



INVESTMENT OPPORTUNITY IN KUMASI, GHANA BAMBOO CULTIVATION AND PROCESSING

1.0 EXECUTIVE SUMMARY

Commonly referred to as the garden city, Kumasi and its environs offer numerous investment opportunities for both local and foreign investors. Over the years the city has been noted for the supply of forest timber and wood, evidenced by the numerous wood and timber processing facilities which have been operating in the city.

However the country's forest resources are fast declining in size and productivity partly due to illegal logging practices, over utilization of the traditional timber species (which include Wawa, Ceiba, Asanfia, Ofram, Teak, Mahogany and Odum), unregulated farming practices and illegal mining activities. The declining rate of Ghana's forest reserves has resulted in the adoption of stricter control on timber production.

Statistics from the Forestry Commission of Ghana indicate that the country's forest resources which stood at 8 million hectares in the early 1920s has been reduced to an estimated 1.8 million hectares as at 2010/11 (both On and Off forest reserves). The World Bank sponsored Sustainable Land and Water Management Project in 2010 indicated a deforestation rate of 22,000 ha per year whilst Ghana reported a gross annual deforestation rate of 135,000 ha according to FAO's Forest Resource Assessment for 2010. At this rate the country averagely is expected to run out of forest cover in about 20 years. This has affected Ghana's export of timber products. The value of exports of plywood and wood flooring has fallen by 82.8% and 87.3% respectively between 2005 and 2010.

Recognizing the potential of bamboo and the role that it can play as a suitable alternative to traditional timber, the Government of Ghana in 2002 introduced the Bamboo and Rattan Development Program (BARADEP) to find sustainable ways of developing the bamboo sector.

The Ghanaian climate supports the cultivation of bamboo, and the *Vulgaris* species is most commonly found in the country. The Ashanti Region is believed to hold the third largest stock of naturally growing bamboo. The Millennium Villages Project (MVP) in Bonsaaso has been working with communities in the Amansie West region in the Ashanti to identify suitable land that could be used to cultivate bamboo for export and local use. An investment opportunity lies in the cultivation of bamboo and production of bamboo into products for the construction/real estate sector for furnishing, flooring and plywood to fill the country's estimated 1million housing deficit.



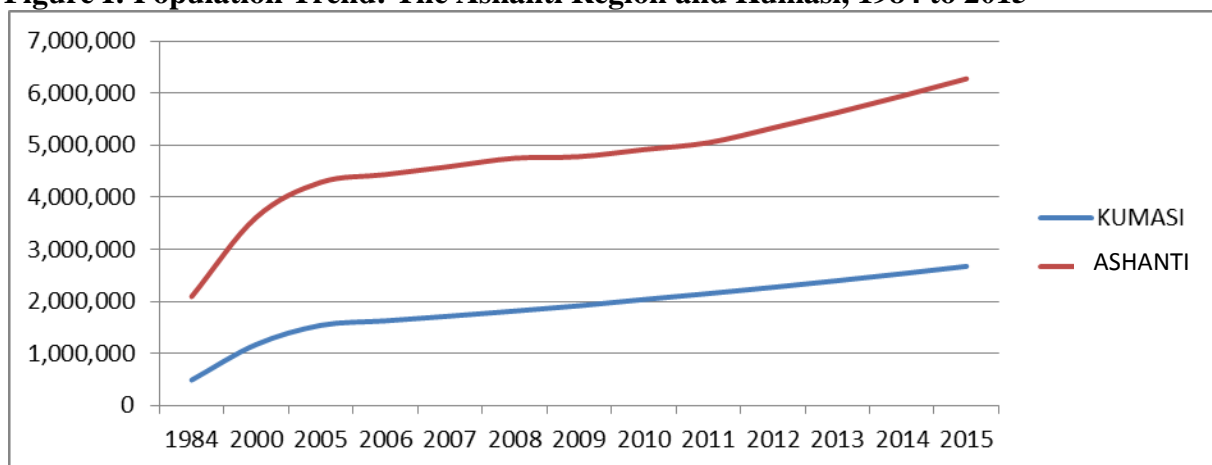
2.0 INTRODUCTION TO KUMASI AND THE ASHANTI REGION

With some 5 million inhabitants (4,780,380 according to the 2010 national census), the Ashanti Region is the most populous region in Ghana. The region occupies a total land area of 24,389km² (approximately 10 percent of total land in Ghana) and has Kumasi as its regional capital.

