5 years period (1996–2000) revealed that the highest and lowest amount of veneer logs using for plywood productions were 562,791 m^3 in 2000 and 400,238 m^3 in 1997, respectively. While the highest and lowest volume of veneers were 6,101 m^3 in 1998 and 2,594 m^3 in 2000, respectively. In addition, the highest and lowest volume of glues was 20,005 ton in 2000 and 14,961 ton in 1997, respectively. Plywood production problems faced by the producers could be categories into 5 topics 1) lack of raw material, 2) lack of labor, 3) machinery maintenance, 4) high production cost and 5) official regulation.

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Based on the results of the study, the recommendations are given:

At present the actual production of plywood mills were lower than their full capacity. Shortage of veneer logs and too old used machinery were determined as the main causes of the low production and high production cost problems. Hence, the government should adjust the related regulations for supporting the veneer logs importers during the economic crisis period by reducing the imported tax as well as to controls the red tape in order to reduce the operating cost and time. The government should facilitate the entrepreneurs to increase their quantity of imported veneer logs and plywood by fixing the imported duty at 20 percent, this will help the plywood producers to be able to maintain their businesses. Also, the government should ban the exportation of rubberwood, in order to mitigate the raw material shortage problem, and should promote the utilization of rubberwood as the raw material in the domestic plywood industries. In addition, the government should encourage the plywood producers to produce their products at the full capacity.

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