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FOREST INDUSTRY IN GHANA: A SOCIO-ECONOMIC APPRAISAL

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ABSTRACT
The forest industry is important to Ghana's economy. It contributes over 5% to national Gross Domestic Product (GDP) through export of timber and wood products which ranked third as foreign exchange earner, after cocoa and minerals. For this reason, it is pertinent to appraise and understand the socio-economic dynamics affecting timber flow and market so as to sustainably manage the forest base. The socio-economic factors examined include mill location and structure; mill age, size and capacities; ownership and shareholdings; sources of finance for investment and re-investment; mill production efficiencies; local and export market potentials. Timber companies in forested regions of Western, Eastern, Brong Ahafo and Ashanti were surveyed and field data collected through interviews schedules, use of structured questionnaires, personal observations, expert interviews as well as desk studies. Results showed that the small-scale wood processing firms, which are in the majority, are owned by indigenes but are gradually folding up due to difficulties in raising capital to meet the need for mill expansion and technology improvements. This category of firms found it difficult to meet high quality standard requirements of consumers. In contrast, the integrated large companies, owned by foreigners, are more attractive and qualitative in their product delivery. This group of companies possesses larger economies of scale and control about 70% of the export market. They also utilize contemporary machines and equipments that enhance their ergonomics of operation. It is conjectured that thorough knowledge of the socio-economic indicators is central to effective forest resource management in the face of increasing pressure to utilize and encroach on the available forest base.

Keywords: Forest industry, raw material base, market, sustainability.

INTRODUCTION

The forestry sector is an important component of the Ghanaian economy. Over the years wood and wood products have been the third most vital foreign exchange earner, after cocoa and minerals, among the commodities export (Owusu, 2001). The sector is also responsible for industrial development, employment generation and overall socioeconomic development. It contributes 6% to national GDP and offers direct and indirect employment to over a million people. In terms of products, sawn wood, plywood and veneer, profile board and furniture parts are prominent.

Suffice to say, forest management in Ghana primarily focus biodiversity conservation, water and climate regulation as well as removal of carbon from the atmosphere. In consequence, policy directions have regulated the utilization of forest resources in the mills with the aim of improving efficiencies of sawing to stem the tide of forest depletion and adding value to timber products in general.

Relevant government policies on forest industries include ban on the export of logs of seventeen (17) endangered timber species and also levy on the export of certain timber species. The species are considered endangered because of their dwindling base; restricted geographical distribution; low stock level; very low rate of natural regeneration and strictly to enhance local processing of wood products. The medium and long-term objectives of this policy were to phase out green timber exports and export of only kiln-dried lumber as from

1997. The overall goals were to make raw materials locally available and enable local tertiary mills to achieve the desired value-addition.

Nonetheless, policies that have been formulated and implemented over the years seem not to have adequately led to the creation of the required environment for efficiency of the forest industry. Concerns expressed about the implementation and enforcement of these policies includes (1). Inefficiencies in timber exploitation and utilization (2). Inability to define the specific roles, responsibilities and benefits of key stakeholders (3). Inequitable distribution of benefits among stakeholders (4). Lack of clear-cut policies that recognize the role and involvement of local communities in sustainable forest management and (5). Persistent conflicts among the stakeholders not involved in policy formulation.

In order to arrive at workable mechanisms for sustained management of the Ghanaian forest industry, this study examined the existing *modus operandi* and stakeholders reactions to appraise the various socio-economic indicators affecting growth, expansion and long term sustainability of the industry. These include mill location and structure; mill age, size and capacities; ownership and shareholdings; source of finance for investment and re-investment; mill production efficiencies; also local and export market potentials.

METHODOLOGY

The survey covered four regions, considered forested and harbour greater proportion of the forest industries namely; Ashanti, Western, Brong Ahafo and Eastern. The research team visited the Timber Industry Development Division (TIDD) office in Kumasi where annual reports on export of wood products were obtained. Timber industries were identified and randomly selected from the reports. Data collected include the socio economic characteristics of wood industries and their firm production data. For analytical purposes, firms with production figure of less than 5,000m^3/year were classified as small; between 5,000 to 10,000m^3/year as medium while over 10,000m^3 production volume belongs to the large mill category. Based on these criteria, a total of 121 firms, made up of 58, 42, 13 and 8 were respectively selected in the Ashanti, Western, Brong Ahafo and Eastern regions for direct (100% response) questionnaire administration.

