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Certification: implications for sustainable forest management and timber export trade in Ghana

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**CERTIFICATION: IMPLICATIONS FOR SUSTAINABLE
FOREST MANAGEMENT AND TIMBER EXPORT TRADE IN GHANA**

A Thesis
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The School of Renewable Natural Resources

by
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ABSTRACT

Forestry is a major contributor to the Ghanaian economy and has the potential to increase its contribution if a number of challenges are overcome. Over the past 15 years, Ghana has modified its forest policies, laws, and regulations, but still faces serious challenges with illegal logging and unsustainable forest management. At the same time, Ghana's major wood product trading partner, the European Union (EU), is requesting that Ghana, under the Voluntary Partnership Agreement (VPA), ensure that wood products from Ghana to the EU are legally produced. Additionally, several EU wood product importers have requested their suppliers in Ghana to meet certification requirements. To date, efforts by Ghanaian companies to achieve certification have not been successful. Certification can potentially address forest management challenges facing tropical countries like Ghana, while enhancing the export of wood products to environmentally sensitive markets, such as the EU.

This research was conducted to identify the underlying causes for Ghanaian companies' inability to meet certification requirements and the implications for forest management and timber exports from Ghana. The research was conducted in Ghana from May to August 2009. Mail surveys supported by field assessment of forest management practices were the main research methods used. In addition, interviews were conducted with key contacts from the four groups studied: policymakers, loggers, wood processors/exporters, and wood product importers from Ghana. Results suggest that current forest management practices in Ghana are unsustainable. Forest management certification was found to have a positive impact on forest management, but is unlikely to be an effective mechanism in influencing overall forest management practices. Respondents identified illegal logging, corruption, and weak enforcement of forest laws as the key impediments to sustainable forestry in Ghana. In spite of the increasing demand for certified wood products by European importers, results indicate that Europe is the

primary destination for respondent wood exports. The most significant conclusion is that the government should undertake institutional roles reform to transfer key forest management functions to companies that adhere to government standards, while addressing the underlying factors of corruption, illegal logging, and weak enforcement of forest laws through a broader stakeholder consultative process.

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

Over the past 15 years, the Ghanaian government has undertaken several reforms in the forestry sector. These reforms mainly focused on legislative reviews, a new system of timber right allocations, forest management systems, institutional reforms, and adoption of forest management tools, including certification. These initiatives were adopted with the objective of improving forest management, eliminating illegal logging, and improving forestry's contribution to the national economy. The primary and a major step in the direction of the reform was the promulgation of a new Forest and Wildlife Policy in 1994. In order for the government to achieve the objectives of the policy and to connect the policy to forest management systems, a 25- year (1996-2020) Forestry Development Master Plan was developed (MLF, 1996). On the institutional side, the government reformed the Forestry Commission as a strategy for achieving effective implementation and the objectives of the forest policy (FC, 2001). In 1997, a major overhaul of the regulatory system was undertaken with the introduction of the Timber Resources Management Act (Act 547) and its Regulations LI 1649 in 1998. These measures have resulted in the development of a new approach to forest management, at least in principle.

Most importantly, the system of allocation of timber resources is now competitive bidding, with existing Timber Leases being converted to Timber Utilization Contracts (TUCs) with stricter controls over both harvesting regimes and stakeholder participation in forest management, particularly landowners, TUC holders, and forest fringe communities. Under this system, the management of forest resources becomes a joint responsibility of the Forestry Commission, the TUC holder, and the landholding communities. The new management system in principle is designed to reduce corruption and to safeguard the functional integrity of forest resources management practices to ensure a sustainable yield of quality forest products for the

benefit of all stakeholders. This new system is also expected to meet all other international requirements, including certification. However, various companies pursuing certification in Ghana claim that the new laws and regulations as well as the management systems do not support certification, but rather present impediments to certification in practical terms.

This situation for which laws, regulations, and management systems are perceived to be unfriendly to certification is not unique to Ghana, as recent studies on certification conducted by the International Tropical Timber Organization (ITTO) in six countries concluded that implementation of certification schemes suffers from inadequate regulatory and institutional conditions (ITTO, 2008). One important strategy of the new system of management was to make forest management a shared responsibility of the state, the industry, and landowning communities, as opposed to the old system of state monopoly over management. This was to ensure transparency and improve management practices. However, this system is without well-defined responsibilities and benefits to all parties involved and has been a source of confusion regarding certification and sustainable forest management requirements.

Under the Forest Law Enforcement, Governance and Trade/Voluntary Partnership Agreement (FLEGT/VPA) process, the government of Ghana has identified inadequacies in the existing legal system and intends to carry out legal and policy reforms within the next five years (MLFM, 2008). The proposed thesis research seeks to provide useful baseline information that will enhance understanding of certification and sustainable forest management requirements for industry, legal, and policy entities, and forest-impacted communities in Ghana.

In Cameroon, the Central Africa and many other tropical countries where certification has been achieved by private companies, forest management is the responsibility of the companies, while governments undertake regulatory and monitoring functions. ITTO's recent research on certification noted that most (82%) of the world's certified tropical forests are in

forest concessions, or otherwise owned or managed by the private sector in large forest management units (ITTO, 2008). However, total ceding of forest management functions to companies appears unacceptable to the Ghanaian government, due to mistrust developed over the years. At the same time, the government is unable to effectively undertake all management responsibilities.

Ghana has adopted certification to enhance sustainable management of forestlands, eliminate illegal logging, and improve Ghana's competitiveness in the international timber trade. In spite of this, the uptake and progress of certification in Ghana have been quite slow. Currently only about 10% of the logging and wood processing companies are pursuing certification under complicated legal and forest management systems. However, for certification to be successful on public forestlands, it must fit with land-use and forest policies (Gerardo, 2004). In the face of this, recent statistics on timber exports from the Timber Industry Development Division of the Forestry Commission shows an increasing proportion of Ghana's timber being exported to Asia, Far East, and African markets, while the proportion exported to environmentally sensitive markets like Europe is declining. Earnings from Ghana's timber exports to the EU as a percent of the total dropped from 56% in 2004 to 47% in 2006. The reduction has partly been attributed to the demands of the environmentally sensitive markets and the difficulties faced by Ghanaian firms in meeting market requirements that often include certification. The loss in market share has been significant for Germany, UK, the Netherlands, and Ireland (Anonymous, 2007). These countries seem to have the most demanding environmental requirements for timber procurement.

1.2 Problem Statement

A total of 25.2 million hectares representing 7% of the 353 million hectares of total Permanent Forest Estates (TPF) in all the three regions of ITTO member countries globally are

estimated to be managed sustainably (ITTO, 2005). Attempts by many developing tropical countries to achieve sustainable forest management have been beset with many problems.

The Ghanaian government, as a result of international requirements and the increasing demand from national and international stakeholders for improvement in forest management practices instituted a program of reform in the 1990s and adopted a number of tools and measures geared towards achieving sustainable forest management and elimination of illegal logging. The adopted measures include: institutional and policy reforms, review of laws and regulations, review of timber rights allocations, adoption of Collaborative Forest Management (CFM), adoption of forest management certification, and recent engagement with the EU on Voluntary Partnership Agreement (VPA) under the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT). The FLEGT Action Plan was adopted by the European Commission in May 2003 as part of the EU's response to the call for action at the World Summit on Sustainable Development. Council conclusions were adopted in October 2003, and the European Parliament passed a motion of support in January 2004. The Action Plan sets out a new and innovative approach to tackling illegal logging, thereby linking good governance in developing countries with the legal trade instruments and leverage offered by the EU's international market (Department for International Development (DFID), 2008).

The Action Plan describes a package of measures, including:

- Support for improved governance and capacity building in timber producing countries
 - Encouraging the private sector to adopt purchasing policies to exclude illegal timber from their supply chains
 - Promotion of public procurement policies
 - Encouraging measures to avoid investment in activities that encourage illegal logging;
- and

- Support to governments who want to ensure that illegally-harvested timber from their territory is not admitted to the EU market.

Voluntary Partnership Agreements are developed with timber-producing countries that wish to eliminate illegal timber from their trade with the EU. These agreements will involve establishment of a licensing scheme to ensure that only legal timber from producing countries (“Partner Countries”) is allowed into the EU. Unlicensed consignments from Partner Countries will be denied access to the European market under this scheme. The agreements are voluntary. This means that Partner Countries may decide whether or not to sign up; however, once they do, so the licensing scheme is obligatory. Currently, there is no law to prevent illegally-logged wood products from being imported into the EU. A new EU regulation is therefore required to empower member states’ customs authorities to enforce this scheme. Proposal for a regulation and a mandate that will authorize the European Commission to negotiate agreements with potential partner countries are currently being finalized. Each Voluntary Partnership Agreement will require a definition of “legally-produced timber” and the means to verify that wood products destined for the EU have been produced in accordance with the requirements of this definition. Both the definition of legality and the verification system should be appropriate to circumstances in the partner country. Details of these will be negotiated between each partner country and the EU. Where needed, EU development assistance will be provided to help establish a licensing scheme.

All of these important initiatives and measures, if well implemented could help address key forest management problems in Ghana. However, the ultimate success of achieving certification and the objectives of all other initiatives depends on the availability of scientific information on main issues and impediments, which must be resolved for a particular initiative to achieve the desired impacts.

Several Ghanaian timber manufacturing companies have been asked by their buyers particularly those in Europe to meet certification requirements. As a result, some companies began pursuing certification with the expectation that they will subsequently provide assurance to buyers in Europe and elsewhere regarding the sustainability of the sources of wood products they produce. Unfortunately, no company has yet achieved certification, thirteen years after the concept of forest management certification has been introduced to Ghana. Some perceive the companies as being yet uncommitted to certification, consequently creating an inability to achieve certification. Others, including the companies, challenge this assertion, blaming government management and legal systems as the cause.

A number of studies have been conducted in Ghana's forestry sector but these have focused on the resource base and management practices. With an increasing interest of timber companies to adopt certification, assessing the impacts of export orientation for certification on forest management is crucial. However, barriers to certification and the implications of this for forest management and timber export trade in Ghana are generally understudied and there is a paucity of information about the implications of the requirements of certification on forest management practices and timber export trade in Ghana.

Forest management and timber export trade in Ghana are at a crossroads. The relevance of scientific evaluation of the implications of certification in order to identify its impact on Ghana's forest management practices and timber export trade cannot be overemphasized. Such a study will provide recommendations for effective certification program in Ghana. Further, the study could also provide useful scientific information for further reform in policy and legislative frameworks, as well as in forest management systems. The study will, in addition, contribute to developing a sound system and methodology for assessing the overall impacts of certification in Ghana in the future.

This research identifies impediments to certifications and their implications for forest management and timber export trade in Ghana. Research results and recommendations are important if effective forest sector reforms and viable certification programs are to be developed and implemented in Ghana.

1.3 Research Objectives

The objectives of this research are therefore to:

1. Identify impediments to forest certification in Ghana
2. Assess if certification can influencing forest management practices in Ghana
3. Assess current forest management practices in Ghana
4. Assess whether certification and sustainable forest management buyer requirements affect Ghana's timber export trade.

CHAPTER 2: THE GHANAIAN ENVIRONMENT

2.1 Geography

Geographically, Ghana is located on the south-central coast of West Africa on Latitudes 4° 30' to 11° N and Longitudes 1° 10' E to 3° 15' W . The country's total land area is 23.9 million hectares including inland water bodies (Anonymous 2008). It has a total land boundary of 2,094 km and bordered by Togo (877 km) in the east, Cote d'Ivoire (668 km) in the west, Burkina Faso (549 km) in the north and the Atlantic coastline (539 km) in the south (World Fact book, 2008). Ecologically, the country is divided into a high-forest zone to the south-west, accounting for about a third of the land area (8 million hectares), a savanna zone (14.7 million hectares) mostly in the north, and a transition zone (1.1 million hectares) (ITTO, 2005).

The climate is tropical, warm, and comparatively dry along the southeast coast with high mean annual precipitation in the south-west and with an extremely hot and dry climate in the north of the country (World Fact book, 2008). Several important rivers abound in Ghana; the prominent ones include Tano, Ankobra, Pra, Oti, and Ofin rivers. Most of these rivers, important for fishing and boat travel, flow through the country. However, the single most important river in Ghana is the Volta with the world's largest manmade lake. The manmade Volta Lake extends from the Akosombo Dam in southern Ghana to the town of Yapei, 520 km to the north (Anonymous, 2008).

Major environmental concerns in Ghana such as wildfire pose serious threats to agriculture, forest and wildlife resources. Other major environmental threats include deforestation, land degradation, threats of desertification in the north, as well as solid and liquid waste management in the major cities.

2.2 Population

The population, according to the population and housing census figures of 2000, was 18.8 million according to the 2007 estimate, the population has grown to be 22.9 million (World Fact book, 2008). The Ghanaian population has 51% females and 49% males with a growth rate of 2.75% and a density of 79/km². The literacy rate in Ghana is 74.8% with males accounting for 82.7% and females 67.1%. According to the 2000 census, the population is made up of a labor force of 9 million people with the following distributions: agriculture and fishing, 60%; industry, 15%; and services, 25% (Anonymous, 2008).

Religiously, the population is made up of Christians, 69%; Traditionalists, 8.5%; Muslims, 15.6%; and others, 6.9%. The people of Ghana are mainly black Africans with major tribal groupings such as Akan, 49.1%; Mole-Dagomba, 16.5%; Ewe, 12.7%; Ga-Dangme, 8% ; and non-Ghanaians, 3.9% (Anonymous, 2008).

2.3 Economy

According to 2006 Ghana Poverty Reduction Program report, Ghana's inflation rate has been declining since 2003, falling from 23.6% to 10.6% in 2006. Actual growth rate at the end of 2006 was 6.2% (IMF, 2009). Ghana is an agrarian country with the agricultural sector employing about 55% of the labor force, making a major contribution to the economy. With an overall growth rate of 5.7%, the agricultural sector contributed 35.8% to the GDP in 2006 (Ghana Statistical Service, 2007).

In terms of trade, Europe continues to be the leading regional trading partner. Ghanaian exports to the European Commission and the USA accounts for 53% and 7% respectively, of total Ghanaian exports, whilst Africa accounts for 11% of total exports (Anonymous, 2008).

Economic activity in Ghana is highly dependent on natural resource exploitation, particularly mining and forestry (Anonymous, 2008). Besides agriculture, minerals, and

fisheries, forestry and wildlife represent a significant contribution to government revenues and an important source of livelihood to the majority of rural poor. However, according to Ghana Statistical Service (2007), the cost of environmental degradation is rising and this was estimated to have accounted for 6% of GDP in 2006 up from 5.5% in 2005.

The Ghana Living Standard Survey conducted in 2005-2006 (GLSS, 2005-2006) indicated an improvement in poverty in recent years. According to the report released by the Ghana Statistical Service, poverty indicators are showing a remarkable improvement. The report indicated that the proportion of Ghanaians described as poor in 2005/2006 stood at 28.5% falling from 1998/99 levels of 39.5% while the proportion of Ghanaians described as extremely poor reduced from 26.8% to 18.2% (Ghana Statistical Service, 2007). However, the survey indicated that the achievements in poverty reduction were concentrated in the forest region (both urban and rural). The report mentions that the Northern Savanna regions, classified as the poorest zones, appear to be lagging behind in the national poverty reduction program (Ghana Statistical Service, 2007).

CHAPTER 3: LITERATURE REVIEW

3.1 An Overview of the Forestry Sector of Ghana

The forestry sector in Ghana consists of government and private entities involved in administration, management, development, and utilization of forest and wildlife resources (MLF, 1996). Generally, the principal institutions in the forestry sector of Ghana comprise the state sector institutions, logging and wood processing companies, and forest-landowners. The Ministry of Lands and Natural Resources has the overall responsibility for forests. However, Blackett and Gardette (2008) noted that executive power vested in the Forestry Commission makes it responsible for policy coordination, forest management, and regulation of its utilization.

Ghana has established 266 forest reserves, 216 of which occupy 1,634,100 hectares in the high forest zone (MLF, 1996) (Figure 1). Based on the results of forest inventories in Ghana, forest reserves are classified according to their conditions (Ghartey, 1989).

- Permanent protection areas consisting of 353,000 hectares (22% of the total forest area)
- Timber production areas covering 762,000 hectares (47% of the total forest area)
- Convalescence (repeatedly logged areas that and require at least one rotation period to regenerate naturally) areas consisting of 122,000 hectares (7% of the total forest area)
- Conversion (areas under conversion into plantations) areas consisting of 397,000 hectares (24% of the total forest area)

ITTO (2005) observed that good management practices are executed in many of the forest reserves but for some of them, inadequate controls of the concessions have allowed over-cutting due to frequent re-entries and salvage permits. Besides the permanent protection areas where harvesting is not allowed, timber is generally harvested from outside forest reserve areas, the timber production areas, and the convalescence and conversion areas, a practice that causes fluctuations in size of the various categories.

In order to continue producing timber on a sustained basis noted in the forest inventories report of 1989, Ghana set an annual allowable cut (AAC) of 1 million cubic meters with 500,000 cubic meters each to be produced from both forest and outside forest reserves. According to Blackett and Gardette (2008), the AAC was increased in 2006 to 2 million cubic meters, due to log shortage with 1.5 million cubic meters to be supplied from outside forest reserves, while the forest reserve production remains at 500,000 cubic meters. However, demand for timber to feed the available mills far exceeds the AAC. This situation pushes an actual timber harvest to about two to five times the AAC, a situation with serious implications for certification and sustainable forest management. According to Birikorang (2001), the forest industry has been built on a high consumption of logs.

3.2 Forest Policies

Forest policy addresses the manner in which the forest resource is managed to serve the needs of people while meeting society's demand for the goods and services that forests can provide. This concern includes the non-material values that trees and forests provide (FAO, 1993). Brannlund (2004) noted that forest policy can be described and analyzed from many perspectives including juridical, political, and economic perspectives. According to FAO (1993), laws and regulations define incentives to promote compliance with policy objectives, assign enforcement responsibilities to one or more executive agencies, and define penalties for actions that are counterproductive to achieving policy objectives. Thus, both nature and society-centered policies and well enforced laws are necessary to bring a balance between conservation and resource use that is beneficial for nature and society.

3.2.1 Forest Policies in Ghana

Ghana's forest resources play an important role in the socio-economic development of the country. Timber is currently the fourth foreign exchange earner and has consistently provided about 12% of Ghana's foreign exchange earnings between 1990 and 2000 (Lebedys, 2004). This pre-supposes that policies, laws, and management practices that affect forest resources development and sustainability have profound implications for national development as well as the livelihoods of the majority of Ghanaians.

Ghana has had two formal government forest policy statements since the beginning of formal forestry: one formulated in 1946 and approved by the Governor in Council in 1948; and the second announced in 1994 as the Forest and Wildlife Policy (Kotey et al., 1998). The forest policies, the 1992 National Constitution, and the supporting legislation were formulated and adopted in an attempt to pursue a sustained supply and use of forest resources, mainly timber, from forest reserves designated for permanent forestry. Kotey, et al. (1998) reports that the area permanently protected is 1.77 million hectares, of which 1.634 million hectares is under the control of the Forestry Department (now Forest Services Division of the Forestry Commission), and 136,000 under the Wildlife Department (now Wildlife Division of the Forestry Commission).

Forest policies in Ghana tend to focus on timber production rather than sustainable forest management. In fact, the 1948 Forest Policy emphasized a sustained supply of timber for the wood industry, and therefore promoted excessive exploitation and use of timber outside the forest reserves. The situation implicitly created the impression of abundant timber resources, which ultimately contributed to the increasing growth in numbers of the timber industries in 1970s (Birikorang, 2001). The negative impacts of the growth of the timber industry and its associated increased timber extraction was aggravated by Ghana's adoption of the World

Bank/IMF-sponsored Structural Adjustment Program (SAP). The SAP was adopted with the hope of securing “accelerated” or “sustainable” economic growth and development (World Bank, 1981, 1989). The SAP objectives among others were to extract more natural resources, for export including timber, to revamp the country’s ailing economy. The World Bank structural Adjustment Program embarked upon by Ghana in 1983 contributed significantly to a rapid increase in timber exported from Ghana. In fact, this program unleashed widespread forest degradation and resource depletion through increased natural resources exploitation, a problem which the country still battles.

According to MLF (1996), efforts to improve the industry through the World Bank sponsored Economic Recovery Program may have enhanced the gross production of timber, but these efforts also aggravated an already high demand on the forest resource.

3.2.2 Forest Policies Implementations in Practice

The forestry sector in Ghana has experienced various impacts and pressures which threaten both the sustainability of timber and other forest resources, as well as the sector’s ability to contribute to the country’s socio-economic development and maintenance of the environment (MLF, 1996). The general perception in Ghana is that the pressure on the forest resources emanates from logging companies’ attitudes of mining the forest without considering sustainability. Others place the blame on weaknesses and inconsistencies in governmental laws and regulations.

Generally, Ghana’s forest policies and supporting laws and regulations tend to focus on management activities in forest reserves. Following this legal provision, Ghana’s forest management and timber harvesting regulations are biased towards forest reserves showing little or no regard for sustaining timber resources outside the reserves. The implications for this are that certification and sustainable forest resource management are only possible in the forest

reserves. However, the general perception in Ghana is that management practices have not been effective in achieving sustainable forest management, even within the reserves. Some of the reasons cited are poor management practices, illegal logging, and conversion of forest reserves into agricultural lands.

Forest reserves in Ghana in recent times have come under intense pressure resulting from over-exploitation. While a section of Ghanaians, including environmental NGOs, blame the state forest managers for their ineffectiveness, the latter refute this allegation claiming that weaknesses in the policies and laws complicate their application. Some international organizations, including the FAO, share this opinion. FAO (2005), reports that Ghana's forest-related policies, laws, and regulations are somewhat confusing and fines for violating the laws are low. The general consensus is that weaknesses and inconsistencies in the policies and the laws have also presented challenges to forest management in Ghana.

Amanor (2005), reports that with an increased pressure for the timber resources, the Forestry Commission sought to reduce pressure on the reserves by encouraging exploitation from farmland and the expansion of concessions into this area. According to Amanor (2005), this practice led to further increase in wood exports from outside forest reserves leading to about 80% of timber coming from the outside reserves in the 1980s and 1990s. This practice has been the bane of Ghana's forestry: frequent and ad-hoc changing of resource exploitation systems, lacking any long term policy on resource sustainability.

The excessive timber harvesting, coupled with a crisis in the forestry sector in the 1980s, underpinned the development of a new forest policy to replace the 1948 policy. The 1994 Forest and Wildlife policy has therefore been described by many Ghanaians as a policy meant to help address the forestry crisis. The policy in principle touches on a new emphasis: sustainable and collaborative forest management and communities' involvement, with specific guiding principles

and strategies on rights of access to forests by stakeholders. However, implementation of its intent has been more problematic than one would have imagined. According to Ghana's Ministry of Lands, Forestry and Mines, as cited by ITTO (2008), factors that have contributed to the unsustainable use of Ghana's forest are: a) weak institutional capacity to regulate and manage the forest resources, b) inadequate commitment of forest personnel, c) poor enforcement of forestry regulations due to resource gaps and d) ineffective implementation of policies and management prescriptions.

Currently, the main documents that guide Ghana's forestry are the 1994 Forest and Wildlife Policy, the 1996 Forestry Development Master Plan, the Timber Resources Management Act, 1997 (Act 547), its regulation (LI 1649), and the subsequent amendments. According to MLF (1996), the 1996 Forestry Development Master Plan serves as a basis for achieving the aims of the forest and wildlife policy. However, critics argue that the Forestry Development Master Plan, the 1994 policy, the subsequent laws and regulations, and the institutional reforms have not resolved the crisis. Translating the intentions on collaborative forestry and sustainable forest management into real forest management practices thus far is ineffective. In fact, the provisions of the policies and the laws themselves have not been adequately implemented. Difficulties in the implementation of forestry laws in Ghana are mainly due to inadequate resources for the Forestry Commission. A lack of resources, coupled with insufficient consultations with stakeholders during formulation, review, and passages of forestry laws by parliament present the underlying cause (Attah, per. Comm. 2009).

Donkor (2003), reports that after approval of the forest and wildlife policy in late 1994, government agencies continued to perform strategies that were already in place in the form of interim measures. Perhaps a continuous use of interim measures outside the provisions of the

policies and laws influenced and continue to influence forest management, rather than the policies themselves.

3.3 Forest Management, Timber Production, and Related Trade

In Ghana, forest resources are owned by Stools and Skins (landowning communities) but are held in trust and managed by government. The Forestry Commission (FC) is the state institution with the statutory responsibility to manage forests in order to sustain their environmental and socio-economic benefits. The Commission shall be responsible for the regulation of the utilization of forest and wildlife resources, the conservation and management of those resources and the co-ordination of policies related to them [(Forestry Commission Act, 1999, Act 571, Section 2 (1)]. It is expected to achieve these broad functions through three main divisions under the Commission. These are the Forest Services Division (responsible for the management, development and utilization of forest resources), the Wildlife Division (responsible for conservation, management and protection of wildlife reserves), and the Timber Industry Development Division (responsible for timber trade and industry development). In essence, the FSD is responsible for delimiting areas to which timber may be harvested, and within those areas, establish a sustainable yield which is allocated to the companies. In addition, the FSD is to control the way in which harvesting and extraction are conducted in order to minimize the environmental and social impacts of such operations.

3.3.1 Forest Management Practices

In Ghana, the methods to be followed in forest management operations are delineated in the Manual of Procedures (MoPs) for each part of the operation. There are six manuals providing guidelines on strategic planning, operational planning, sustainable timber production in a reserve forest, and controlled timber production outside forest reserves. The manuals on timber production reinforce the government's commitment to ensuring sustainable timber production

within the boundaries of forest reserves while liquidating timber outside reserve forests before they are destroyed for other land-use options.

However, the FSD is under-resourced and lacks the requisite human and material resources to perform all the tasks and field requirements set out in the MoPs to meet sustainability and certification requirements in the management of the forest reserves. Subsequently, most forest reserves that are expected to be managed sustainably have no management plans; and there are virtually no effective systems to ensure that all of the information on which forest management decisions are based is accurate. No adequate monitoring of logging operations exists to ensure that logging companies adhere to the MoPs. Subsequently, good logging practices have been the exception in Ghana, rather than the rule. According to SmartWood (2006), practical operations do not conform to requirements of field maps in terms of road construction. ProForest (2004), also noted that there are no controls that assure that the yield regulation system of the FSD is being applied properly. According ProForest certification pre-assessment report, more than 700 timber trees had been granted in a compartment not supposed to have a yield of more than 600 trees had FSD rules and regulations been strictly followed. Perhaps the government in order to relieve the FSD from overstretching its meager resources over forest reserve management would be to transfer management and operational functions to the logging companies, with the FSD monitoring and regulating the operations.