Kumasi is located centrally in the Ashanti Region, forming an important transport and commercial hub for both domestic and international traffic. It is the key transportation link between the south and north of Ghana as well as the surrounding landlocked countries. It has a national airport with several flights a day to Accra, Tamale and Takoradi.

Kumasi's daytime population is estimated to reach 2.5million people because of its role as a commercial centre. Officially, Kumasi recorded 2,035,064 inhabitants in 2010. The city's population is growing fast; it has almost doubled since 2000, from a little over 1 million people.

Figure I: Population Trend: The Ashanti Region and Kumasi, 1984 to 2015



Source: KMA Statistics, 2012

Kumasi's strategic geographic location makes it a brisk commercial and administrative centre, and it is often regarded as the commercial capital of Ghana, with West Africa's largest open-area market, the Kumasi Central Market. Estimated market reachable within 1 day of ground travel is approximately 12 million consumers (Ashanti region and surrounding regions, approx. half of Ghana's population).

Kumasi has already proved attractive to a number of large foreign investors. Agro-processing giant Archer Daniels Midland (ADM) has been operating a cocoa processing facility in Kumasi since July 2009. Other major players with active presence include Coca Cola and Guinness which both have bottling plants in the City. Other international companies with offices in



Kumasi include Maersk, Barclays Bank, Standard Chartered Bank and Unilever, which has been operating in Ghana for over 70 years.

Ghana is divided into ten administrative regions. Each region is headed by a Regional Minister appointed by the President. The principal units of local government are the district assemblies. There are three kinds of districts in Ghana – districts, municipalities and metropolis. Between the district assemblies and the central government are the regional coordinating councils. The role of these bodies is to administer and coordinate policy implementation at the local level. Kumasi is administered by the Kumasi Metropolitan Assembly, with the Mayor serving as the city's chief executive officer. The Ashanti region as a whole is under the purview of the regional minister.

The institution of chieftaincy is very pronounced in the Ashanti region and plays a significant role in its management, especially in the area of land administration. Most land in the Ashanti is administered by the Asantehene (Ashanti King) and relatively small portions belong to the state under the administration of the Lands Commission. The Asantehene is assisted by a variety of chiefs ranging from paramount, divisional and sub chiefs, stool and clan elders who all play roles in land acquisition with the Asantehene playing the ultimate role.

Kumasi is home to numerous educational institutions, including the largest science and technology university in Ghana and in West Africa, the Kwame Nkrumah University of Science and Technology (KNUST), which has a student population of over 31,000 students comprising both undergraduate and postgraduate students.

Kumasi's location at the centre of the Ashanti Region and of Ghana, coupled with its good road network and airport, makes it the preferred trading centre for most of the surrounding regions and is an important commercial centre for West Africa. Kumasi serves as the commercial hub for the neighbouring Brong-Ahafo region, the three northernmost regions of Ghana, and parts of the Western and Eastern regions, creating a potential market of about 12 million people. An investor can access landlocked Burkina Faso, Mali and Niger with a total potential market of over 48 million people. Merchants from these landlocked countries trade at the Kumasi Central Market, West Africa's largest open air market — to the extent that a section of the market has come to be called the "French line".

Through Ghana's membership in the Economic Community of West African Countries (ECOWAS), Kumasi potentially serves an even larger market of over 250 million people.