Primary data were collected using structured questionnaires while personal observations, interviews with members of mill management (expert interviews) and photography helped to complement the database. In addition, secondary data were collected from desk studies at the regional TIDD offices in Kumasi and Takoradi. Some information were also obtained at the Forestry Research Institute of Ghana (FORIG) and the Wood Industry Training Centre (WITC) all in Kumasi. The data collected were analyzed and presented using descriptive statistics.

RESULTS AND DISCUSSION

The Ashanti region has the highest concentrations of timber industries followed by Western and the lowest is Brong Ahafo. Most of the milling industries have their own logging outfits. Of the mills surveyed, 48% and 35% were located in the Ashanti and Western regions respectively. These mills were physically located in the Kumasi and Sekondi-Takoradi Metropolitan areas while the remaining were located in the other two regions of the country, 10% in Brong Ahafo and 7% in the Eastern regions (Figure 1). A major factor influencing the establishment of the forest industries is the raw material availability. When the raw material is available to constantly supply and feed the mills, the cost of conveying the raw material to the production site is lowered to maximize profit. Labour supply was ranked second in influence while political factor was given low weight in placing the firms (Figure 2).

The forest industry is grouped into three categories depending on the activities undertaken. These are primary, secondary and tertiary industries, Table 1. All the categories are characterised by under capacity as well as under capitalization that feature undue dependency on obsolete machinery, lack of appropriate equipment and over reliance on labour.

