Report on

Wood market trends, inclination and developmental potentials in Ghana

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CONTENT

LIST OF TABLES

LIST OF FIGURES

List of Appendix

Introduction

Ghana timber industry has experienced major changes that have subjected the industry to severe pressure regarding raw material availability and a struggle for efficient use of limited available timber. The Year 2000 ITTO objective highlights major issues focusing on forest products; reducing pressure on the natural forest through harvest limits, the use of an ideal mix of species, and efficient use through value adding processing.

In Ghana, the strategies in use for offsetting pressure on the natural forest involve decreasing the annual allowable cut (AAC) and encouraging diversification of species used. Ghana has also introduced initiatives geared towards improving woodworking skills which improve utilization efficiency. Export of air-dried products is also discouraged in favor of kiln-dried products, which could further promote in-state value added processing. Some currently preferred species exported as air-dried lumber face levies ranging from 10 to 30 percent FOB depending on rareness of species (MLF1996b).

Despite these initiatives wood products in the local market are not graded or labeled. This situation has been aggravated by the inadequacy of wood products in the local market. Local consumers out of ignorance and scarcity use perishable wood for roofing, interior plywood for outdoor construction projects while quality and design of furniture remain a user-defined attribute. This state of affairs is crippling efforts by some local wood industries to meet export demands of grade and quality as well as the pricing policy, since value indices are not based on any scientific or empirical criterion.

Ghana’s log-exporting policies have shifted from raw wood to exporting finished wood products by encouraging local industries. In response to the clarion call by the government for wood products diversification and the incentives provided for exportation, the timber industry was further integrated. Some of these timber industries generate local employment and income, but at a trade-off because many of the mills built in response to these incentives, operate inefficiently while little attention is paid to raw material quality and quality control measures resulting in net economic losses to the nation (Panayotou, 1992)

In order to achieve the objective of transforming the timber industry from a high volume, low value business to a low volume high value trade based on sustainability as stipulated in the 1994 Forest and Wildlife Policy, there is the need to investigate local market requirements of wood and enact policies that will be enforced to address the aforementioned problems.

It is anticipated that this will lead to increased potentials of exportation of more tertiary wood products, establishing a reference point for pricing of wood and wood products in the local market and efficient utilization of wood. Also with standardization, wood products in the local market may now be put to appropriate uses; wood and wood products would be available with specifications for defined uses to aid users to ensure efficiency. Standardization of wood products will further encourage specialization as well as product assembly through production of knock-down wood product parts by different companies.

Objective

The specific objective was to analyze the wood market trends, inclinations and developmental potentials

Methods

Desktop study involving review and analysis of secondary data on wood products and trade in the domestic and international markets was done. Two sets of questionnaire were developed to capture information on domestic wood market development. One of these questionnaires was used to capture information on the tertiary products manufacturing and trade industry and the sale of wood in the domestic wood markets by different agents and dealers. The questionnaire for tertiary products manufacture focused on the products manufactured, their values and distribution across and outside the country. Simple random sampling was used to select the sample units, that is wood processors and furniture manufacturers, in 5 major wood processing areas including, Accra, Kumasi, Sekondi/Takoradi, Techiman and Oda. In these areas, specific wood processing markets were selected. These include Ofankor, Amaamomo, James Town, in Accra; Awhiaa and Anloga in Kumasi; Techiman, Oda and Kokompe in Takoradi. Wood processors were randomly selected for the interview and observation. The sample size of these processors was not based on their total population as this study did not have information on this. Face-to-face interview of these wood processors was undertaken in the different areas using simple random sampling to avoid bias responses and the distribution of the sample selected is indicated in Table1.

Table 1: Distribution of wood processors interviewed

Districts/areas for the survey	Frequency	Percent
Birim South Assembly (ODA)	14	26.4
Accra Metropolitan Assembly (AMA)	8	15.1
Kumasi Metropolitan Assembly (KMA)	11	20.8
Techiman South Municipal Assembly	9	17.0
Sekondi-Takoradi	11	20.8
Total	53	100.0

The focus of the questionnaire on wood dealers' was also on the type of products they trade in, the tree species used, those species they easily obtained for sale and their expectation about the trade. The same face-to-face interview of these wood dealers was conducted in addition to observations. Distribution of the respondents is indicated in Table 2.

Table 2: Distribution of wood dealers interviewed

Districts/areas for the survey	Frequency	Percent
Birim South Assembly (ODA)	7	7.4
Accra Metropolitan Assembly (AMA)	23	24.2
Kumasi Metropolitan Assembly (KMA)	22	23.2
Techiman South Municipal	18	18.9
Sekondi Takoradi Municipal	25	26.3
Total	95	100.0

Data analysis

The data obtained from the secondary and primary sources were processed and analyzed using descriptive statistics, graphs and trend assessment employing variance analysis and moving averages techniques to determine the variability of values and volumes of wood products and exports in the market from 2001 and 2007.

2.0 Results and discussions

Wood export trends, 2001-2007

Wood export performance relating to industries, species, products and importers from 2001 to 2007 is described in this section. The reasons for the trends in performance are also explained. Shipments of Ghanaian wood products increased to 28% in volume and 17% in value during the first quarter of 2007, up from previous year's estimates (Global Wood, 2007). The export data published by Timber Industry Development Division (TIDD) for the period January – December 2007 showed an increase in the volume of wood products to 528,570m³ (Euro 184,174,022) from 451,608m³ (Euro 170,097,902) during the period January – December 2006. Ghanaian plywood shipments also rose from approximately 20,000m³ to 23,965m³, and overland exports had more than doubled. Exports to Europe remained about the same, while shipments to Asia, other African countries and the US showed upward trends.

2.1.1 Species performance

Export performance of species in volumes and values from 2001 to 2007 are indicated in figures 1a, 1b, 2a & 2b. The total number of species that were exported within the period is seventeen (17), but in percentage terms of total annual volume, the exports of eleven species (Wawa, Teak, Chenchen, Asanfina, Ceiba, Mahogany, Odum, Ekki, Papao, Niangon and Hyedua) are significant. The species that were exported throughout the seven years were Wawa, Teak, Asanfina, Ceiba and Mahogany. There was no export of Niango and Odum in 2001 and 2007 respectively, which might be due to sustainable management systems being practiced in Ghana. The others were exported at most four years within the period. With the exception of Teak, which has been increasing in volumes of export all the other species have been declining especially since 2004 (Figure 1a).

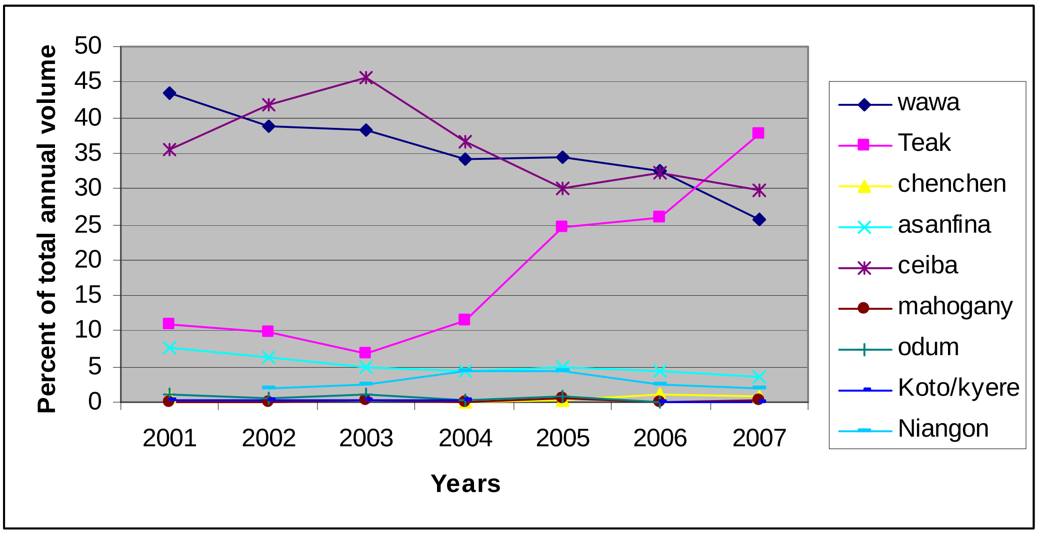

Figure 1a: Trends of export of wood species (percent of total annual volume)

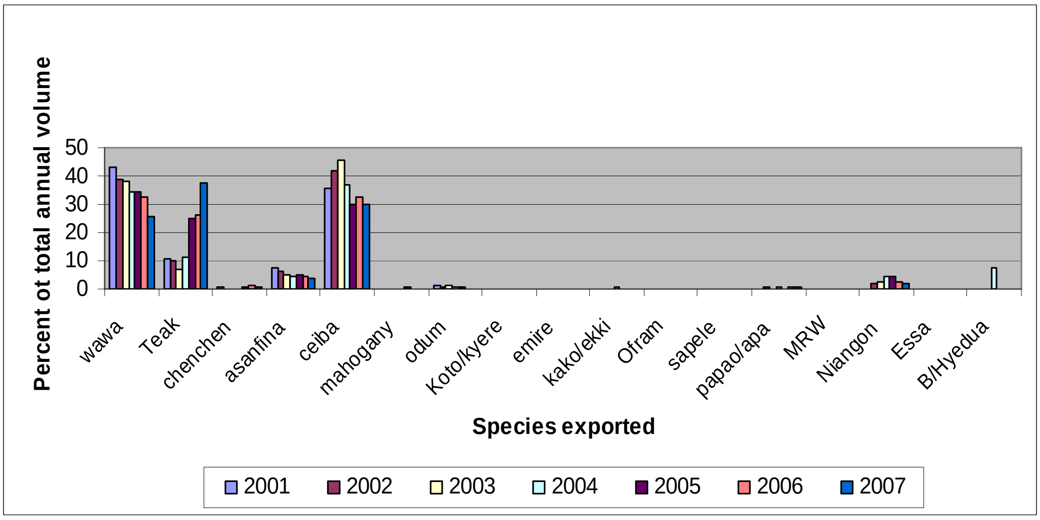

Figure 1b: Export performance of species (percent of total annual volume), 2001 to 2007

On the other hand, from Figure 2a and 2b, the species whose percentage total of the annual value was significant included Wawa, Teak, Ceiba, Mahogany, Odum, Koto, Ekki, Papao and Niangon. Even though very small volumes of the total exports were recorded for Asanfina, Mahogany, Odum, Papao and Niango, their percentage values were higher. This is because the species are popular and have a wide range of uses, hence demand is higher. Again, Ceiba is the species with the highest percentage of the annual volume of exports and the highest percentage of revenue generated is from Wawa, a primary species. The percentage increase in value of the total for Teak has been increasing over the years because of its dual purpose and it is also in high demand in

India and other Asian countries. Moreover, it is the species is in abundance in Ghana (both state and private plantations have been established).