In Ghana, forest management has been highly biased on timber production, with few silvicultural or management interventions. Yield selection, control, and regulation have been the main pre-occupation of the state institutions responsible for forest management. Despite detailed procedures for on-reserve yield selection, the available data strongly indicate that prime, most valuable species are being over-exploited. The over-exploitation of primary species compounds

the problems of inadequate management of the forest resources and altogether hinders any progress in certification and sustainable forest management.

Besides structural degradation of the reserve forests, a prominent impact of poor management practices, inadequate monitoring and control, illegal logging, and over-exploitation is the gradual shift of species composition of most forest reserves towards the lesser used species (LUS) that are usually not a preferred choice by legal or illegal loggers. Whereas most of the prime species are being harvested to more than 200% of their sustainable levels, LUS are being harvested far below their sustainable harvesting levels.

Vlosky and Anguirre (2001) indicated that utilization of LUS could help reduce harvesting pressure on the diminishing primary species, while at the same time contributing to the enhancement of economic opportunities for rural communities that depend not only on the forest but also are partners in forest management. Certified LUS have more market acceptability than uncertified ones. Perhaps the companies and forest managers in Ghana could use certification to partly address this problem of gradual preponderance of LUS in most forest reserves. Figure 2 provides indicative felling limits, average production, and average export levels in volumes (cubic meters) in 2007 of eight of the LUS commonly found in Ghanaian forests.

Currently, forest sector agencies are responsible for policies and laws formulations, enforce compliance, manage and regulate the resources and monitor timber companies harvesting operations. These practices not only make them inefficient, but also create serious conflicts of interest that must be resolved. Perhaps, one way to resolve would be for government to transfer management responsibilities to the companies with sustainable forest management and certification requirements included in the concession/TUC agreements. This would allow the

government to effectively monitor the performance against the certification and sustainable forest management requirements.

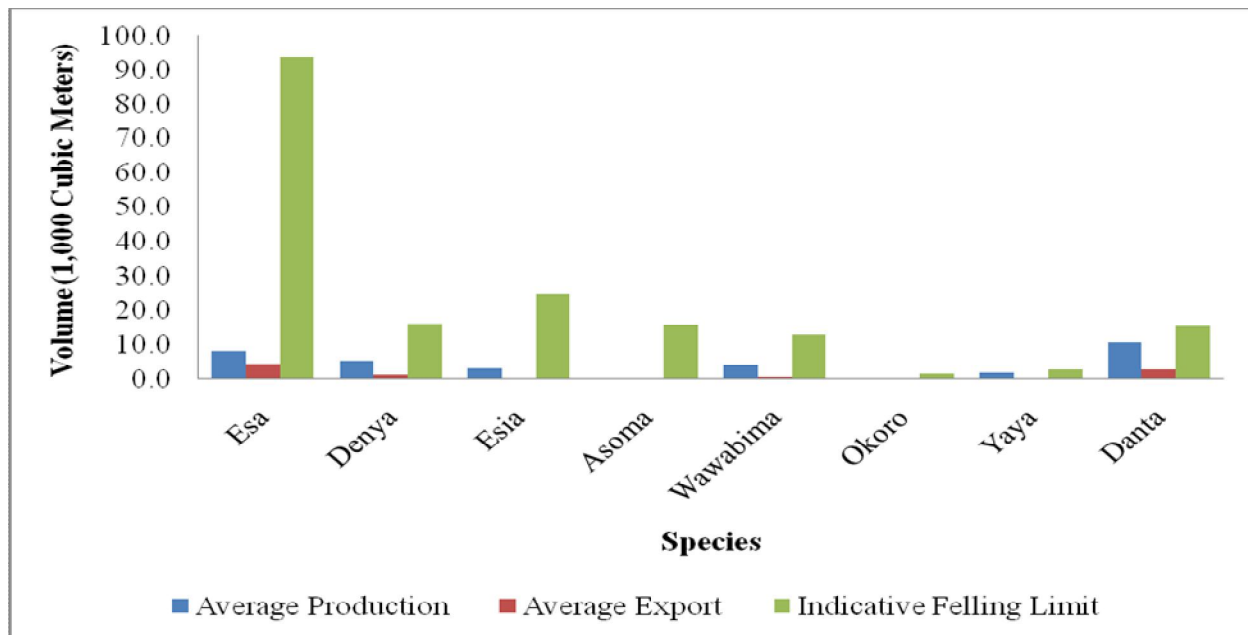


Figure 2: Average Production, Export and Allowable Felling Limits of Eight LUS in Ghana
Source: TIDD, Takoradi, Ghana

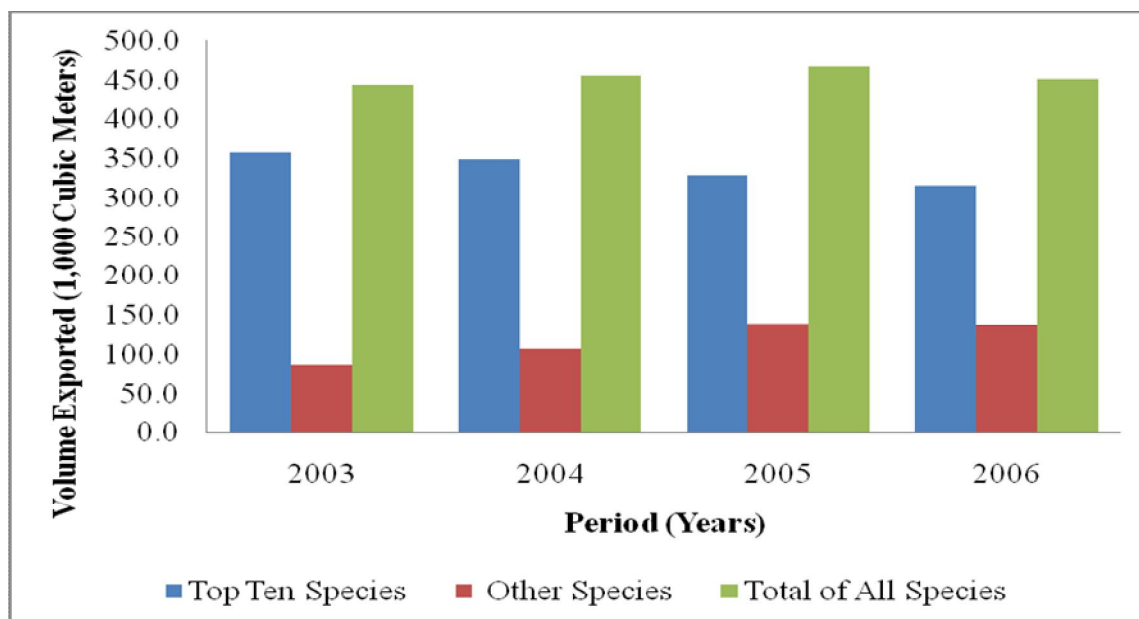


Figure 3: Volume of Wood Product Export from Top Ten and all Other Timber Species in Ghana (2003-2006)
Source: TIDD, Takoradi, Ghana

In developing countries such as Ghana with weak governance systems and structures, a government acting simultaneously as forest policy and laws formulator, manager of the resource, laws enforcer and regulator create fertile ground for malpractice and corruption. The end result of government's performing multiple functions amidst a) inadequate resources, b) weak staff remunerations, c) lack of competencies and, d) widespread corruption could be that forestry practices would fall short of certification and sustainability requirements.

3.3.2 Timber Production and Export Trade

Ingram (1998) noted that although a number of factors affect timber export trade, the general perception is that the decision of a producer to certify forests would be influenced by the level of industrial wood production and the proportion traded internationally. International trade therefore tends to have much influence on a particular firm's decisions whether or not to adopt certification. Generally, Ghanaian companies' commitments to certification were largely shaped by their desire to maintain their traditional buyers in the European market, which is increasingly becoming environmentally sensitive to the wood products trade.

All indications point to the fact that Ghana's timber production and related trade have peaked. The forests continue to decline both in size and quality, and with its potential for supplying quality timber also decreasing. Recently, the government and the timber industry have come under intense pressure from the international community and the Ghanaian civil society to be more effective and efficient in forest management and elimination of illegal logging. However, what underpins this pressure from within and outside Ghana are concerns over several issues that negatively impact the forests of Ghana and its trade in forest products, particularly timber. The government has adopted several measures to address the problems most of which have been ineffective. As a strategy for encouraging downstream domestic processing and reducing excessive timber exploitation from dwindling forest resources, Ghana put a ban on the

export of round logs in 1995. In order to maintain business, large numbers of log exporters became millers, as a result of the ban on the log export. The resultant effect of this was the increase in industry capacity from 2.5 million cubic meters in 1999 to 5.1 million cubic meters in the same year (Birikorang, 2001). Although the log export ban has contributed to job creation in Ghana due to promotion of downstream processing, it is amply clear that it failed to achieve its primary objective of reducing pressure on the forest resource base by reducing over-harvesting of timber. According to Birikorang (2001), the log export ban created inefficiency in the wood processing industry and led to low domestic price of logs which is an indicator of the increasing protection for domestic processors. Unfortunately, these problems created by the log export ban have not been resolved even as at today. Even with fast dwindling forest resource base, the processing activities in Ghana continue to be wasteful.

Ghana earned an average of Euro170 million from the export of 451,608 cubic meters of wood in 2006 as against Euro184 million from the sale of 466,155 cubic meters in 2005. Ghana's timber exports appear to have a wide destination scope in recent times, exporting timber to Europe, America, Australia and Asian countries. However, Europe has consistently been Ghana's major market in terms of value accounting for 47 % of 2006 exports down by 11% from 2003 exports to Europe (TIDD, 2007). Within the last five years, there has been a steady decline of wood exports to Europe both in terms of volume and value (Figure 4). While export to Europe is declining, that of Asia and African sub-regions was increasing with that of America being unstable. The decline in exports of wood products to Europe could be attributable to the fast growing environmental or other requirements in the European markets. Ghana's timber exports to main European destinations such as Germany and Spain has fallen drastically since 1995. For example Ghana's export to Germany has fallen from 35% in 1995 to 15% as at 2004 (TIDD, 1995, 2004). Overall, wood products exports to Europe in 2007 was 6.87 % lower in volume)

and 4.86 lower (in value) from the 2006 levels until export rose in 2008. Within the same period, wood products exports to Asia and Africa regions increased by 8.13% and 1.12% in volume for Asia and Africa, respectively. In terms of value, Asia recorded a 4.3% increase while Africa jumped marginally by 2.11% (TIDD, 2007). The decline in wood products exports between 2000 and 2007 is within the environmentally sensitive destinations, with the decline coinciding within the same periods that countries demanded environmental requirements. However, a firm conclusion could not be made until further research was conducted to ascertain the underlying cause since other factors such as demand and price increase in Asian and African markets could also cause this shift. Blackett and Gardette (2008) reported that increasing exports to India and China are causing a higher volume of export to Asia, and that the sharp increase in export volumes in 2007 is the result of increase in wood products export to Asia.

3.3.3 Ghana Timber Export Trade Trends

Large-scale timber exploitation has been controlled from the pre-independence era. The control comes through the allocation by the state of harvesting rights for a defined forest area, for a specified period of time to a logging company. These harvesting rights allow the loggers to harvest, process, and market the timber under a regulatory regime controlled by state forestry institutions (Neil et al., 2006). Ghana exported a total volume of 5,630,490.1 M³ of timber with total earnings of US\$ 2,389,360,073.00 over a period of 12 years (1997 to 2008) (TIDD Export Statistics, 1997-2008). This represents an average annual export volume of 469,207.5 M³ and a monetary value of US\$ 199,113,339.40. Looking at the export trade trend in terms of volumes of timber exported, there appears to be fluctuations of volumes of wood exported from 1997 until 2000, when it peaked the first time, with the second peak in 2007 and the third in 2008.

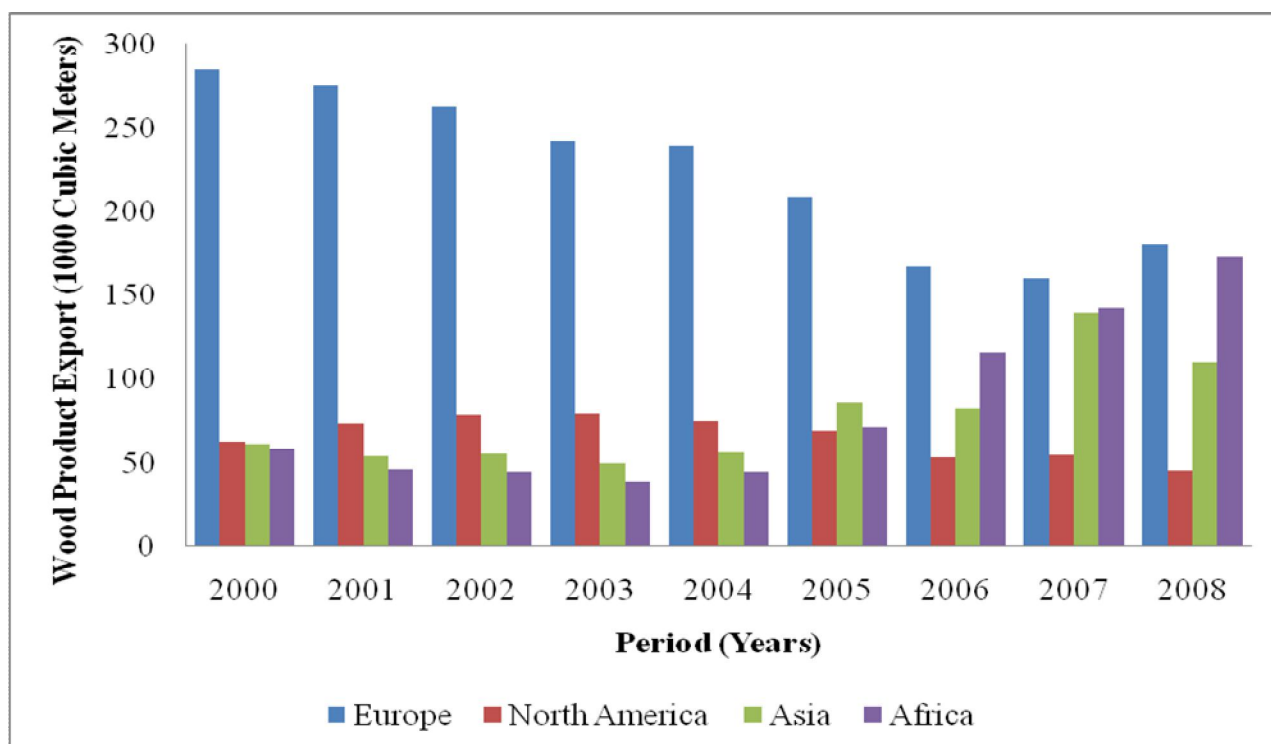


Figure 4: Wood Product Export (Volumes) from Ghana to Major Market Destinations: Europe, North America, Asia and Africa (2000-2008)

Source: TIDD, Takoradi, Ghana.

There was then a consistent decline of volume exported until 2004, when the volume of wood products export started rising again with a marginal drop in 2006. Presented in Figures 5 and 6 are the changes in volume and value of timber exported from Ghana between 1997 and 2008. In terms of value, the lowest value was recorded in 2001, though that same year recorded the fourth highest export volume over the twelve year period.

3.4 Forest Certification

3.4.1 The Concept of Certification

Forest certification has simply been described as a means of confirming that a particular forest and its management practices conform to a given standard. The process of certification entails using objective evidence to assess the quality of forest management by verifying that the requirements of the standards are met (Nussbaum & Simula, 2006).

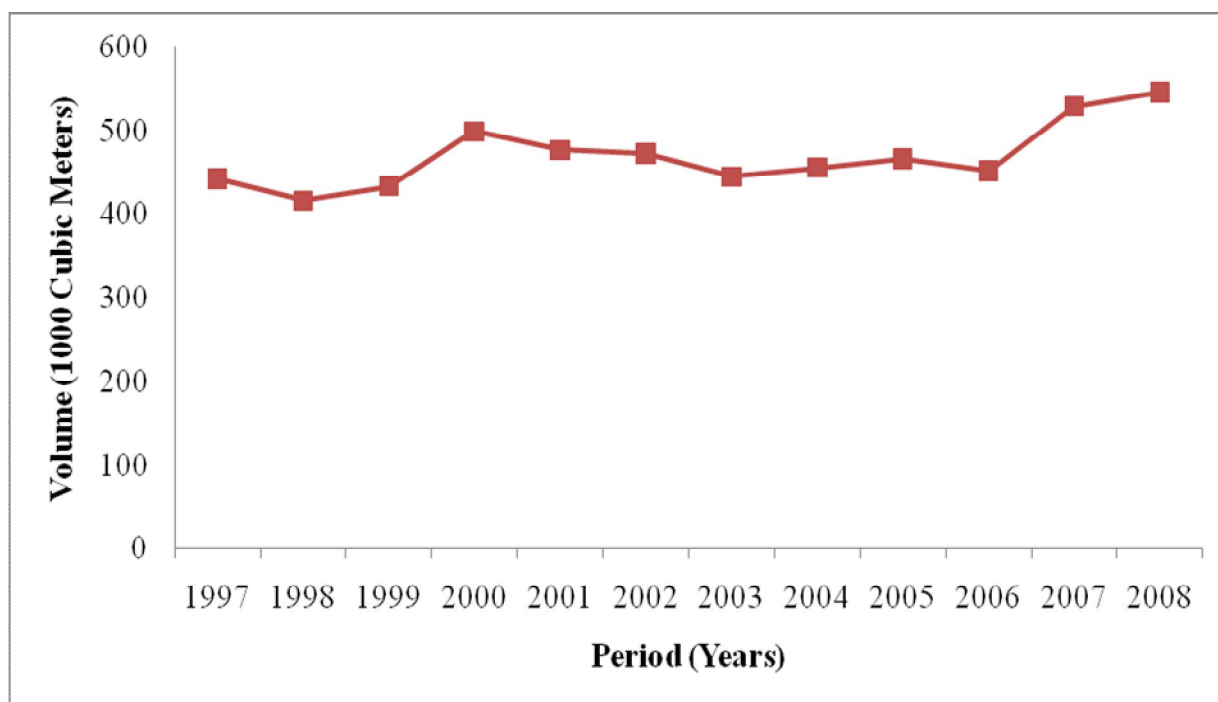


Figure 5: Volume (Cubic Meters) of Timber Exports from Ghana (1997-2008)
Source: TIDD, Takoradi, Ghana

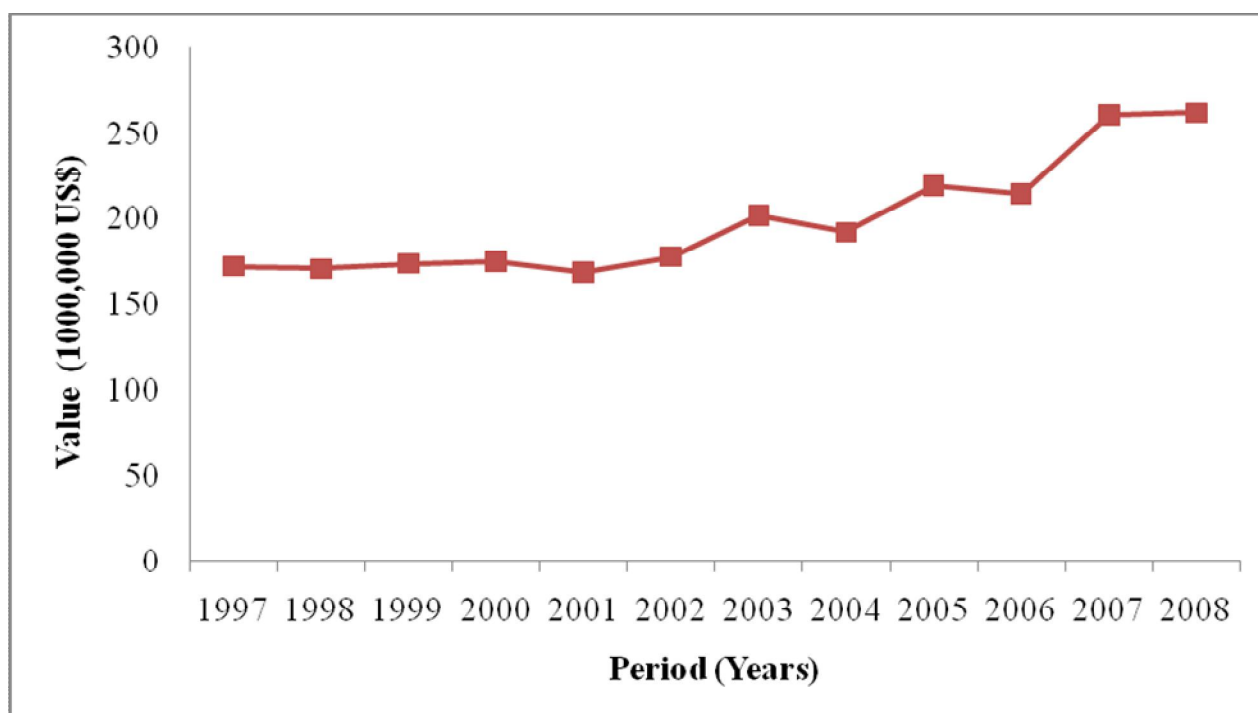


Figure 6: Value (US\$) of Timber Exports from Ghana (1997-2006)
Source: TIDD, Takoradi, Ghana.

It is a market-based instrument and provides assurance to retailers and consumers of the source of the wood they purchase. It is used as a tool to help consumers choose ethical and environmental products from well-managed forests (FERN, 2001). The concept was originally designed and promoted as a market-based tool to encourage sustainable forest management in forest endowed countries selling forest products to a sensitive marketplace (Segura, 2004).

Although a number of global, regional, and national certification schemes have emerged and continue to emerge, ITTO (2008) noted that there are two globally competing certification schemes with different operational modalities. These are the Forest Stewardship Council (FSC) and the Program for Endorsement of Certification Schemes (PEFC) with certified forests in various regions across the globe. An important difference between the two schemes is that:

- the FSC provides all the needed elements of forest management and chain of custody certification through centralized decision-making on standards and accreditation
- the PEFC operates a system for mutual recognition between national certification systems that are developed in various countries (ITTO, 2008).

Additionally, the ITTO has also developed principles and criteria for sustainable forest management which is being applied by governments of ITTO member countries, including Ghana. The FSC and PEFC schemes are currently operational in Africa.

Globally, forest certification is expanding rapidly. In January 2002, the area of certified forest was estimated to be 109 million hectares (Atyi & Simula, 2002). Globally, certified forests covered 306.3 million hectares as of June 2007, reaching a level that more than doubled that of 2002. Auld et al. (2008)) also noted that in 2006, a total of 370 million cubic meters of industrial round wood (23% of the world's annual production) was produced from both FSC and PEFC certified sources. However, this figure rose to 385 million cubic meters (24% of annual round wood production) in 2007. However, 84% of certified areas are known to be located in North

America and Europe, with developing countries accounting for just 7% of the world total (ITTO, 2008). There appears to be reasons for developing countries' low progress in certification, which must be identified and resolved to enhance the progress of certification in developing tropical countries. A number of reasons are noted in recent times as key impediments to certification in tropical countries. Prominent ones revolve mainly around weak governance and legislative framework, political will and lack of skills and good management systems at national levels. However, Maia and Laaksonen (2006) identified a number of direct and indirect barriers to certification. The direct barriers were identified to include:

- Land ownership and/or tenure rights.
- Legislation and policies
- Governance
- Institutional environment, and
- Costs of forest certification.

The indirect barriers were identified to include:

- National value of forests
- International influence and initiatives
- Political wills
- Consumer buy-in; and
- Small-scale forest operations.

Most of these barriers have also been identified as prevalent in countries where forest managers and companies have difficulties achieving certification. Although the barriers seem to be common across most tropical countries, Maia and Laaksonen cautioned that these barriers to certification of tropical forests should be analyzed on both a case-by-case basis and on a national

level. According to ITTO (2008), annual growth rate of certified forest in ITTO producer member countries is about 10-20%.

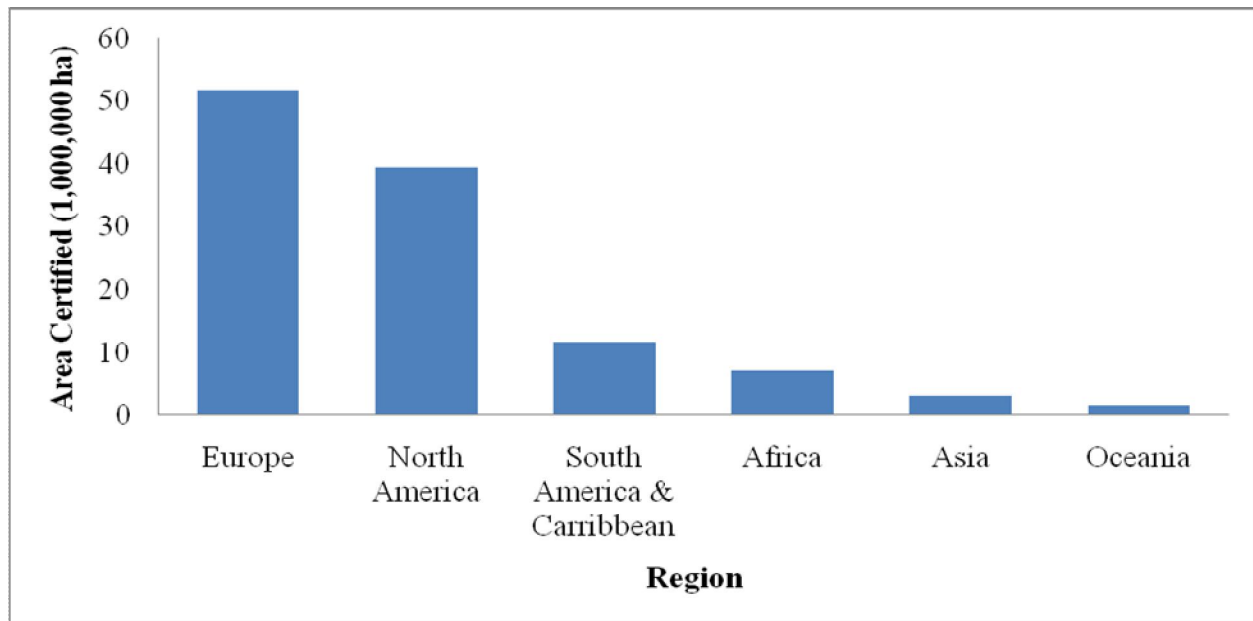


Figure 7: Forest Areas Certified by the FSC by Regions as at June 2009
Source: FSC

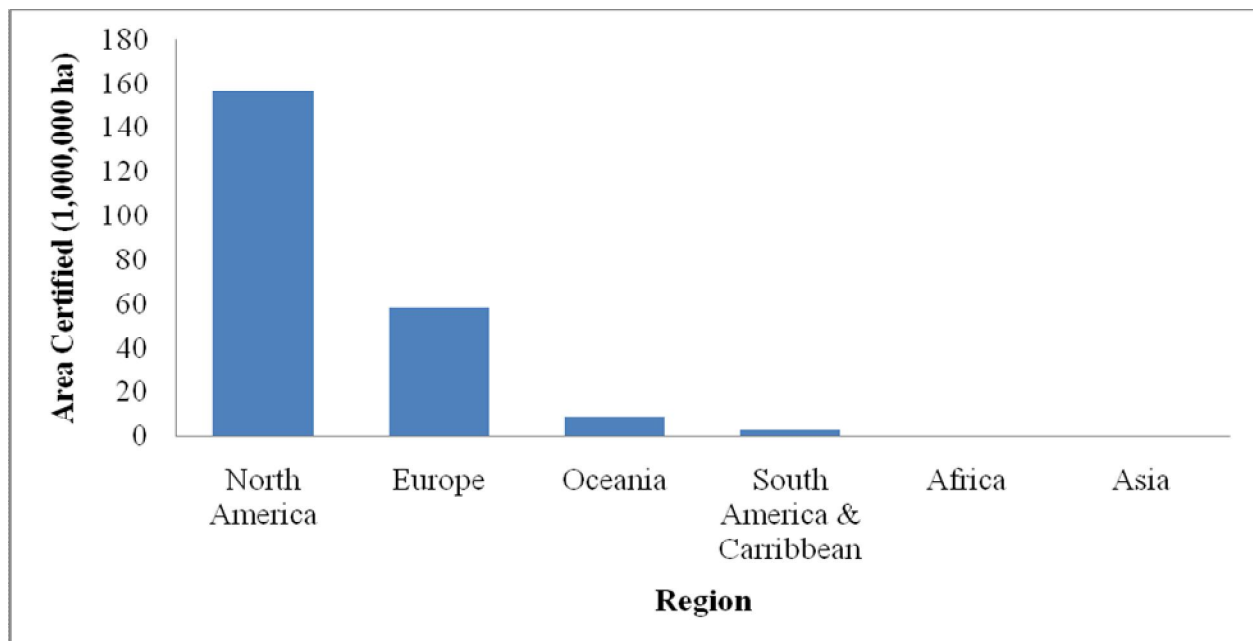


Figure 8: Forest Areas Certified by the PEFC by Regions as at July 2009
Source: PEFC.