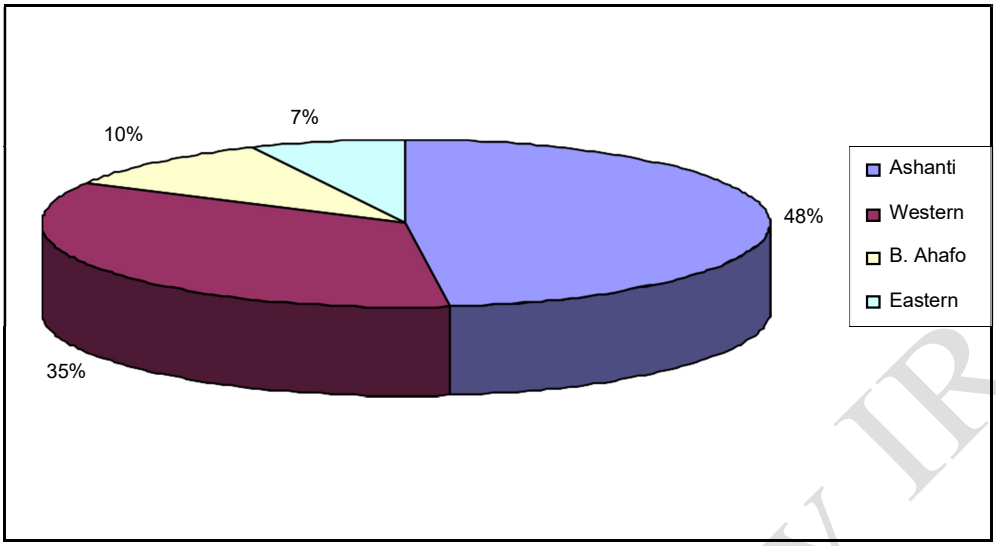

Figure 1. Regional distribution of mills studied

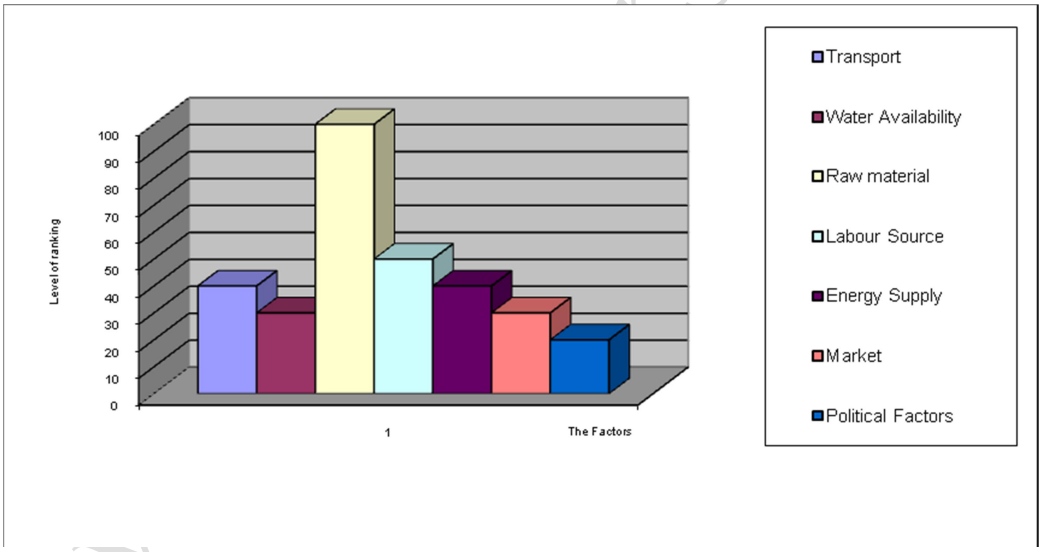

Figure 2. Factors considered in locating the industries

Table 1. Structure and Characteristics of Forest Industry in Ghana

Mill Category	Main Activity (s)	Products
Primary Mills	Logging* Harvesting	Logs
Secondary Mills	Sawmilling Lumber drying Veneer milling Ply milling Illegal-Chain Sawing Treated Poles	Air & Kiln dried Lumber, Rotary and sliced veneer, Plywood
Tertiary Mills	Furniture & Joinery Moulding	Furniture parts

	Flooring Toy carving Doors	Mouldings Floorings Toys Doors

The estimated volume of logs harvested by the industry in 1999 was about 3.72million m^3. These include about 1.01 million m^3 considered to be legal harvest. Illegally harvested wood totalled 0.925 million m^3 and the roundwood equivalent of chainsaw lumber was estimated to be about 1.696 million m^3. Forest industry milling capacity in Ghana actually built up throughout the 1990s up to an estimated 2005 value of 5.1 million m^3 per annum. This was attributed to capital deepening (Birikorang 2001) among existing firms rather than entry of new firms into the industry. The policies of log export ban and chainsaw lumber prohibition have been ineffective and the Forestry Commission require capacity improvements to deal with these problems. By 1999, the wood industry recorded a total production of 793,527m^3 and 56% of these were in form of lumber. Chain sawyers produced additional 458,000 m^3 of lumber generally targeting the tertiary processors. Sawmill efficiency is approximately 39% but did not include informal log outputs. Employment in the forest industry is at large 104,000 and of these the chainsaw limber processors supported approximately 47,000 jobs