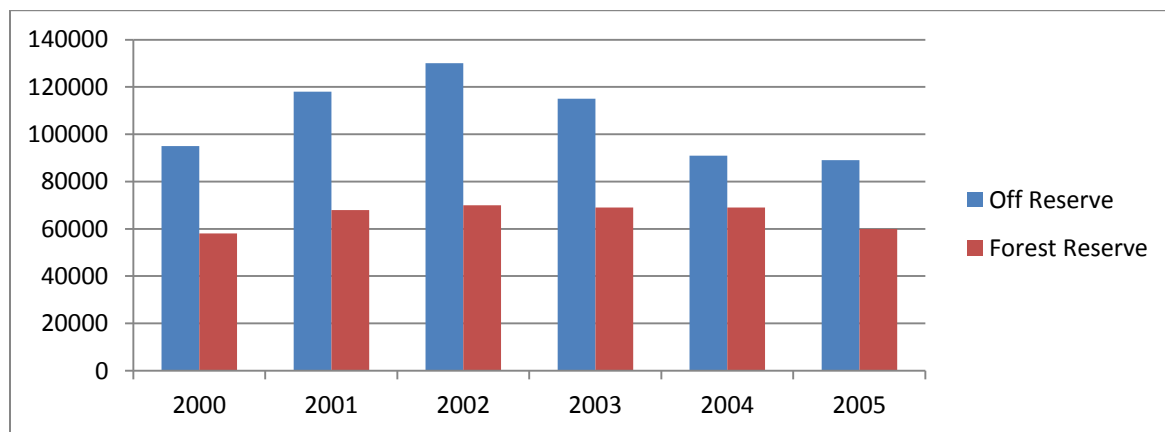
3.0 MARKET OPPORTUNITY

3.1 Overview of Ghana's Timber Industry



Ghana's timber resources are depleting at a rapid pace. Statistics from the Forestry Commission of Ghana indicate that the country's forest resources which stood at 8 million hectares in the early 1920s have been reduced to a little over 1 million as at 2010/11(both On and Off forest reserves). The World Bank sponsored Sustainable Land and Water Management Project in 2010 indicated a deforestation rate of 22,000 ha per year whilst Ghana reported a gross annual deforestation rate of 135,000 ha according to FAO's Forest Resource Assessment for 2010. At this rate the country is expected to run out of forest cover in about 20 years. This rate of depletion has affected Ghana's export of timber products. The value of exports of plywood and wood flooring has fallen by 82.8% and 87.3% respectively between 2005 and 2010.

Figure II: Ghana's official forest and off reserve timber production (2000-2005)



Source: Forestry Commission

The value of exports of plywood and flooring has fallen by 82.8% and 87.3% respectively from 2005 to 2010. This significant drop is as a result of the depletion of the general stock of forest wood resulting in the strict management of the remaining forest reserves.

Table I: Ghana's Timber Exports, 2000 to 2010 (m³)

Timber Product	2000	2005	2010
Plywood	46,791	57,704	6,234
Flooring	2,218	6,444	817
Rotary Veneer	75,059	59,186	8904

Source: Forestry Commission, Ghana

Ghana imported US\$148 million and 70 million worth of wooden products (including paper products) in 2010 and 2006 respectively.



3.2 Global Production Of Bamboo

UN Comtrade statistics, in 2009 estimated the global export value of bamboo and rattan commodities at US\$1.82 billion. The total import value of bamboo and rattan commodities in 2009 was about US\$1.6 billion.

Traditional bamboo and rattan products, specifically plaited products, including mats and screens, baskets and wicker work products, and semi-finished plaiting articles, constituted (40%) to the global export market in 2009. The further-processed bamboo products, such as flooring, panels, charcoal, pulp and paper, constituted 23% and bamboo and rattan furniture accounted for 21% of the total global export.

Most of bamboo and rattan commodity trade occurs within Asia, in Europe, and between Asia and Europe and North America. Consumer countries in Europe and North America form the major import markets with their imports accounting for 71% of the global import value in 2009. China made up 57.3% of the global bamboo and rattan exports worth US\$1.0 billion in 2009.