3.4.2 Requirements of Certification and Sustainable Forest Management

Although there are differences, the requirements of various certification schemes are all geared towards improving forest management and sustainability. The intention of this part of the research is not to identify the requirements or elements of various certification schemes but to identify common elements that need to be met in order for progress to be made towards any credible certification scheme or sustainable forestry. In an attempt to do this, the paper takes cognizance of many international, regional and national initiatives on the development of standards for sustainable management of different types of forests.

According to FAO (2005), it is difficult to define what sustainable forest management is.

However, several recent international meetings have suggested that the following seven thematic elements constitute the key components:

- Extent of forest resources
- Biological diversity
- Forest health and vitality
- Productive functions of forest resources
- Protective functions of forest resources
- Socio-economic functions, and
- Legal, policy and institutional framework.

In evaluating the impacts of certification on Ghana's forest management practices, these globally acceptable elements were used as the core ingredients around which survey and data collection evolved.

3.4.3 Cost of Certification

Adoption and implementation of certification entails additional costs which could be classified into direct and indirect costs. Butterfield et al. (2005) identified the direct costs of an

FSC certification to be the costs of an initial assessment, annual audits, and assessments every five years. Indirect costs of certification can be high, with wide variations depending on the quality of forest management prior to the adoption of certification. The indirect costs arise from changes that are required in forest management to bring the existing management practice into compliance with FSC certification requirements. Butterfield et al. (2005) identified these changes as lack of forest management plan, monitoring of yields and regeneration rates, inventories of rare and endangered species, and assessment of environmental impacts from forest operations. The indirect cost of certification has, in most cases, proven to be expensive, especially for small forest owners and in countries where existing forest management practices were poor prior to the adoption of certification. However, proponents of forest certification argue that such additional costs of achieving certification may be offset by price premium. However, Fischer et al. (2005), indicated that despite consumer willingness to pay more for products from environmentally sound sources, little empirical support is available to substantiate the belief that certified suppliers of forest products reap higher prices.

3.4.4 Benefits of Certification

The most direct and important benefit of FSC certification was observed in environmental improvement (Hain & Ahas, 2007). According to Butterfield et al. (2005), improved forest management practices that enhance long term sustainability, and at the same time protect endangered species and their habitats; hold the greatest potential benefits of forest certification for all stakeholders. However, the direct benefits of certification may differ from one country or company to another depending on what must be done to bring forest management practices to the level required by certification standards. The specific direct benefits may include a) better professional image, b) better environmental management systems, c) access to more markets previously not accessible to producers, d) improved worker safety and training, e) better

record-keeping, and f) efficient logging practices, which reduce logging costs and encourage higher morale among forest managers.

3.4.5 Adoption and Implementation of Certification

As of June 2007, the total forest area certified globally by all certification schemes, was 306.3 million hectares, while the total Chain of Custody certificates issued stood at 9,100. The total number of Chain of Custody certificates for PEFC and FSC, as of July 2008, stood at 15,269, showing an increase of about 68% over a twelve month period. According to ITTO (2008), the figure for certified forest areas was more than double the level in 2002. This trend suggests that certification is increasingly gaining grounds with global forest management and trade in timber and its products.

Ghana, as a tropical timber producer, became increasingly aware of the major steps being taken by most of her trading partners, particularly the European Commission and the implications of discrimination against timber from “uncertified or unsustainable sources.” In 1995, the Ministry of Lands and Forestry began a serious analysis of forest certification and eco-labeling, and came to the conclusion that the government must play an active role in determining what should be done (Kotey et al., 1998). Ghana had already shown commitment at least in principle, to sustainable forest management requirements, and hence adopting forest certification was in agreement with this principle, thus reinforcing its commitment to meeting ITTO objectives.

A forest certification process started in Ghana in 1996. The certification initiative aimed to improve forest management and accountability, and to produce quality wood products that would be acceptable in environmentally sensitive markets in Europe (Neil et al., 2006). In order to ensure that key stakeholders’ views were solicited before a major decision was made on forest certification, the Ministry of Lands, Forestry, and Mines organized a national workshop in June

1996, with participation by wide ranging stakeholders' groups to deliberate on the implications of Ghana's adopting certification. Participants at this two-day national workshop agreed that forest certification is an important tool that could help Ghana improve its forest management practices and, more importantly as marketing tool, could help Ghana maintain a market share of the international timber trade. A major consideration that underpinned stakeholders' acceptance was that it could help Ghana access new international markets, or at least maintain its existing international timber market share.

A national process, led by government to define certification standards commenced in January 1997. By June 2000, a final draft standard was produced. The government's interest and commitments at the onset contributed in sustaining the momentum of certification process. However, one major shortfall in the government-led certification process was the preponderance of government representation over the working group, making the process loses the expected balance of stakeholder participation. Currently, a functional national working group is in place and has succeeded in raising awareness on certification and revising the national draft standards to align with FSC principles and criteria by means of a consultative process and with FSC requirements. The working group has currently submitted the national draft standards and relevant documentations to FSC for accreditation.

3.4.6 Forest Certification Initiatives in Ghana

According to ITTO (2008), wood products subject to certification requirements are sawn timber, veneer, plywood, and garden furniture. Coincidentally, these are the products that are mostly exported by Ghanaian producers. This makes certification a critical requirement for Ghanaian companies exporting to environmentally sensitive markets. Subsequently, a number of timber exporting companies in early 2000 begun the process of having their concessions certified. Notable among them are Samartex Timber & Plywood Company, John Bitar &

Company Limited, and SKOD Timbers. However, little progress was made under these individual efforts, because of limited understanding of the requirements of certification, as well as policy and legislative barriers. To help address this knowledge and capacity gap, WWF set up a Forest and Trade Network (FTN), formerly called Producers Group Initiative in Ghana.

ITTO (2008) noted that the Producers Group Initiative (PGI), Ghana, was established under the Global Forest and Trade Network, which is supported by the World Wide Fund for Nature (WWF), targeting the FSC scheme for participating companies. In Ghana, seven integrated companies, including Samartex Timber & Plywood, John Bitar & Company Limited, Logs & Lumber Limited, Ghana Primewood, Scanstyle Mim Limited, Coppon Wood Processing Limited, and Ayum Forest Products are participating in the program. The support provided includes training and capacity building on management planning, Reduced Impact Logging (RIL), High Conservation Value (HCV) assessment and management, as well as arranging periodic third-party audits for the participating companies. However, none of these large to medium companies have achieved forest management certification, besides Controlled Wood and Chain of Custody certifications by one of the participating companies. Baffoe (2006) noted that these companies are important in Ghanaian timber exports, altogether accounting for an export volume of about 40% and a value of about 48% of the total timber exports from Ghana.

A second certification initiative involving small and medium timber companies in Ghana is the Kumasi Wood Cluster (KWC). Adu (2008) indicated that the objective for setting up the KWC is to build small and medium sized companies' capacity to enable them to meet international timber market requirements, including contract specifications, quantities, qualities, and requirements of certification under a group scheme. ITTO (2008) noted that the Kumasi Wood Cluster, involving six participating companies were offered assistance to achieve certification to enable them to trade certified wood products in the EU market.

3.4.7 Implications of Certification for Forest Policies in Ghana

Forest policy and legal compliance is a baseline and key component of all forest certification standards. A good forest policy and laws with all the elements of sustainable forest management marks the beginning of the journey toward sustainable forestry. However, policies and laws themselves are not adequate without effective implementation of their intent. According to Higman et al. (2005), policy tools and instruments are often referred to as *hard* or *soft*. Hard policy instruments are those which force implementation, such as regulations or fines. Soft policy instruments are those which encourage implementation, such as incentives, voluntary approaches, and market mechanisms. Most governments of tropical forest producing countries, as a result of international pressures and demands for accountability, good forest stewardship and social justice, began to review forest policies, the institutional and inclusive of regulatory framework for improving forest governance and management practices. Whereas some governments have advanced in translating revised policies into practical management, making improvement in management practice, many more have difficulties connecting forest policies and legislative framework with management systems. Segura (2004) noted that in recent times external pressures, coupled with self realization by governments of the many limitations of public institutions to assume forest management, shifted the governmental role toward the essential functions of regulations, technical assistance, and conflict resolution mediations.

In Ghana, the government has been and continues to be a principal player in forest management, in addition to orchestrating the policy formulation, regulation and monitoring functions. In an attempt to achieve sustainable forest management, the government has resorted to several interventions, including policy overhauls and regulatory frameworks. However, the intention of these interventions is yet to be achieved at the forest management level. On the policy front, the two formal forest policies of Ghana support, at the least sustainable management

of forest reserves. Government officials and some international organizations hold the view that Ghana's forest reserves have survived, mainly due to good government policies and laws. According to ITTO (2005), Ghana's policy has been implemented most effectively within the forest reserves; however, off-reserve forests are often unregulated and over- or illegally harvested. In fact, many Ghanaians have dissenting views and argue that the failure of government to enforce and implement forest policies and the corresponding legislative framework have largely contributed to conversion of natural forest reserves into other land-uses, including mining and tree plantations.

This study assesses the current forest policy and the institutional framework supports for certification in Ghana since its adoption over a decade ago. The government as the policymaker and key manager of forest resources has not extended its oversight beyond adoption of certification in order to promote or test its own policies and laws against forest management standard indicators. Testing the compatibility or otherwise of the forest policy and laws could be the beginning of governmental commitment towards reforms aimed at meeting certification and sustainability requirements. Given that government is the principal forest manager in Ghana, its commitment or otherwise has implications for the success or failure of certification. A critical importance of certification that must be analyzed is that although it has limitations, certification carries the potential to encourage forest law compliance. This is particularly relevant in countries such as Ghana, where legal enforcement capacities are weak.

Depending on the progress that governments achieve toward incorporation of sustainable forest management elements through policies and regulations, certification has a role in implementing existing forest policies (Segura, 2004). Given that law enforcement and compliance levels are weak in Ghana, government might use certification as a complementary tool to stimulate law enforcement by offering incentives to those companies that achieve or make

progress towards gaining certification. When international pressure for timber from legal and sustainable sources is coupled with the generated momentum for Ghana in certification, government may achieve its objectives by using a certification-friendly policy and legal framework as a means for promoting Ghana's forest management objectives. Such objectives are inclusive of the Voluntary Partnership Agreement and the requirements of ITTO; in which Ghana has a membership.

3.4.8 Impacts of Certification Requirements on Forest Management

The current evidence on the impact of certification can mainly be derived from individual case studies on certified forests, found where national processes to develop certification standards and processes have been active in certain countries. This evidence, supported by expert opinions, suggests that by and large the impacts have been positive and in many cases significant (Nussbaum and Simula, 2004). The impacts of certification could be placed in two main categories: the field impacts and potential impacts. However, this research will focus on the field impacts.

Given that certification has been active in Ghana during the last decade, but lacking certified forests, assessment of the impact of certification requirements on practical forest management is important in order for decisions to be made on forest policy and management reviews. Looking at the impact of certification requirements on forest management, five key aspects of forest management are developed. In this process, FAOs thematic areas of sustainable forest management are considered at the management unit level. This means that the overall impact of certification on forest management at the national level might be broader than using the elements at forest management level. The considered areas are as follows:

- forest management planning, including the plans and their implementation

- monitoring of forest management practices, inclusive of documentation and feeding of monitored results into management practices
- adoption of scientific methods of forestry to improve conservation and management strategies (for example, use of permanent sample plots); and
- adoption of reduce impact logging.

In tropical countries and other regions where certification has been achieved, forest concessions previously certified show better-than-average forest management practices before certification commenced in those places (Simula & Atyi, 2002). Based on this statement, one might argue that Ghana has not achieved certification after several years of adoption, due to forest management practices being far below average prior to adoption of certification. However, until scientific assessment is conducted, such a generalization may not hold for Ghana.

3.4.9 Effects of Certification on Timber Export Trade

Forest certification is one of the most contentious issues in international forest policy, since it is a trade-related instrument. As such, certification carries a potential for influencing the competitiveness of tropical timber-producing countries and their access to international timber market (ITTO, 2008).

Notably, the forest industry in Europe, inclusive of forest owners and retailers, has been in the forefront of certification since its early development. Key importing countries including Germany and the United Kingdom, have active groups of companies demanding a supply of certified wood products (Karna et al., 2003). European and American markets are increasingly more sensitive to the sources and legality of timber they consume. Reflecting this view, tropical timber-producing countries, tagged as high risk countries in terms of timber legality, are exporting exponentially to the Asian and Far East markets, where legality and certification requirements are weak. The current trends in Ghana's timber exports tend to follow suit.

Simula (2006) observed that timber and its products designated for federal projects in Germany were obliged to demonstrate that the timber originated from legal and sustainable source; bidders must provide FSC, PEFC, or a comparable proof or equal demonstration. Information from the UK market also suggests that the government procurement policy is applied strictly to the timber supply for central government departments. This demand makes it increasingly difficult to supply non-certified products for government departments (Forest Industries Intelligence, 2006).

However, ITTO (2006) reported that due to the increased demand from Asia, West African log prices remained firm; falling prices from the European market made that market less important for African exporters. It is apparent from these observations that the underlying causes of the recent timber export trends in Ghana were not established. Nussbaum and Simula (2004) indicated that certification impact in regard to buying behavior is generally observed in business-to-business trade. Therefore, a survey will be conducted on Ghanaian logging companies, timber producers, and exporters to identify the main causes of recent timber export trade trends. Particularly, the question is whether certification buyer requirements have affected timber export trade in recent times. The survey will be conducted on five major buyer requirements that may individually or in combination account for changes in export trade trends. These requirements are:

- Punctuality in product delivery
- Product quality
- Consistent supply
- Product pricing; and
- Certification and sustainability requirements.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Sample Frames

The samples for the study were Ghanaian forest policymakers, logging companies, wood product processors/exporters, and wood product importers from Ghana.

4.1.1 Policymakers

For the purpose of this study, policymakers are limited to forest policymakers including members of the Parliamentary Select Committee on Lands and Natural Resources, directors of the Ministry of Lands & Natural Resources, the Forest Research Institute of Ghana (FORIG) and directors and managers of the Forestry Commission of Ghana. The original database of the policymakers was obtained from the Forestry Commission registry, the Ministry of Lands & Natural Resources and the parliamentary house of Ghana. All of the listed 85 persons, identified as decision-makers for the major state forest sector institutions, were included in the sample frame of the policymakers.

4.1.2 Logging Companies

For this research, logging companies refer to companies who have concessions in Ghana, yet have no processing plant to process logs from their concessions; thus companies belong to the Ghana Timber Association (GTA). The original data base of the logging companies in Ghana was obtained from the GTA and cross-checked with similar data, obtained from the Ghana Forest Services Division of the Forestry Commission. According to the GTA, although more than 1000 loggers are registered with the association, only 120 were active timber loggers as at May 2008. Of the 120 active loggers, the top 80, based on 2008 concession holdings and size were included in this sample frame.

4.1.3 Wood Products Processors/Exporters

Wood product processors/exporters for this study are those companies who may or may not have concessions, but do have processing plants to manufacture wood products for export trade. Data obtained from the Ghana Timber Industry Development Division of the Forestry Commission wood products export report (2007) showed that there were 251 wood products processors and exporters in Ghana in 2007. The top 80 of the listed companies, based on volumes and values of wood products produced and exported in 2007, were used as the sample frame for the wood products processors/exporters.

4.1.4 Ghanaian Wood Importers

The original data base of wood importers from Ghana was obtained from the Ghana Timber Industry Development Division of the Forestry Commission and was cross-checked with similar data obtained from the wood product exporting companies. The top 50 companies based on volumes of wood products imported from Ghana in 2008, were used as the sample frame for this target group.

4.2 Data Collection Methods

A mail survey was the primary data collection method used for surveying the four main groups of respondents for this study. A mail survey approach was selected because it is the most cost-effective method for surveying over a wide geographic area (Zahs & Baker, 2007).

The questionnaire used contained both scale and fixed response questions. The scale questions were used to assess a respondent's understanding or belief in major concepts. The scale questions were mainly five (5)-point scaling questions, anchored by 1 = strongly disagree to 5 = strongly agree. This measured a respondent's level of agreement with various questions addressing issues on forest policy and laws, forest management, forest certification and the timber export trade. Additionally, fixed response questions and open-ended questions were

included in the questionnaire to enable respondents express their thoughts and views on issues not covered in the scale and fixed format questions.

A draft version of questionnaires were developed and pre-tested. The questionnaires were pre-tested with five randomly sampled representatives from each respondent group. The questionnaires were revised, based on the pre-testing response before the final mailing. The survey process followed the Dillman tailored designed method as closely as possible (Dillman, 2000). On May 24, 2009, a pre-notification was sent to all 295 targets, notifying them and soliciting their cooperation for the survey that would be sent to them in a few days. Questionnaires and cover letters with stamped return envelopes were mailed two weeks later. Four weeks after the questionnaires were sent out, email reminders and telephone calls were made with the non-respondents. Field visitations were also made to all the Ghanaian timber companies included in the survey from the period of June 1 to August 10, 2009.

In addition, face-to-face interviews were used to achieve a better understanding on policy issues and also to solicit the views of the Chief Executive Officer of the Forestry Commission and the chairman of the Parliamentary Select Committee on Lands and Natural Resources. In order to obtain a better understanding of differences that might exist between forest management practices of companies that implement certification and those that do not, field assessments of forest management practices were made to the concessions of four companies (two each, randomly selected from companies implementing certification and those that do not). Field assessment procedures included pre-notification letters, follow-up phone calls, and visits to the companies and their field operations. The survey and field assessments of forest management practices officially ended on August 12, 2009.

4.3 Response Rate and Respondent Demographics

Of all the 295 surveys mailed, an undeliverable total of 28 included 6 importers, 4 of the processors/exporters, 3 policymakers and 15 loggers. These surveys either were erroneously addressed or inappropriately sent, due to respondents' no longer being in business or uninterested in survey participation. This brought the eligible target population to 267, consisting of 44 importers, 76 processors and exporters, 77 policymakers, and 65 loggers. The total number of usable surveys received was 141 with 32 from loggers (with adjusted response rate of 49.2%), 36 from the processors/exporters (adjusted response rate of 47.4%), 17 from the importers (adjusted response rate of 38.6%) and 56 from the policymakers (adjusted response rate of 68.3%). The adjusted response rate was calculated using:

Adjusted Response Rate = [Usable Surveys / Total Sample-(undeliverable + unusable)]*100%.

4.3.1 Data Handling and Analysis

The survey data were entered into two database of Microsoft Excel. The first was used to keep records of returned surveys, undeliverable surveys and changes in names and addresses. The second data base, accompanied by coded survey variables, was used to store responses from each respondent in a manner that facilitates further analysis of the data. The statistical analysis of the data was conducted using mainly SPSS; a statistical package mostly used in social sciences studies. The analysis was conducted mainly by employing descriptive statistics, including simple mean responses and F-tests. An analysis of Variance (ANOVA) tests was generally used to determine the different groups of respondent perception, understanding, and belief in certification, forest management practices in Ghana, and the impacts of certification on forest management and timber export trade in Ghana. Results were reported as significant when $p \leq 0.05$ significance level.

CHAPTER 5: RESULTS AND DATA ANALYSIS

5.1 Respondent Profile

5.1.1 Policymakers

Respondents were asked to indicate their institutions and positions within those institutions. Of the 56 respondents, 7 were policy planners from the Ministry of Lands and Natural Resources, the Forestry Research Institute of Ghana, and the Parliamentary Select Committee on Lands and Natural Resources with the remaining 49 from the Forestry Commission and its Forest Services and Timber Industry Development Divisions. Of the 49 from the Forestry Commission, 5 were directors while the remaining 44 were District and Regional Forest Managers.

5.1.2 Processors/Exporters

Respondents were requested to indicate their positions within their companies. Of the 36 respondents, 58.3% were middle managers and 33.3% were upper managers while 8.4% were owners of the companies. In the companies, 86.1% employed not more than 1000 workers, with only 5.6% of the companies employing more than 1,500 people. Again, only 5.6% of the companies had 50 or less employees.

Having a long term concession is one of the factors that influence forest management companies to adopt certification. Respondents were therefore asked to indicate whether their companies have concessions in Ghana. Of the respondents, 91.7% of the respondents indicated that their companies have concessions in Ghana. Those whose companies had concessions in Ghana were requested to indicate the size of their companies' concessions. The result indicated that 42.4% of the wood processing/exporting companies had concessions of not more than 19,999 ha with less than 10% of the companies holding concessions of greater than 180,000 ha.

Those who responded that their companies had concessions in Ghana were then asked to indicate the percentage of their concessions that are long term concessions (15 or more years to expire). The results suggested that more than 50% of the concessions of 67% of the respondents are long term concessions, with 15 or more years to expire while only 15.2% have less than 10% of their concessions as long term concessions.

5.1.3 Loggers

Respondents were asked to indicate their positions within their companies. Of the respondents, 87.5% indicated that they own the companies, while 12.5% indicated that they are in the upper management category. Respondents were also requested to indicate the number of employees in their companies by selecting from six categories of employment levels. As seen in Figure 9, almost half (44%) of the respondents noted that their companies employ no more than 10 people.

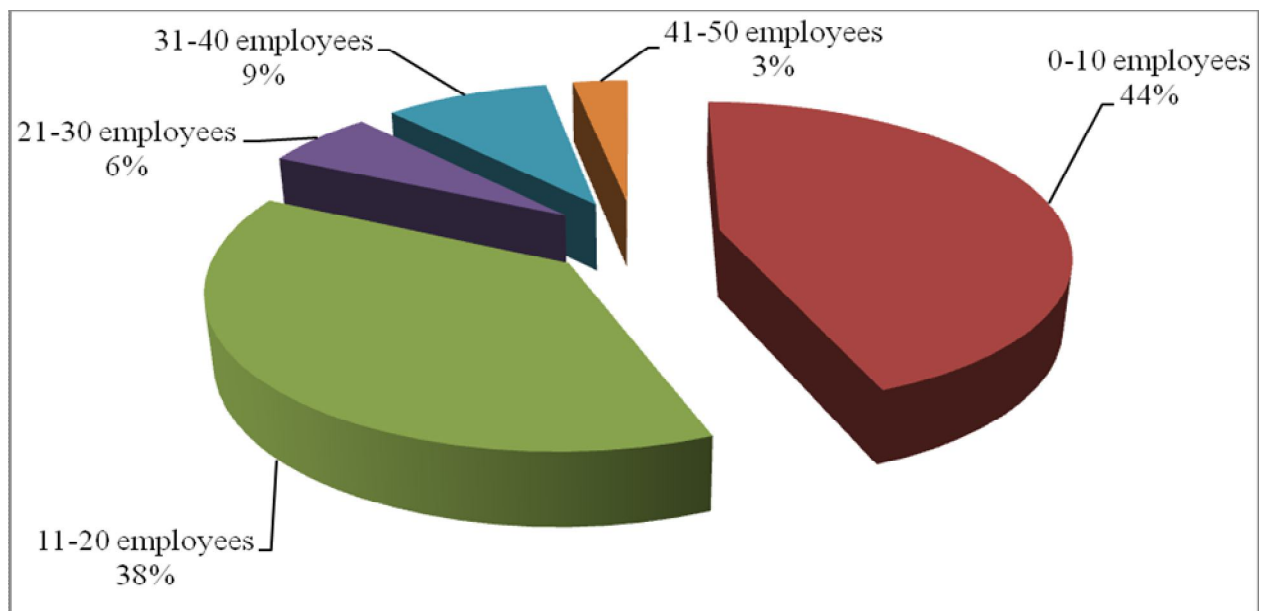


Figure 9: Employment Levels of Logging Companies in Ghana

Logging companies were further requested to indicate whether their companies have concessions in Ghana. A large 87.5% stated that their companies currently have concessions in

Ghana. Respondents whose companies have concessions in Ghana then were asked to indicate the size of their companies' concessions. Of these, 79% noted that their concessions have concessions of not more than 19,999 ha Figure 10. Of the loggers interviewed, 96% of them also indicated that their concessions were generally outside forest reserves and had very low stocking levels, such as generally given for five years.