The forest industry, outside chainsaw producers, contributed 470 billion cedis to a provisional estimate of GDP. The industry exported 433,000m^3 of various wood products in 1999 with a value of US$174 million (8% of total foreign exchange earnings). The wood processing industry remains highly sophisticated with the ten largest exporters accounting for 43% while the twenty largest accounts for 61% of total exports.

Mill ages, sizes and capacities

The study showed that 3% of the interviewed companies were established over 60 years ago, 47% were a little over 10 years while 50% have been in existence for 20 to 40years. The mill age distribution does not necessarily signify newness of machinery but partly explained with change in ownership of the firms from one entrepreneur to another. This called for establishment of newer timber industries to be contemporary in their operations. By and large, the initiative taken by the government in the enactment of the PNDC Law 116 is considered to be a step in the right direction. This was an investment decision to provide general incentives, benefits and concessions to entrepreneurs and investors, and special packages for specific sectors such as manufacturing. It includes granting firms full exemption for customs import duties on plant, machineries, equipment and accessories required for the enterprises (Owusu, 2001).

From the survey, the installed capacities of large scale mills are between 8300 and 16000 m^3 per annum. The medium scale mills range between 4700 and 9400 m^3 per annum while small mills between 2400 and 4800 m^3 per annum. The proportion of mills surveyed in the different categories is shown in figure 3. Also, 50% of the respondent sawmills were owned by individuals, 47% were jointly owned by foreigners through partnership arrangement and 3% by families and government. 53% of the firms were solely owned by Ghanaians, 31% by foreigners while 16% were jointly owned by Ghanaians and foreigners (Figure 4).