Table II: Top 10 Exporters of Bamboo Globally, 2009

Country	Volume of Global Exports (%)
China	57.3
Indonesia	14.8
Vietnam	4.6
EU-27	3.0
USA	1.7
Philippines	1.6
Thailand	1.0
Singapore	1.0
Myanmar	0.8
Malaysia	0.8

Source: International Network For Bamboo And Rattan (INBAR)

In 2009, the total global export value of bamboo and rattan baskets and wickerwork products was US\$435 million. Of this, bamboo articles accounted for just over half (US\$227 million) the amount. More than 60% of imports are to markets in EU and USA, while Japan, Canada, the Republic of Korea, Australia and Russia also have significant import markets

In 2009, the international export market for bamboo flooring was worth approximately US\$252 million, with China accounting for US\$224 million, or 89% of this total value. In 2009, EU and Canada were the two largest international importers of bamboo flooring, accounting for US\$26



million and US\$18 million, respectively, of the total global import market. USA, Mexico, New Zealand, Japan and Singapore are the other key international importers of bamboo flooring.

3.3 Bamboo Cultivation and Harvesting in Ghana

Most bamboo in Ghana grows naturally in the wild. The most prevalent is the *Vulgaris* species. The Forestry Commission of Ghana is responsible for the regulation of utilization of forest and wildlife resources and the conservation and management of those resources and the coordination of policies related to them.

The Western region of Ghana holds the highest stock of natural bamboo reserves estimated at over 60%, but most of the harvesting takes place in the Eastern Region due to its proximity to the Capital Accra where demand for the bamboo is higher. The Ashanti region however is the most populous region in Ghana with a population with a 2013 estimated of over 5 million people. Kumasi's population is estimated at 2,035,064 in 2010. However because of its nature as a commercial hub, daytime population is estimated at over 2.5million. Kumasi as a result of the large population can provide an even larger market for bamboo products.

Bamboo merchants are traditionally responsible for harvesting bamboo from the wild and supplying to processors who on average pay US\$20.00 per hundred culms of bamboo harvested from traditional land owners or custodians. For forest reserve areas, a permit is issued for about GHC10.00 (US\$5.00) per month which will cover about 100 to 150 head loads of bamboo culms. In Northern Ghana an average of US\$0.38 may be paid for each culm harvested.

Bamboo harvesting in Ghana's northern region is done mostly in the dry seasons. In the South which includes the Ashanti, Eastern and Western Regions where bamboo is widely found, harvesting is carried out all year round.

3.4 Bamboo for Real Estate Development (Plywood, Flooring And Furniture)

The Real Estate Market

Bamboo products such as plywood, flooring and furniture can provide an answer to Ghana's growing real estate sector. Ghana's property market is dominated by residential and commercial development. The residential market is the most active, registering an estimated 85,000 transactions per annum over the past decade, with an estimated value of about US\$1.7 bn per year.

Ghana's current residential property demand is 150,000 units per annum, with a shortfall of over 100,000 housing units. Current production of residential properties average only 35,000 units per annum, implying a significant annual supply gap.



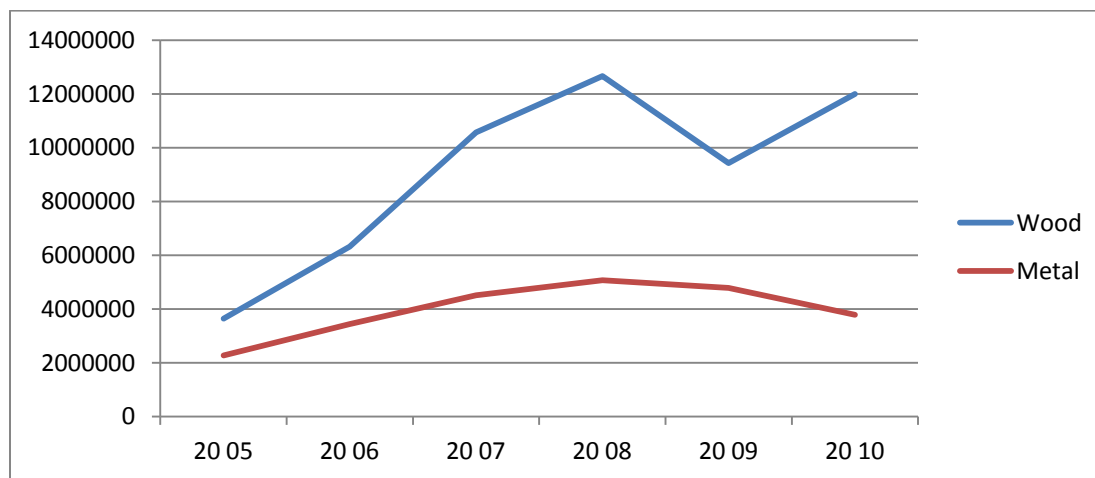
Residential property rents range from US\$1,500 to US\$3,500 per month for semi detached and detached houses in the upper-end market. Construction costs range from US\$250-1,000 per m² for buildings.