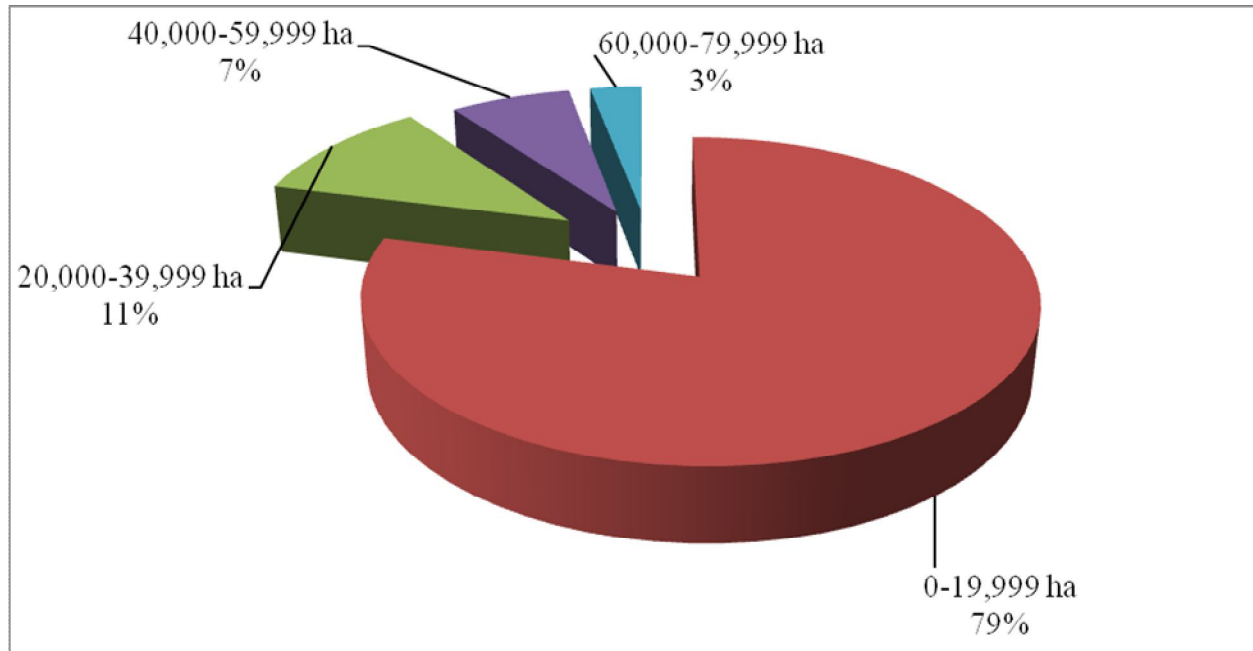


Figure 10: Concession Holdings of Logging Companies in Ghana

5.1.4 Wood Products Importers

Of the 17 respondents from the targeted 50 companies, 13 were from Europe, while 2 each were from the US and Africa respectively, with no response from Asian importers. Respondents were asked to indicate their positions within their companies. Of these, 29.4 % of them indicated that they were in the middle management position, while respondents who owned the companies and those in the upper management position were 35.3% each. Importers were asked to show the number of employees in their companies by selecting a range of employee categories. Figure 11 shows the employment levels of the wood importing companies.

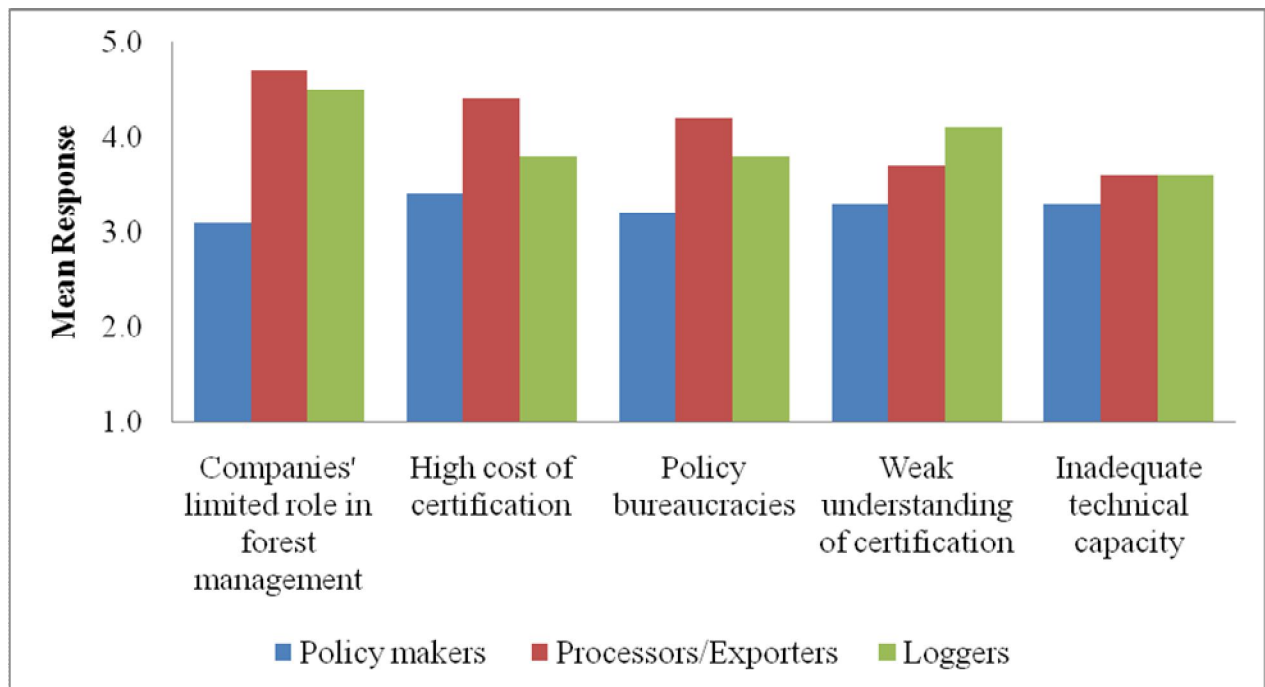


Figure 11: Employment Levels of Ghanaian Wood Product Importers (n=17)

5.2 Identifying Impediments to Forest Certification in Ghana

This section investigates impediments to certification in Ghana. The goal is to identify whether companies implementing certification face problems that make it difficult for them to achieve certification. Three different groups of respondents in Ghana (policymakers, processors/exporters, and loggers) were provided with five common impediments on why Ghanaian companies have difficulties achieving certification and were asked to indicate their level of agreement or disagreement with those questions on a 5-point Likert scale. As seen in Figure 12, respondents generally agreed that all five issues are impeding certification in Ghana.

In order to assess whether there are any significant differences between what the different groups of respondents consider to be the most important impediment to certification, an ANOVA test on the mean of the different groups' response was conducted. All the variables except inadequate technical capacity were found to be significant at $\alpha=0.05$ significance level (Table 1).



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
Figure 12: Response on Impediments to Certification in Ghana (Group Means, n=124)

A Post Hoc Tukey Honest Significant Difference test (HSD) was conducted, and the result further illustrated where the differences in means for policy bureaucracies, weak understanding on certification requirements, high cost of certification, and companies' limited role in forest management actually lie (Table 2).

Siry et al. (2005) indicated that there has been concern among the forest industry about the actual benefits of certification, based on an increasing commercial nature and high cost of certification. Auld et al. (2008) also noted that critics of certification question the returns on investment in certification and argue that the resources expended to certify forest operations and to support certification schemes could have been used for other activities. According to Hansen et al. (2006), indirect costs of establishing and maintaining certification can be very significant.

Cost of certification can therefore be an impediment, thus making willingness to pay to obtain certification for forest operations an important decision in certification.

Table 1: Summary Response on Impediments to Certification in Ghana (Group Mean, n=124)

Impediments to Certification	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
Companies' limited role in forest management	3.1	4.7	4.5	3.9	32.3	.000***
High cost of certification	3.4	4.4	3.8	3.8	8.0	.001***
Policy bureaucracies	3.2	4.1	3.8	3.6	11.4	.000***
Weak understanding on certification	3.3	3.7	4.1	3.6	6.6	.002***
Inadequate technical capacity	3.3	3.6	3.6	3.5	2.1	.131

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

***Significant at 0.01

Table 2: Post Hoc Tukey HSD Test for Significant Difference in Mean Response (n=124)

Impediments to Certification	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
Policy bureaucracies	Policymakers	Exporters*	-1.0	0.2	0.000
	Policymakers	Loggers*	-0.6	0.2	0.011
Weak understanding on certification	Policymakers	Loggers*	-0.8	0.2	0.001
High cost of certification	Policymakers	Exporters*	-1.0	0.2	0.000
Companies limited role in forest management	Policymakers	Exporters*	-1.6	0.2	0.000
	Policymakers	Loggers*	-1.5	0.2	0.000

*Respondent group that agrees more with the issue (one with higher mean)

In order to assess Ghanaian companies' willingness to pay to achieve certification, respondents were asked to indicate how much their companies were willing to spend annually to get their companies' concessions and operations certified. Of the respondents, 77.8% indicated

that their companies were willing to spend no more than \$19,999.00 annually to achieve certification. Only 22.3% of the companies were willing to spend between \$20,000 and \$59,999; no company was willing to spend more than \$60,000 annually to achieve certification, irrespective of the size of their concessions and scale of operations (Figure 13).

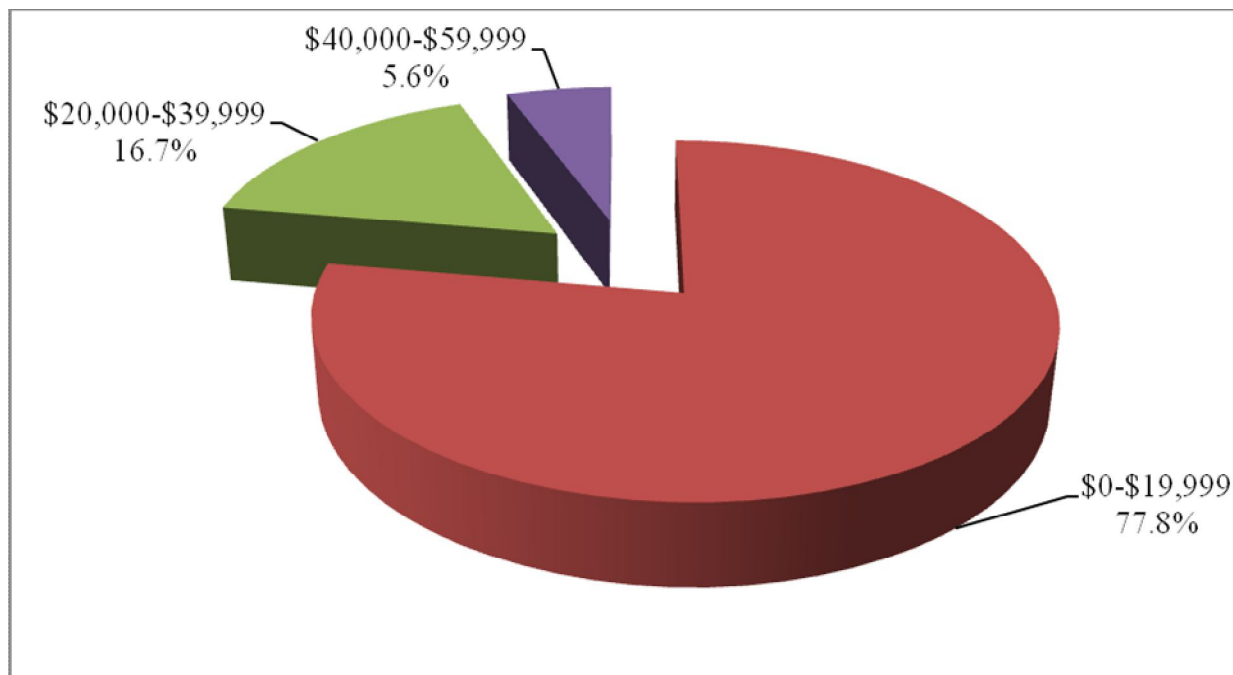
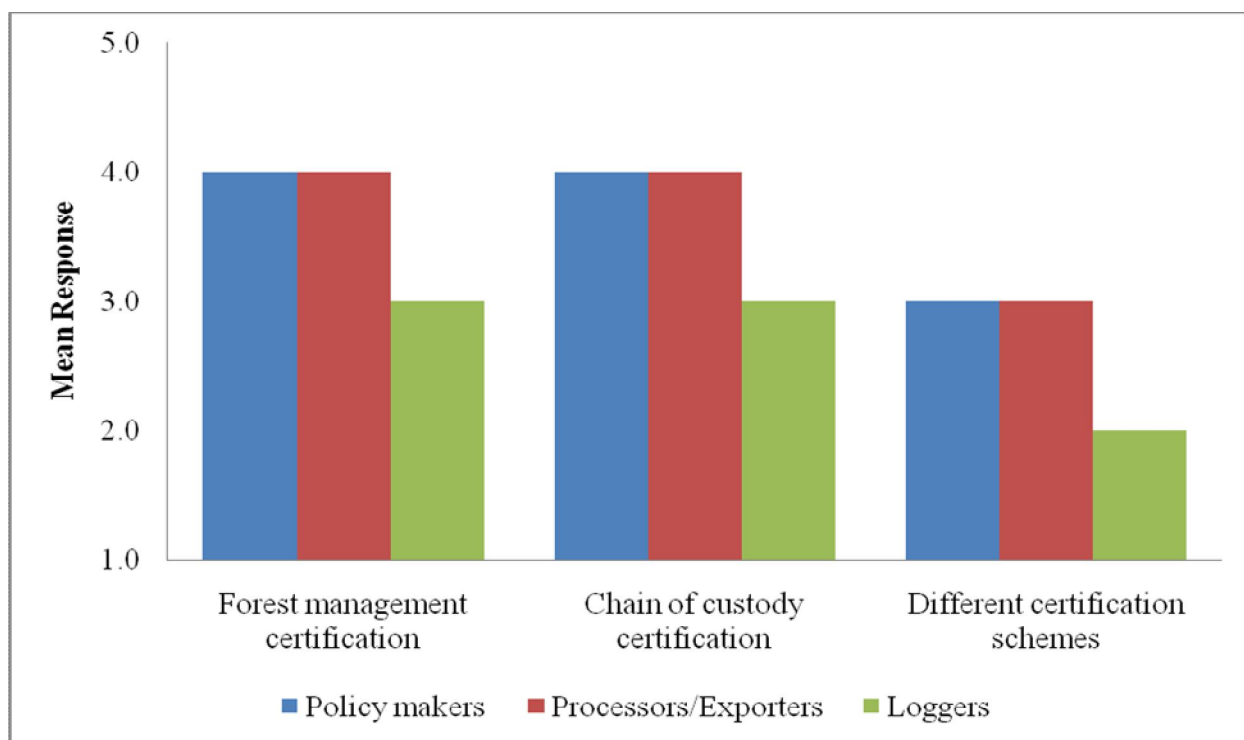


Figure 13: Cost that Wood Processors/Exporters and Loggers are willing to Incur Annually to Achieve Certification in Ghana (n=39)

5.3 Assessment of Influence of Certification on Forest Management Practices in Ghana

This section assesses respondents' understanding of certification and whether certification is by any means influencing forest management practice in Ghana. In assessing respondents' understanding of certification, a series of questions on three certification concepts were asked. Respondents were requested to indicate agreement or disagreement on their understanding of those concepts. With the exception of understanding on different certification schemes, respondents generally agreed that they understand all the concepts albeit little variations in their level of agreements with the various concepts (Figure 14). Table 3 provides a summary of the respondents' level of agreement with the issues.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 14: Ghanaian Respondents Understanding on Certification (Group Means, n=124)

Table 3: Summary of Respondents Understanding on Certification (Group Means, n=124)

Key Certification Concepts	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/Exporters (n=36)	Loggers (n=32)			
Forest management certification	4.0	4.1	2.8	3.7	14.1	.000***
Chain of custody certification	3.8	3.8	2.7	3.5	10.6	.000***
Different certification schemes	3.3	2.8	2.0	2.8	10.1	.000***

***Significant at 0.01

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

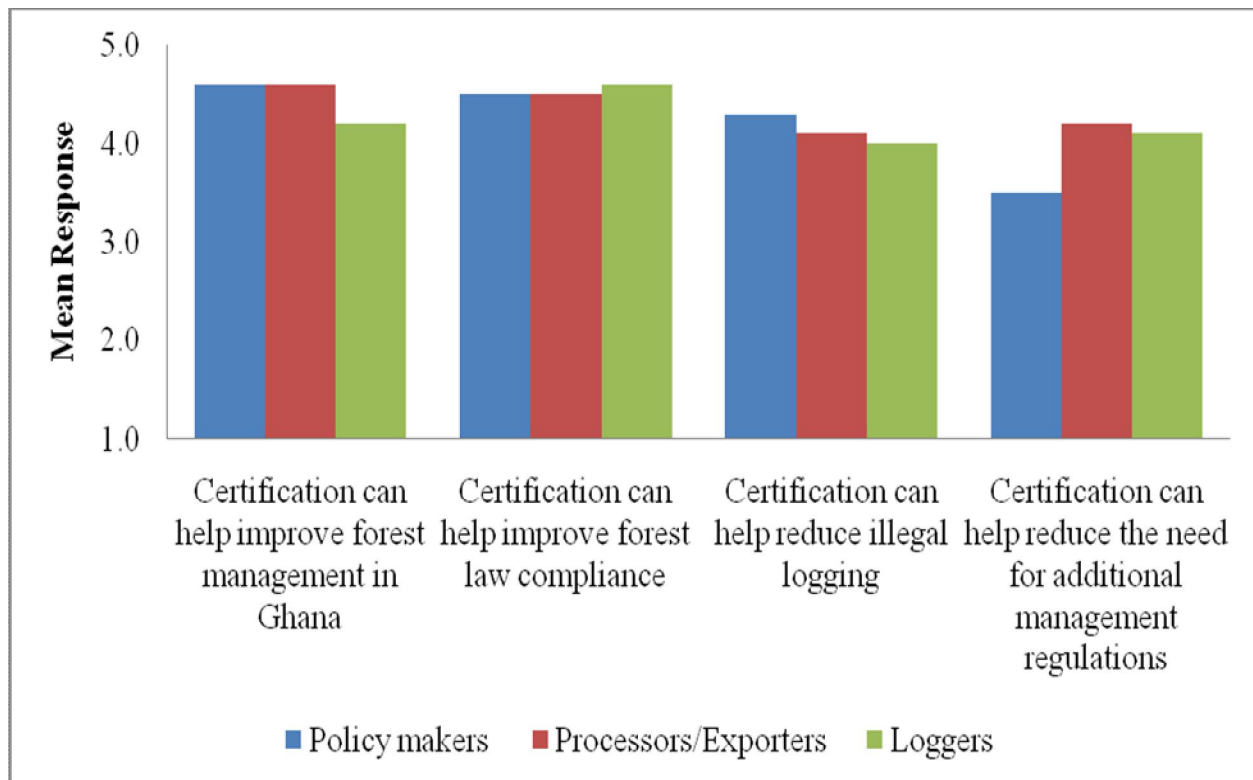
In determining whether there were any significant differences between the groups' mean responses, an ANOVA test was used. All the variables were significant at $\alpha=0.05$, indicating that the various groups of respondents had different levels of understanding on the various concepts. In order to identify where the various significant differences existed among these groups, a Post Hoc Tukey HSD test was conducted, shown in Table 4, to indicate where the differences exist among the various groups.

Table 4: Post Hoc Tukey HSD Test Results for Significant Difference in Means (n=124)

Key Certification Concepts	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
Forest management certification	Policymakers*	Loggers	1.2	0.3	0.000
	Exporters*	Loggers	1.3	0.3	0.000
Chain of custody	Policymakers*	Loggers	1.1	0.3	0.000
	Exporters*	Loggers	1.1	0.3	0.001
Different certification schemes	Policymakers*	Loggers	1.4	0.3	0.000
	Exporters*	Loggers	0.9	0.3	0.029

* Respondent group that agrees more with the issue (one with higher mean)

The potential of certification and its contribution to sustainable forestry may differ from one country or region to another, depending on existing forest governance systems and management practice. To assess what respondents believe are the potentials for certification in Ghana, respondents were asked to indicate the level of agreement or disagreement on the potentials of certification in addressing four key issues impeding forest management in Ghana. As seen in Figure 15, respondents generally believe that certification has the potential to address the four main issues. Their highest level of agreements was that a) certification can improve forest management, and b) certification can promote forest law compliance in Ghana (4.5 on a 5-point scale for each). However, certification also can reduce the need for additional management regulations was significant at $\alpha=0.05$ (p-value 0.003) when the mean responses were subjected to the ANOVA test (Table 5).



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
Figure 15: Potential of Certification in Ghana (Group Means, n=124).

A Post Hoc Tukey HSD test indicates that the significance difference in mean response for certification can reduce the need for additional management regulations lays between policymakers and processors/exporters (mean difference 0.7, standard error 0.2 and p 0.005) and policymakers and loggers (mean difference -0.5, standard error 0.2 and p 0.039). The processors/exporters, more in favor of certification, can reduce the need for additional management regulations, followed closely by the loggers.

Auld et al. (2008) noted that companies that certify their forests had to change certain aspects of their management, based on the corrective action requests (CARs) that are issued by their certifiers. Bass et al. (2001) also observed that during early review of CARs, most discovered changes had to do with documentation and monitoring, rather than on-the-ground forest management practices.

Table 5: Summary Response on Potential of Certification in Ghana (Group Means, n=124)

Perception of Potential of Certification in Ghana	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
Certification can improve forest management	4.6	4.6	4.2	4.5	3.0	.056
Certification can help improve forest law compliance	4.5	4.5	4.6	4.5	.58	.563
Certification can help reduce illegal logging	4.3	4.1	4.0	4.1	.91	.405
Certification can reduce the need for additional regulations	3.5	4.2	4.1	3.9	6.1	.003***

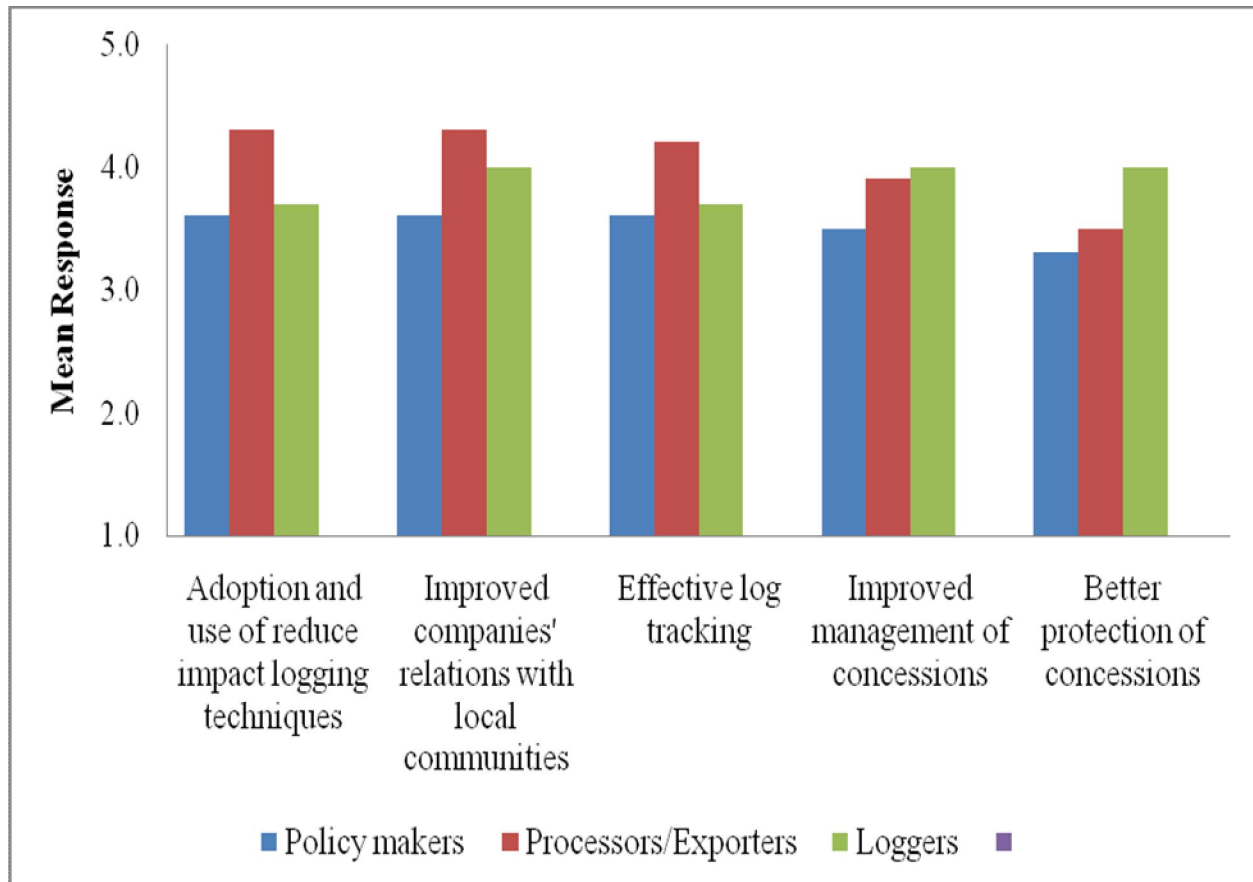
***Significant at 0.01

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

To assess whether certification has had any on-the-ground impact on forest management in Ghana, questions five questions were asked in areas of on-the-ground forest management that needed improvement. Respondents were asked to indicate their level of agreement or disagreement with improvement in those areas in concessions of those companies implementing certification. Respondents weakly agreed that there had been improvement in all the areas mentioned, due to some companies adopting and implementing certification. Although better protection of companies' concessions had the lowest mean, respondents generally agreed that certification contributed to improving protection of concessions (Figure 16).

A Post Hoc Tukey HSD test identified the differences that exist in the group means for adoption and use of reduce impact logging techniques found to be between policymakers and

processors/exporters (mean difference 0.7, standard error 0.3 and p 0.032). The processors/exporters show a stronger agreement that adoption and use of reduce impact logging is an important on-the-ground impact of certification in Ghana.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
Figure 16: Respondents Perception of Impact of Certification in Ghana (Group Mean, n=124)

Of all the five areas in which respondents agreed, there has been improvement, only adoption and use of reduce impact logging techniques were significant at $\alpha=0.05$, when the mean of the different group responses were analyzed using ANOVA (Table 6). The difference based on Tukey HSD test is found between policymakers and processors/exporters, with the latter agreeing more with the issue.

Table 6: Summary Response on Impacts of Certification in Ghana (Group Means, n=124)

Changes in Forest Management	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
Adoption and use of reduce impact logging	3.6	4.3	3.7	3.7	3.3	.042**
Improved relations with local communities	3.6	4.3	4.0	3.7	3.1	.051
Effective log tracking	3.6	4.2	3.7	3.7	2.4	.102
Improved management of concessions	3.5	3.9	4.0	3.6	1.4	.262
Better protection of concessions	3.3	3.5	4.0	3.4	.56	.572

**Significant at 0.05

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

5.4 Assessment of Current Forest Management Practices in Ghana

There have been varied opinions on whether the management practice of forest resources in Ghana meets sustainability requirements as well as those of international best practice.

Finding appropriate forest management practices to achieve sustainability in the forest sector has stymied regulators and forest managers for decades. Dadebo and Shinohara (1999) noted that forest resources in Ghana have been exploited rather than managed, and that continuous exploitation over and above the annual allowable cut places the potential of sustainable management and sustained output in a situation of grave concern. However, ITTO (2005) highlighted that Ghana has a favorable conditions such as impressive human resources and a history of forest management; thus two conditions that are prerequisite for progress towards sustainable forest management.