The Ghanaian ownership quota reflects the entrepreneurship drive embraced by the citizens. Certainly, foreign domination could result in capital flight and attendant consequence on industry growth and expansion. Albeit, the 31% foreign share holding also accounted for 70% of the export market and almost all the large mills are foreign owned. These trends have implications for sustainability and long term development of the industry in terms of capital reinvestment (Diaw *et al.,* 2002). In such circumstances, conflicts often abound between foreigners on one hand and the government or his agents or with other owners who are non foreigners. This issue had in 1972 to 1975 led to the nationalisation of forest mills in Ghana by the NRC/SMC regime. A policy which though hailed by nationals turned to improve, in the long run, the development of the industry.

Sources of finance for investment and re-investment

Findings showed that 40% of the firms obtained their financial support in the form of direct loans from Banks, 25% by shareholdings, 20% by Foreign Direct Investment, 10% from personal and 5% through a combination of loans and personal investment. The loan assistance for financing the industry turns to put repayment burden on increased exports to the detriment of the local market. This is because the 40% capital mobilization from loans often implies that production for export must be sustained in order to accumulate funds for repayment.

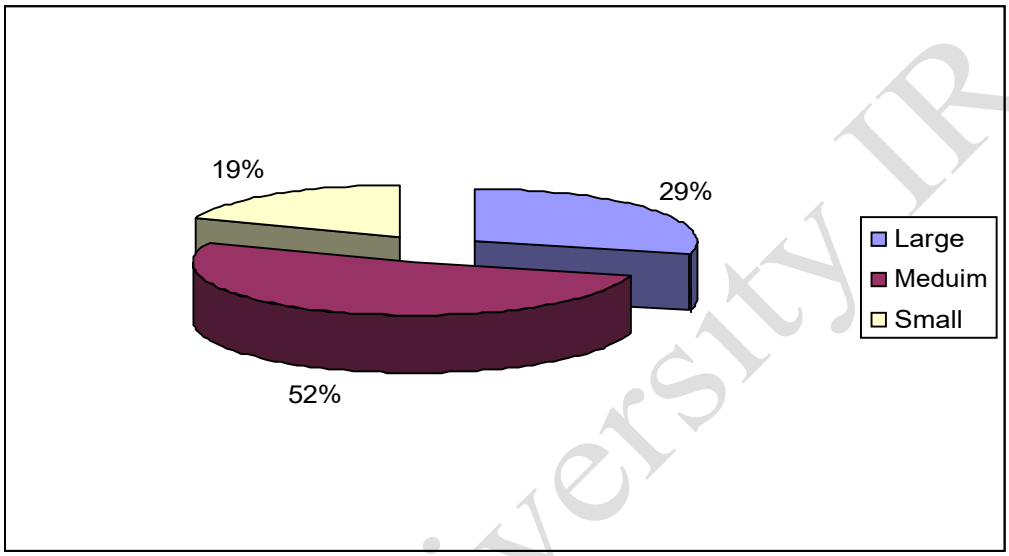

Figure 3. Mill size proportions of surveyed mills

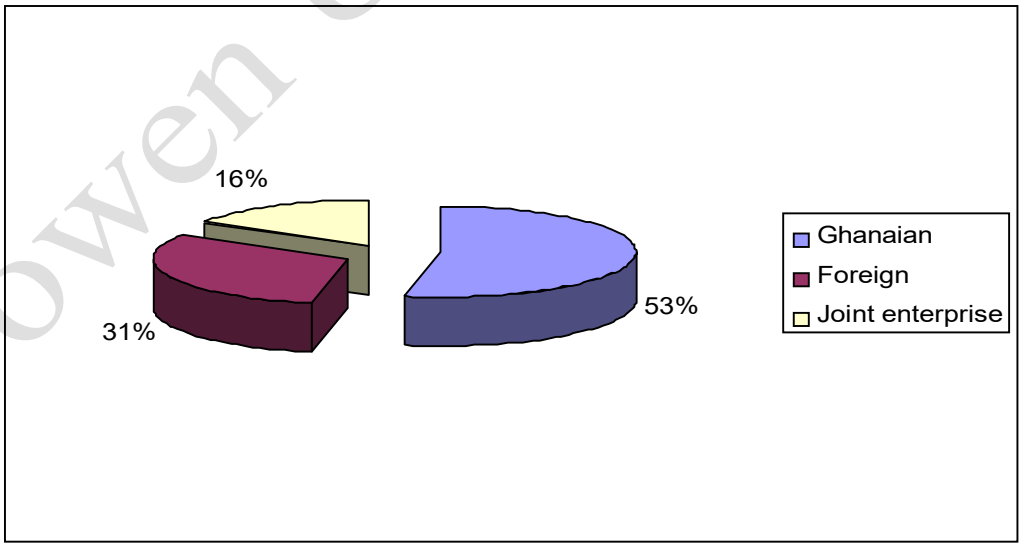

Figure 4. Shareholdings of the surveyed mills

Cost structure of the mills

The production cost elements include manufacturing and non-manufacturing costs. The manufacturing or processing cost is made up of raw material, direct labour as well as mill overheads cost and this comprises of:

- Raw material cost including stumpage fees, social responsibility agreement charges, road markings, conveyance and measurement certificates and other cost associated with logging and log conveyance to the mills. Mills with no concessions obtain logs through direct purchase from loggers.
- Mill overhead cost made up of repairs and maintenance, electricity and energy, transportation of lumber to especially ports and kiln drying cost.
- Direct labour cost ~~is~~ made up of salaries and wages of mill workers on mill payroll.

The non-manufacturing or non-processing cost is made up of general administration and management costs, charges on export and local market sales such as packaging, treatment export levies. Besides, the Timber Industry Development Division (TIIDD) make additional charges on export of air dried lumber, customs and bank charges. The average cost appropriation of the mills for production of one cubic metre lumber is shown in figure 5. The highest cost is incurred in raw material procurement while the lowest is in export levies.

Suffice to say, 30% of the surveyed mills did not face cash-flow constraint while 70% expressed concerns about difficulties in getting loans from banks and inadequate cash to run the business. Lumber was reported by 40% of the industries as the most profitable line of profit, 25% sliced veneer and the rest as shown in the figure 6.

The survey estimated the ages of the equipment of the mills (Figure 7). The average age of hauling or logging equipment is over 16years, lumber milling is over 21years, transportation equipment, over 13years, plywood equipment, over 12years and furniture machinery is also over seven years. Seventy-five respondents affirmed that these equipment or fixed assets are in good working conditions and will take between 5 to 10 years to replace them. However, they opined that the replacement does not necessary follow a fixed pattern but rather on circumstances. While others may take up to 15 years some may require two to four years for replacement.