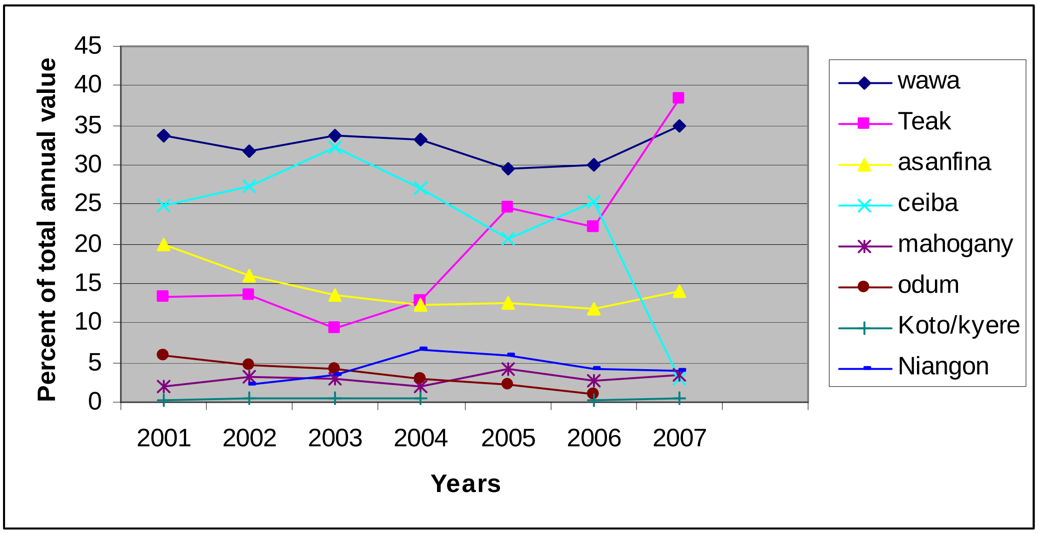

Figure 2a: Trends of export of wood species (percent of total annual value)

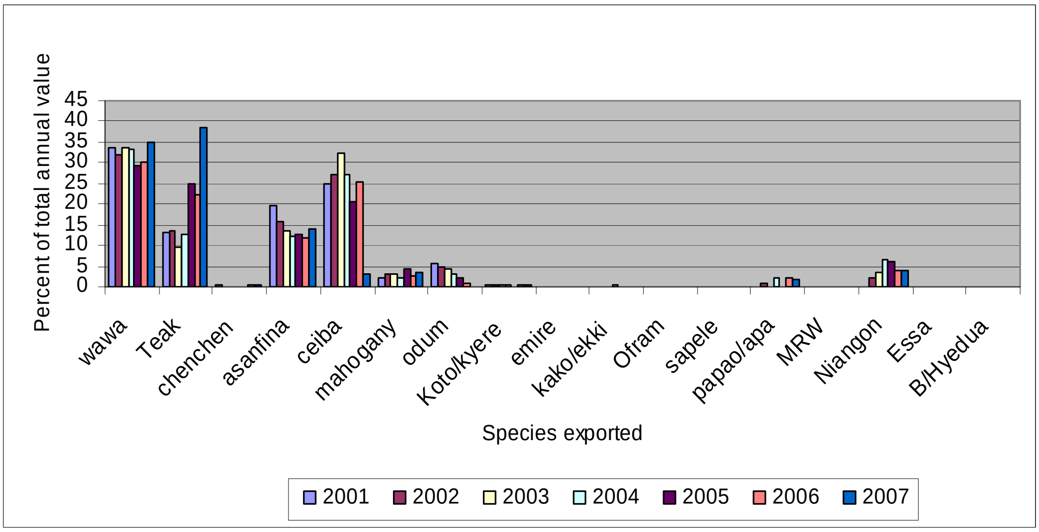

Figure 2b: Export performance of species (percent of total values), 2001 to 2007

2.1.2 Performance of Wood product exports

According to the Timber Industry Development Division (TIDD) of the Forestry Commission, export of wood products reached €184 million (466,155 m3) in 2005. This corresponds to 7.9% and 2.4% increments in value and volume, respectively, as compared to that of 2004, which was €170.5 million (455,180 m3). The 7.9% increase in exports exceeded TIDD's projected 3.5% increase in revenue for 2005 and hence recorded the highest value between 2001 and 2006. There was 2.9% reduction in value and 1.7% increase in volume of wood product exports from 2003 to 2004. However, there were reduction in export values and volumes ranging between 3.1% to 13% and 0.9% to 8.7% respectively for the period 2001 through 2003.

From figures 3a, 3b 4a & 4b, eighteen (18) wood products were exported to different countries. Six products that performed better both in volume and value throughout the period under review were lumber (kiln-dried), lumber (air-dried), rotary veneer, plywood, sliced veneer and mouldings. In terms of volume, the four products with best consistent performance in decreasing order were: Lumber (kiln-dried), lumber (air-dried), rotary veneer and plywood. From the year 2002 to 2004, the quantity of moulding products exported was more than that of sliced veneer but it has been increasing consistently as compared to that of mouldings from 2001 to 2006. The exportations of five of the products (curls veneer, layons, profile boards, broomsticks and flush doors) were not significant (figure 3a and 3b).

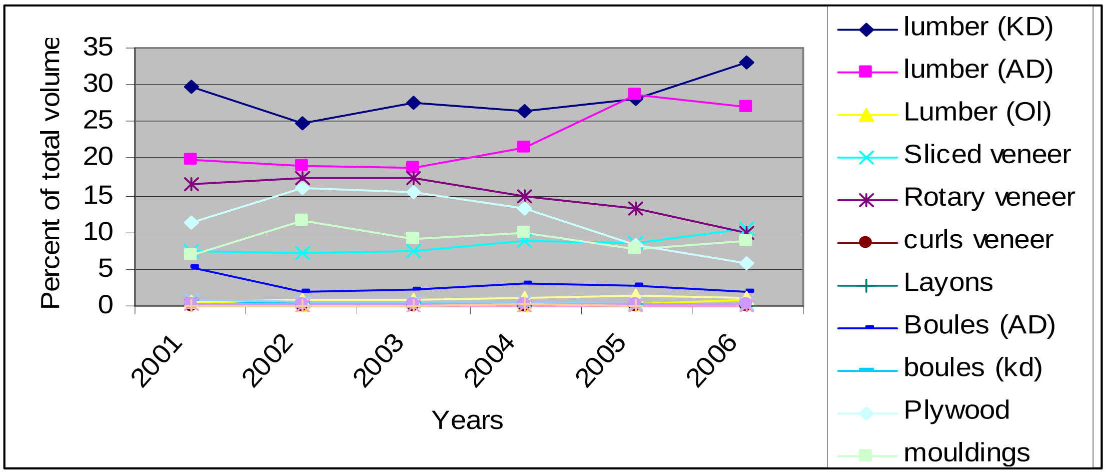

Figure 3a: Trends of export of wood products (Percent of total annual volume)

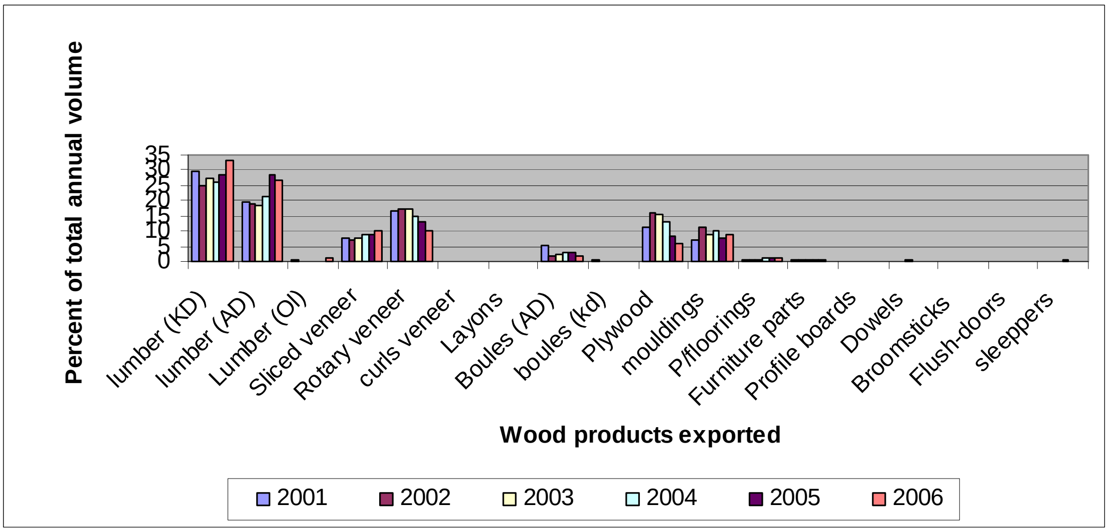

Figure 3b: Performance of exports of wood products (percent of total annual volume)

In terms of value, as indicated in figure 4a, 4b and 5, kiln-dried lumber was the highest and with consistent performance while the remaining products varied within the period. This shows that kiln-drying of lumber is being patronized by saw millers and that its consumption is in high. Broomsticks, profile boards, layons, lumber (overland) and flush doors performed poorly in both volumes and values. This might be due to their poor quality and promotion (Figures 3a, 3b, 4a & 4b).