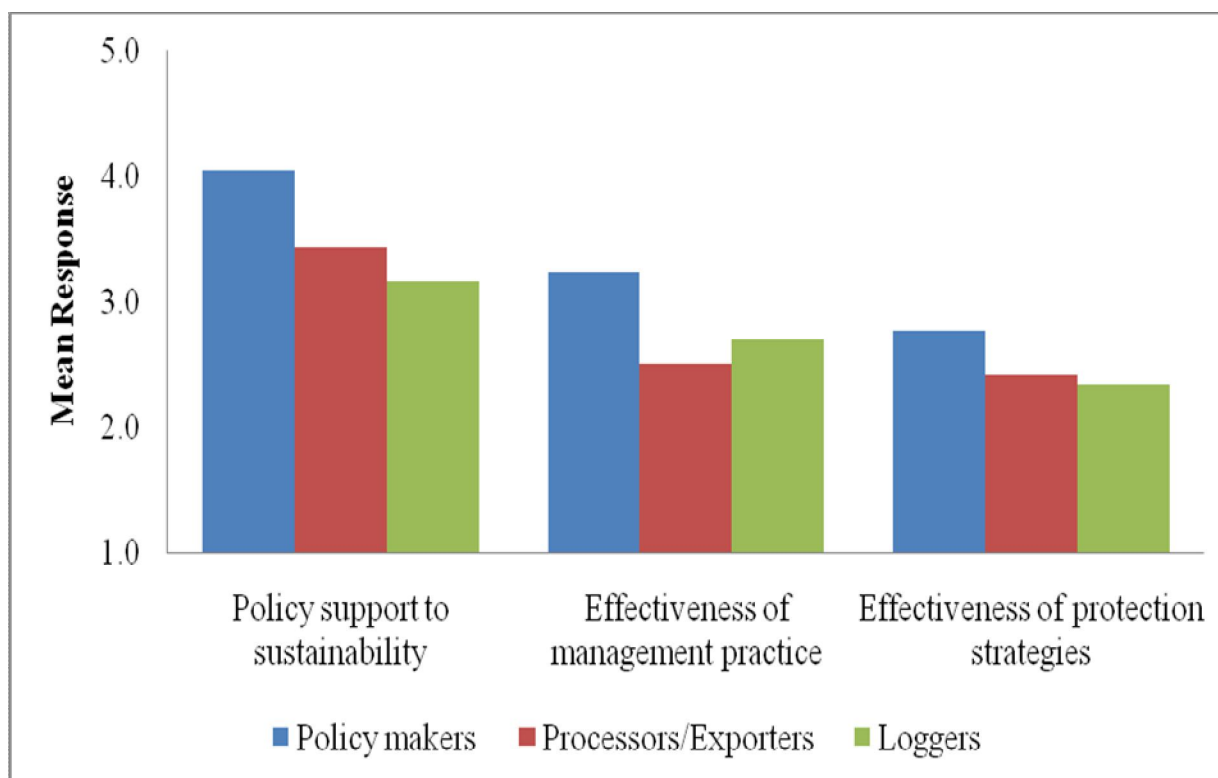
To investigate respondents' belief in sustainability or otherwise of the forest management practice in Ghana, a series of questions with categorical and scale responses were given. Overall, 66.1% of the respondents indicated that current forest management practice is not sustainable, while 33.9% of them believed that forest management is sustainable.

The issue of companies' capacity and their role in forest management has been a topical issue in Ghana for some time. Respondents were therefore asked to indicate whether concession holders have the capacity to manage their concessions, should government decide to cede forest management functions to them. A large 80.6% of processors/exporters believed that companies in Ghana have the capacity to manage their concessions. Only 31.3% of the loggers believed that companies have the capacity to manage their concessions while only 8.9% of policymakers believe that companies in Ghana have the capacity to manage their concessions.

To assess respondents' perceptions relating to effectiveness of forest policy, laws and forest management systems in ensuring sustainable forest management, respondents were asked to show their level of agreement or disagreement on the effectiveness of three key areas for which success or failure has profound implications on sustainable forest management.

Respondents generally agreed to policy support to sustainable forest management, but disagreed that management practice and protection strategies have been effective strategies for achieving sustainable forest management (Figure 17).

An ANOVA test was used to analyze whether there were any significant differences between the mean responses from the different groups of respondents. Effectiveness of management practice and policy support to sustainability were both significant at $\alpha=0.05$ (p-values 0.002 and 0.000 respectively). Effectiveness of protection strategy was not significant (p-value 0.111) (Table 7). Post Hoc Tukey HSD test result Table 8 illustrates where the differences in the mean of the group responses exist.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 17: Response on Effectiveness of Forest Protection Strategies, Management Practice and Policy Support to Sustainability in Ghana (Group Means, n=124)

Table 7: Summary Response on Effectiveness of Forest Protection Strategies, Management Practice and Policy Support to Sustainable in Ghana (Group Means, n=124)

Forest Management Issues	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/Exporters (n=36)	Loggers (n=32)			
Policy support to sustainability	4.1	3.4	3.2	3.7	11.6	.000***
Effectiveness of management practice	3.2	2.5	2.7	2.9	6.4	.002***
Effectiveness of protection strategies	2.8	2.4	2.3	2.6	2.2	.111

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

***Significance at 0.01

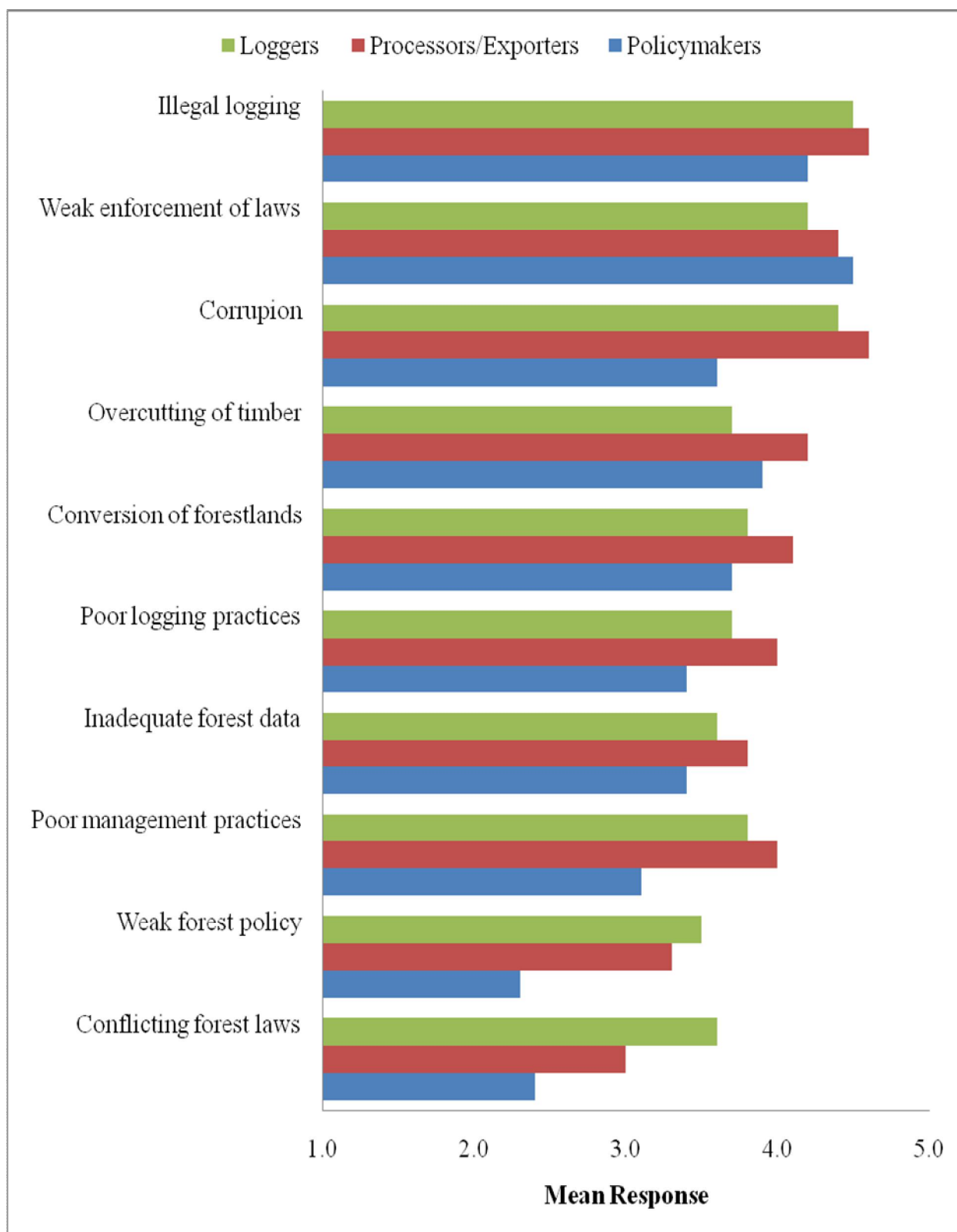
Table 8: Post Hoc Tukey HSD Test for Significant Difference in Mean Response (n=124)

Factors Affecting Forest Management	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
Effectiveness of management practice	Policymakers*	Exporters	0.7	0.2	0.003
	Policymakers*	Loggers	0.5	0.2	0.046
Policy support to sustainability	Policymakers*	Exporters	0.6	0.2	0.005
	Policymakers*	Loggers	0.9	0.2	0.000

* Respondent group that agrees more with the issue (one with higher mean)

In order to ascertain what factors generally thwart progress towards sustainable forest management, respondents were given a series of questions and were asked to show their levels of agreement or disagreement. With the exception of weak forest policy and conflicting forest laws, respondents generally agreed that all the issues are factors that impede progress towards sustainable forestry in Ghana (Figure 18). However, respondents gave top priority to weak enforcement of forest laws, illegal logging, and corruption as the leading factors impeding sustainable forest management in Ghana. An ANOVA test was used to ascertain if there were any significant differences between the responses from the different groups. Most of the factors were significant at $\alpha=0.05$, except for weak enforcement of laws, overcutting of timber, and conversion of forestlands into other land uses (Table 9).

Identifying which group actually agrees most with the problem would help decision makers in finding appropriate strategies to deal with the problem. A Post Hoc Tukey HSD test was employed to find out where the differences in agreements actually existed. The results in Table 10 further demonstrate where the differences in means for factors impeding sustainable forest management; these factors include corruption, weak policy, conflicting forest laws, poor management, illegal logging and poor logging practice.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 18: Response on Factors Impeding Sustainable Forest Management in Ghana (Group Means, n=124)

Table 9: Summary Response on Factors Impeding Sustainable Forest Management in Ghana (Group Means, n=124)

Factors Impeding Sustainable Forest Management	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
Illegal logging	4.2	4.6	4.5	4.4	3.2	.046**
Weak enforcement of laws	4.5	4.4	4.2	4.4	1.8	.172
Corruption	3.6	4.6	4.4	4.1	11.3	.000***
Overcutting of timber	3.9	4.2	3.7	3.9	2.2	.111
Conversion of forestlands into other land uses	3.7	4.1	3.8	3.8	1.8	.174
Poor logging practices	3.4	4.0	3.7	3.7	3.7	.028**
Inadequate data to validate silvicultural assumptions	3.4	3.8	3.6	3.6	1.3	.270
Poor forest management	3.1	4.0	3.8	3.5	8.9	.000***
Weak policy	2.3	3.3	3.5	2.9	15.7	.000***
Conflicting forest laws	2.4	3.0	3.6	2.9	14.5	.000***

**Significant at 0.05

***Significant at 0.01

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

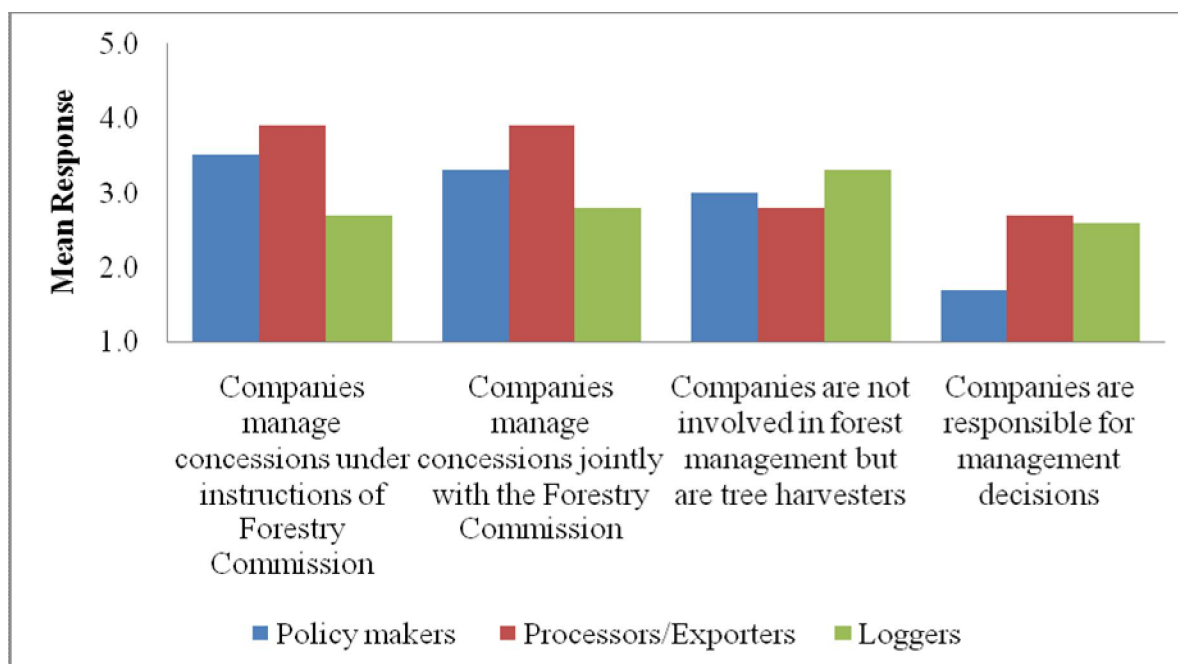
In assessing forest management institutional roles in Ghana, respondents were asked to show their level of agreement or disagreement with companies' (concession holders) roles in forest management in Ghana.

Table 10: Post Hoc Tukey Test for Significant Difference in Mean Response (n=124)

Factors Impeding Sustainable Forest Management	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
Corruption	Policymakers	Exporters*	-1.0	0.2	0.000
	Policymakers	Loggers*	-0.8	0.2	0.001
Weak policy	Policymakers	Exporters*	-1.0	0.2	0.000
	Policymakers	Loggers*	-1.2	0.2	0.000
Conflicting forest laws	Policymakers	Exporters*	-0.6	0.2	0.017
	Policymakers	Loggers*	-1.3	0.2	0.000
Poor forest management	Policymakers	Exporters*	-1.0	0.3	0.001
	Policymakers	Loggers*	-0.8	0.3	0.007
Illegal logging	Policymakers	Exporters*	-0.4	0.2	0.050
Poor logging practice	Policymakers	Exporters*	-0.6	0.2	0.022

* Respondent group that agrees more with the issue (one with higher mean)

The notion that companies manage concessions under the instruction of the Forestry Commission; and companies also manage concessions jointly with the Forestry Commission were generally acceded to by the respondents (3.4 each on a 5-Point Scale). While they disagreed that companies are responsible for forest management decisions, they were indifferent, however, to the notion that companies are not involved in forest management (Figure 19). The implications for these responses are that respondents agree that every forest management decision rests with the Forestry Commission and that respondents believe that both the Forestry Commission and the companies are involved in forest management, yet the companies receive instruction from the Forestry Commission in whatever management role they play. An ANOVA test on group responses indicated that all the variables, except that companies are not involved in forest management, are significant at $\alpha=0.05$ (Table 12). To ascertain where the significance differences exist among the different respondent groups, a Post Hoc Tukey HSD test was conducted. Table 12 indicates where the various significant differences exist.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

Figure 19: Response on Companies' Role in Forest Management in Ghana (Group Means, n=124)

Table 11: Summary Response on Companies' Role in Forest Management in Ghana (Group Means, n=124)

<i>Companies</i>	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
manage concessions under instructions of Forestry Commission	3.5	3.9	2.7	3.4	7.7	.001***
manage concessions jointly with the Forestry Commission	3.4	3.9	2.8	3.4	7.1	.001***
are not involved in forest management but are tree harvesters	3.0	2.8	3.3	3.0	0.7	.509
are responsible for forest management decisions	1.7	2.2	2.6	2.1	4.6	.012**

Significant at 0.05 *Significant at 0.01

5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

Table 12: Post Hoc Tukey Test for Significant Difference in Mean Response (n=124)

<i>Companies:</i>	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
are responsible for management decisions	Policymakers	Loggers*	-0.9	0.3	0.010
manage concessions under instructions of Forestry Commission	Policymakers*	Loggers	-0.8	0.2	0.001
	Exporters*	Loggers	-1.3	0.3	0.001
manage concessions jointly with the Forestry Commission	Policymakers*	Loggers	0.7	0.3	0.048
	Exporters*	Loggers	1.2	0.3	0.001

* Respondent group that agrees more with the issue (one with higher mean)

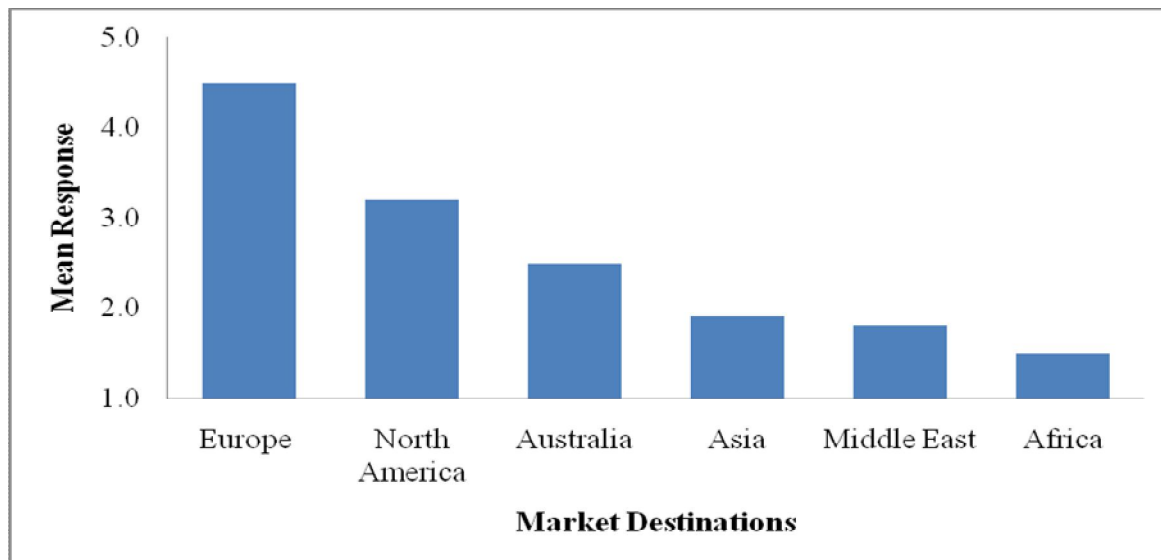
5.5 Assessment of the Effects of Certification and Sustainable Forest Management Buyer Requirements on Ghana's Timber Export Trade

Forest owners and companies all over the world have varied reasons for certifying their forests. Mercker and Hodges (2007) noted that landowners have variety of reasons for certifying their forests, including a healthier forest, improved wildlife habitat, and money saved by reducing the likelihood of future regulations. Moeltner and Kooten (2003) also observed that exporting wood products to Europe or America increases the probability of forest operation certification. However, Araujo et al. (2009) discovered that market incentives do play no significant role for Brazilian companies in making decisions on forest certification.

In assessing whether certification and sustainable forest management buyer requirements affect timber export trade, exporting companies were required to indicate whether their foreign buyers had ever asked them to meet certification requirements. Of the respondents, 66.7% indicated that their buyers had asked them to meet certification requirements. Those whose buyers have asked them to meet certification requirements were asked to indicate whether they have ever lost a buyer as a result of not meeting certification requirements. Only 16.7% of this

group indicated that they had ever lost a buyer as a result of their inability to meet certification requirements. The higher percentage of companies who had ever been asked to meet certification requirements as well as the smaller percentage of those who had ever lost a buyer signified that although importers prefer certified wood products, a suppliers' inability to certify his operations is not a strong criteria for maintaining or switching a supplier.

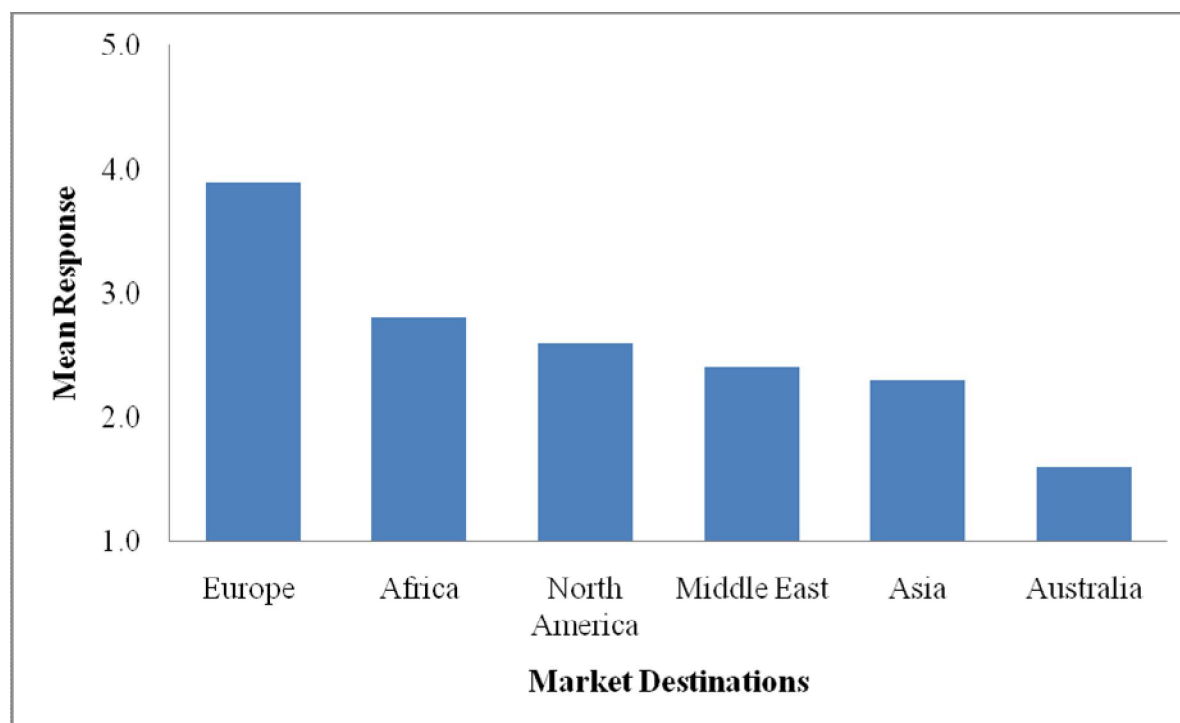
Exporters were therefore provided with the six main market destinations for Ghanaian wood products and were asked to indicate market destinations where certification requirements are strongly demanded. As seen in Figure 20, exporters generally agreed that certification requirements are strongly demanded in the European market (4.5 on a 5-point Likert scale). They disagreed that certification requirements are demanded in Africa, Asia, Australia, and the Middle East, but were somehow indifferent to the North American market (Figure 20).



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 20: Processors/Exporters Response on Market Destinations where Certification Requirements are Strongly Demanded (n=36)

Wood products exporters were provided with the list of the six key Ghanaian wood product destinations and were asked to indicate their important market destinations on a 5-point Likert scale. Only Europe was indicated as the most important market destination for the

exporters (Figure 21). Although the volume of wood product export to the African region in 2007 and 2008 nearly equaled those to Europe over the same period, exporters disagreed that Africa is an important market destination.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 21: Processors/Exporters Response on their Important Market Destinations (n=36)

Wood importers from Ghana then were asked to indicate the value and percentage of their annual wood products' sales, harvested from Ghana. According to the results obtained, 35.3% of the importers imported more than \$1,000,000.00 worth of wood products from Ghana annually, while only 5.9% imported less than \$100,000.00 worth of wood products from Ghana (Figure 22).

To assess the level of demand for certified wood products, importers were asked to indicate whether they sell certified wood products or not, and if so, what percentage of their wood product sales comes from certified sources.

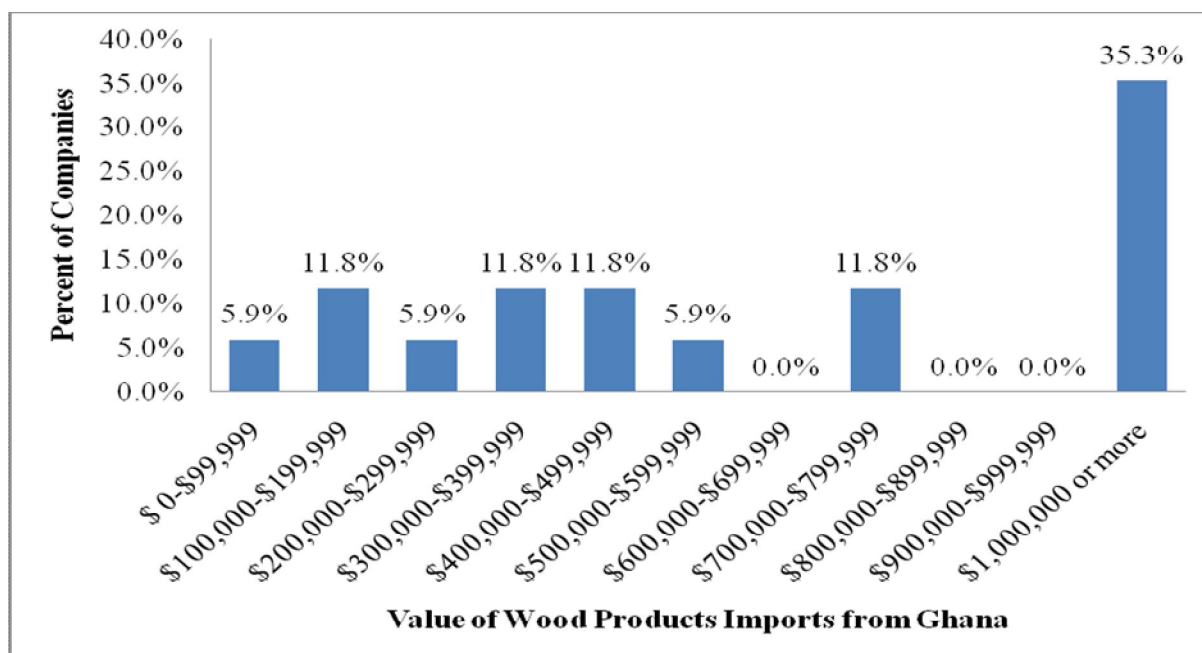


Figure 22: Annual Wood Products Import from Ghana (Percent of Respondents, n=17)

The results showed that 76.5% of the respondents sell certified wood products. Those who sell certified wood products were asked to indicate the percentage of their wood products sales that are certified. Figure 23 shows percentage of respondents and the corresponding percent of their wood sales that were certified.

