An Overview of the Environmental Impact of the Furniture Industry in Ghana

Ivan Eastin
College of Forest Resources
University of Washington
Seattle, Washington

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AN OVERVIEW OF THE ENVIRONMENTAL IMPACT OF THE FURNITURE INDUSTRY IN GHANA

1.0. INTRODUCTION

The annual growth rate of the Ghanaian economy has exceeded 5% over the period 1983-1991. Despite this increase, imports have been increasing at a faster rate than have exports. As a result, a growing trade deficit threatens the sustainability of the growth of the economy. Contributing to this situation is the fact that over 85% Ghanaian exports are derived from just four products. USAID has recognized this problem and has proposed a US$80 million Trade and Investment Program (TIP) designed to diversify the export sector by promoting the development of the non-traditional export sector. The objective of TIP is to increase the role of these non-traditional exports from 12.5% of total exports in 1991 to 30% of total exports by 1997.

In order to achieve the objectives of the Trade and Investment Program, the most significant non-traditional export products were identified. One of the non-traditional sectors that was identified to receive assistance from TIP has been the furniture and furniture parts manufacturing sector. The Ghana Export Promotion Council estimates that the export of these products could be increased from US$5.5 million in 1990 to US$44 million by 1995. In order to achieve this impressive growth TIP will provide assistance in several areas: training in production and management techniques, increased access to production technology, the development of an investment promotion program as well as the development of new and existing markets.

USAID environmental regulation 22 CFR 216 requires that an environmental impact review (EIR) be prepared for all USAID funded projects that are anticipated to have a significant effect on the environment. The successful implementation of the TIP program in the furniture sector will almost certainly have an impact on the tropical forest resource in Ghana. To assess the magnitude of these impacts, an EIR has been prepared. This review will provide an overview of the forest products industry in Ghana (Section 2). The impact of the industry on the environment will be described in Section 3 along with the likely environmental impacts that will result from the development of the furniture and furniture parts industry. Finally, provisions for the monitoring, evaluation and mitigation of any environmental impacts associated with TIP will be discussed in Section 4.

2.0. THE GHANAIAN TIMBER INDUSTRY

2.1. The Ghanaian Forest Resource

The west African country of Ghana, formerly known as the Gold Coast, is located along the northern edge of the Gulf of Guinea. Bordered by Burkina Faso to the north, Cote d'Ivoire on the west and Togo on the east, Ghana's land area totals approximately 238,000 km^2.

The climate in Ghana varies from semi-arid in the north to tropical in the south-west. The northern third of Ghana is comprised of Guinea savannah-woodlands, where annual rainfall is generally less than 900mm. The savannah-woodlands of the north gradually give way to a woodland-forest mosaic in the central and eastern regions of the country. The southwestern third of the country is located within the tropical forest zone where annual rainfall exceeds 2,000 mm (Martin, 1991).

Moving from the northern edge of the rainforest zone towards the coastal region in the south, the tropical rainforest is composed of several different rainforest types. Dry semi-deciduous rainforests form a band around the perimeter of the region in the north and east where the Guinea savannah-woodland forest mosaic meets the rainforest habitat. The dry semi-deciduous rainforest successively gives way to moist semi-deciduous forest, moist evergreen forest and wet evergreen rainforest zones (Hall and Swaine, 1976; Martin, 1991).

It is estimated that at the beginning of the nineteenth century the forest habitat in Ghana covered approximately 88,000 km^2, almost 40% of the total land area of the country. By 1950 the area of the forest zone is estimated to have decreased to approximately 42,000 km^2. By 1980, as a result of continued deforestation, the rainforests of Ghana are estimated to total just 19,000 km^2 and there are virtually no undisturbed virgin rainforest remaining in Ghana. Of even greater significance is the fact that the tropical rainforest resource of Ghana is constituted of 252 separate forest reserves and an undetermined number of open forest areas. This situation presents a unique challenge in the management of the forest resource (Forestry Department, 1989).