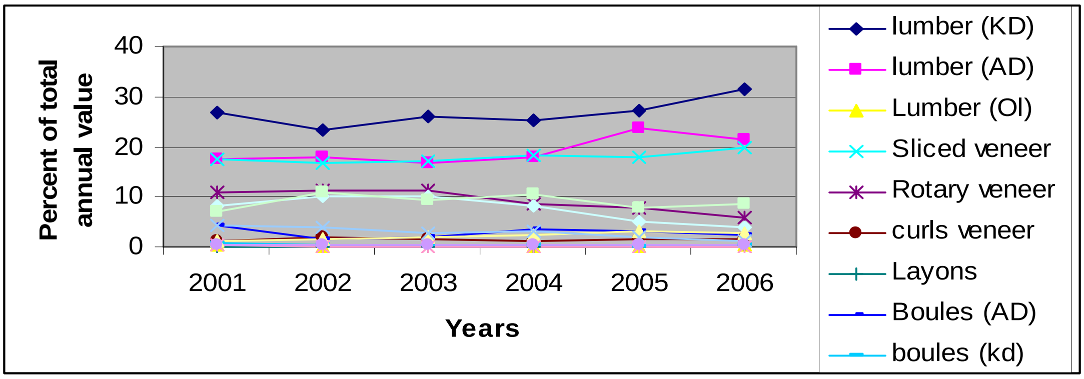

Figure 4a: Trends of wood products export in percent of total annual value

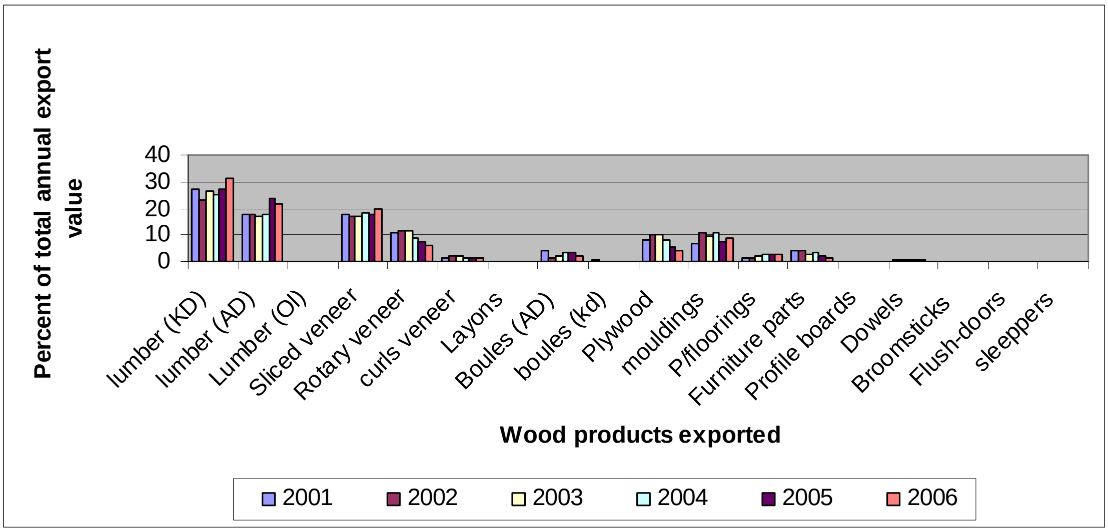

Figure 4b: Performance of exports of wood products in value from 2001 to 2006

Of the wood products from 2001 to 2007, secondary products in terms of volume and value were higher than tertiary products as indicated in figure 5. The volumes of secondary products exported within the period attracted values ranging between Euro 140,040,588 and 67,915,587 with the lowest and highest revenues being 2003 and 2007 respectively while their corresponding tertiary products generated Euro 22,952,195 and 16,256,435 in the same order. The minimum and maximum revenues (Euro 31,197.665) for tertiary products from 2001 to 2007 were experienced in 2007 and 2002 respectively (figure 5). This shows that tertiary production, which is value-addition, is declining and that the intensity is very low. It also shows that diversification is not well established and quality of the products might be lower.

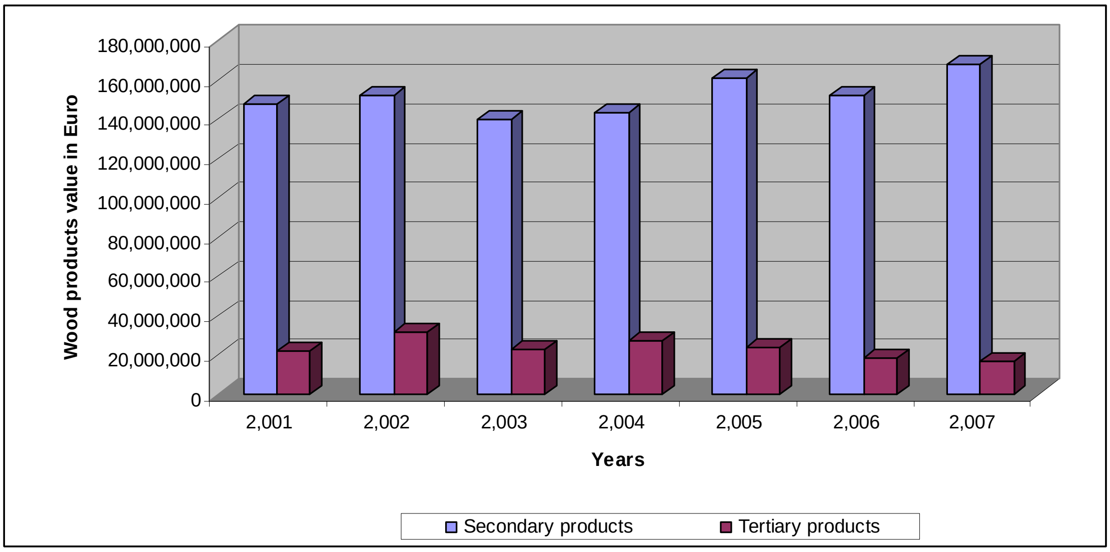

Figure 5: Performance of secondary and tertiary wood products
****Secondary products***: lumber (KD, AD, OL), plywoods, curls boards, veneers, boules(KD, AD), sleepers, poles, billet, blockboards, pegs and layons. * ***Tertiary products***: furniture parts, profile boards, mouldings, dowels, broomsticks, flush doors, parquet and flooring.

Trends in exports of wood products

Between 2001 and 2007 exports of wood products have been falling both in value and volume as indicated in figure 6a and 6b, where a two year moving averages is used to compute the trend. This fall in trend both in value and volume could be explained by the falling value and volumes of most of the wood products exported in the period under review and revealed in figures 1a, 2a, 3a and 4a. The underlying cause for this may due to the following factors as explained by Adam 2002 and quoted in Atta Alhassan, 2007;

- The awareness created by the ***Rio conference on sustainable development*** that has brought the issues of the environment and the role of forests in global warming to the fore.
- The call for boycotts of tropical timber by Environmental Non-Governmental organizations (ENGO's) in the markets of Europe, Japan and the USA that have resulted in tropical timber producer countries reducing their annual harvests to levels that will ensure sustainable forest management.
- The Global concern for the trade in illegal timber and the distortions that arise as a result of the supply of illegally produced timber on the international markets