The total number of houses as of 2010, compared with the number of households, indicated acute overcrowding in most houses. On the average, there are about 7.3 persons living in each house in Ghana. Ashanti region recorded 8.3, higher than the national average, corresponding with its high population. The census also indicated that the average household size in Ghana is 4.4 persons with about 1.6 households per house, and a total of 3,392,745 housing units nationwide. This number of households vis-a-vis the population is clearly inadequate. For instance if every household of 4.4 persons were to have a separate unit of housing then all things being equal, with a population of about 25 million, Ghana will need a total of 5,604,277 housing units.

3.5 Bamboo Furniture

Due to the growing deforestation resulting in low production of wooden furniture, Ghana imports significant amounts of wood and metal furniture to supplement the furniture produced locally. In 2008 Ghana imported close to US\$18 million worth of wood and metal furniture. These furniture are imported primarily from Asia and Europe.

Figure III: Import of Wood and Metal Furniture Imports to Ghana (2005 to 2010)



Source: Ministry of Trade and Industry, Ghana

In Ghana currently, there are two main manufacturers of furniture, i.e. the traditional furniture makers (those who use timber/wood as raw material) and the bamboo and rattan furniture makers. The traditional furniture makers are quite numerous. In 2009, over 5000 furniture makers were relocated from one suburb of Kumasi to another under the Sokoban project.



Bamboo is used in addition to cane, rattan and wood to make furniture. Most of the bamboo furniture makers exist in clusters spread all over the country. In addition to furniture they make baskets, floor mats shoe racks, and other artifacts.

The raw material, i.e. the bamboo, is supplied by merchants, who supply the bamboo a regular basis mostly as per the demand of the furniture makers. Each furniture maker buys an average of three (3) bamboo culms per week. The average price a bamboo Culm is US\$0.70. Each furniture maker makes an average of one (1) set of furniture a month in addition to other bamboo products. A set of bamboo furniture which is made up of one (1) three seater sofa, one (1) 2 seater sofa, two (2) single seaters and a centre table will sell for an average of US\$250.00

The low level of production is not as a result of low demand but rather the inability of the bamboo furniture makers to supply. Most producers produce at a subsistence level, because of the lack of technical know-how and machinery to maximize their efficiency. The whole process of making the furniture is manual which tends to be time consuming. Even though they operate in a cluster, each individual is responsible for his own production from start to finish and marketing. Most of the furniture makers and bamboo suppliers are illiterate and semi literate therefore are unable to do proper costing and accounting. These factors together contribute to the low production levels.

Due of the high demand for furniture in general, most consumers use the bamboo furniture to compliment furniture made from wood. This demand has also led to an increase in imported metal and wood furniture (as indicated earlier), because furniture made from traditional wood has become more expensive.

3.6 Bamboo Charcoal

Bamboo can be used to produce charcoal. Bamboo charcoal can replace the traditional charcoal made from trees, thus decreasing deforestation. Nigeria was the top exporter of bamboo charcoal globally in 2009, with an export value of about US\$7 million

Estimates from the Food and Agriculture Organization (FAO) suggests that 14 million m³ of wood is used for energy production in Ghana. 69% of all urban households in Ghana use charcoal for cooking and the annual per capita consumption is around 180 kg. The total annual consumption is about 700,000 tons.

The International Network for Bamboo and Rattan (INBAR), the Forestry Research Institute of Ghana (FORIG) and Bamboo and Rattan Development Programme (BARADEP) have piloted a programme in Tandan in Ellembelle District and Daboase in the Western region to produce bamboo charcoal. The programme works with the Micro Small Enterprise Association at Daboase. In October and November 2011, 505 tons of bamboo charcoal was produced from the programme.