The forest reserves of Ghana are classified as production forests or protection forests, Table 1. Production forests are managed for the sustainable production of timber. Protection forests are usually located in ecologically sensitive areas (ie: streamsides and steep slopes) and are protected from timber exploitation. Other protected forest areas include thirteen wildlife reserves and a rainforest refuge reserve that were established to preserve and protect the fauna of the country. No timber harvesting activity is allowed within these reserves.

Finally, forest land not encompassed within the forest reserve system is classified as open forestland. Open forestland is not subject to forest management and has been designated for eventual conversion to agricultural production (Asabere, 1986; Forestry Department, 1989).

Table 1. The forest resource in Ghana, 1990.

	Area (km^2)	Area (km^2)
Total land base	238,000	
High forest zone	88,000	
Forest reserves (252)	15,913	
Production		11,590
Protection		4,232
Savannah reserves	8,796	
Production		515
Protection		8,281
Wildlife reserves (13)	12,100	
Open (unreserved) forest	3,740	

2.1.1. Results of the Forest Inventory

The forestry department has recently completed the first stage of an inventory of the forest resource in Ghana. The results of this preliminary assessment indicate that the maximum annual allowable cut of timber (AAC) that will ensure sustainability of the forest resource is 1.4 million hectares per year (Forestry Department, 1989). The AAC is generally equivalent to the volume of growth that occurs within the forest during a one year period. One key provision of sustainable forest management requires that the total volume of logs produced within the forest be less than the AAC. If the total production of logs from the forest exceeds the AAC, then the forest will experience a net loss in volume.

2.2. The Ghanaian Tropical Hardwood Industry

The Ghanaian timber industry represents one of the most important sectors within the domestic economy. In 1989, the timber industry produced more than 10% of the gross domestic product. More importantly, timber exports ranked third in foreign exchange earnings behind cocoa and mineral exports. Foreign exchange earnings from timber exports in 1990 totalled almost US$135 million, accounting for approximately 13% of Ghana's total foreign exchange earnings (FPIB, 1991).

The timber industry consisted of 169 logging operations, 118 sawmilling operations and 9 veneer slicing operations in 1990 (FPIB, 1991). It is estimated that there are over 250 furniture manufacturers operating in Ghana. However, the vast majority of these are very small firms that produce exclusively for the domestic market. Presently, there are only about six firms producing for the export market with approximately 95% of export production being generated by a single firm.

The majority of the sawmills and veneer mills are located in and around the city of Kumasi. A second, smaller, group of timber processors are situated around the port city of Takoradi, located in the southwest of Ghana. Kumasi, the capital of the Ashante region and the second largest city in Ghana, was originally surrounded by tropical rainforests. As a result, the ready availability of logs and infrastructural support services played a key role in the development of the sawmill industry. However, within a decade the availability of logs declined as a result of excessive logging of the more accessible forest reserves.

The Ghanaian timber industry is primarily composed of privately owned firms and displays a highly competitive structure. The concentration ratios of the eight largest firms in the logging industry and the sawmill industry are .276 and .397, respectively. The domestic furniture industry is extremely fragmented and ranges from producers using modern computer numerically controlled production equipment to very small producers utilizing only crude hand tools.

Firm size within the sawmill industry (based on value of exports) is very heterogenous, ranging from US$7.5 million to US$3,000. The majority of the firms are owned and operated by foreign businessmen. In 1990 there were 24 firms with lumber exports exceeding US$2 million while 20 firms had lumber exports of less than US$25,000. The export furniture industry is dominated by a single producer, Scanstyle Mim, that individually represents over 95% of total furniture exports from Ghana.

Entry and exit barriers within the timber industry are quite low for the smaller, less capital intensive operations. As a result, the number of small timber firms operating tends to follow economic trends. For example, following almost a decade of economic decline the number of log exporters totalled just 95 in 1985 (less than one quarter the number that were operating in 1975), while the number of sawmills totalled just 49 (approximately half the number operating in 1975). As the Ghanaian economy gradually improved in response to the World Bank/IMF sponsored Structural Adjustment Program, the number of logging operations rose to 351 by 1988 before dropping off to 169 in 1990. The number of sawmills increased to 118 by 1990.