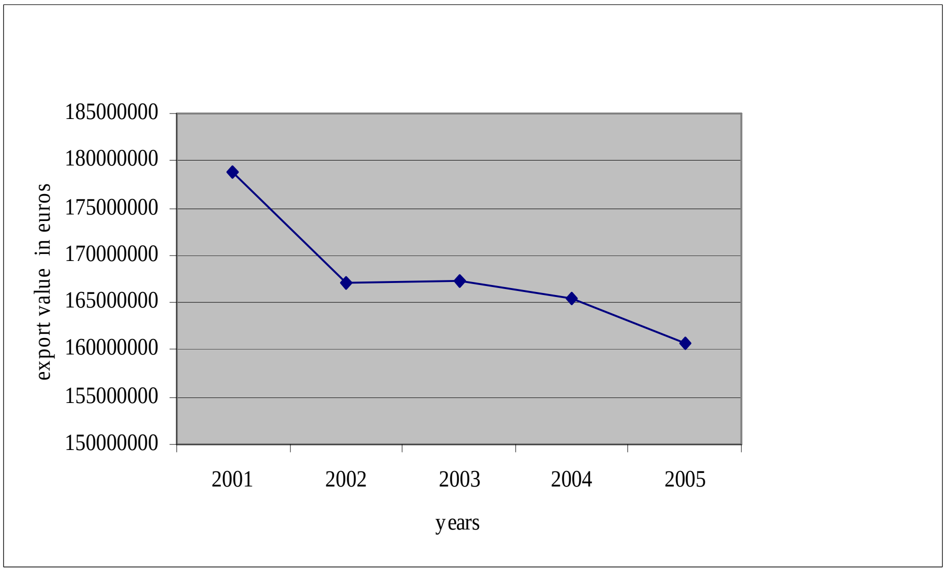

Figure 6a: Trends of wood products exports in value terms

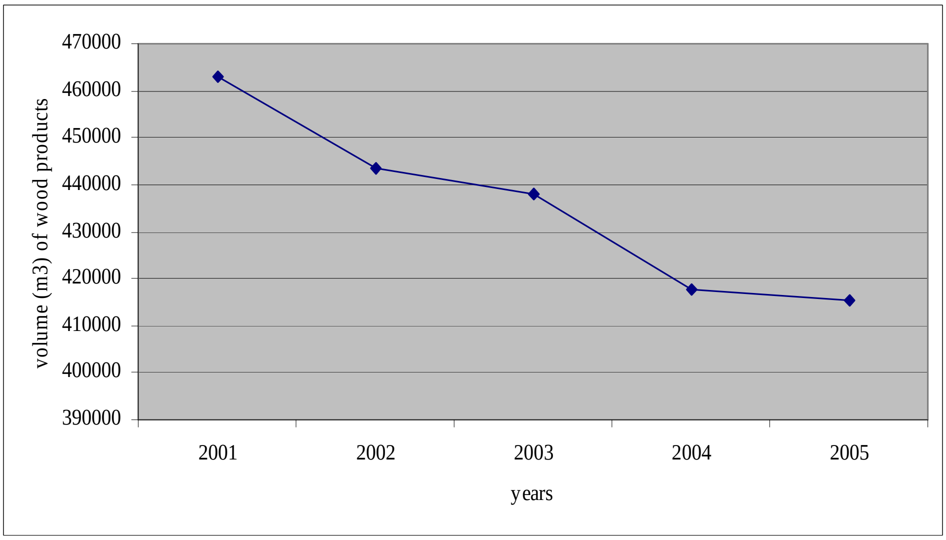

Figure 6b: Trends of wood products exports in volume terms

2.1.3 Performance of export destinations of wood products

Ghana's wood is destined for many different markets. According to Ghana Forestry Commission (2006), Ghanaian producers are well-placed to satisfy emerging EU demand for just-in-time delivery due to their relative proximity to the European market (product can be shipped into the EU in 2-3 weeks from Ghana as compared to 6-8weeks from China), Europe is Ghana's major trading partners. Other marketing centers include USA, ECOWAS, Middle East and Asia/Far East.

Figures 7 & 8 illustrate the performance of importers from 2001 to 2007. Within the period under review, seven to eight countries imported wood products from Ghana of which two (Togo and Senegal) were from Africa. USA was the highest importer of Ghanaian wood products (rotary veneer). The countries that imported more than 1,000 m^3 of the Ghanaian wood products, as shown in figures 7 and 8 included USA, Germany, India, Italy & France and they ordered for at least one of the main export products. From figures 6 & 7, the following countries consistently imported some products as indicated in brackets from 2001 to 2007: Germany (kiln-dried lumber), India (air-dried lumber), Italy (sliced veneer, profile boards), USA (rotary veneer, plywood), France (curls veneer, mouldings) and UK (furniture parts). Even though there were fluctuations in the volumes and values of the products that were imported, there was a general drop in the volume of products in the year 2003 except (Germany that increased its volume of export). Again, with the exception of India and Nigeria, all the other importing countries experienced a decline in importation of the Ghanaian wood products from 2004 to 2007. Considering the years 2001 and 2002, flush doors and sleepers were imported by Italy, Togo and Holland but these were not imported in 2003 and 2004. The total volume of wood products imported decreased from 476,500m^3 (Euro 169,003,711) in 2001 to 472,427m^3 (Euro 183,365,836) in 2002 but an increase in value with lower volume. In 2003 there was a sharp drop in both volume and value to 444,388 m^3 and Euro 162,992783 respectively but these rose in 2004 to 455,180 m^3, worth Euro 170,487,364. Another increase was experienced in 2005 dropped in 2006 both in volume and value and again increased in 2007 by 17% in volume and 8.3% in value of the previous year. These indicate that there is no consistency in the volume of products that are imported from Ghana as indicated in figures 7 & 8.

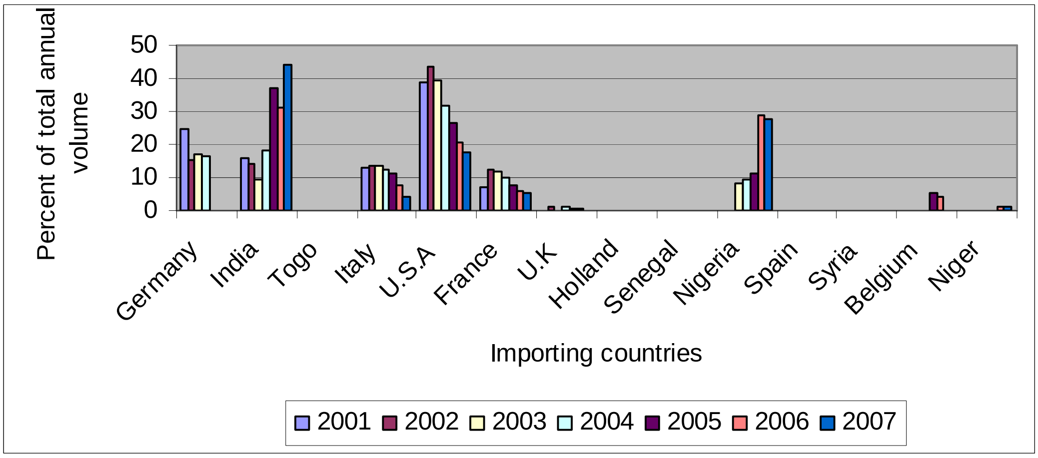

Figure 7: Performance of importing countries of wood products in volume from Ghana

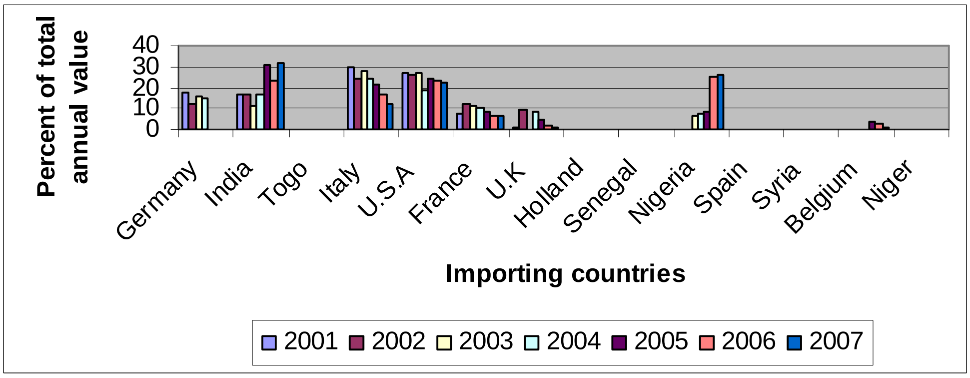

Figure 8: Performance of importing countries of wood products in value from Ghana

2.1.5 Performance of industries/exporting companies

Over the period 31 companies have been engaged in processing wood for exports. However, not all of them have been able to export wood products consistently for all the years in the period under review. Companies that have been able to export wood products in value terms through out all the years in the period include Logs and Lumber co Ltd, Samartex and Naja David Veneer indicated in Figure 9. There seems to be a fall in value of the wood products exported by these companies

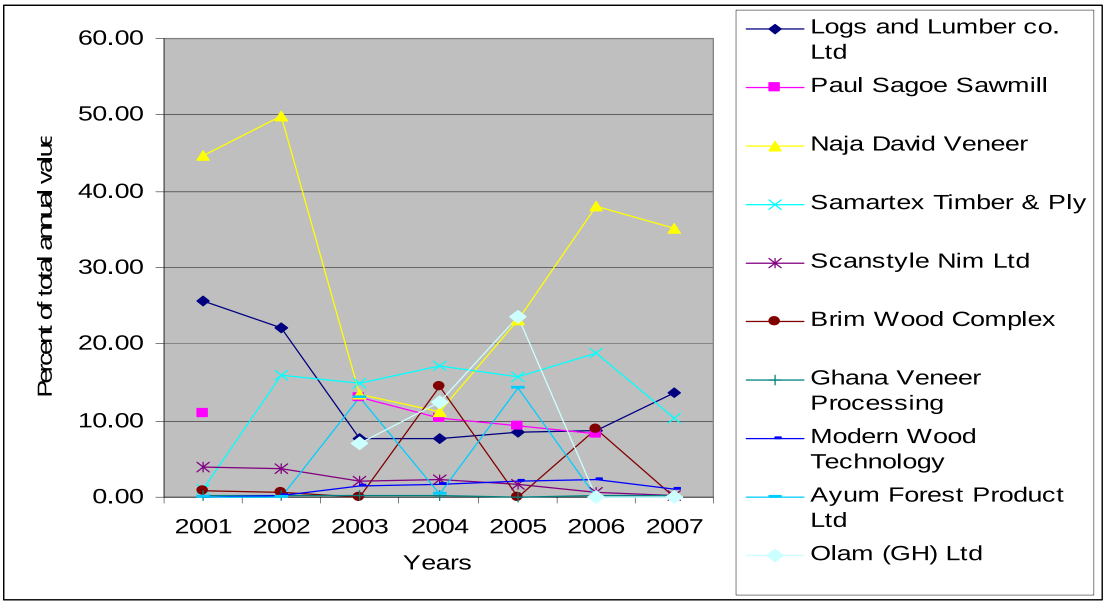

Figure 9: Performance of exporting companies for wood products in value terms (2001-2007

Volumes of wood products exported by these companies also indicate a falling trend over the years as indicated in figure 10