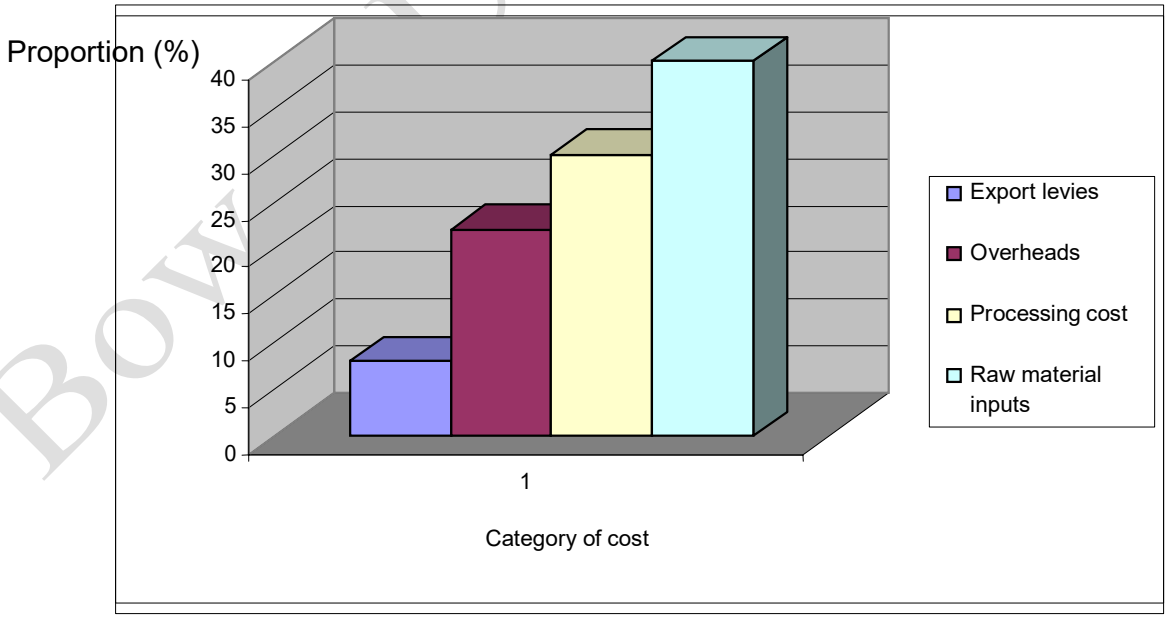

Figure 5. Proportional representation of cost in mills

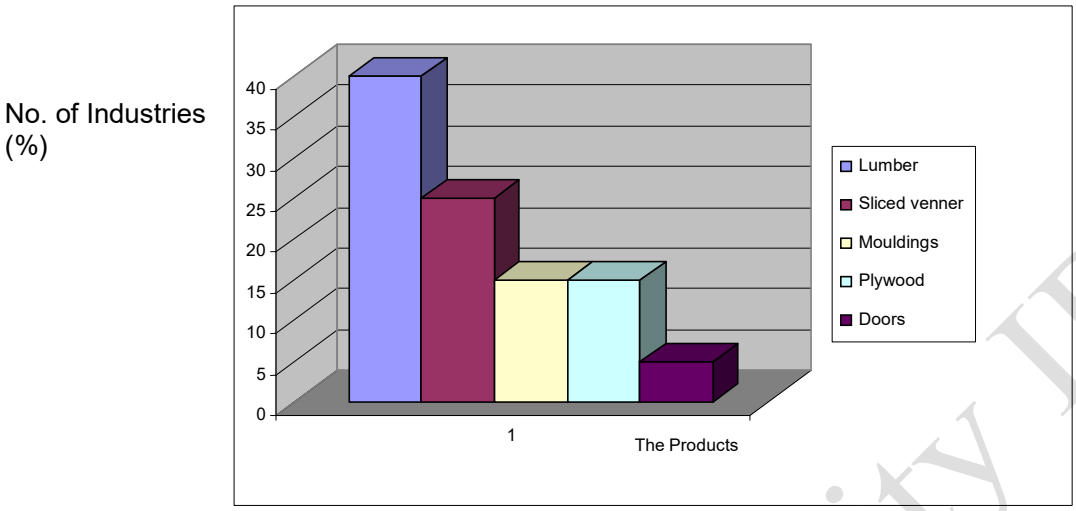

Figure 6. The most profitable product line

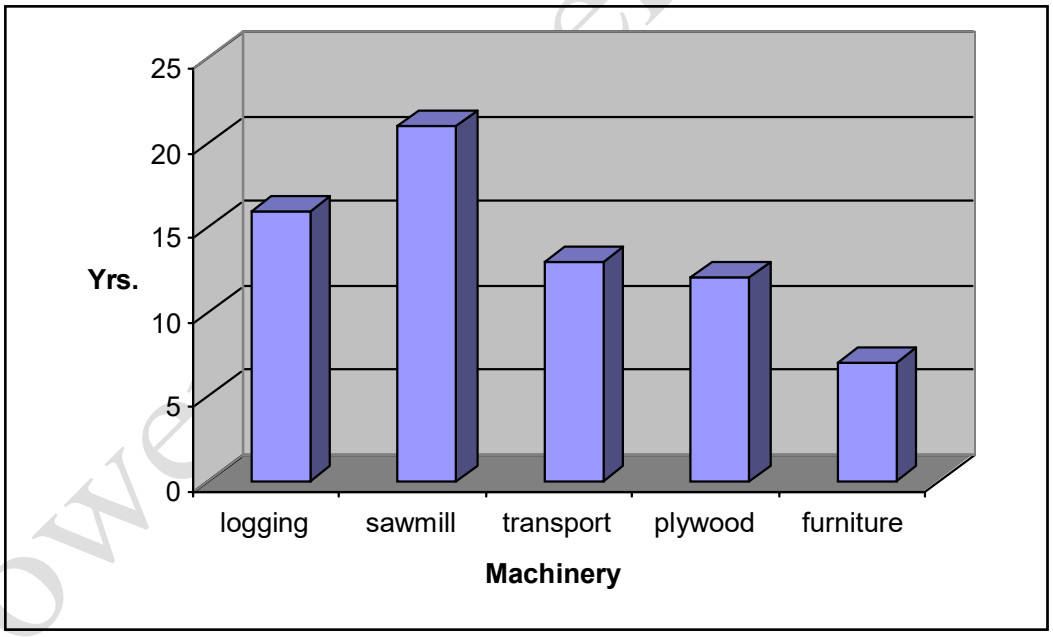

Figure 7. Average ages of mill product machinery

76% of respondents from the mills indicated their willingness to reinvest in fixed assets in the next 5 to 10 years. Their reasons are: (1). to improve mill conversion efficiency by replacing old and obsolete machinery. (2). to engage in product diversification to increase market share. (3). to have the required machinery for changing raw material base or new species. (4). to be able to process small diameter logs and (5). to enhance value addition to remain competitive.

Manpower level and staff development

Forest industrial manpower status was categorized into (1). Professional - 10% (2). Technical - 40% (3). Unskilled Labour - 50%. The industries are job avenues for thousands of individuals especially those in the communities close to where these mills are sited. The technical personnel (40) status was observed to be higher than the professionals and the operation and proper functioning of the mills depend on this category of employees. Thus the firms did not consider the level of education or qualification for the professional or managerial positions and even some did not have any of such personnel. The average personnel levels dropped from 680 in 2001 to 520 in 2002 and the decline in personnel level over the years could partly be attributed to declining raw material base and ever increasing wages demanded by the workers. Sixty percent of the companies reported of carrying out staff development programmes while the remaining responded negative to this enquiry.

Mill Production Efficiencies

About ten percent of the mills had their conversion efficiency (CE) above 60%. Twenty percent of the mills have CEs between 50-60%, while thirty to forty percent are below 45%. Thus most of the firms had their CE below 45%. This implies that a lot of the firms waste their raw material in the production process. Also, these companies do not have the machines and equipment to convert the off-cuts or wastes from the lumber production into secondary and tertiary products to meet downstream demand. There were also relative efficiencies for different mill products. For example, lumber has the least mill efficiency; rotary veneer used for plywood has the highest efficiency (over 40%) while the veneer alone has CE of below 30%.