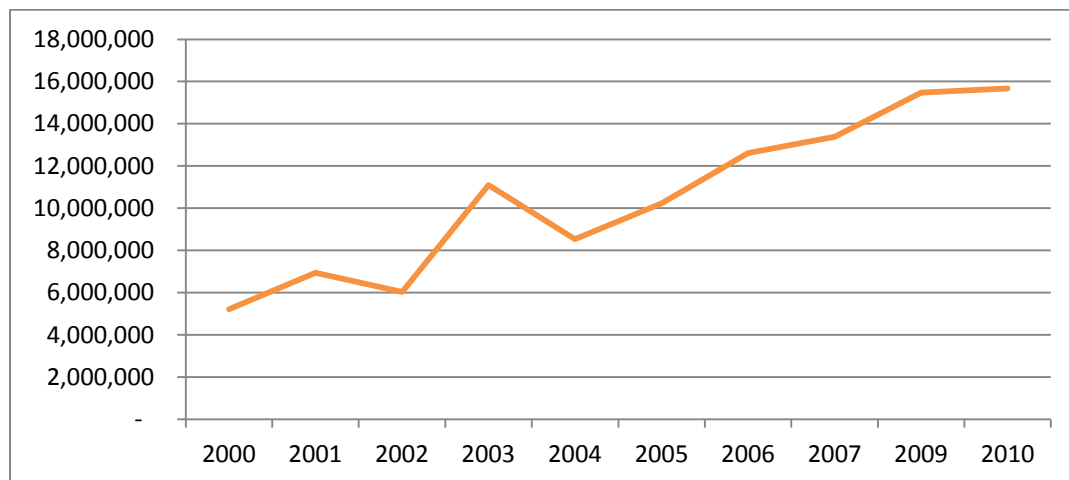


3.7 Bamboo Bicycles and Other Products

Bamboo can be also used for the production of other products, such as bicycles and toothpicks, .

Ghana has seen an average increase in the value of bicycles imported from 2000 to 2010. In 2010 Ghana imported over US\$15 million worth of bicycles. Bicycles are an important means transport in the country especially in the Northern regions of Ghana.

Figure IV: Ghana Bicycle Imports (2000 To 2010)



Source: Ministry of Trade and Industry of Ghana Statistics

The Ashanti region as a whole plays host 3 organizations which use bamboo for the production of bicycles. Two of these organizations are active in the production while the third is on a pilot basis with its emphasis the training of bamboo bicycle artisans.

The major player amongst the 3 companies is the Bamboo Bikes Limited (BBL). BBL was identified for implementation when an investor, a Kumasi indigene, participated in an “Investment Promotion for Kumasi Forum” organized by the Millennium Cities Initiative (MCI) in September 2008. This was after MCI and KPMG had profiled this investment opportunity. The company was incorporated in 2009, however actual production begun in January 2011

Table III: Bamboo Bikes Limited Units of bicycles sold January 2011 to June 2012

MARKET	NUMBER OF BICYCLES
Domestic	994
International	80
Total	1074



The company has also started producing of toothpicks using bamboo for local consumption with the aim to utilize bamboo unsuitable to the production of bicycle parts and to diversify its product range. The demand for bamboo bikes is growing and that there seems to be good potential in production of bamboo bikes.

8.0 WHY PRODUCE THE ASHANTI REGION

8.1 Support Institutions

Kumasi plays host to numerous research institutions that provide technical support for the cultivation and processing of bamboo. These institutions include

- **International Network for Bamboo and Rattan (INBAR):** INBAR is an independent intergovernmental organization established in 1997 to develop and promote innovative solutions for poverty reduction and environmental sustainability using bamboo and rattan. Its West Africa Centre is located in Kumasi.
- **Forest Research Institute of Ghana (FORIG):** Forestry Research Institute of Ghana is one of the 13 institutes of the Council for Scientific and Industrial Research (CSIR). Its purpose is to conduct forest and forest products research for social, economic and environmental benefits of society. It is located in Fumesua near Kumasi.
- **Kwame Nkrumah University of Science and Technology (KNUST):** The University which was founded in 1961 has a number of faculties, notably the Faculty of Natural Renewable Natural Resources which provides technical support for the forestry sector.