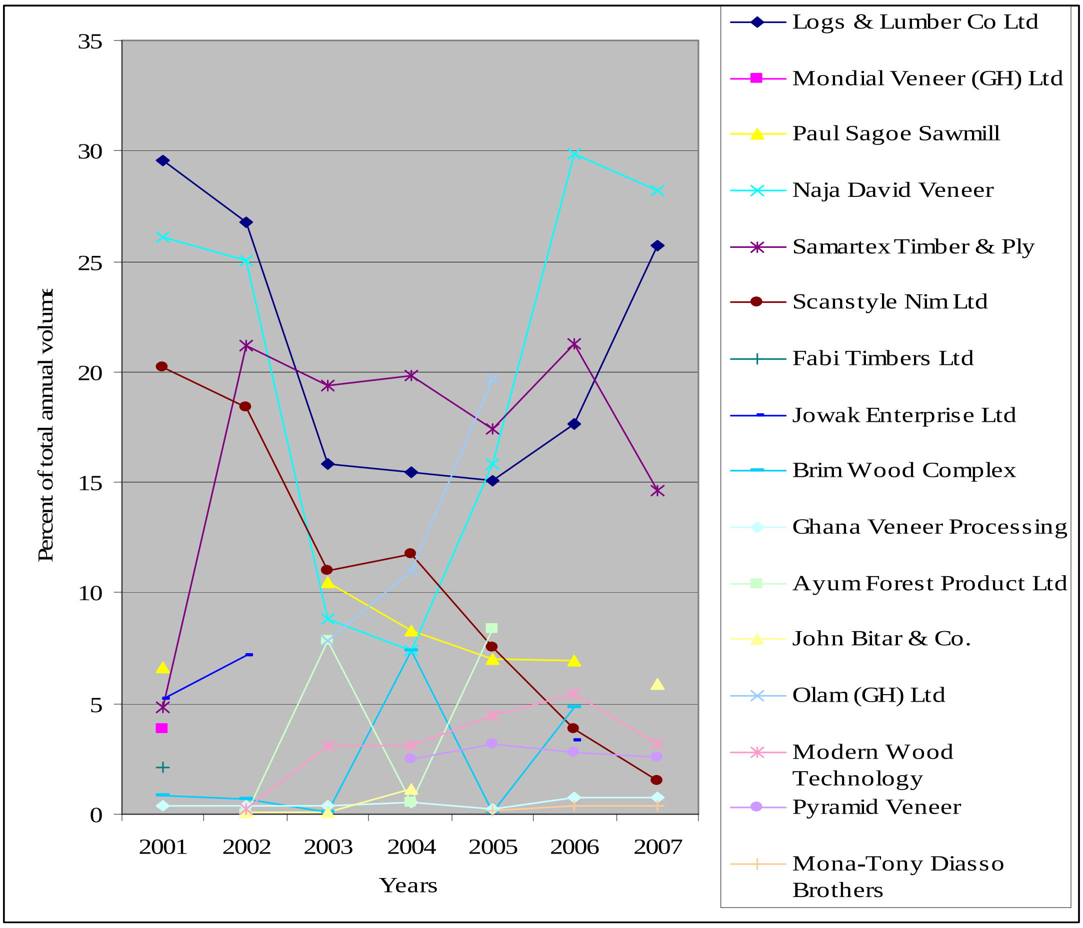

Figure 10: Companies performance in wood products exports (2001-2007)

3.0 Domestic market

3.1 Wood and Wood-based Products: Production, consumption and trade

At the local markets 95 wood dealers at different wood markets in Accra, Sekondi, Takoradi, Kumasi, Oda and Techiman mainly trade in lumber representing 94% as indicated Figure 11. This shows that wood users buy lumber and convert them into different wood products to suit their taste hence pegs, window/door frames and pallets are scarcely found in the market. Further processing of beam to meet consumers request increases the cost of lumber and therefore does not entice dealers to go in for it.

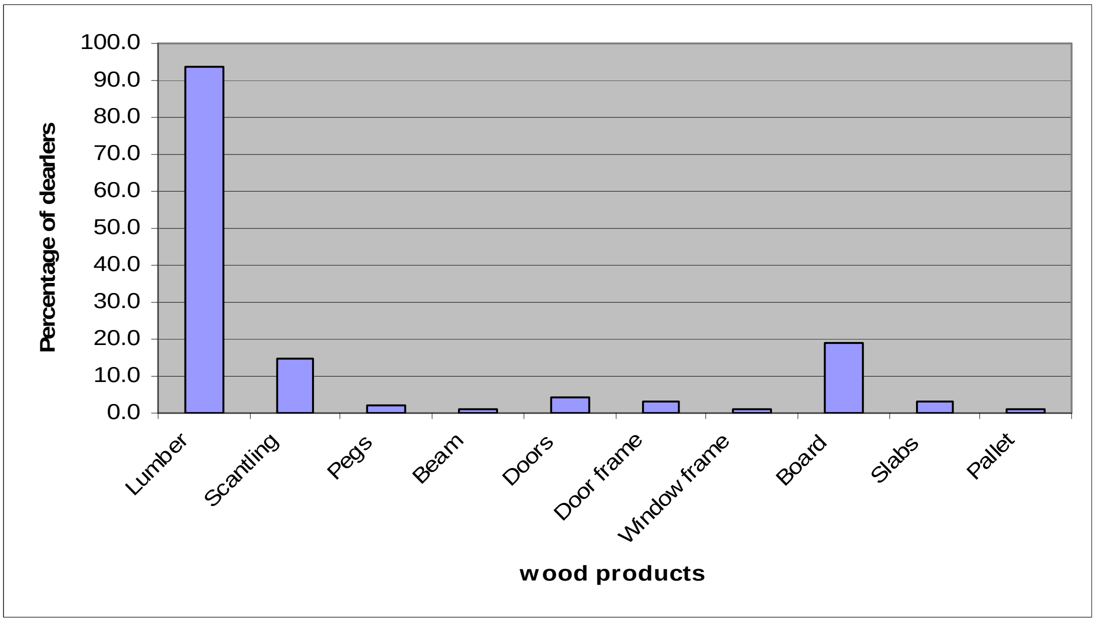

Fig 11: Wood products traded at 8 local markets in Ghana

Figure 12 describes the wood utilization trend at 8 local markets in Ghana. The species with 0% respondents means that they were not considered in each particular case. Dahoma (61%), Wawa (61%), Mahogany (43%), Ofram (19%), Odum (15%) and Sapele (13%) are species that are mostly patronized in the markets. This trend of patronage can be attributed to the availability of the species on the market, knowledge on the utilization of the species and the purpose for which the species are purchased. Though Odum, which is a primary species, recorded a lower percentage of patronage it might be due to the education on its extinction from the forest. Therefore consumers tend to request for its substitute, Dahoma.

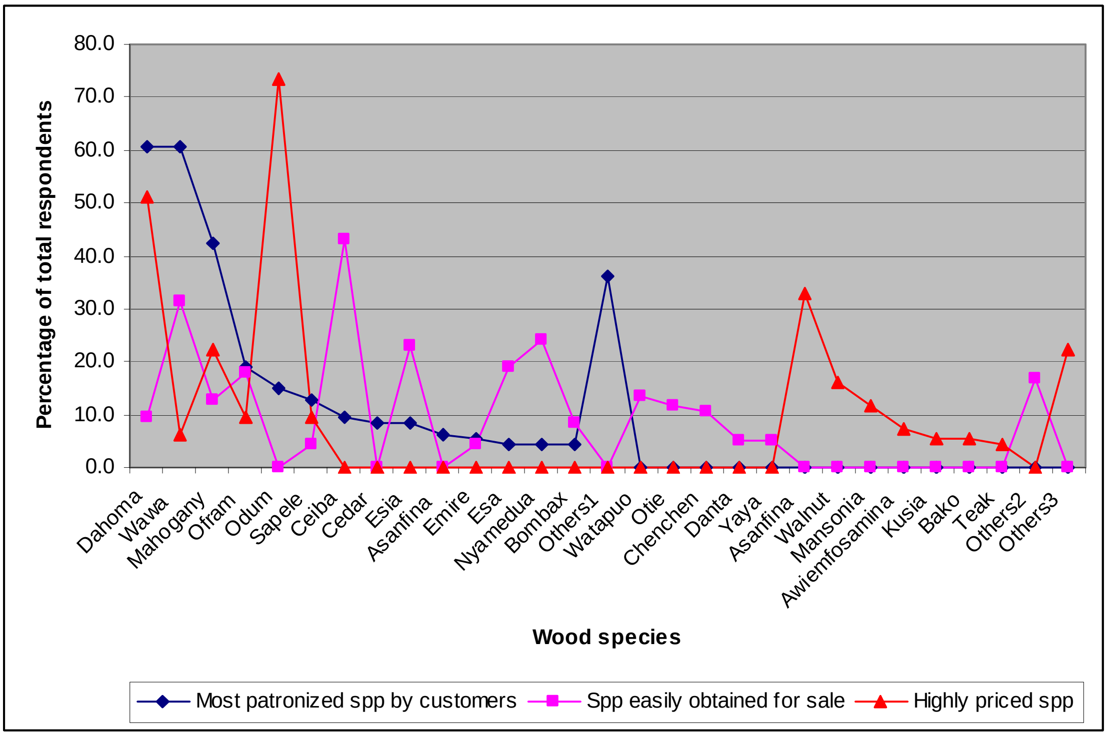

Fig 12: Wood utilization trend at 8 local markets in Ghana

Others 1: Kusia, Bako, Chenchen, Danta, Otie, Watapuo, Walnut, Edinam, Awiemfosamina, Wama, Cedrella, Mansonia, Apro, Teak, Nyankom, Yaya and Nakwa

Others 2: Awiemfosamina, Okuo, Danya, Kyere, Asanfina, Tamatama, Apro, Kusia, Wama, Teak, Cedar, Bako, Edinam

Others 3: Hyedua, Avodire, Cedar, Emire, Ceiba, Esia, Danta, Watapuo, Otie, Tamatama, Apro, Guarea (Kwabohoro)

The wood species that wood dealers mostly obtain for sale at these markets are indicated in Figure 12. These wood species were 18 and the species most of the dealers (over 19%) indicate they easily obtain for sale are Ofram, Esa, Essia, Nyamedua, Wawa and Ceiba. Comparing the list of wood species mostly demanded and those easily obtained for sale in figure 12, there seems to be lack of the desired wood species for consumers, implying that consumers are possibly not satisfied with wood species they obtain from these markets. Again, since chain sawn lumber are mostly supplied to the timber market, the illegal operators work on any species that they may come across, especially in the secondary forest. The four species that are scarcely brought for sale at the timber market are Danta, Yaya, Emire and Sapele.