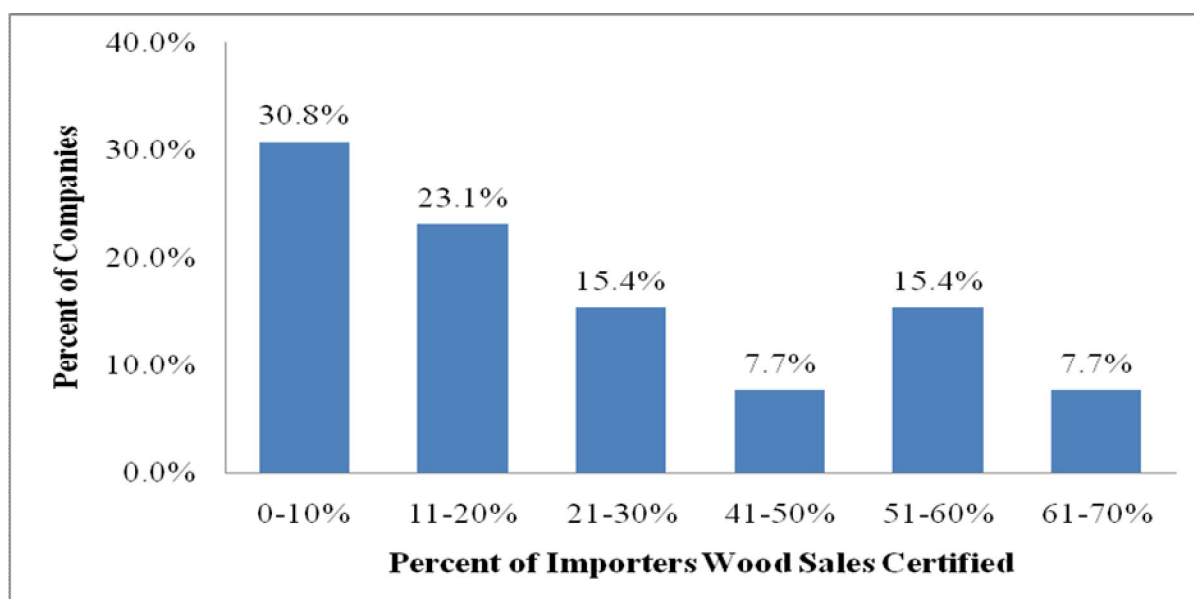
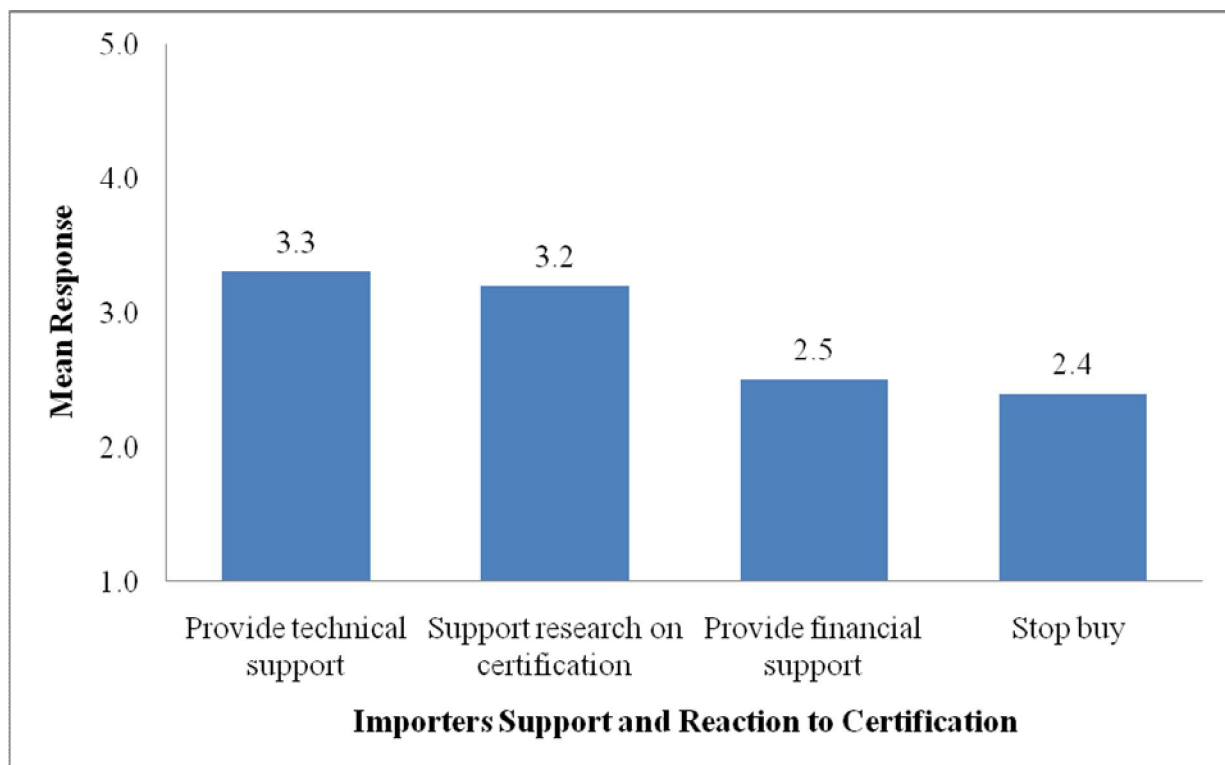


Figure 23: Importers Wood Product Sales Certified (Percent of Respondents, n=13)

Certain actions and contributions from buyers and importers of wood products can be an impetus for producers and exporters to adopt certification. Importers of wood products were therefore asked four questions on their reactions or contributions towards influencing an adoption of certification. As seen in Figure 24, importers agreed that provision of technical support and support for certification research were what they considered as their support to spur Ghanaian exporters to adopt certification. They, however, disagreed that they would stop buying from customers who were unable to meet certification requirements. They also disagreed that they provided financial support to their suppliers to meet certification requirements.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 24: Wood Products Importers Response on Certification Support they Offer to Suppliers (Mean, n=17)

According to Vlosky (2000), customers' willingness to pay a premium to countervail certification implementation costs encourages suppliers to produce environmentally-certified wood products. To assess whether wood products importers from Ghana offer a price premium

to offset the high cost of certification, four key questions on a 5-point scale were asked; and respondents were required to indicate their level of agreement or disagreement with those questions. The results indicated that all of the 13 importers who use certification in their wood product procurement and trading offer price premium for certified products. However, no company offers a price premium of more than 25% for certified wood products (Figure 25).

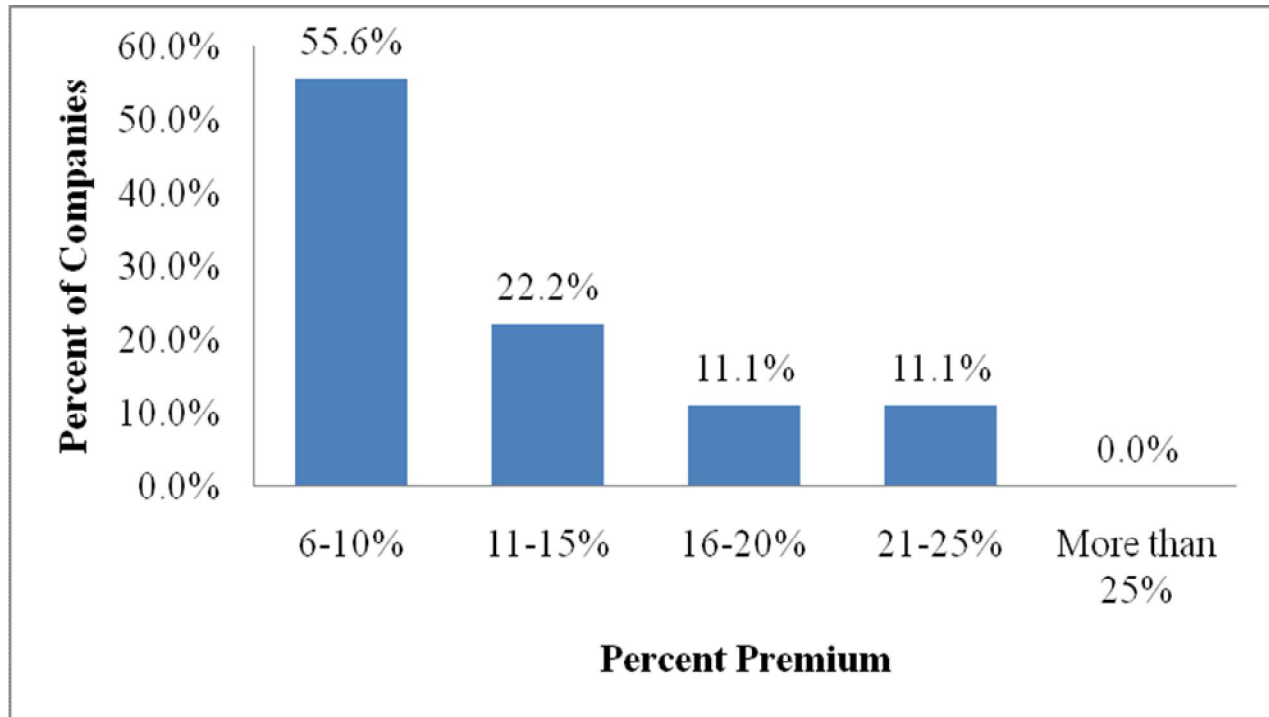
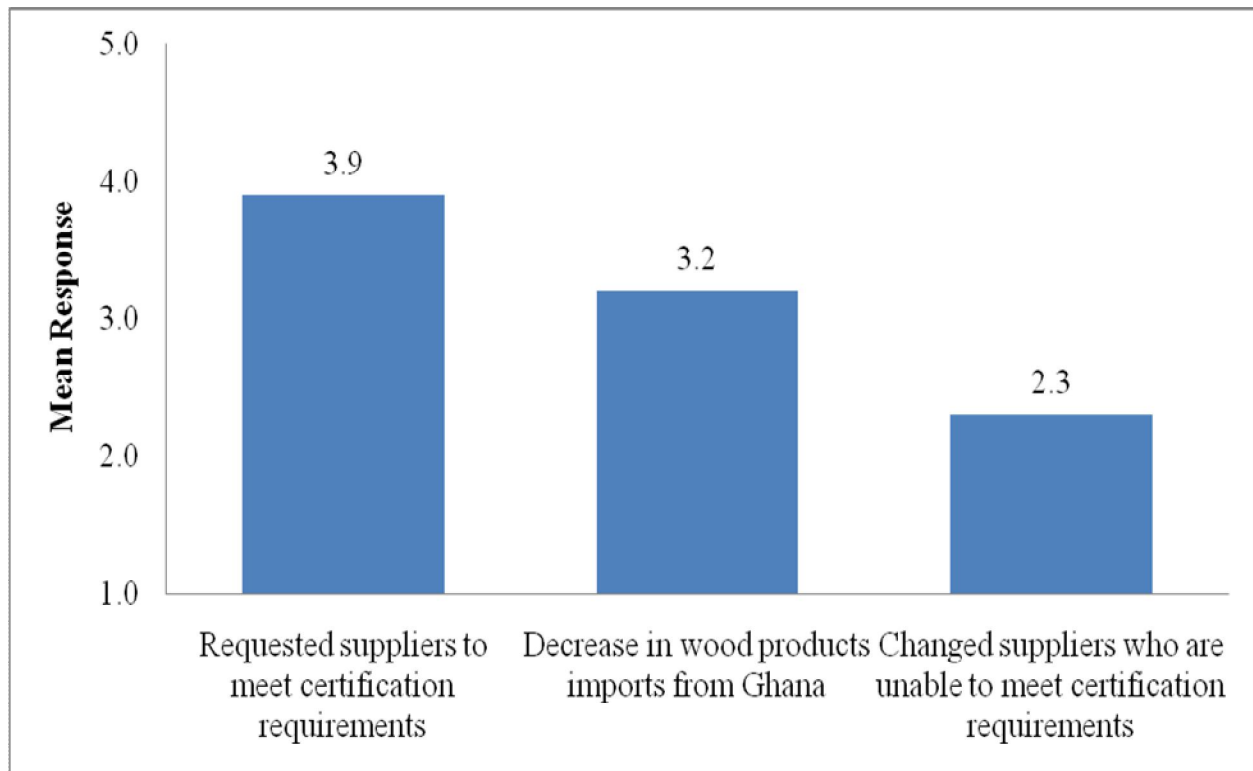


Figure 25: Price Premium Wood Product Importers Offer for Certified Wood Products (Percent of Respondents, n=13)

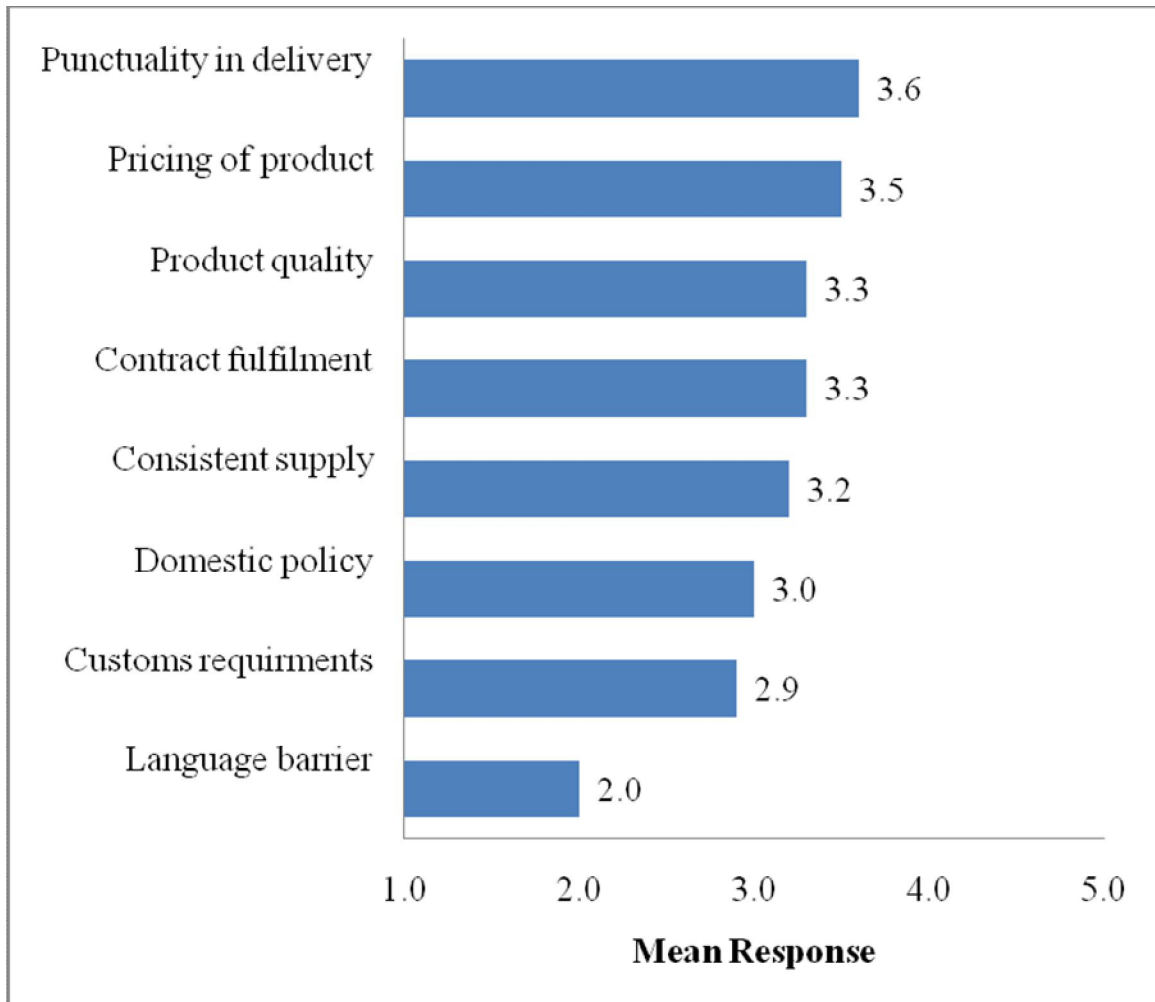
The survey also looked at whether there have been changes in wood products imports by European importers within the last five years, and whether the changes have increased or decreased in wood products imports from Ghana. Respondents were therefore asked to indicate their level of agreement or disagreement with changes in wood products imports from Ghana within the last five years. Respondents generally agreed that they had requested their suppliers to meet certification requirements, and somehow remained neutral as to whether they decreased their wood products imports from Ghana. However, they generally disagreed that they increased

their wood products imports from Ghana, or changed suppliers who were unable to meet certification requirements (Figure 26).



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
Figure 26: European Importers Response on Changes in Wood Products Imports from Ghana within the Last Five Years (Mean, n=13)

In assessing what factors influence wood imports from Ghana, wood importers were asked several questions relating to problems faced in importing wood from Ghana, such as the products quality, pricing, and language barriers. As shown in Figure 27, respondents were indifferent to domestic policy, but disagreed that customs requirements and language barriers were problems. However, they weakly agreed that product quality, punctuality in delivery, consistent supply, pricing, and contract fulfillment were all problems faced in importing wood products from Ghana.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 27: Importers Response on Problems they face in Importing Wood Products from Ghana (n=17)

5.6 Sectors of Ghanaian Forestry that Require Change or Reform

There have been several legal and institutional reforms in the Ghanaian forest sector within the last two decades. However, critics of the forestry sector of Ghana maintained that at least, these reforms had very little positive impact in changing the status quo.

Inadequate consultations on policy and legal reforms have caused ineffectiveness in the sector's legal reforms (Attah 2009). In order to assess which aspects of forestry in Ghana should be reformed to ensure that the sector makes the maximum sustained contribution to the Ghanaian

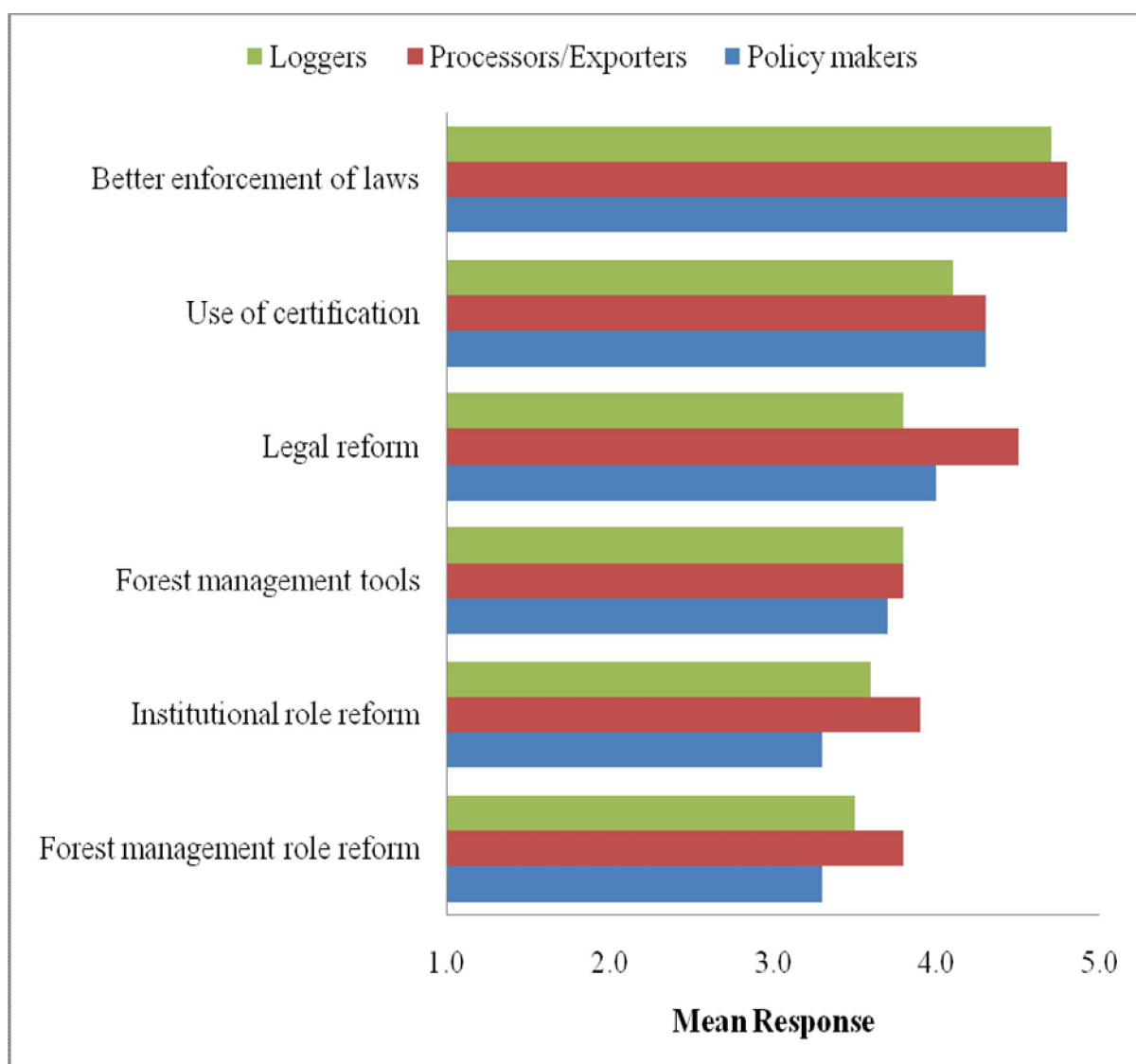
economy respondents were given six areas of the forest sector to indicate their level of agreement or disagreement for reforms in those areas. Although respondents generally agreed to all the given changes or reforms in the sector, better enforcement of laws elicited the strongest agreement, followed by certification use and legal reforms (Figure 28). To identify differences in mean response in responses from the different groups, an ANOVA test was used. Only legal and institutional role reforms were significant at $\alpha=0.05$ (p-value 0.019 and 0.043, respectively) (Table 13).

Table 13: Summary Response on Changes and Reforms Required in the Forest Sector in Ghana (Group Means, n=124)

Reform and Changes	Mean Response for Each Group			Grand Mean (n=124)	F-value	p-value
	Policy makers (n=56)	Processors/ Exporters (n=36)	Loggers (n=32)			
Better enforcement of laws	4.8	4.8	4.7	4.8	.54	.586
Use of certification	4.3	4.3	4.1	4.2	.71	.492
Legal	4.0	4.4	3.8	4.0	4.1	.019*
Forest management tools	3.7	3.8	3.8	3.7	.02	.981
Institutional role	3.3	3.9	3.6	3.6	3.2	.043*
Forest management role	3.3	3.8	3.5	3.5	2.8	.065

5-point scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree

(Table 14) shows where the significant differences exist among the various groups of respondents.



5-Point Scale, 1=strongly disagree; 3=neither disagree nor agree; 5=strongly agree
 Figure 28: Response on Sectors of the Ghanaian Forestry that Require Reform (Group Means n=124)

Table 14: Post Hoc HSD Tukey Test for Significance Difference in Mean Response (n=124)

Reforms and Changes Required	Response Group (i)	Response Group (j)	Mean Difference (i-j)	Standard Error	Significance (p)
Legal	Processors*	Loggers	0.6	0.2	0.019
Institutional role	Policymakers	Exporters*	0.6	0.2	0.005

* Respondent group that agrees more with the issue (one with higher mean)

CHAPTER 6: CONCLUSION AND DISCUSSION

The awareness, understanding, and acceptance of forest certification in Ghana, particularly by timber companies, have increased substantially within the last decade. Several factors may have contributed to this. Market pressure and the desire to improve forest management are the most likely cause. By demonstrating responsible forest management, certification, and eco-labels would be tools for enhancing market access and competitive advantage (Fischer et al., 2005). In addition to facilitating continuous access to the European market for wood exporters, certification contributes to improve forest management and better management of the environment. Increasing concern over illegal logging and trade in illegally-acquired wood products causes experts to predict that interest and demand for certification will continue to grow.

Although Ghana has favorable conditions, including a sound, human resource base; a vibrant, democratic governance system; and a responsive policy towards sustainable forestry; several companies have problems meeting certification requirements. None of the 21 companies' currently pursuing certification in Ghana has achieved certification other than FSC Controlled Wood and Chain of Custody certifications, although some have started as early as the year 2000. This notwithstanding, 72.2% of the wood products exporters from Ghana indicated that their most important market destination is Europe, where certification requirements are strongly demanded. In order to sustain Ghana's access to the European market and to utilize the potential of certification to address some of the country's myriad forest sector problems, it is important to identify barriers and impacts of certification in Ghana, and how these barriers to certification affect its uptake including timber export trade in Ghana.

This study sought to identify impediments and implications of certification for sustainable forest management and timber export trade from Ghana. To achieve this objective,

data for the study were acquired using four differently designed questionnaires for four main groups whose decisions and operations dramatically shape the future of the country's forest resources and its contribution to the Ghanaian economy. The four groups are policymakers, loggers, processors/exporters, and wood importers from Ghana. In order to validate the survey findings, field assessment of forest management operations in the concessions of four different, independently-selected companies were undertaken.

6.1 Assessment of Impediments to Certification in Ghana

This section of the study identifies the main barriers to certification. The results of this section provide a lens to identify the most important impediments to certification from the perspective of policymakers, loggers, and wood product processors/exporters. According to the survey results, certification has the potential to contribute to confront the challenges facing the forest sector of Ghana. However, respondents indicated that companies' limited roles in forest management remain a key impediment to certification. According to Klingberg (2003), forest certification deals not only with the final product, but also with the entire practice of forestry, growth, inclusive of the product harvesting, and all other ecological consequences associated with harvesting of the products. Fischer et al. (2005) also noted that organizations and companies seeking certification must often adapt their administrative and management functions to conform to the certification schemes, as well as certifiers' requirements for recordkeeping and forest management practices. Several companies interviewed in Ghana as part of this study indicated that their companies had undergone certification assessments, but were issued corrective action requests on recordkeeping, identification, and management of high conservation values. Other common gaps that interviewees mentioned that had been issued to them by assessors are poor road construction and alignment, yield regulation and selection, monitoring of forest growth and dynamics, and reduction of the impacts of logging on residual forests. Incidentally, respondents

generally agreed that overcutting of timber, conversion of forestlands to other land usage; poor logging practices; and inadequate data for validation of silvicultural assumptions; reflect the major problems impeding sustainable forest management in Ghana. Therefore it is discernible that the limited role played by companies implementing certification in forest management actually restricts the extent to which these companies can address the corrective action requests, most of which reflect that the underlying processes for addressing them reside within the domain of the forest management authority.