The management structure within the Ghanaian timber industry tends to be autocratic and informal, with management decisions being made by the owner of the firm. Greater emphasis is placed on operational plans rather than strategic plans. As a result, the time horizon for planning is usually short-term and tends to be performed on an informal basis.

Within the industry there are eight state-owned timber companies which account for 19.8% of sawnwood production and 13.4% of veneer production (TEDB, 1991). The largest furniture exporter, Scanstyle Mim, is also 40% state-owned. State-owned timber companies play a negligible role in the export of raw logs from Ghana. Currently, the government is developing a strategy to return the publicly owned sawmills to profitability as a first step in the privatization process. Recently there have been some efforts to consolidate the state owned enterprises within the industry for achieving this goal. For example, in 1990 the government combined the operations of the Takoradi Veneer and Lumber Company with Western Hardwoods Limited in an effort to produce a single, more competitive firm. Other consolidations are currently being considered.

2.3. Constraints on the Timber Industry

2.3.1. Natural Resource Availability

Timber species in Ghana are classified into three Forest Inventory Project (FIP) groups; FIP Class 1, FIP Class 2 and FIP Class 3. FIP Class 1 species are defined as those timber species that have been exported from Ghana at least once since 1973 and include 66 species of timber. FIP-2 timber species are lesser-known timber species that grow to harvestable size (70 cm. diameter) and occur in the forest with a density of at least one tree per km^2. All other timber species, which do not attain a diameter of 70 cm., or which were found to occur in densities less than 1 tree per km^2, are classified as FIP Class 3.

The Ghanaian government has halted the issuance of timber concessions until new concession regulations can be promulgated and implemented. Timber concessions for which the agreement has expired may be renewed on a year to year basis, although this is not always assured. Since 1973, timber concessions may only be awarded to Ghanaian citizens. Since many of the timber mills are owned by non-Ghanaians this regulation has introduced an element of uncertainty for mill owners. In addition, a number of the primary timber species have been seriously depleted as the result of over-harvesting. The results of the Forestry Department's timber inventory indicate that, at current rates of exploitation, several species of timber could be completely depleted within the next 25 years, Table 2.

Table 2. Estimated resource life for some commercial timber species.

Species	Girth Limit (GLimit)	Resource > GLimit (m^3)	Annual growth (m^3/yr)	Rate of extraction (m^3/yr)	Resource life (years)
	11 feet				
Odum		1,408,000	28,650	172,983	10
Edinam		468,000	7,155	33,167	18
Mahogany		692,000	31,488	66,877	20
Utile		465,000	8,081	31,891	20
Sapele		702,000	13,496	41,135	25
	7 feet				
Hyedua		154,000	1,966	10,620	18
Guarea		524,000	4,592	10,972	82
Danta		1,254,000	10,098	24,787	85
Wawa		26,356,000	135,779	366,064	114
Mansonia		695,000	2,753	5,830	226
Dahoma		5,254,000	75,569	14,915	*
KyenKyen		3,726,000	33,331	14,801	*
Avodire		2,365,000	13,548	269	*

* Rate of growth exceeds the rate of felling (Alder, 1989).

2.3.2. Supplies of Labor and Capital

The majority of the sawmills in Ghana are equipped with outdated and inefficient processing equipment and the conversion ratio for logs to lumber is extremely low; typically in the 30%-40% range. This is particularly true for the smaller timber processors who lack adequate access to capital to finance equipment purchases. As a result, the timber industry is heavily skewed towards the export of low value-added products such as logs and air-dried lumber. The lack of modern processing equipment also limits the ability of the timber industry, particularly furniture manufacturers, to develop new products or to manufacture higher value-added products that possess the quality to be competitive in the international marketplace.

Many firms take advantage of extremely low labor rates in Ghana to employ a large labor force to perform many operations, particularly material handling. The net result of this is an under-capitalized, labor-intensive industry. This labor-capital combination can be partly attributed to the existence of a poor investment climate, a huge supply of unskilled labor and wage rates that can be as low as US$1 per day for unskilled workers (although

skilled workers earn more). Consequently, the timber industry is a primary employer of labor in Ghana. It has been estimated that the timber industry provides direct employment to over 250,000 people, while providing indirect support to approximately 2 million people (TEDB, 1988).