The wood species that attract highest prices in the local markets are indicated in figure 12. The best six wood species that are highly priced include Odum, Dahoma, Asanfina, Mahogany, Walnut and Mansonia. This list quite corresponds with the list of wood species that are highly patronized but does not correspond with the list of species that are easily obtained for sale. This implies that these highly priced species are widely used and some are primary species that are being looked for every now and then. This also shows a possibly dissatisfaction among these wood dealers. They would probably want to trade in wood products that are highly priced and preferred by consumers so that they could make enough profits to remain in the business. In this case consumers tend to use any wood available at the market, hence the sale of poor quality/non-durable products and structures being experienced in Ghana. Species that very few dealers have mentioned as being mostly patronized, easily obtained for sale and highly priced have being grouped together as others1, 2 and 3 in figure 12. Examples of some these species include Awiemfosamina, Walnut, Mansonia, Kusia Bako. This means that such species may be very scarce in the forests of Ghana.

Coupled with the fact that consumers do not get the desired wood species to buy, and wood dealers do not get the wood species that are highly priced for sale, the timber supply to dealers for sale in the past as compared to the present is on the decline. 80% of wood dealers interviewed indicated that in the past volumes of wood supplied to them kept on increasing throughout the period but presently the trend had declined. 20% also revealed that it was easier to place order for lumber and the cost of volume of lumber was comparatively cheaper in the past than the present.

Perception of wood dealers about the future of timber trade in the domestic market

With this present decline in the wood supply to dealers for sale, most of them do not anticipate to get more wood to sell for the basic reasons that the trees are getting extinct and that saw millers are not prepared to supply lumber to the domestic market as indicated in figures 13 & 14. For instance, in figure 13, out of the 46 wood dealers that were interviewed at 8 local markets (Ofankor, Oda, Amaamomo, James town, Ahwiaa, Techiman, Anloga and Kokompe) 28.3% (the highest percentage of dealers) from Kokompe market indicate that wood in the forest is getting finished. Again, 66.7% of the respondents at Kokompe market indicated the unwillingness of the saw millers to supply lumber to the Ghanaian local timber market (Figure 14).

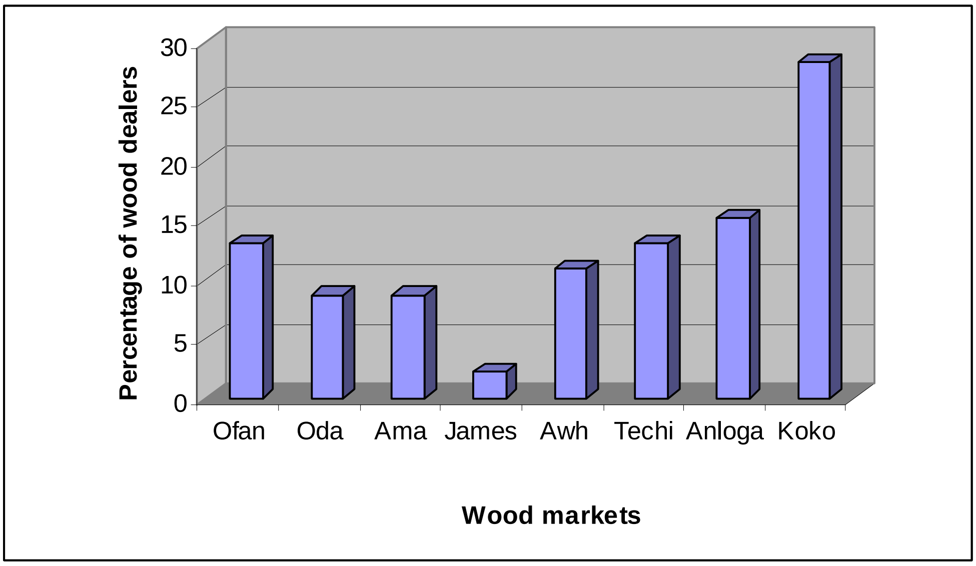

Figure 13: Reasons for no expectation of more wood for sale in the domestic market

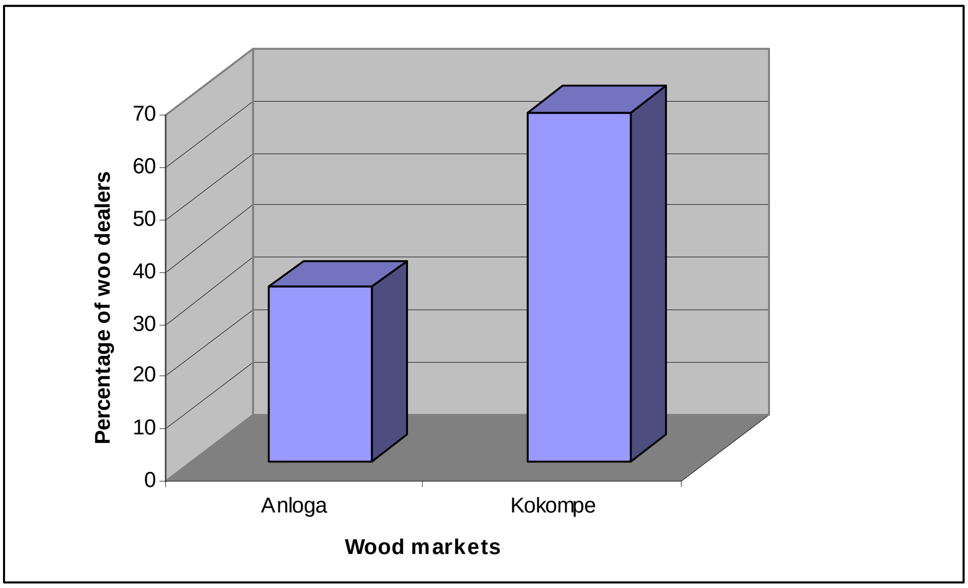

Figure 14: Saw millers are willing to supply the local market

For similar reasons majority do not expect a better market in future because the wood is simply not available and that it is getting extinct. Also harassment by the FSD in the process of enforcing the law is mentioned as one factor making dealers not to expect a better lumber market in future as indicated in Table 3.

Table 3: Reasons for no better market expected in the future for wood products trade

Reasons	Timber markets and percentage of respondents indicating reasons								
	Timber Markets in Accra			Timber Markets in Kumasi		Techiman	Oda	Takoradi	
	Ofankor	James Town	Amaamomo	Anloga	Awhiaa	Techiman	Oda	Kokompe	Total
There will be no wood to sell	6	1	1	3	2	3	2	10	28
The wood are getting extinct	1	0	2	5	4	4	0	1	17
Due to government policies and also the harassment of FC officers	2	0	0	4	1	2	1	0	10
We don't get regular supply from our suppliers	1	0	2	0	0	1	0	0	4
Others	0	0	1	1	1	2	0	0	5
Total	10	1	6	12	7	10	3	11	60

Others reasons for not expecting a better market in the future include high capital requirement for the business and entry of many people in the business

Value of Wood Products Traded in the domestic market

Wood products processed for sale by tertiary wood processors are indicated in Appendix A across the different marketing centers/localities for the period 2004 to 2007. A variety of products totaling 32 are found in the five study areas, which include Oda, Accra, Kumasi, Techiman and Sekondi-Takoradi. However, some of these products are peculiar to some localities. For instance, T&G, Corner moulding and parquet were recorded mainly in Sekondi-Takoradi study areas, whilst doors and door frame are common in Techiman and its environ.

Table 4: Wood products made by wood processors in 2004, 2006 and 2007

Products	***Oda***	***Accra***	***Kumasi***	***Techiman***	***Secondi/T'di***
Art frame		√			
Bed	√	√	√	√	√
Blackboard (Plywood)		√			
Ceiling parquet					√
Chair (Sofa)	√	√	√	√	√
Chop box		√			
Coffin	√				√
Corner mouldings					√
Desk					

Dinning table		√	√		√
Divider		√			
Doors	√			√	√
Door frame	√		√	√	√
Drawing board	√	√	√		√
Dressing mirror	√	√	√		√
Drum		√	√		
Ironing board	√	√			
Kiosk		√			
Kitchen cabinet			√		
Kitchen cupboard	√				
School desk	√	√	√	√	
Shoe rack		√			
Students bed					√
Table (dining)		√			
Table (office)				√	
TV stand		√			
T & G					√
Wardrobe	√	√	√	√	√
Window	√				
Window frame	√		√	√	√
Wooden window			√	√	
Total number of respondents	13	17	13	9	14

ODA

In Table 4 thirteen (13) different wood products were found in the timber market at Oda. The unit prices of the products vary from the year 2004 to 2007. Generally the trend in the unit prices of the wood products show an increase from 2004 to 2007. About 71.4% of the products exhibit consistent increase in price. The percentage increases range from 7%-61%. The products that experienced the minimum and maximum increases in price are chairs in 2006/2007 and doors in 2004/2006. On the other hand, there were drops in prices for wardrobe and window frame by 2% in 2004/2006 and 8% in 2006/2007 respectively. Within the period there is no particular trend in the quantity of items sold and bought. This shows that there is fluctuation of both prices and quantities of wood products patronized by consumers. The wood products that wood processors manufactured in large quantities for sale was ironing boards whilst wardrobes was the least. The results also show that there is poor records keeping as some respondents could not provide detailed information about their sales.