Although companies limited role in forest management and overcutting of timber were evidently the leading impediments to certification and sustainable forest management (grand mean of 3.9 each on 5-point scale), it must be noted that it was the industry groups who agreed more with the issues that companies' limited role in forest management and overcutting of timber constituted impediments to certification and sustainable forestry. This presupposes the notion that companies are willing to take up additional roles in administration and management of forest resources in Ghana. This provides an opportunity for the government to initiate a dialogue not only with the industry, but also with the broader stakeholder groups in considering transfer of forest management functions to the companies. The goal should include transfer of key forest management functions that would be best executed by the industry to the concession holders. This would not only provide a framework for concession holders to adapt forest management practice to meet demands of certification and sustainability requirements, but also should reduce the problem of the Forestry Commission having to stretch its limited human and material resources thinly over administration, management, monitoring, and regulation of forest resources.

The results further demonstrate that policy bureaucracies and inadequate technical capacity remain as the key impediments that affect acceptance, commitment, and progress on

certification in Ghana. Respondents strongly agreed that better enforcement of forest laws and legal reforms are required in the sector (4.8 and 4.0 respectively on a 5-point scale). Difficulties in implementing forest laws were echoed by both the Chairman of the Parliamentary Select Committee on Lands and Natural Resources and the Acting Chief Executive Officer of the Forestry Commission during personal interviews. Interviewees partly attributed this problem to inadequate consultations with stakeholders' during forest policy and law formulation process. Although addressing these challenges require political clout and commitment, perhaps the government could as a matter of urgency, begin a dialogue with a full consultation process geared for building a consensus on legal, institutional, and forest management role reforms in Ghana, given respondents' strong agreement to the necessity for legal reforms and better enforcement of forest laws.

The high cost of certification was considered as a hindrance to adoption and implementation of certification; however, the results testify that companies in Ghana are not willing to pay more than US\$ 20,000.00 annually to achieve certification. Additionally, interview results suggested that some companies interested in certification have had their operations assessed twice or thrice by certification bodies, yet had not achieved certification, a situation that according to them, has aggravated the already high cost of achieving certification. While it is acceptable that "good forest management" entails cost, certification bodies and programs should examine the possibilities of reducing the assessment costs in countries such as Ghana, where the incremental cost of bringing forest management to the level required by certification is high.

6.2 Assessment of the Influence of Certification on Forest Management Practice in Ghana

With forest certification becoming relatively well-established, its impact on forest management is now under scrutiny (Ozinga, 2004). In the same vein, with over ten years of

adoption and implementation of certification in Ghana, it is time that meaningful application of its influence on forest management practice is conducted.

The results of this part of the study generally indicated that respondents have a good understanding on the concepts of forest management and chain of custody certifications, however, with weaker understanding on different certification schemes albeit differences between the different groups' levels of understanding on these issues. Respondents strongly agreed that certification can help improve forest management and improve forest law compliance, can reduce illegal logging and the need for additional forest management regulations. This agreement indicates that certification holds a potential for addressing some of the forest management challenges in Ghana. This is reinforced by respondents' general agreement that adoption and implementation of certification by certain companies have actually caused improvement in a) the management of forest concessions, b) adoption and use of reduce impact logging, c) better protection of concessions, d) improved companies' relations with local communities, and e) effective log tracking. The high level of agreement to on-the-ground impacts of certification on forest management exemplifies the overall contribution of certification to improving forest management in Ghana. However, it was observed during field assessment that on-the-ground impacts of certification in the areas of reduce impact logging and adoption and the use of chain of custody systems have been sporadic and appear unsustainable, due to gradual, sustained, "certification fatigue" on the part of early adopters who have not yet achieved certification.

The challenges facing these companies are quite significant, with most requiring action on the part of government. Some of the factors cited by the companies interviewed are a long-standing, legislative impasse on conversion of leases to Timber Utilization Contracts (TUCs), as required by the Timber Resources Management Act of 1997. Others are absent or weak

management plans and inadequate data to support silvicultural practices and assumptions. It was also observed during the field assessment that there is limited a capacity within most of the companies, particularly the small-to-medium scaled ones, to implement all those activities required to meet certification standards. This notwithstanding, some of the companies have made and continue to make significant progress in the areas of improving logging operations through adoption and use of reduce impact logging techniques. In particular, four companies implementing certification in collaboration with WWF have contracted with FORM International since September 2006 to train their forest managers and operation teams on reduce impact logging techniques. One of those trainings was on-going at the time of the field assessment at Nkrabea and Pra Anum forest reserves. To ensure that such trainings influence the overall forest management and logging practices significantly, rather than as a piecemeal approach, it is important that a detailed analysis of the impact of logging operations in Ghana is launched to identify major areas needing improvement.

6.3 Assessment of Forest Management Practice in Ghana

Research findings show that apart from the policymakers who weakly indicated that management practices have been effective in sustaining the forest resources (3.2 on a 5-point scale), both the loggers and processors/exporters agreed that the prevailing forest management practice has not been effective in sustaining the forests of Ghana. However, all three groups disagreed that the present protection strategies have been effective in sustaining the forest with no significant differences in the various groups' mean response. The near consensus that the present management practice is ineffective, coupled with the general agreement that forest protection strategies have not been effective from theses diverse groups of respondents, indicates that there are fundamental problems with Ghana's forest management and protection strategies that must be addressed. On forest policy effectiveness, the respondent groups generally disagree

that weak forest policy negatively impacts sustainable forest management, although the loggers neither agreed nor disagreed. This also applies to the issue of conflicting forest laws.

Respondents strongly agree that illegal logging, weak enforcement of forest laws and corruption are the three most important factors thwarting all efforts aimed at sustaining Ghana's forest resources. Other issues that affect sustainable forest management in descending order, according to the results are: a) overcutting of timber, b) conversion of forestlands into other land uses, c) poor logging practices, and d) poor forest management. Although there was no significant difference between the different groups responses on weak enforcement of laws, the policymakers agree mostly on the issue despite the fact that most of the policymakers (from the Forestry Commission and its divisions) at the same time are responsible for forest policy and law coordination, implementation and enforcement. It is important that policymakers admit that their responsibilities are not being delivered, but it is even more than important that the underlying factors for this are revealed. Government, as part of the broader stakeholder consultation process, could commit strongly to addressing the underlying factors that prevent effective implementation and enforcement of forest laws in Ghana.

Although there was consensus that corruption and illegal logging are key problems impeding the sectors progress, there were significant differences in the different groups' mean response on the issues. Loggers and processors/exporters agreed even more that illegal logging and corruption are serious problems that impede sustainable forestry, even though often they are the ones who initiate illegal logging activities. Policymakers did not agree nor disagree that poor forest management practice is a problem, in the sector. However, the loggers and processors/exporters agree that this is s a problem with the processors/exporters having the highest agreement level. Certification may be useful in addressing some of these issues, but may not offer a comprehensive solution to the myriad of problems confronting Ghana's forest sector,

such as illegal logging. SGS suggested that since certification is not based on unannounced audits and relies on paper-based systems, it may not provide a comprehensive solution to illegal logging and its associated wood products trade problems (SGS, 2003).

The groups generally disagreed that companies are responsible for forest management decisions on their respective concessions. While the processors/exporters disagreed that companies are not involved in forest management but are rather tree harvesters, the policymakers neither agreed nor disagreed (a group mean of 3.0, indicating that the group neither agrees nor disagrees) while the loggers showed a weak agreement to the issue. Although the differences in the group mean responses are not significant, the diversity of responses from the different groups on this issue elucidates a lack of clarity on who is responsible and in practice, who implement which part of forest management activities. A larger number of policymakers (51%) agreed with the issue and a reasonably high number (32.6%) of the same group disagreed with the issue; these responses seem to attest to this lack of clarity on forest management responsibilities.

6.4 Assessment of Certification and Sustainable Forest Management Buyer Requirements on Forest Management and Timber Export Trade

The findings of this part of the research indicated that a plurality of importers of wood products, particularly those from Europe, have requested that their suppliers in Ghana meet certification requirements. This has been a valued impetus for an uptake of certification in Ghana by the Ghanaian wood products exporters.

However, besides a price premium which a plurality of the importers (65%) indicated that they offer on certified wood products, the importers generally disagreed that they provided any other financial support to their suppliers to countervail the high cost of certification. Yet they weakly agreed that they provided technical support and also supported research on certification. Importers weakly agreed that product quality, consistent supply, contract fulfillment, punctuality in delivery, and pricing of products reflect some of the problems faced in importation of wood

products from Ghana. However, importers disagreed on language barrier and customs requirements. The high level to which importers neither agreed nor disagreed on the problems faced is an indication that these problems are not strong enough to stop their buying from Ghana.

A majority of exporters (72%) strongly agreed that Europe comprises their most important market destinations, although they still struggle to get their concessions certified, even while the demand for certified and legally produced wood products continues to grow in Europe. The commitment of companies to certify their concessions in response to buyer pressure provides a narrow window of opportunity for responsible authorities in Ghana to ensure that companies comply with forest laws and regulations as well as environmentally-friendly logging practices.

In terms of the influence of certification on the timber export trade, results show that importers generally do not stop buying from suppliers who are unable to meet certification requirements, although 17% of European importers indicated that they stop buying from suppliers who do not meet certification requirements. The results further show that 47% of the European importers have decreased their wood imports from Ghana. However, whether these changes will result in an uptake of certification or substantial trade shift from Europe will depend on how important those importers are in terms of the volume and value of wood products imported from Ghana. Again, the requests and pressures on exporters to achieve certification will have little influence at best on practical forest management in Ghana, given that the exporters and loggers officially have minor roles and control in forest administration and management.

6.5 Limitations of the Study and Possible Future Research

The main research tool for this study is the mailing survey. Mail surveys intrinsically have a number of disadvantages. Some drawbacks include low response rates and greater levels of strategic responses, including those on willingness to pay (Whittaker et al., 1998). Kanuk and

Berenson (1978) also identified that education and income levels influence the response rate from mail surveys; those on higher education and higher income levels are more likely to respond. Additionally, most business owners tend to give business questionnaires to their staff or other people who may not have the right information, and hence responses do not reflect the reality of the target group. This survey was no exception since only 8.4% of the owners of processing/exporting companies actually completed the questions themselves; the remaining 91.6% were completed by upper and middle managers. A major limitation of this study was the lack of response from Asia, despite all efforts to contact and persuade the Asian target group to complete the questionnaire.

Forest management in Ghana has been identified as unsustainable. This notion is being bolstered by several factors, including illegal logging, corruption, difficulties in implementing forest laws, weak enforcement of forest laws, and overcutting of timber. However, respondents believe that certification can contribute to addressing some of the challenges. Further studies or research aimed at finding answers to why these problems persist and how they could be addressed will contribute enormously in finding lasting solutions to the problems facing the Ghanaian forest sector.

CHAPTER 7: EPILOGUE

7.1 Improving Sustainable Forest Management and Certification Implementation in Ghana

When the questionnaire for the survey for this study was being developed during spring of 2009, I wondered whether it was necessary to ask respondents to indicate “yes” or “no” to the question: “Overall do you believe forest management in Ghana is sustainable?” I felt uncomfortable not because I thought the question was irrelevant, but on the assumptions that respondents will be uncomfortable to provide a “no” response given that the target population is in fact responsible for ensuring that the forest resources are sustainably managed. However, this was not the case. Overall, only 37.1% of the respondents indicated “yes” with 62.9% indicating “no”, signifying that the respondents generally believe that forest management in Ghana is not sustainable.

I believe sustainable forest management and certification are bedfellows. This question and the response from the survey therefore reinforce the general perception that the timeframe required and the potential for forest managers to achieve certification greatly depends on the progress made in implementing sustainable forest management principles prior to adoption and implementation of certification. It also reinforces my observations and twelve years of experience in the forest sector of Ghana that certification and sustainable forest management will be difficult to achieve in Ghana without dramatic change or a paradigm shift from the status quo. We may be right as forest managers to be conservative and clinch onto what we have been doing for the last hundred years, and therefore we may be cautious towards change. But, we may be wrong in our expectation that what worked well a hundred years ago will work today.

There is no doubt that Ghana’s forest reservation strategy, which began in the early 1920’s, has been an effective tool for ensuring remnants of intact natural forests in Ghana. Again, the development and updating of manuals and procedures on forest management

including timber harvesting by the Forestry Commission are important steps required to safeguard the integrity of these forests. However, the current system where the Forestry Commission acts as the manager, regulator, coordinator and implementer of laws and monitor of forest resources operations does not provide the required forest governance environment needed to drive improvement towards sustainable forestry in Ghana. Secondly, the existing legislative confusion over conversion of all pre-1998 leases to timber utilization contracts (TUCs) as required by the Timber Resources Management Act (Act 547) and its Regulation, LI 1649 also compounds Ghana's problems making it harder for meaningful progress to be made towards sustainable forest management and certification. Additionally, weak technical capacity on the part of both state forest managers and concession holders, coupled with inadequate financial and material resources for state forest managers, all contribute to stymie any progress towards sustainable forest management and certification in Ghana.

In order to contribute to addressing some of the key underlying problems to sustainable forest management in Ghana and to ensure effective implementation of certification, the following personal recommendations, based on my twelve years of working experience in diverse areas in the forest sector, are being proposed.

7.2 Recommendations to Government

7.2.1 Legislative Review

In order to address the legislative impasse currently affecting the sector, it is recommended that the government considers legislative review that seeks to address issues on conversion of pre-1998 leases to timber utilization contracts, a clear-cut and transparent procedure for award of the contract and a clear protocol for setting fees and payment of such fees including timber right fees. Legislative review should also aim to address the problems of illegal chainsaw activities through a ban on chainsaw lumbering while encouraging the setting up of

woodmizers or comparatively similar efficient machines at the district levels. This, together with adoption and use of public procurement policies that mandate all public works to use sawmill lumber, will drastically reduce the market potential of chainsaw wood products.

7.2.2 Training and Capacity-Building for State Forestry Officials

Currently, the state forestry officials' capacity to effectively manage, undertake forest stock improvement, regulate, control, and monitor forest production activities as well as coordinate and implement forest laws are weak and this seriously affect the delivery of effective implementation of the government's goal of achieving sustainable forest management. Most forestry officials do not have an adequate understanding of the forest management systems and the very laws they are supposed to coordinate, implement and enforce. Subsequently, it is very common to have conflicting views from different forestry officials on the same issue. In order to address this problem, there is the need for the government to build the capacity of state forestry officials to live up to the task of controlling, regulating and monitoring forest production operations, as well as coordination and implementation of forest laws.

7.2.3 Developing Protocol and Comprehensive Forest Management Planning Framework

Although concession holders may have a forty-year period right to carry out logging activities, the overall responsibility of management planning of such areas rests with the ill-equipped Forestry Commission. Subsequently, most forest reserves in Ghana lack comprehensive strategic management plans and stock improvement programs, a situation that leaves forest management to zoning, basic inventory of standing timber in production areas, yield selection, preparation of harvesting schedules and demarcation of logging routes. This level of planning falls short of sustainable forest management and is not compatible with certification requirements.

To address this deficiency in forest management planning, it is recommended that the Forestry Commission develops a comprehensive protocol and framework for forest management planning including forest stock improvement for use by concession holders in developing sustainable management and certification-friendly management plans for the concessions. This will not only allow the Forestry Commission to concentrate its efforts on monitoring and regulating forest production operations but will also simplify and reduce the complexities in forest management planning process to ensure that the plans are prepared and implemented.

7.3 Suggested Strategies for Companies to Improve on Forest Management and Certification Implementation in Ghana

The activities of forest industries in Ghana has, over the years, been limited to logging and processing of wood products without any interest and commitment in forest resource management and improvement programs. Subsequently, a majority of the companies have limited capacity on sustainable forest management. To address this limited capacity, the following recommendations are made:

7.3.1 Training and Capacity-Building

Training and capacity-building for the forest industry is required in three broad areas including environmental, social and wood tracking.

7.3.2 Capacity-Building on Environmental Issues

In order to ensure that timber companies in Ghana make progress towards sustaining the forest resources within their concessions and at the same time meeting certification requirements, there is the urgent need for capacity-building for the industry in environmental issues including protocols for establishment and management of permanent sample plots, identification and management of high conservation values in production forest landscape, and forest management planning. All of these are the responsibilities of the Forestry Commission under the current forest

laws. However, given that the Forestry Commission lacks both the financial resources and human capacity to undertake these responsibilities, it behooves the industry to address these challenges given that they are the core ingredients of certification and sustainable forest management which the industry desire.

7.3.3 Capacity-Building on Social Issues

A majority of the industry has over the years, downplayed social issues which form part of the core ingredients of certification and sustainable forest management particularly for public forestlands such as the case in Ghana. Key areas where most of the industry players' capacity fall short of the social requirements are health and safety issues, monitoring of social impacts of logging operations, community relations and social responsibility agreement development as well as the implementation of the agreement. Although it may not be economically feasible to have the capacity for all these areas within each industry, it is important that such companies identify appropriate mechanisms for addressing these issues including collaboration with relevant institutions.

7.3.4 Capacity-Building on Log and Wood Products Tracking

The Forestry Commission has, over the years, retained the responsibility of tracking and monitoring forest production operations including log tracking. The situation has left the industry with virtually no experience in log and wood product tracking including the production processes, transportation, storage and distribution of wood products, an important requirement for certified wood product labeling. In order for companies in Ghana to label certified wood products from their concessions in the future, the companies need to build their capacity in log and wood product tracking. The government could provide the needed training and technical support to the industry on this since a successful implementation of effective company level wood product tracking has the potential of reducing illegal logging in Ghana.

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APPENDIX I: POLICYMAKERS AND FORESTRY OFFICIALS SURVEY



FOREST CERTIFICATION AND TIMBER EXPORT TRADE STUDY Section I. General Information

1. Please state your profession_____
2. Institution name_____
3. Please state your position in this institution _____

Section II. Forest Policy and Legislation

1. For each of the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

I believe Ghana's forest:

protection strategies have been effective in protecting the forests against illegal logging

1	2	3	4	5
---	---	---	---	---

management practices have been effective in sustaining the forests

1	2	3	4	5
---	---	---	---	---

policy supports sustainable forest management

1	2	3	4	5
---	---	---	---	---

laws and regulations are weak with regards to ensuring forest sustainability

1	2	3	4	5
---	---	---	---	---

laws are difficult to implement

1	2	3	4	5
---	---	---	---	---

3. For each of the statements below, please indicate your level of agreement or disagreement for the need for forest sector reforms by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

Ghana's forest sector needs:

legal reform	1	2	3	4	5
institutional role reform	1	2	3	4	5
forest management roles reform	1	2	3	4	5
the use of different forest management tools	1	2	3	4	5
better enforcement of existing laws and regulations	1	2	3	4	5
the use of forest certification	1	2	3	4	5

Section III. Forest Management

- For each of the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Logging companies:					
are responsible for forest management decisions for their concessions	1	2	3	4	5
manage their concessions under the instructions of the Forestry Commission	1	2	3	4	5
manage their forests jointly with the Forestry Commission	1	2	3	4	5
are not involved in forest management but are tree harvesters while the Forestry Commission manages the forests	1	2	3	4	5

- For each of the statements below, please indicate your level of agreement or disagreement as the key management problems facing Ghana's forestry sector by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Factors impeding sustainable forest Management in Ghana are:					
corruption	1	2	3	4	5
weak forest policy	1	2	3	4	5

conflicting forest laws	1	2	3	4	5
weak enforcement of forest laws	1	2	3	4	5
poor management practices	1	2	3	4	5
illegal logging	1	2	3	4	5
overcutting of timber	1	2	3	4	5
conversion of forest land into other uses	1	2	3	4	5
poor logging practices	1	2	3	4	5
unclear roles of institutions involved in forest management	1	2	3	4	5
inadequate data to validate silvicultural assumptions	1	2	3	4	5

3. Do concessions in Ghana have forest management plans?

1. Yes 2. No 3. Don't Know

4. If your answer to (3) above is Yes, who prepared the plans?

1. Concession holders
 2. Forestry Commission
 3. Other, please specify_____

5. Do you believe logging companies in Ghana have the capacity to manage their concessions sustainably should the government decide to cede all management functions to the companies?

1. Yes 2. No 3. Don't Know

6. Overall, do you believe that forest management in Ghana is sustainable?

1. Yes 2. No

Section IV. Forest Certification

1. Are there companies in Ghana who are currently pursuing forest certification?

1. Yes 2. No 3. Don't Know

2. Do you believe that there are companies in Ghana who are willing to consider certification?

1. Yes 2. No 3. Don't Know

3. For each of the statements below, please indicate your level of agreement or disagreement with the following statement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

I have good understanding on:

forest management certification	1	2	3	4	5
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chain of custody certification	1	2	3	4	5
--------------------------------	---	---	---	---	---

different certification schemes	1	2	3	4	5
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4. For the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

I believe that:

certification can help improve forest management in Ghana	1	2	3	4	5
---	---	---	---	---	---

certification can help reduce illegal logging	1	2	3	4	5
---	---	---	---	---	---

certification can reduce the need for additional management regulations	1	2	3	4	5
---	---	---	---	---	---

certification can help promote forest lawn compliance	1	2	3	4	5
---	---	---	---	---	---

5. Does Ghana have certified forests?

1. Yes 2. No 3. Don't Know

6. For each of the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

Companies in Ghana adopted certification in order to:

meet requirements of their buyers	1	2	3	4	5
-----------------------------------	---	---	---	---	---

access new markets currently not available to them	1	2	3	4	5
--	---	---	---	---	---

ensure sustainable management of their concessions	1	2	3	4	5
--	---	---	---	---	---

receive market premium for the wood products they export	1	2	3	4	5
--	---	---	---	---	---

enable them better comply with Ghana's forestry laws and regulations	1	2	3	4	5
--	---	---	---	---	---

7. For each of the following statements please indicate your level of agreement or disagreement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

Key impediments to certification in Ghana are:

policy and legislative bureaucracy	1	2	3	4	5
------------------------------------	---	---	---	---	---

inadequate technical capacity	1	2	3	4	5
-------------------------------	---	---	---	---	---

weak understanding of certification requirements	1	2	3	4	5
--	---	---	---	---	---

high cost of certification	1	2	3	4	5
----------------------------	---	---	---	---	---

concession holders limited role in forest management including management planning	1	2	3	4	5
--	---	---	---	---	---

8. For each of the statements below, please indicate your level of agreement or disagreement on improvement in forest management as a result of the use of certification by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

The use of certification in Ghana by some companies has led to:

improved management of concessions of companies who have adopted certification	1	2	3	4	5
--	---	---	---	---	---

improved logging practices in concessions held by those companies	1	2	3	4	5
---	---	---	---	---	---

the use of reduce impact logging techniques by those companies	1	2	3	4	5
--	---	---	---	---	---

better protection of those concessions against illegal logging	1	2	3	4	5
--	---	---	---	---	---

improved companies' relations with local communities	1	2	3	4	5
--	---	---	---	---	---

effective log tracking	1	2	3	4	5
------------------------	---	---	---	---	---

9. Are the impediments to certification indicated above being addressed?

1. Yes

2. No

If your response is Yes, how are the impediments being addressed?

THANK YOU!

APPENDIX II: GHANAIAN WOOD PRODUCTS PROCESSOR/EXPORTERS SURVEY



(For Concession Holders and Exporters from Ghana, GTMO Members) FOREST CERTIFICATION AND TIMBER EXPORT TRADE STUDY

Section I. Business Profile

1. Company Name _____
2. City/town, where is company located? _____
3. Please indicate your position within the “company” (Please circle one)
 1. Owner
 2. Upper Management
 3. Middle Management
 4. Supervisor
 5. Other (Please specify) _____
4. What year was your company established? _____
5. How many full-time employees currently work at your company? (Please circle one)

1. 50 employees or less	5. 1001-1500 employees
2. 51- 100 employees	6. 1501-2000 employees
3. 101-500 employees	7. 2001-2500 employees
4. 501-1000 employees	8. More than 2500 employees
6. Does your company have concession(s) in Ghana ?(Please circle one)
 1. Yes
 2. No
7. If your answer to (6) above is Yes, what is the total size of your forestland holdings (for both long and short term concessions)? (Please circle one)

1. 19,999 hectares or less	6. 100,000-119,999 hectares
2. 20,000-39,999 hectares	7. 120,000-139,999 hectares
3. 40,000-59,999 hectares	8. 140,000-159,999 hectares
4. 60,000-79,999 hectares	9. 160,000-179,999 hectares
5. 80,000-99,999 hectares	10. 180,000 hectares or more
8. What percentage of your forestland holding is a long-term concession/TUC with 15 years or more until expiration? (Please circle one)

1. 10% or less	6. 51-60%
----------------	-----------

- | | |
|-----------|-------------|
| 2. 11-20% | 7. 61-70% |
| 3. 21-30% | 8. 71-80% |
| 4. 31-40% | 9. 81-90% |
| 5. 41-50% | 10. 91-100% |

Section II. Operations

1. What was your company's annual log production in cubic meters in 2008? (Please circle the appropriate response)

- | | |
|----------------------------------|-----------------------------------|
| 1. 19,999 m ³ or less | 5. 80,000-99,999 m ³ |
| 2. 20,000-39,999 m ³ | 6. 100,000-119,999 m ³ |
| 3. 40,000-59,999 m ³ | 7. 120,000-139,999 m ³ |
| 4. 60,000-79,999 m ³ | 8. 140,000 m ³ or more |

2. What is your company's annual wood processing capacity in m³ (please circle the appropriate response)

- | | |
|----------------------------------|-----------------------------------|
| 1. 19,999 m ³ or less | 5. 80,000-99,999 m ³ |
| 2. 20,000-39,999 m ³ | 6. 100,000-119,999 m ³ |
| 3. 40,000-59,999 m ³ | 7. 120,000-139,999 m ³ |
| 4. 60,000-79,999 m ³ | 8. 140,000 m ³ or more |

3. Please indicate your company's other sources of wood-based raw materials to meet this processing capacity? (Estimate percentages from sources below by volumes). Total must add up to 100%.

1. My company's concessions/TUCs _____
2. Loggers/contractors _____
3. Other processing companies _____
4. Countries outside Ghana _____

4. Overall do you believe forest management in Ghana is sustainable?

1. Yes
2. No

5. Does your company have management plans for its forest holdings?

1. Yes
2. No

6. If your response to (4) above is Yes, who prepared the plans? (Please circle the appropriate response).

1. My company prepared the plans
2. Forestry Commission prepared the plans
3. Other, please specify _____

7. In which year were the management plans for your company's concessions prepared? ____

8. Have there been revisions to the management plans?

1. Yes 2. No 3. Don't Know

If your response is yes, in which year were the revisions made? _____

9. For the statements below, please indicate your level of agreement or disagreement with the following statements on forest management by circling the single most appropriate number after each statement.

	strongly disagree		neither agree nor agree		strongly agree
--	------------------------------	--	------------------------------------	--	---------------------------

My company:

is responsible for management decisions of its concessions	1	2	3	4	5
--	---	---	---	---	---

manages its concessions under the directions of the Forestry Commission	1	2	3	4	5
---	---	---	---	---	---

manages its concessions jointly with the Forestry Commission	1	2	3	4	5
--	---	---	---	---	---

is not involved in the management but harvests trees while the Forestry Commission manages the forests	1	2	3	4	5
--	---	---	---	---	---

10. Are the current management roles and responsibilities in Ghana appropriate to ensure sustainable forest resource management?