2.3.3. Access to Market Information

Timber producers generally employ agents to export their products to Europe. This method of distribution separates the producer from the end-user of his product and restricts his access to market information. As a result, Ghanaian producers are unable to develop a thorough understanding of current market conditions or identify new markets for their products. This lack of market information also restricts the manufacturers ability to assess the market potential for new products.

2.3.4. Price Constraints

The prices of Ghanaian logs and lumber are regulated by the Timber Export and Development Board (TEDB). These prices are generally established based upon the current prices for similar products and species in neighboring west African countries. All timber export contracts must be submitted to TEDB for approval of contract prices prior to export. Export contracts that do not meet the minimum price levels must be renegotiated prior to receiving export approval. Furniture export contracts must also be submitted to TEDB for approval of the contract terms.

2.3.5. Access to Capital

Difficulty in gaining access to capital is common to all firms operating within the timber industry. This is equally true for obtaining capital for short-term versus long-term requirements as well as for capital improvement versus operating requirements. Interest rates are generally quite high (in excess of 25%) and financing terms frequently require the borrower to provide collateral equal to the value of the loan. However, the past year has seen interest rates fall substantially to approximately 20%.

3.0. ENVIRONMENTAL CONSIDERATIONS AND DATA GAPS

3.1. Introduction

The production of furniture and furniture parts relies upon the timber resource base for its supply of raw materials. As a result, an increase in the production of furniture and furniture parts, such as that envisioned by TIP, could lead to increased rates of harvest in the forest as well as other less obvious environmental impacts. A clear understanding of all the environmental impacts associated with increased levels of furniture production are required to assess the impact of the project on the natural environment as well as the sustainability of the project.

3.2. Impacts of Project Activities on the Environment

An increased level of production activity in the furniture sector can impact the environment in a variety of ways. The primary environmental impacts are: increased timber harvest levels, waste disposal by manufacturing firms, socio-economic impacts and cross-sectoral impacts. Each of these impacts will be discussed in the following paragraphs.

3.2.1. Increased Timber Harvest Levels

An increase in activity in the furniture sector can increase harvest levels in the forest, possibly exceeding the AAC, by increasing demand for primary and secondary wood products. An increase in harvesting intensity can also lead to a loss of bio-diversity within the forest ecosystem. This environmental impact could be moderated if the furniture industry were to obtain its raw material from the domestic sawmilling industry rather than processing their own lumber from logs obtained from the forest. In addition, increased demand for wood products can also contribute to a loss of genetic diversity in the forest if furniture manufacturers favor the traditional redwood species over the lesser-known and more abundant timber species (Hamilton, 1991).

3.2.2. Furniture Manufacturing

During the furniture manufacturing process a variety of waste materials are generated. These materials can have a significant adverse effect on the natural environment. Waste materials such as sawdust, organic solvents, paints and stains can pollute the environment if improperly disposed of. Improper disposal can result in soil infertility, pollution of ground water supplies, pollution of streams (affecting fish supplies) and lead to health problems in local populations. Noise generation resulting from manufacturing operations can also adversely affect local populations.

3.3. Socio-economic Impacts

3.3.1. Industry Location

Siting of furniture firms is an extremely important consideration, particularly as the size of the firm being considered increases. Large firms inevitably attract large number of workers looking for employment as well as a variety of satellite businesses (such as food preparers) which can lead to population pressures in the area. Location of a manufacturing facility in a rural area close to forest reserves can lead to conflicts in land usage and increased rates of deforestation. In addition, location of a manufacturing facility in an overcrowded urban area can exacerbate population pressures, increase the demands being placed upon the infrastructure and adversely affect the urban environment.

3.3.2. Infrastructure Demands

An export oriented furniture manufacturing facility requires that a certain level of infrastructural development be available. Electricity, surfaced roads, basic telecommunications equipment and running water are all important requirements for a furniture manufacturing facility. Another important service required is the provision of adequate waste disposal facilities. The demands of a furniture manufacturing facility can contribute to these services becoming overburdened. These considerations emphasize the importance of properly locating a furniture manufacturing facility.