8.2 Availability of Skilled/Semi Skilled Labour

Kumasi can boast of a specialized part of the labor force in the region with advanced education. Examples of skilled labor in the region are plumbers, engineers, builders, architects, etc. According to the 2010 Population and Housing Census, out of the 1,894,958 population of 15 years and older by level of education, 61,272 had attended Senior High School; 55,010 vocational/technical school; 71,222 Diploma/HND; 41,493 Bachelor Degree and 10,208 had postgraduate certificate.

Out of the total of 2,976,462 population of 15 years and older by activity in the Ashanti region, 2,073,016 are economically active and out of this figure 1,929,018 are employed. Out of the total of 1,963,012 population of 15 years and older by occupation in the region, 586,436 are into agriculture forestry and fishery.

8.3 Land And Climate

The Ashanti region covers a total area of 24,389 Sq Km most of which has the ideal soil structure to support the cultivation of bamboo.



Table IV: Ashanti regional rainfall data in mm (2001 - 2010)

ASHANTI REGIONAL RAINFALL DATA in mm (2001 - 2010)													% Change 2010/ 30- Year Average	% Change 2010 / 2009
REGI ON	200 1	200 2	200 3	200 4	200 5	200 6	200 7	200 8	200 9	201 0	10- YE AR AV.	30- YE AR AV.		
ASHA NTI	1,1 36	1,6 37	1,3 26	1,0 98	1,1 18	1,3 84	1,5 42	1,4 12	1,3 80	1,3 80	1,34 3	1,34 5	3.9	1.2

Source: Ghana Meteorological Service

8.4 Location Advantage

Kumasi's strategic location at the Centre of the Ashanti Region and Ghana, coupled with its good road network and airport facilities makes it the preferred trading centre for most of the surrounding regions. Kumasi is not only an economic hub for wider Ashanti/Northern Ghana but also an important trading hub for landlocked Burkina Faso, Mali and Niger, with an estimated market of over 48 million people.

Clearly Defined Traditional Authority – the city and region has clearly defined traditional authorities which foster peace, unity and stability. The traditional authorities are the custodians of most land, thus making the process of land acquisition relatively simple.

9.0 POTENTIAL LOCATIONS IN ASHANTI REGION

Areas suitable for bamboo cultivation include: Amansie West District, Amansie East District, Nkwawie District, Ejisu District. The Ghana Investment Promotion Centre (GIPC), Lands Commission and the Association Of Ghana industries (AGI) are institutions which can assist investors in the identification of lands and support services.

The Millennium Villages Project in Bonsaaso is working with communities to identify and restore lands that have been degraded through illegal mining using bamboo. The MVP can provide an investor with details of such land for bamboo cultivation.

10.0 SUPPORT PROVIDED BY KUMASI MUNICIPALITY AND KUMASI REGIONAL ADMINISTRATION



The Kumasi City Investment Promotion Unit will assist potential investors in the acquisition of land for the cultivation of bamboo through site visits, due diligence of land title and other permits.

11.0 INVESTMENT INCENTIVES

11.1 Funding For Plantation Development

The Ministry of Lands and Natural resources together with the Forestry Commission administer a fund that is aimed at providing financial support to individuals and firms that seek to go into the cultivation of forest plantations. The Forest Plantations Development Fund Act, (Act 583) was passed in 2002. This act established the Forest Plantation Development Fund (FPDF). The Fund was established with the objective of providing financial assistance for the reforestation of degraded forest areas in the country.

For Bamboo processors Kumasi hosts several local, regional and international finance institutions some of which include Cal Bank, UT Bank, HFC Bank, Exim Guaranty Bank, Ecobank, United Bank for Africa, Barclays Bank, Standard Chartered Bank and Stanbic Bank (member of the Standard Bank group), which offer financial support to investors.

12.0 FURTHER INFORMATION AVAILABLE

International Network for Bamboo and Rattan: Market Potential of Bamboo and Rattan Products, 2011

Forestry Commission, Ghana: Report on Export of Wood Products (Timber Industry Development Division), 2000, 2005 and 2010

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