Accra

In Accra the respondents of wood processors indicated that 17 different wood products were made (Table 4). Price increase in these wood products is 63.6% consistent for the period between 2004 and 2007. The products that did not experience consistent increase in price included beds, dinning tables, drawing boards and wardrobes. Sofa chairs exhibited a maximum increase of 114% between 2004 and 2006 while the product with the minimum increase of 11.1% was blockboard in the period 2006 and 2007. The quantities of the wood products manufactured and supplied did not show any specific trend from 2004 to 2007. The most abundantly produced wood product was drawing boards with the least being drums within the period under consideration. Some processors in Accra could not provide some basic information on their sales.

Kumasi

The 11 wood processors that were interviewed in Kumasi mentioned 13 wood products that were produced (Table 4). With the exception of wooden windows whose price went down between the periods of 2004/2006, the rest of the products had price increases, which varied from 10.9% to 267.6%. The percentage consistency in price increases in the wood products from 2004 to 2007 was 77.8%. As the price of door frames increased by 33.3% between 2004/2006, the percentage shot up to 267.6% in the years 2006 and 2007. On the other hand window frames within 2004/2006 experienced 30% decrease in price but increased to 242% from 2006 to 2007. This means that prices for the two products, which are for house construction, were too high. The reason may be that lumber was scarce during the period and therefore shot up the production cost. Again, in 2004 and 2006, the price for wooden windows decreased to 33.3%. Doors and sofa chairs were the most and least abundantly produced and supplied to consumers respectively within the period under review. There was no consistency in the supply/production of wood products. This might be due to the demand of the products by consumers.

Techiman

The number of the major wood products manufactured for supply at Techiman and its environ from 2004 to 2007 was nine (9). The percentage increases and decreases in prices for these products ranged from 5.9% to 250% and 17.8% to 57.6% respectively. The increases were highly significant for door frames (25.9%-102.4%) and school desks (11.1%-250%). The other products did not experience consistent trend in price variation. 66.7% of the wood products available at the community had their prices increases to be consistent within the periods 2004 and 2007. The wood products that were mostly and least manufactured for sale from 2004 to 2006 were doors and sofa chairs respectively. The quantity of products supplied or manufactured varied within the period of study.

Sekondi-Takoradi

The total number of wood products identified at this locality from 2004 to 2007 was 14 of which 81.8% did not fall in price. The percentage increases in prices ranged between 1.25% and 181.1% and the products that experienced these increases were door frames and sofa chairs respectively. Bed and T & G products had fluctuations in their prices for the period under review. The highest quantity of product mostly produced and patronized by consumers was T&G and the least was coffin. The quantity of products supplied varied every year, hence consumers determining the pace of product movement.

Directions of Trade in Wood Products in the domestic market (2004 & 2006-2007)

Mostly the wood products manufactured are traded internally. They are mostly bought and sent to other towns within the country. In all wood products were sent to seventeen destination centers by the manufacturers of which one is Burkina Faso (Table 5). Only Kumasi manufacturers supplied to Burkina Faso during the periods 2004, 2006 and 2007. Wood products produced in Techiman are mostly purchased and sent to towns in the three Northern Regions including Wa, Tamale and Yendi.

3.4 Distribution and dynamics of Wood Products Markets (2004 & 2006-2007)

Table 5 and figure 15 indicate the frequencies / number of times different wood products were sent to different localities in and outside the country. The Manufacturers at the various five centers had some of their products bought and sent to Burkina Faso and 16 destinations in Ghana. The quantity supplied varied from destination to destination. Increase in the number of destination from 2004 to 2007 was not significant and that Oda, Accra, Kumasi and Techiman experienced it. As Accra and Sekondi/Takoradi had increases in the frequency of wood products to their destinations, there were fluctuations in that of Oda, Kumasi and Techiman as the years went by. The highest frequency of the supply of wood products occurred in either 2006 or 2007. Their products were mostly patronized by customers at the manufacturing centers as the frequency of distribution, from table 4, is higher for each of the five.

Oda center: The manufacturers of the wood products from Oda had their products patronized by Accra and Oda communities in 2004 and 2006. In 2007, as shown in table 5, they had customers from Ho and Winneba but the frequency of supply was comparatively insignificant hence a total of four destinations (23.5%).

Accra center: The frequency of products supply increased from 2004 to 2007 but all their products were patronized by the people in Accra. In 2007 they exported some of their products on three occasions. 5.9% of the areas where products are sent to by the five centers, was captured by this community (figure 15). The high cost of their products and insignificant differences in design might have made people from other communities to shy away.

Kumasi center: From table 5 and figure 15, the frequencies of wood products supply to Accra and Kumasi customers by the manufacturers were not consistent for the period under review. However, their products got to 7 (41.2%) destinations including Burkina Faso. The geographical location of this center might have contributed to this high number.

Techiman center: Wood products from Techiman manufacturers got to 11 (64.7%) destinations (communities) in Ghana and the frequency of supply fluctuated as shown in Table 5 and figure 15. The high patronage of products at Techiman may be due to its geographical location whereby timber supply is not a major problem hence products are affordable. Their inability to supply to Accra and Kumasi could be the poor quality of the products.

Sekondi/Takoradi center: The highest frequencies of wood products supply to customers at Sekondi/Takoradi communities, for the years 2007, 2006, 2004, was recorded by the manufacturers at this center, that is 44, 45, 28 respectively (Table 5). The other destinations of supply in decreasing order of frequency are Accra, Tarkwa and Cape Coast.

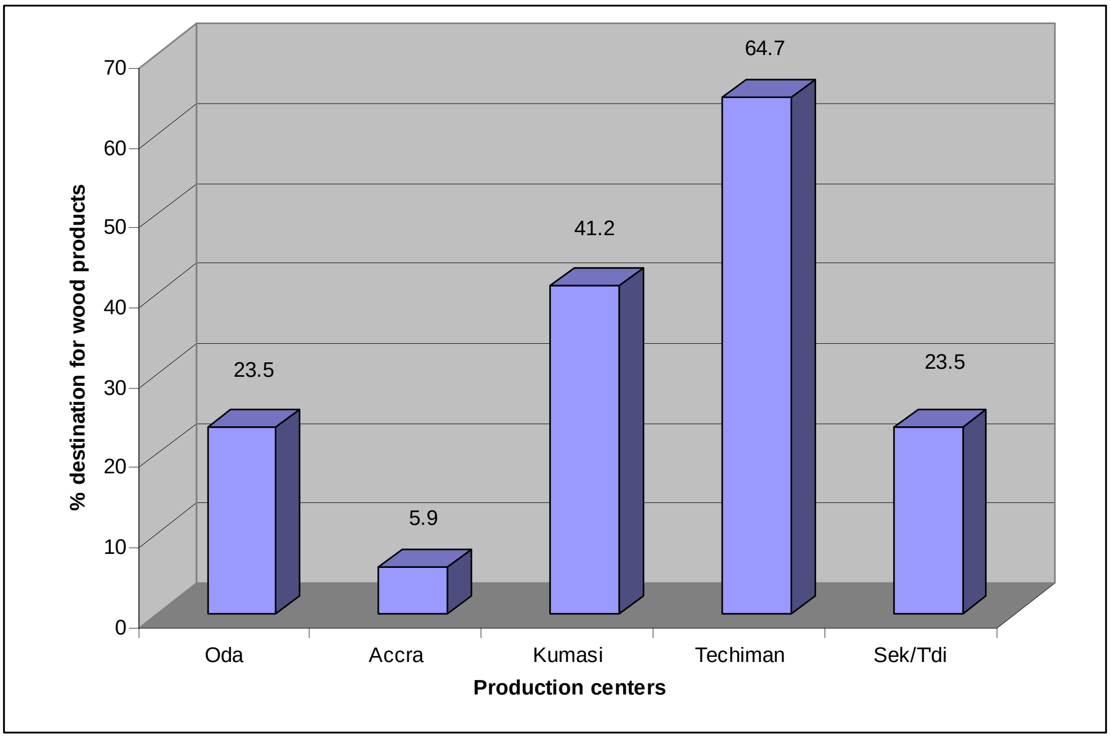

Figure15: Destinations for the wood products for five manufacturing centers

Table 5: Frequency and direction of wood products in the domestic market of Ghana

Made from	**Oda**			**Accra**			**Kumasi**			**Techiman**			**Sekondi/Takoradi**		
Destination	**2007**	**2006**	**2004**	**2007**	**2006**	**2004**	**2007**	**2006**	**2004**	**2007**	**2006**	**2004**	**2007**	**2006**	**2004**
Accra	21	11	8	**28**	**17**	**16**	10	12	6		1	6	11	11	2
Kumasi							**12**	**6**	**11**		1				
Takoradi										1			**44**	**45**	**28**
Oda	**21**	**31**	**22**				4								
Tamale								2	2	6	3	4			
Ho	1						2								
Yendi							1			2	3	2			
Winneba	1														
Wa										3	1	4			
Burkina Faso							2	2	1						
Techiman										**13**	**23**	**9**			
Nkoransa										2	1	1			
Navorongo										2	2				
Sunyani										4		1			
Tarkwa													4	5	4
Bolga										1					
Cape Coast													1	1	1
Export				3											

5.7 Conclusions and Recommendations

The effect of the dwindling of the Ghanaian forest is trickling down to all wood users. Despite this short coming, various wood products demanded in the domestic market by consumers continue to be produced but the in terms of quantities and prices they were not consistent as the years went by and hence do not give any particular trend. Products that were mostly patronized varied from locality to locality even though some products were common to all the five communities studied. The unit prices of the common wood products changed with location. These common products, as indicated in Table 14, included beds, sofa chairs, dinning tables/chairs, doors, door & window frames, drawing boards, dressing mirrors, drums, ironing boards, school desks, wardrobes and wooden windows. Quality of the products was observed to be better as one move towards the cities. Different wood products (17) were found in Accra than was observed in the other localities.