1. Yes 2. No 3. Don't Know

11. Are the current management roles and responsibilities in your company appropriate to ensure sustainable forest management of your company's forest holdings?

1. Yes 2. No

12. Please circle the number (s) of those products your company manufactures. (Please circle all that apply).

- | | |
|------------|----------------------------------|
| 1. Lumber | 4. Boules |
| 2. Plywood | 5. Moldings |
| 2. Veneer | 6. Furniture and furniture parts |

Others Please specify _____

Section III. Forest Policy and Legislation

1. Are there any land tenure issues such as tenure right over any of your concessions?

1. Yes 2. No

If yes, please briefly explain the nature of the issue _____

2. For the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither agree nor agree		strongly agree
I believe Ghana's forest:					
management strategies have been effective in protecting the forests against illegal logging	1	2	3	4	5
management practices have been effective in sustaining the forest resource	1	2	3	4	5
policy support sustainable forest management	1	2	3	4	5

3. For each of the statements below, indicate your level of agreement or disagreement to forest sector reform by circling the single most appropriate number after each statement.

	strongly disagree		neither agree nor agree		strongly agree
Ghana's forest sector needs:					
legal reform	1	2	3	4	5
forest sector institutional role reform	1	2	3	4	5
forest management role reform	1	2	3	4	5
the use of different forest management tools	1	2	3	4	5
better enforcement of existing laws and legislations	1	2	3	4	5
the use of forest certification	1	2	3	4	5

4. For each of the statements below, please indicate your level of agreement or disagreement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Factors impeding sustainable forest management in Ghana are:					
corruption	1	2	3	4	5
weak forest policies	1	2	3	4	5
conflicting forest laws	1	2	3	4	5

weak enforcement of forest laws	1	2	3	4	5
poor management practices	1	2	3	4	5
illegal logging	1	2	3	4	5
overcutting of timber	1	2	3	4	5
conversion of forest lands	1	2	3	4	5
poor logging practices	1	2	3	4	5
inadequate data to validate silvicultural assumptions	1	2	3	4	5

Section IV. Forest Certification

1. Is your company currently pursuing forest certification?

1. Yes 2. No

If your response is Yes, please indicate which year your company adopted certification__

2. If your response is No, is your company willing to consider forest certification?

1. Yes 2. No

3. For the statements below, please indicate your company's level of understanding with the certification concepts below by circling the single most appropriate number for each statement.

	strongly disagree		neither disagree nor agree		strongly agree
<hr/> My company understands:					
forest management certification	1	2	3	4	5
chain of custody certification	1	2	3	4	5
different certification schemes	1	2	3	4	5

4. For the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
<hr/> My company believes that:					
forest certification can help improve forest management in Ghana	1	2	3	4	
certification can help reduce					

illegal logging in Ghana	1	2	3	4	5
--------------------------	---	---	---	---	---

certification can reduce the need for additional management regulations	1	2	3	4	5
---	---	---	---	---	---

certification can help promote forest law compliance	1	2	3	4	5
--	---	---	---	---	---

5. For each of the statements below, please provide your reason for adopting certification by indicating your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

My company adopted certification in order to:

meet requirements of buyers	1	2	3	4	5
-----------------------------	---	---	---	---	---

access new markets currently not available to the company	1	2	3	4	5
---	---	---	---	---	---

ensure sustainable management of the company's forest holdings	1	2	3	4	5
--	---	---	---	---	---

receive a price premium for the wood products we export	1	2	3	4	5
---	---	---	---	---	---

enable the company to better comply with Ghana's forestry laws and regulations	1	2	3	4	5
--	---	---	---	---	---

6. Please identify the key impediments/problems to certification in Ghana by indicating your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

Key impediments to certification in Ghana are:

policy and legislative bureaucracies	1	2	3	4	5
--------------------------------------	---	---	---	---	---

inadequate technical capacity	1	2	3	4	5
-------------------------------	---	---	---	---	---

weak understanding of certification requirements	1	2	3	4	5
--	---	---	---	---	---

high cost of certification concession holders limited role in	1	2	3	4	5
---	---	---	---	---	---

forest management including management planning, yield selection and control	1	2	3	4	5
--	---	---	---	---	---

7. Have any of your company's concessions been certified? (Please circle the one that applies to your company)

1. Yes 2. No

If your response is Yes, please indicate (in ha) the area of your certified forest _____

8. Are the impediments indicated above being addressed?

1. Yes 2. No

If your response is Yes, how are the impediments being addressed? _____

9. For each of the statements below, please indicate your level of agreement or disagreement with regards to your company's adoption of certification by circling the single most appropriate number after each statement.

	strongly disagree	neither disagree nor agree	strongly agree
--	------------------------------	---------------------------------------	---------------------------

My company's adoption of
forest certification has led to:

improved management of company's concessions	1	2	3	4	5
---	---	---	---	---	---

unexpected benefit to the company	1	2	3	4	5
-----------------------------------	---	---	---	---	---

unexpected costs to the company	1	2	3	4	5
---------------------------------	---	---	---	---	---

reduced logging costs	1	2	3	4	5
-----------------------	---	---	---	---	---

increased demand for company's products	1	2	3	4	5
--	---	---	---	---	---

effective log tracking system	1	2	3	4	5
-------------------------------	---	---	---	---	---

better protection of company's concessions	1	2	3	4	5
---	---	---	---	---	---

adoption and use of reduce impact logging techniques	1	2	3	4	5
---	---	---	---	---	---

improved relations with local communities	1	2	3	4	5
--	---	---	---	---	---

10. Please indicate the cost your company would be willing to spend annually in order to get both forest management and chain-of-custody certification?

- | | |
|-----------------------|----------------------|
| 1. \$19,999 or less | 4. \$60,000-\$79,999 |
| 2. \$20,000- \$39,999 | 5. \$80,000-\$99,999 |
| 3. \$40,000-\$59,999 | 6. \$100,000 or more |

Section V. Wood Product Marketing and Export.

1. Please provide an approximate percentage of your wood products sale under the following categories in volume. (Please circle the appropriate response)

Local Sales

- | | |
|----------------|-------------|
| 1. 10% or less | 6. 51-60% |
| 2. 11-20% | 7. 61-70% |
| 3. 21-30% | 8. 71-80% |
| 4. 31-40% | 9. 81-90% |
| 5. 41-50% | 10. 91-100% |

Export

- | | |
|----------------|-------------|
| 1. 10% or less | 6. 51-60% |
| 2. 11-20% | 7. 61-70% |
| 3. 21-30% | 8. 71-80% |
| 4. 31-40% | 9. 81-90% |
| 5. 41-50% | 10. 91-100% |

2. For each of the statements below, please indicate your level of agreement or disagreement as the most important market destination for your wood products by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company's most important market destination is:					
local sales in Ghana	1	2	3	4	5
African Region	1	2	3	4	5
North America	1	2	3	4	5
Asia	1	2	3	4	5
Europe	1	2	3	4	5
Australia	1	2	3	4	5
Middle East	1	2	3	4	5

3. Has your company ever been asked by any of your buyers to meet certification requirements?

1. Yes 2. No

4. Have your company ever lost a buyer as a result of not meeting certification requirements?

1. Yes 2. No

If your response to (4) above is Yes, please indicate the number of buyers your company has lost as a result of not meeting certification requirements_____

5. For each of the following statements below, please indicate your level of agreement or disagreement as the market destination that strongly require that wood products meet certification requirements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Market destination where certification requirements are strongly demanded is:					
African Region	1	2	3	4	5
North America	1	2	3	4	5
Asia	1	2	3	4	5
Europe	1	2	3	4	5
Australia	1	2	3	4	5
Middle East	1	2	3	4	5

6. For each of the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Certification helps my company to:					
access new wood products markets	1	2	3	4	5
maintain its traditional buyers	1	2	3	4	5
sell the wood products easier	1	2	3	4	5
receive price premium	1	2	3	4	5
market lesser used species	1	2	3	4	5

THANK YOU!

APPENDIX III: CONCESSION HOLDERS AND LOG PRODUCERS SURVEY



FOREST CERTIFICATION AND TIMBER EXPORT TRADE STUDY Section I. Business Profile

1. Company Name_____
2. City/town, where is company located? _____
3. Please indicate your position within the “company” (Please circle one)
 1. Owner
 2. Upper Management
 3. Middle Management
 4. Supervisor
 5. Other (Please specify)_____
4. What year was your company established? _____
5. How many full-time employees currently work at your company? (Please circle one)
 1. 10 employees or less
 2. 11- 20 employees
 3. 21-30 employees
 4. 31-40 employees
 5. 41-50 employees
 6. More than 50 employees
6. Does your company have concession(s) in Ghana? (Please circle one)
 1. Yes
 2. No
7. If your answer to (6) above is **Yes**, what is the total size of your forestland holdings (for both long and short term concessions)? (Please circle one)
 1. 19,999 hectares or less
 2. 20,000-39,999 hectares
 3. 40,000-59,999 hectares
 4. 60,000-79,999 hectares
 5. 80,000-99,999 hectares
 6. 100,000-119,999 hectares
 7. 120,000-139,999 hectares
 8. 140,000-159,999 hectares
 9. 160,000-179,999 hectares
 10. 180,000 hectares or more
8. What percentage of your forestland holding is a long-term concession/TUC with 15 years or more until expiration? (Please circle one)
 1. 10% or less
 2. 11-20%
 3. 21-30%
 4. 31-40%
 5. 41-50%
 6. 51-60%
 7. 61-70%
 8. 71-80%
 9. 81-90%

5. 41-50%

10. 91-100%

9. Does your company have management plans for its forest holdings?

1. Yes 2. No

10. If your response to (4) above is Yes, who prepared the plans? (Please circle the appropriate response).

1. My company prepared the plans
2. Forestry Commission prepared the plans
3. Other, please specify _____

11. In which year were the management plans for your company's concessions prepared?

12. Have there been revisions to the management plans?

1. Yes 2. No 3. Don't Know

If your response is yes, in which year were the revisions made? _____

Section II. Forest Management and Operations

1. What was your company's annual log production in cubic meters in 2008? (Please circle the appropriate response)

- | | |
|----------------------------------|-----------------------------------|
| 1. 19,999 m ³ or less | 5. 80,000-99,999 m ³ |
| 2. 20,000-39,999 m ³ | 6. 100,000-119,999 m ³ |
| 3. 40,000-59,999 m ³ | 7. 120,000-139,999 m ³ |
| 4. 60,000-79,999 m ³ | 8. 140,000 m ³ or more |

2. For each of the statements below, please indicate your level of agreement or disagreement with the following statements on forest management by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company:					
is responsible for management decisions of its concessions	1	2	3	4	5
manages its concessions under the directions of the Forestry Commission	1	2	3	4	5
manages its concessions jointly with the Forestry Commission	1	2	3	4	5

is not involved in the management but
harvests trees while the Forestry
Commission manages the forests 1 2 3 4 5

3. Overall, do you believe forest management in Ghana is sustainable?

1. Yes 2. No

4. Are the current management roles and responsibilities in your company appropriate to ensure sustainable forest management of your company's forest holdings?

1. Yes 2. No

5. Does your company have the capacity to manage its concessions sustainably should government decide to transfer all management functions to the company?

1. Yes 2. No

6. For each of the statements below, please indicate your level of agreement or disagreement with the following statement on how you sell timber or logs from your concessions by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company:					
arranges with processing companies to harvest the trees from my concessions	1	2	3	4	5
harvests the trees and sells the logs in the forest	1	2	3	4	5
harvests the trees and transports the logs for sale at processing mills	1	2	3	4	5
intends to set up a processing mill to process the logs we harvest	1	2	3	4	5

Section III. Forest Policy and Legislation

1. Are there any legal issues (such as tenure right) on any of your concessions?

1. Yes 2. No

If yes, please briefly explain the nature of the issue _____

2. For each of the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each

statement.

	strongly disagree		neither agree nor agree		strongly agree
I believe Ghana's forest:					
management strategies have been effective in protecting the forests against illegal logging	1	2	3	4	5
management practices have been effective in sustaining the forest resource	1	2	3	4	5
policy support sustainable forest management	1	2	3	4	5

3. For each of the statements below, indicate your level of agreement or disagreement with the statement by circling the single most appropriate number after each statement.

	strongly disagree		neither agree nor agree		strongly agree
Ghana's forest sector needs:					
legal reform	1	2	3	4	5
forest sector institutional role reform	1	2	3	4	5
forest management roles reform	1	2	3	4	5
the use of different forest management tools	1	2	3	4	5
better enforcement of existing laws	1	2	3	4	5
the use of forest certification	1	2	3	4	5

4. For each of the statements below, please indicate your level of agreement or disagreement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Factors impeding sustainable forest management in Ghana are:					
corruption	1	2	3	4	5
weak forest policies	1	2	3	4	5
conflicting forest laws	1	2	3	4	5

weak enforcement of forest laws	1	2	3	4	5
poor management practices	1	2	3	4	5
illegal logging	1	2	3	4	5
overcutting of timber	1	2	3	4	5
conversion of forest lands	1	2	3	4	5
poor logging practices	1	2	3	4	5
inadequate data to validate silvicultural assumptions	1	2	3	4	5

Section IV. Forest Certification

1. For the statements below, please indicate your company's level of understanding with the certification concepts below by circling the single most appropriate number for each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company understands:					
forest management certification	1	2	3	4	5
chain of custody certification	1	2	3	4	5
different certification schemes	1	2	3	4	5

2. Is your company currently pursuing forest certification?

1. Yes 2. No

If your response is Yes, please indicate which year your company adopted certification____

3. If your response is No, is your company willing to consider forest certification?

1. Yes 2. No

4. For the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company believes that:					
forest certification can help improve forest management in Ghana	1	2	3	4	5

certification can help reduce illegal logging in Ghana	1	2	3	4	5
--	---	---	---	---	---

certification can reduce the need for additional management regulations	1	2	3	4	5
---	---	---	---	---	---

certification can help promote forest law compliance	1	2	3	4	5
--	---	---	---	---	---

5. For each of the statements below, please provide the reason for your company adopting certification by indicating your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

My company adopted certification in order to:

meet requirements of log buyers	1	2	3	4	5
---------------------------------	---	---	---	---	---

access new markets currently not available to the company	1	2	3	4	5
---	---	---	---	---	---

ensure sustainable management of the company's forest holdings	1	2	3	4	5
--	---	---	---	---	---

receive price premium for the company's logs	1	2	3	4	5
--	---	---	---	---	---

enable the company to better comply with Ghana's forestry laws and regulations	1	2	3	4	5
--	---	---	---	---	---

6. Please identify the key impediments/problems to certification in Ghana by indicating your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	--------------------------	--	-----------------------------------	--	-----------------------

Key impediments to certification in Ghana are:

policy and legislative bureaucracies	1	2	3	4	5
--------------------------------------	---	---	---	---	---

inadequate technical capacity	1	2	3	4	5
-------------------------------	---	---	---	---	---

weak understanding of certification requirements	1	2	3	4	5
--	---	---	---	---	---

high cost of certification	1	2	3	4	5
----------------------------	---	---	---	---	---

concession holders limited role in forest management including management planning, yield selection and control	1	2	3	4	5
---	---	---	---	---	---

7. Are the impediments indicated above being addressed?

1. Yes

2. No

If your response is Yes, how are the impediments being addressed? _____

8. Please indicate the cost your company would be willing to spend annually in order to achieve both forest management and chain-of-custody certification?

1. \$19,999 or less

4. \$60,000-\$79,999

2. \$20,000- \$39,999

5. \$80,000-\$99,999

3. \$40,000-\$59,999

6. \$100,000 or more

9. For each of the statements below, please indicate your level of agreement or disagreement with regards to your company's adoption of certification by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company's adoption of forest certification has led to:					
improved management of company's concessions	1	2	3	4	5
unexpected benefit to the company	1	2	3	4	5
unexpected costs to the company	1	2	3	4	5
reduced logging costs	1	2	3	4	5
increased demand for company's logs	1	2	3	4	5
effective log tracking system	1	2	3	4	5
better protection of company's concessions	1	2	3	4	5
adoption and use of reduce impact logging techniques	1	2	3	4	5
improved relations with local communities	1	2	3	4	5

10. Have any of your concessions been certified? (Please circle the one that applies to your company)

1. Yes 2. No

If your response is Yes, please indicate (in ha) the area of your certified forest _____

Section V. Log Marketing

7. Has your company ever been required by any of your local wood processing buyers to meet certification requirements?

1. Yes 2. No

If Yes, please explain how your company dealt with this buyer requirement? _____

8. Have you ever lost a buyer as a result of your company not meeting certification requirements?

1. Yes 2. No

If your response is Yes, please indicate the number of buyers your company has lost as a result of not meeting certification requirements _____

9. For each of the statements below, please indicate your level of agreement or disagreement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

Certification helps my company to:

access new markets	1	2	3	4	5
maintain traditional buyers	1	2	3	4	5
sell wood products easier	1	2	3	4	5
receive price premium	1	2	3	4	5
market Lesser Used Species (LUS)	1	2	3	4	5

THANK YOU!

APPENDIX IV: GHANAIAN WOOD PRODUCT IMPORTERS SURVEY



FOREST CERTIFICATION AND TIMBER EXPORT TRADE STUDY Section I. Business Profile

1. Company Name_____
2. City and country, where is company located? _____
3. Please indicate your position within the “company” (Please put an “X” in front of one that applies)
 1. Owner
 2. Upper Management
 3. Middle Management
 4. Supervisor
 5. Other (Please specify)_____
4. What year was your company established? _____
5. How many full-time employees currently work at your company? (Please put an “X” in front of one that applies)

1. 20 employees or less	6. 101-120 employees
2. 21-40 employees	7. 121-140 employees
3. 41-60 employees	8. 141-160 employees
4. 61-80 employees	9. 161-180 employees
5. 81-100 employees	10. More than 180 employees

Section II. Forest Certification

1. Is your company currently pursuing certification in its wood procurement?
 1. Yes
 2. NoIf your response is Yes, please indicate which year your company adopted certification for its wood products procurement_____
2. If your response is No, is your company willing to consider forest certification in wood products procurement?
 1. Yes
 2. No

3. For the statements below, please indicate your company's level of understanding with the certification concepts below by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company has a good understanding on:					
the concept of forest certification	1	2	3	4	5
chain of custody certification	1	2	3	4	5
the different certification schemes	1	2	3	4	5
what constitutes legal wood products in countries where my company imports wood products	1	2	3	4	5

4. For the statements below, please indicate your level of agreement or disagreement with the following statements by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company:					
has a written environmental policy	1	2	3	4	5
should have an environmental policy	1	2	3	4	5
has wood procurement policy	1	2	3	4	5
believes there is the need for certification for forest management	1	2	3	4	5
would pay a premium for certified wood products or raw materials	1	2	3	4	5

5. Is your company currently offering price premium for certified wood products?

1. Yes 2. No

If your response to (5) above is Yes, how extra (in percentage) does your company pay?

- | | |
|---------------|------------------|
| 1. 5% or less | 4. 16-20% |
| 2. 6-10% | 5. 21-25% |
| 3. 11-15% | 6. More than 25% |

6. For the statements below, please indicate your level of agreement or disagreement with the following statements by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

My company believes that:

certification can help improve tropical forest management	1	2	3	4	5
---	---	---	---	---	---

government of my country promotes certification	1	2	3	4	5
---	---	---	---	---	---

certification can reduce the need for additional wood product trade regulation	1	2	3	4	5
--	---	---	---	---	---

certification can help promote forest law compliance	1	2	3	4	5
--	---	---	---	---	---

certification can help reduce illegal logging	1	2	3	4	5
---	---	---	---	---	---

7. Does your company sell certified wood products? (Please put an "X" mark in front of what applies to your company)

1. Yes 2. No

8. If your response is Yes, please indicate the proportion of your wood imports that are certified by putting an "X" in front of what applies to your company).

1. 10% or less	6. 51-60%
2. 11-20%	7. 61-70%
3. 21-30%	8. 71-80%
4. 31-40%	9. 81-90%
5. 41-50%	10. 91-10%

9. For each of the statements below, please provide the reasons for your company adopting certification by indicating your level of agreement or disagreement with the following statements by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

My company adopted certification in order to:

meet requirements of buyers (customers)	1	2	3	4	5
---	---	---	---	---	---

access new markets currently not

available to the company	1	2	3	4	5
contribute to sustainable management of tropical forests	1	2	3	4	5
receive market premium for our products	1	2	3	4	5
enable my company better comply with laws and regulations on wood products trade	1	2	3	4	5

10. Please identify the key problems impeding certification by indicating your level of agreement or disagreement with the following statements by indicating “X” against the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
Key impediments to certification in my country are:					
policy and legislative bureaucracy	1	2	3	4	5
inadequate technical capacity	1	2	3	4	5
weak understanding of certification requirements	1	2	3	4	5
high cost of certification	1	2	3	4	5

11. Are the impediments being addressed?

1. Yes 2. No

If your response is Yes, how are the impediments being addressed? _____

12. For each of the statements below, please indicate your level of agreement or disagreement on impacts of certification on your company by putting an “X” in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company's adoption of certification has led to:					
unexpected benefits to the company	1	2	3	4	5
unexpected costs to the company	1	2	3	4	5
increased demand for company's products	1	2	3	4	5
effective product tracking system	1	2	3	4	5
the use of wood procurement policy	1	2	3	4	5

13. Please indicate the wood products type that your company imports from Ghana. Please put an "X" in front of the one that apply).

- | | |
|------------|----------------------------------|
| 1. Lumber | 4. Boules |
| 2. Plywood | 5. Moldings |
| 3. Veneer | 6. Furniture and furniture parts |

Others Please specify _____

14. Please provide an approximation of the value of your company's annual wood products imports from Ghana. (Please put an "X" in front of the appropriate response)

- | | |
|------------------------|-------------------------|
| 1. \$99,999 or less | 7. \$600,000-\$699,999 |
| 2. \$100,000-\$199,999 | 8. \$700,000-\$799,999 |
| 3. \$200,000-\$299,999 | 9. \$800,000-\$899,999 |
| 4. \$300,000-\$399,999 | 10. \$900,000-\$999,999 |
| 5. \$400,000-\$499,999 | 11. \$1,000,000 or more |
| 6. \$500,000-\$599,999 | |

15. Overall, what percentage of your total wood products imports comes from Ghana? (Please put an "X" in front of the appropriate response)

- | | |
|----------------|-------------|
| 1. 10% or less | 6. 51-60% |
| 2. 11-20% | 7. 61-70% |
| 3. 21-30% | 8. 71-80% |
| 4. 31-40% | 9. 81-90% |
| 5. 41-50% | 10. 91-100% |

16. For each of the statements below, please indicate the extent to which the following have been barriers to your company's wood products procurement from Ghana by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company faces problems with wood imports from Ghana on:					
product quality	1	2	3	4	5
punctuality in product delivery	1	2	3	4	5
consistent supply	1	2	3	4	5
pricing of products	1	2	3	4	5
contract fulfillment	1	2	3	4	5
customs procedures	1	2	3	4	5
domestic government policy	1	2	3	4	5

language barrier 1 2 3 4 5

other (Please specify)_____

17. For each of the following statements below, please indicate your level of agreement or disagreement about what best describes your company's wood products procurement from Ghana by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company has:					
increased its wood imports from Ghana within the last five years	1	2	3	4	5
reduced its wood imports from Ghana within the last five years	1	2	3	4	5
requested that its suppliers in Ghana meet certification requirements	1	2	3	4	5
changed suppliers in Ghana due to their inability to meet certification requirements	1	2	3	4	5

18. For each of the statements below, please indicate your level of agreement or disagreement about what best describes your company's support to your suppliers in Ghana to meet certification requirements by putting an "X" in front of the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
My company:					
stops buying from suppliers who fail to meet certification requirements	1	2	3	4	5
provides technical support to suppliers in Ghana to enable them meet certification requirements	1	2	3	4	5
provides financial support to suppliers to meet the cost of certification	1	2	3	4	5
supports research on certification	1	2	3	4	5

19. On the average how many different species of wood products does your company imports from Ghana. (Please an "X" in front of the appropriate response)

- | | |
|----------------------|-----------------------|
| 1. 5 species or less | 4. 16-20 species |
| 2. 6-10 species | 5. 21-25 species |
| 3. 11-15 species | 6. 26 species or more |

20. Ghanaian companies generally harvest less than half of the species they are supposed to harvest. They usually do not harvest Lesser Used Species (LUS) because buyers are not interested in those species. Is your company willing to buy LUS if the source forest is certified? (Please put an "X" in front of the applicable response)

- | | | |
|--------|-------|---------------|
| 1. Yes | 2. No | 3. Don't Know |
|--------|-------|---------------|

21. For each of the statements below, please indicate your level of agreement or disagreement by circling the single most appropriate number after each statement.

	strongly disagree		neither disagree nor agree		strongly agree
--	------------------------------	--	---------------------------------------	--	---------------------------

Certification helps my company to:

access new markets	1	2	3	4	5
maintain traditional buyers	1	2	3	4	5
sell wood products easier	1	2	3	4	5
receive price premium	1	2	3	4	5
market Lesser Used Species (LUS)	1	2	3	4	5

THANK YOU!

Please place the completed questionnaire in the envelope provided and mail it to the address provided. Your candid opinion and response to the survey is an indication of your commitment to improving forest management in Ghana. Thank you for your cooperation, support and time in completing this survey.

Please direct any questions you may have about this survey to Abraham Baffoe in Ghana on phone numbers 020-8139028/0266440576 during May 20 to August 15 or in the US through the following contact, Graduate Research Assistant, Louisiana Forest Products Development Center, School of Renewable Natural Resources, Louisiana State University, Baton Rouge, LA 70803; Email abaffo2@lsu.edu Phone (225) 578-4133 Fax: (225) 578-4251 after August 20.

VITA

The author was born in January 1967, at Kintampo, at the center of Ghana. He obtained his Bachelor of Science in natural resources management (with a major in forestry) from the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana in June of 1996. He acquired his first working appointment in February of 1997 with Samartex Timber and Plywood Company, Limited, in Ghana as the Afforestation Manager. In September of 1998 he joined Friends of the Earth-Ghana (FOE-Ghana) as the Forestry and Biodiversity Coordinator. While at FOE, he attended several courses, international conferences, and seminars including conventions on biodiversity and the United Nations Forum on Forests. He also obtained a postgraduate certificate in natural resource economics from the International Agricultural Center, Wageningen University in the Netherlands, in 2001. The author worked for two years as the WWF West Africa Forest Program Leader and also as the Acting Regional Manager before gaining admission into Louisiana State University, Baton Rouge, Louisiana, where he expects to earn a Master of Science degree in December 2009.