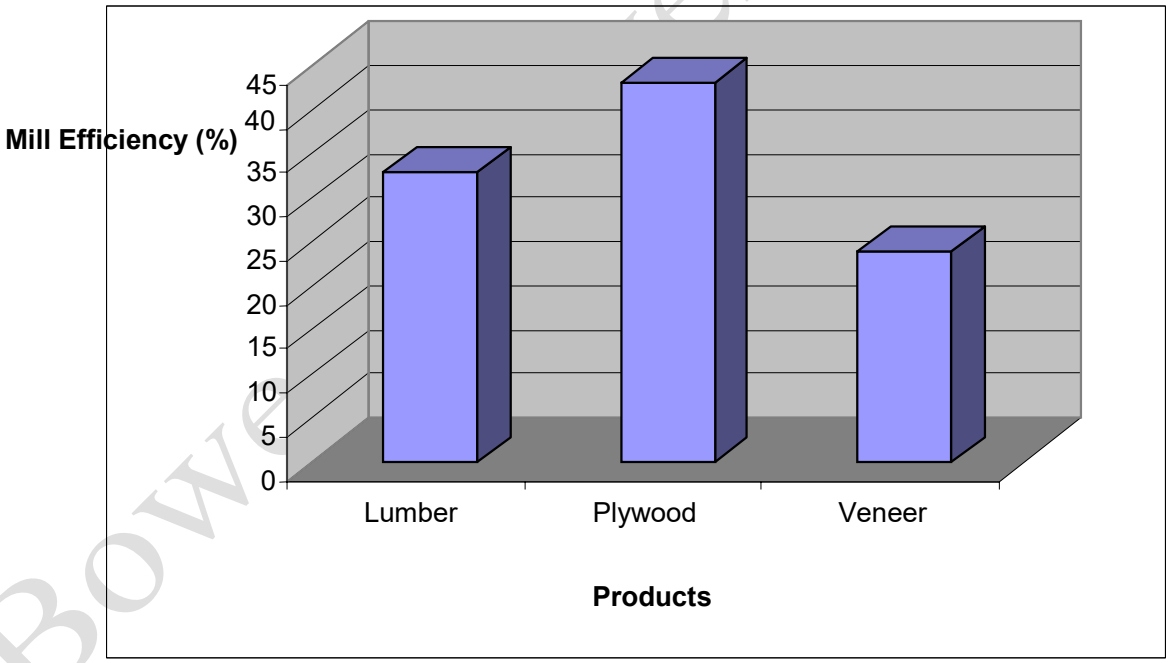

Figure 7. Relative mill conversion efficiency of products in surveyed mills

Local and export market potentials

Logs and lumber get to markets through formal and informal producers. The formal producers are selected mills designated to supply products to local markets and they are given tax concessions as incentive. Non-selected mills also contribute to the expected 20% quota required for the local markets. The 'selected' are beset with corruption and comply less with statutory regulations except that their prices are FOB equivalent. Thus, lumber is expensive and unavailable. The selected mills complain of relatively high investment cost which makes local franchise unattractive. In essence, about 80% of local wood supplies come from non-selected mills. The informal suppliers were generally Chain-Saw and illegal loggers. Their activities are inefficient, have uncontrolled impacts, very low recovery and wasteful, contributing to over-harvesting of the forest. The main attraction is that their prices are lower and provide constant supply to the markets. Not withstanding, the apparent cheaper prices are plagued with abundant wastage of materials.

The survey revealed that about 10 wood species are targeted for export in Ghana. Timber products are generally exported to the developed countries and only a few engage in Sub-Saharan trading. The high level of profit made from export business made the managers to deliberately or inadvertently deprive local markets of the products. Most of the firms do not supply their products to the local market and even those who fulfill this obligation send inferior goods and at relatively high prices, which cannot be afforded by most of the local consumers. For this reason, majority of the companies did not have any record on local sales of their products.

The observations were that the few export mills are foreign owned and this trend may be a recipe for capital flight and possible decline of the industry's growth in the long-term. The level of export earnings increased substantially although the volumes of the exported products were comparatively low. The export levy policy had reduced exploitation and exportation of the primary species from the country. However, to further protect the preferred species from extinction, import-free levy was put in place to import from Gabon, Cameroon etc so as to increase the volumes of these species being processed and reduce exploitation pressure on the Ghanaian forest.

CONCLUSION AND RECOMMENDATIONS

In Ghana, the small-scale wood processing firms, which are in the majority, are owned by indigenes. This category of firms found it difficult to meet high quality standard requirements of consumers. Their number is also on the decline due to difficulties in raising capital to meet the need for mill expansion and technology improvements. Many of the small mills are winding up or merging because of high standardization and diversification requirements in wood products demand by consumers.

On the other hand, the integrated large companies, owned by foreigners, are more attractive and qualitative in their product delivery. This group of companies possesses larger economies of scale and control about 70% of the export market. They also utilize contemporary machines and equipments that enhance their ergonomics of operation. The socio-economic indicators suggest that forest industrial managers must be abreast of innovations and current trend in the business so as to train their workers through workshops and other exchange programmes (i.e. proper planning) especially the smaller companies to meet their customers' specification and demands. Such reduced impact strategies are central to effective forest resource management in the face of increasing pressure to utilize and encroach on the available forest base.

The government should assist the small-scale companies to acquire necessary equipments and machines to sustain these lesser income generating companies to meet the diversification of products requirements by consumers. Also, interest rates by banks and applicable government levies (and taxes) should be realistically reviewed if the government's intention is to encourage exportation of value added wood products.

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