3.3.3. Population Pressure

This consideration is particularly important for larger manufacturing facilities. These facilities act as magnets that draw workers and prospective workers in from neighboring urban and rural areas. As a result, population pressures are increased as are demands on the local infrastructure. Increased population effects can have a particularly adverse impact on the availability of basic health care and the quality of education.

Another less obvious result of increased population is an increased pressure on nearby forest reserves. The workers drawn to the area in hopes of finding employment are frequently poor and as a result deforestation can result from an increased demand for fuel wood and land for family gardening plots.

3.3.4. Worker Safety

As with any manufacturing facility, worker safety should be an important consideration. Improper or poor training of workers operating power equipment can result in unnecessarily high job related rates of injury. Inadequate protection of workers using solvents and chemicals can lead to long-term health problems for both workers and their families.

3.4. Cross-sectoral Impacts

3.4.1. Conflicts With Agriculture

Furniture manufacturing operations can have two significant impacts on the local agricultural sector. First, an influx of workers and prospective workers can lead to land use conflicts. This results from increased requirements for housing as well as an increase in the demand for land for subsistence farming. Another impact on the agricultural sector occurs through the improper disposal of waste material. The production of furniture can generate a significant amount of sawdust and wood waste. These materials are frequently disposed of by dumping them in remote areas. This practice can result in loss of fertility of the land. A similar, but more destructive result, occurs from the improper disposal of chemical wastes. These practices can not only destroy the soil fertility, but can also adversely affect both people and animals inhabiting the affected area.

3.4.2. Conflicts With Fisheries

Furniture manufacturing facilities can directly impact the fisheries sector through the improper disposal of waste material generated during the manufacturing process. While the improper dumping of sawdust in rivers is a problem, an even more important problem is the disposal of chemical wastes into the river system. This practice can have significant immediate and cumulative effects on the health of a river system and its ability to support adequate stocks of fish for local inhabitants. Increasing the number of furniture manufacturers can greatly compound this problem if proper waste disposal procedures are not ensured.

4.0. ENVIRONMENTALLY SOUND DEVELOPMENT OF THE FURNITURE INDUSTRY

4.1. Acquisition of Raw Materials

In order to reduce the environmental impact of TIP on the tropical forest resource, it is important that several factors be considered. Most important is that lesser-known timber species should be promoted by the industry. Utilization of such species will work to maintain the genetic diversity of the forest and help ensure that the forests are sustainably managed by reducing pressure on the more traditional timber species. In addition, an emphasis on lesser-known timber species can effectively reduce raw material costs within the furniture industry by reducing competition for traditional timber species between furniture producers and the export markets. This will also allow sawmills to more effectively utilize their production capacity.

Additional timber concessions should not be issued for this industrial sector, although some expired concessions may be awarded to furniture producers. Rather, raw materials should be obtained from those sawmills currently operating in Ghana. It is also important that the furniture industry invest in capital improvements that will allow for a more efficient utilization of the raw material.

4.2. Legislation and Enforcement

While current legislation appears to be appropriate for achieving sustainable forest management, several policies need to be further addressed. The new concession policy that is being formulated by the Ministry of Lands and Mineral Resources should be formulated to ensure that concessions are awarded only to those who possess the ability and equipment to employing sound felling techniques and who express a willingness to manage the forest in a sustainable manner.

An equally important consideration is the effective enforcement of those forest policies which have already been implemented. It is important for the forestry department to increase its ability to enforce forest management policies in the field. The achievement of this objective is a difficult task that will involve an increase in the number of foresters and forest guards, pay increases and training exercises. It is equally important for the forestry department to enlist the cooperation of the local population in protecting the forest resource.