On the exports of wood products, there is a general fall both in volume and value of these products in the period under study and a number of factors are said to have accounted for this. These include the call for boycotts of tropical timber by Environmental Non-Governmental organizations (ENGO's) in the markets of Europe, Japan and the USA and the global concern for the trade in illegal timber among others. An interesting in the export of these products is observed. Kiln dried products are relatively higher both in value and volume and it is gradually appreciating than all the other products that are exported. This implies that value addition to our wood product is very important in ensuring that the maximum revenue is obtained from these wood products. Export of species especially teak has shown a tremendous increase both in value and volume over the years and it has even overtaken popular species like wawa, asanfina among others in the later parts of 2006 that have dominated for the previous years.

The frequency of wood products supply to the domestic market in Ghana is lower. This might be due to the dwindling nature of the Ghanaian timber resource, which has made timber (a basic raw material) difficult to come by, hence very expensive. Moreover, lack of technical skills and obsolete machines has been contributing to poor quality of products. Again wood manufacturers have not exploited the market very well to enable them sell more of their products. Technical training in this area of speciality and easy access to downstream processing machines are recommended.

Apppendix A

Table A: Wood products, quantities and values by wood processors in 2004, 2006 and 2007

Products	Oda n=14 2004 Quantity	Average unit price	Total value GH	2006 Oda Quantity	Average unit price	Total value GH	Oda 2007 Quantity	Average unit price	Total value GH
Bed				137	49.37	6764	182	103	18746
chair	12	300	3600	79	333.33	26333	137	358	49046
coffin				210	200	42000	400	400	1600
desk	200	10	2000						
Door	756	14.38	10871	450	23.09	10391	685	29	19865
door frame	542	5.4	2927						
drawing board	5	20	100						
dressing mirror	8	47.5	380						
ironing board	3960	4	15840	1080	5	5400	960	7	6720
kitchen cupboard	30	9	270						
wardrobe	36	143.33	5159.88	50	140	7000	18	165	2970
window	18	7	126						
Window frame	580	8.8	5104	315	12	3780	243	11	2673

	AMA n=8	2004			2006			2007	
Art frame	60	2.5	150	50	5	250			
Bed				45	405	18225	112	85	9520
black board	1000	7	7000	800	9	7200	1000	10	10000
chair	20	350	7000	31	750	23250	65	850	55250
chopbox	200	8	1600	400	10	4000	300	12	3600
desk							130	15	1950
Dinning table				15	500	7500	25	475	11875
Divider							1	150	150
drawing board	8004	66.5	532266	200	1.3	260	1500	1.7	2550
dressing mirror	36	40	1440						
drum	1	20	20	3	35	105			
iron board				3080	6.25	19250	1600	7.83	12528
kiosk				5	500	2500	7	60 (600	420
shoe rack				5	50	250			
T.V stand				20	13	260			
table	90	6	540	50	15	750			
wardrobe				12	300	3600	1	250	250

KMA, n=11		2004			2006			3007	
Bed	28	44	1225	320	54.63	174816	348	85	29580
chair	41	213.33	8746.53	57	310	17670	22	433	9526
desk				1000	13	13000			
Dinning table				15	100	1500	18	155	2790
Door	900	25	22500	750	36.67	27500	550	15	8250
door frame	700	10	7000	780	13.33	103974	520	49	25480
drawing board	15	65	976						
dressing mirror	4	40	160						
drum							110	69	7590
Kitchen cabinet							1	1500	1500
school desk							500	13	5600
wardrobe	126	78	9870	25	138	3450	125	153	19125
window frame	250	15	3750	70	10.5	735	450	36	16200
wooden window	1050	9	9450	350	6	2100			

Techiman n=9		2004			2006			2007	
Bed				160	56.67	90672	110	60	6600
Chair (Sofa)				120	233.33	279996	115	300	34500
Desk	550	9	4950	3000	10	30000	35	70	2450
Door	850	17	14450	2700	47.13	127251	1200	20	28000
door frame	340	6.67	2267.8	1040	8.4	8736	1170	17	19890
Office table				200	18	3600			
Wardrobe							25	100	2500
Window frame	370	121.67	45017.9	850	10	8500	800	11	8800
Wooden Window	300	3.5	1050						

	Sekondi-Takoradi n=11 2004			2005			2007		
Bed	65	26.67	1733.55	208	75	15600	1161	66.5	77206.5
Ceiling parquet							3000	1	3000
Chair (Sofa)	70	61.67	4316.9	33	173.33	5719.89	915	246.67	225703
Coffin				10	150	1500	13	165	2145
Corner moulding	6500	1	6500	6000	1.75	10500	4500	2	9000
Dining table				57	280	15960	373	286	106678
Door	1285	26	33410	2878	37.22	107119	1375	48.33	66454
Door frame	630	8	5040	690	8.1	5589	100	12	1200
Drawing board	5	100	500						
Dressing mirror				40	100	4000	120	120	14400
Student bed				50	80	4000			
T&G	8500	1.7	14450	80000	0.7	5600	4000	0.75	3000
Wardrobe				9	120	1080	80	240	19200
Window frame	400	7	2800	720	14.1	10152	820	36.4	29848

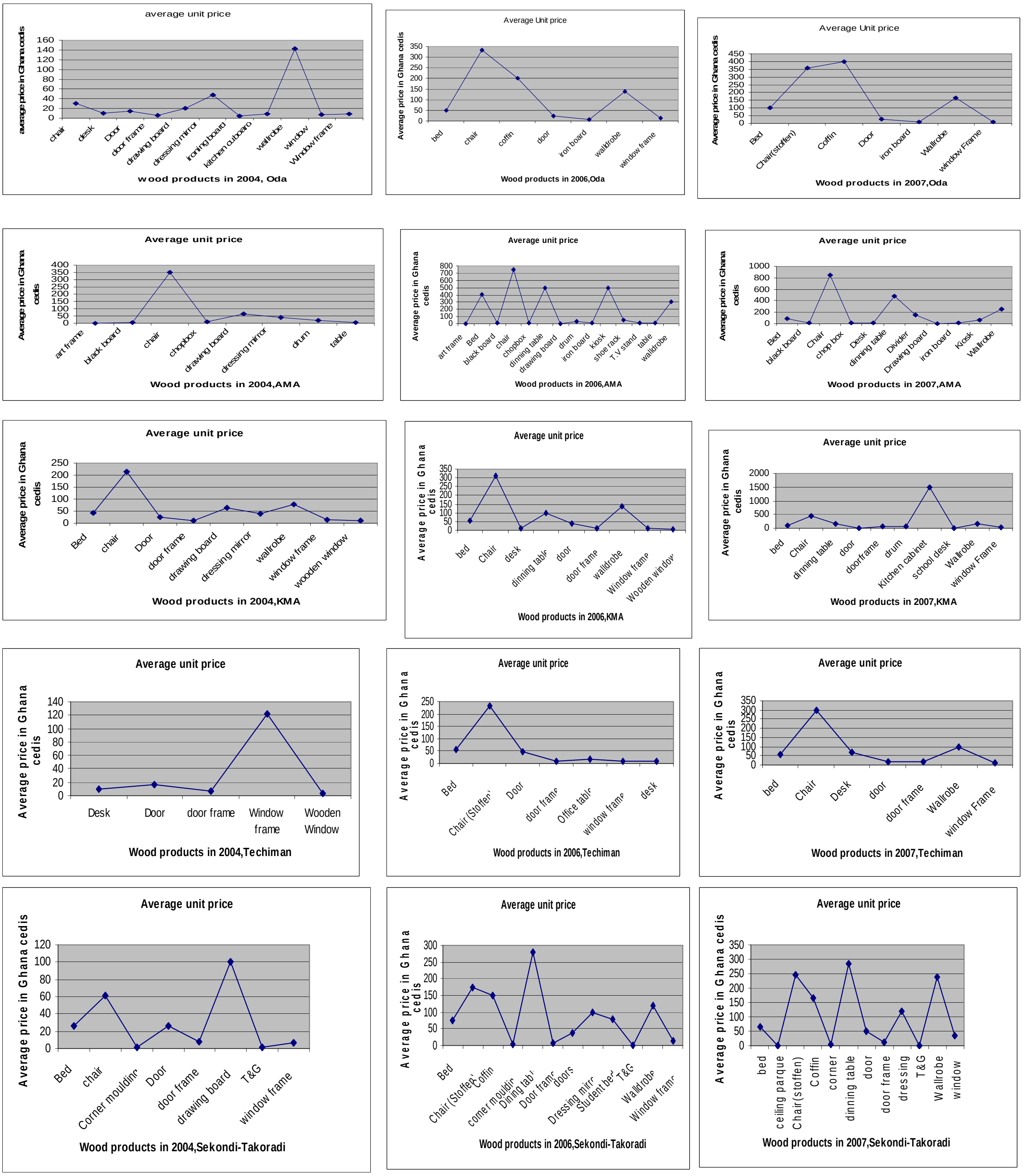

Figure 16: Average prices of wood products in the study areas in 2004, 2006 and 2007

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