4.3. Institutional Issues

4.3.1. Institutional Linkages

There is currently some ambiguity in the relationship between agencies charged with the responsibility of coordinating activities in the forestry sector, for example the role of the Forestry Commission. Another area of ambiguity was observed in the administration of timber concessions; where this function appears to be randomly performed by both the Ministry of Lands and Natural Resources and the Forestry Department. This ambiguity should be resolved as soon as possible. In addition, there should be a strengthening of the linkages between government agencies, trade associations and NGO's.

4.3.2. Institutional Strengthening

A strengthening of the linkages between the various institutions that have a natural interest in the management of the forest resource. Perhaps this could be done through the establishment of a policy review board that would be composed of representatives from each of the interested groups. Equally important is the strengthening of the institutions themselves, particularly the forestry department who is charged with the sustainable management of the forest resource in Ghana.

4.4. Indicators, Monitoring and Mitigation Measures

4.4.1. Identification of Primary Tropical Forest

It is essential that all areas of primary tropical forest remaining in Ghana be identified and located on a vegetation map. Unfortunately, it will be extremely difficult to separate out the impacts of the TIP project on primary forest from the impacts caused by the timber industry in general. Logging activities in these areas should be suspended until a forest policy can be formulated that can adequately address the environmental concerns of USAID. At present there appears to be very little, if any, primary forest left in Ghana. However, this cannot be verified until the current forest inventory project is completed in 1993.

4.4.2. Sustainable Timber Harvest Levels

When calculating the AAC it is very important to identify the volume of logs that have been left behind in the forest as well as those trees that were severely damaged during timber harvest operations (ie: damage from felling and log extraction operations). While the reported removal of logs from the forest may be reported as being less than the AAC, inclusion of felling and extraction losses into the total removal figure may indicate that total losses in the forest exceed the AAC. As a result, it is important that a

procedure be developed that will allow for the calculation of the total volumetric loss occurring within the forest reserves. This procedure could be implemented by foresters who would monitor the harvest operations on a periodic basis. There is currently a research effort underway by the Institute of Renewable Natural Resources at UST in Kumasi that is attempting to quantify the impact of harvest operations on the remaining trees in the forest. The results of this research effort will provide an empirical basis for adjusting the AAC to take this type of harvest loss into account.

4.4.3. Tropical Forest Diversity

The expansion of the species base utilized by the timber trade will help to maintain the genetic diversity of the tropical forest resource. This expansion would require a substantial marketing and promotion effort to promote lesser-known tropical timber species in the end-use markets (ie: Europe and the U.S.). The marketing and promotion efforts would require the participation of the Timber Export and Development Board considering their familiarity with the European markets. The success of these efforts could be evaluated by periodic monitoring of the species composition of timber exports as reported in the forest products export report published monthly.

4.4.4. Location of Firms

To minimize the impacts of an expanding furniture manufacturing sector, it is important that future furniture firms be located in areas that will help to minimize their impact on human populations as well as the natural environment. This implies that the expansion of the furniture industry must be carefully planned rather than haphazard. Little information is available on planning and location of furniture manufacturing facilities as well as ways of minimizing their impacts on their environments. Urban planning studies can help to identify the adverse impacts of manufacturing facilities on human populations as well as the natural environment. The aim of these studies would be to identify potential sites (such as industrial processing zones) for situating furniture manufacturing facilities that would provide the infrastructural support required while minimizing adverse impacts.

4.4.5. Waste Generation and Disposal

One of the most significant effects of increased manufacturing activity in the furniture sector is the generation and disposal of industrial waste. It has been estimated by the GEPC that under TIP the value of furniture and furniture parts exports would increase approximately 8 times to US$44 million. An increase of this magnitude in manufacturing activity could pose a severe threat to the environment. In order to ensure that the environmental threat is minimized it is important that an environmental policy be developed addressing the disposal of waste products generated by

the furniture industry. Monitoring procedures should also be developed to ensure that the regulations are being followed. The Environmental Protection Council should work together with the appropriate government ministries to develop the necessary policies and monitoring programs. To date, no studies have looked at the generation of waste by the furniture industry or methods of waste disposal.

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6.0. APPENDIX A.

6.1. Proposed Research Projects for Identifying, Monitoring and Mitigating Adverse Environmental Impacts

6.1.1. Impact of Harvesting Operations on Species Diversity

More information is needed regarding the effect of timber harvesting operations on both the genetic diversity of the forest reserves as well as the bio-diversity in general. The research should investigate the environmental effects of alternative harvesting methods in tropical forests. The results of this research may help to identify ways of minimizing the disturbance of the forest during harvest operations. It should also clarify the less obvious effects of timber harvesting on the forest.

Implementing Institutions: Forestry Department and the Forest Research Institute of Ghana (FORIG).
Duration of Project: 5 years.
Requisite Personnel: Forest Ecologist and Logging Engineer
Estimated Funding Level: US$50,000/year x 5 years: US$250,000.

6.1.2. Felling Damage During Harvest Operations

The volume of timber harvested within the forest has traditionally been based upon the volume of logs transported from the forest. This method underestimates the impact of harvest operations on the forest resource by ignoring felling damage to remaining trees and defective logs left in the forest. This research project has as its objective the quantification of felling damage during harvest operations and the estimation of the volume of logs abandoned in the forest. A similar project is being carried out under the sponsorship of the International Tropical Timber Organization (ITTO) in Ghana. This project would be used to supplement the research that is currently being performed in this area and would allow several more research plots to be established.

Implementing Institutions: Forestry Department and FORIG.
Duration of Project: 3 years.
Requisite Personnel: Forester and Logging Engineer
Estimated Funding Level: US$25,000/year x 3 years: US$75,000.

6.1.3. Competitive Analysis of the Ghanaian Furniture Industry

A detailed analysis of the competitive structure of the Ghanaian furniture industry is necessary in order to identify competitive advantages. The analysis would also address areas of need within the industry such as: technology requirements, availability of financing, management practices, cost structure, the competitive structure of the timber industry and current marketing practices. The results of this research would help to develop an understanding of the industry structure and contribute to increasing the competitiveness of the industry in the international marketplace.

Implementing Institutions: Timber Export Development Board and College of Forest Resources, University of Washington.
Duration of project: 1 year.
Requisite Personnel: Timber Industry Analyst (TEDB) and Forest Products Marketing Specialist (U-W)
Estimated Funding Level: US$80,000/year x 1 year: US$80,000.

6.1.4. Waste Generation and Disposal Within the Furniture Industry

The generation and disposal of waste by the furniture industry poses a significant potential risk to the human population as well as the natural environment. Unfortunately, little is known about the quantity and types of industrial waste generated by the furniture industry or current waste disposal practices. This information is important in order for effective environmental protection regulations to be developed. This research project should not only address these vital issues but should also recommend methods of waste disposal that have been successfully implemented in other countries and which may be appropriate for Ghana.

Implementing Institutions: Environmental Protection Council and FORIG
Duration of Project: 4 years.
Requisite Personnel: Waste Disposal Specialist, Biologist and Hydrologist
Estimated Funding Level: US$55,000/year x 4 years: US$220,000.

6.1.5. Marketing Analysis of European and American Furniture Markets

In order for the Ghanaian furniture industry to become competitive on the world market it is essential that they develop a clear understanding of how these markets operate. The proposed international market research study will concentrate on the U.S. and European markets for furniture. The study will investigate buyer-seller relationships, barriers to trade, barriers to the introduction of lesser-known species, channels of distribution, product categories, pricing policies as well as a brief competitive analysis of the furniture industry in each region. This type of research will provide Ghanaian furniture manufacturers with an understanding of their target markets, provide assistance in targeting specific market segments, indicate strategies for introducing lesser-known species into the marketplace and help them to compete more effectively in export markets.

Implementing Institutions: TEDB and College of Forest Resources, University of Washington.
Duration of Project: 2 years.
Requisite Personnel: Export Market Analyst (TEDB) and Forest Products Marketing Specialist (U-W).
Estimated Funding Level: $100,000/year x 2 years: US$200,000.

Funding Priorities for Proposed Projects

1. Project Number 6.1.5.
2. Project Number 6.1.3.
3. Project Number 6.1.4.
4. Project Number 6.1.1.
5. Project Number 6.1.2.