I. INTRODUCTION

The agricultural sector plays a critical role in overall economic growth of the Ghanaian economy. Indeed, agriculture is expected to lead to significant transformation of the economy through improvements in the sector’s productivity. The agricultural sector is divided into a number of subsectors: Crops, Cocoa, Livestock, Forestry and Fisheries. The crop subsector contributes about 66.2% to the sector and has a large percentage of its products undergoing some form of processing (MoFA, 2010). The major products include cocoa, cashew, sunflower, oil palm, groundnut, fruits, vegetables, among others. The most common item that is processed is maize, followed by other commodities such as nuts and oils, fish and other grains such as millet, sorghum and guinea corn.

Food processing is an important activity related to the agricultural sector and is dominated by predominantly small and medium scale firms who operate in the informal sector of Ghana. Indeed, the agro-processing sector may be classified into two groups- domestic processing and factory processing (Quartey and Darkwa, 2015). Domestic processing activities are dominated by female workers who are predominantly illiterate and have no formal training. Skills in food processing are acquired mostly through apprenticeship and a large amount of family labour is employed. This domestic processing often leads to processed outputs of variable quality. Nonetheless, these small-scale units are able to create employment opportunities and make use of local resources. Factory processing activities, on the other hand, are mostly foreign-owned (e.g. Nestle and Cadbury) or state-owned (Cowbell and Fan Milk). These factories can process large quantities of raw materials and can contribute significantly to the nation’s economy through export activities.

Agro-processing is important for a number of reasons, chief of which is a reduction in post-harvest losses. Post-harvest losses in maize, cassava, rice and yam amounted to about 35%, 3406%, 6.9% and 24.4% in 2007 (MoFA, 2007) as a result of, among others, ineffective food processing technologies. According to the Ministry of Food and Agriculture (2012), only 5% of food products harvested in Ghana are processed. Therefore, from a health and nutrition perspective, agro-processing has the potential to increase nutritional value and also increase food security in the country, through a reduction in the food spoilage and wastage. Processed foods also enjoy greater price stability on the world market and may therefore increase market opportunities for exports, contributing to income securities particularly in rural communities who are mostly engaged in farming. The development of the agro-processing industry may also promote employment generation, contribute to enterprise development, diversification of rural economies, import substitution, among others. According to Quartey and Darkwah (2015), agro-processing is the most important sub-sector of the manufacturing sector, with food and beverages representing the largest component of processed commodities. In Ghana, there are a lot of opportunities to add value to agricultural commodities.
Export of processed horticultural products (i.e. fruits and beverages) has become increasingly significant in the Ghanaian economy, particularly given the presence of a knowledgeable private sector. Indeed, export of produce from the agro-processing sector in Ghana is dominated by horticultural products (fruits and beverages), in addition to vegetables, roots and tubers and palm oil. For instance, as illustrated in figure 1 below, pineapples, bananas, mangoes and flowers were among the top non-traditional export commodities in Ghana in 2012. Notable horticultural processing firms in Ghana include Blue Skies (processes pineapples and other fruits into fruit juice for local and international markets); Pinora (process pineapples and oranges into frozen concentrates for export); among others.

**Figure 1: Top Horticultural Products and Exports Values in 2012**

![Bar chart showing top ten non-traditional exports in 2012](chart.png)

Presently, the agro-processing industry in Ghana is not well-advanced and there is a relatively low degree of value-addition to agricultural commodities, and few linkages with marketing and financial services, partly due to the small firm sizes and under-developed processes which lead to many of these firms operating below-capacity using inefficient technologies. According to Afful-Koomson et al. (2014), 85% of all agro-processing firms in Ghana are micro-enterprises, 7% are very small firms, 5% are small firm and only 3% are medium agro-processing firm. An implication of the limited scale of production of agro-processing firms in the country is that they are faced with greater bureaucratic, legal and administrative challenges, compared to larger firms. Typically, policy directives and initiatives are less tailored to the needs of SMEs within the country and therefore these firms are more often faced with overbearing regulations, delays, among others.

### i. Sectoral Analysis of the Ghanaian Economy

The agricultural sector has traditionally been the largest contributor to Ghana’s GDP and has been the cornerstone of the economy since the country’s independence in 1957. Between 2000 and 2008 for example, the average sectoral share in GDP for this sector was 38.7%, compared to 26.1% and 31.3% for the Industry and Services sectors, respectively (GSS, 2008). Additionally, the sector employed about 55% of Ghana’s population between 2000 and 2007 (ISSER, 2008).
By 2010 however, there was a change in the landscape with regards to economic contributions of the various sectors- the services sector became the largest contributor to the country’s GDP and growth in the agricultural sector began to stagnate, as illustrated in Figure 2 below. The services sector continued to drive the economy and accounts for approximately 50% of total production from 2012 to 2014, while the agricultural and industry sectors contributed about 23% and 27%, respectively (Ghana Budget Statement, 2015).

**Figure 2: Sectoral Contributions, 1984-2012**

![Sectoral Contributions Chart](image)

Source: Computed from National Accounts

There are a number of factors that may explain the deteriorating performance of the agricultural sector over time. First, the economic reforms of 1983 which led to the removal of agricultural subsidies led to a slow-down in the performance of the food crop, fishing and livestock sub-sectors. Additionally, inadequate access to markets and storage facilities and the resultant post-harvest losses may also explain reduced performance of the agricultural sector. Other factors include the rapid loss of forest cover as a result of bushfires and logging activities, in addition to inadequate irrigation facilities and poor extension services. More recently, the discovery of oil deposits in the country has also been attributed to the declined performance of the agricultural sector, through the Dutch Disease phenomenon.

Despite the increased significance of the services sector to the country’s total production, this sector may not easily be properly positioned to bring about the necessary structural transformation of the Ghanaian economy. This is because in the strictest sense, structural transformation involves not only the reallocation of economic activity across the three sectors (i.e. Agriculture, Manufacturing and Services), but the increase of new and more productive activities and a shift away from older, less productive, traditional activities. This increase of new and productive activities is what is expected to drive the economy forward while the shift from older, less productive activities is what is expected to diffuse the gains of productivity throughout the economy (McMillan and Rodrik, 2011). In Ghana, however, the dominance of the informal
activities in the services sector and the prevalence of low-productivity activities, in addition to the reduced significance and performance of the manufacturing sector make recent changes in sectoral contributions more indicative of a structural shift, as opposed to a structural transformation.

Interestingly, although the services sector records the largest contribution to GDP, the agricultural sector is the only sector that maintained its rising growth trend from 2013 to 2014. From Figure 3, while the industry and services sectors recorded declines in growth from 2012 to 2014, the agricultural sector has been able to maintain its contribution to the economy, with the food and crops sub-sector accounting for about 75% of the total agricultural production within the period.

**Figure 3: Growth per Sector from 2012 to 2014**

![Growth Per Sector: 2012-2014](image)

Generally, Ghana may have a very strong competitive advantage within its agricultural sector for a number of reasons. First, over two-thirds of the total land in Ghana are fertile and require little fertilizer to produce farm commodities in large commodities. Second, the government has demonstrated significant interest in agribusiness and a commitment to support increased investment in this area. Third, there is a large unemployed youth population that may provide the much-needed labour supply to the agricultural sector. There are many factors that make the agro-processing industry a viable sector to lead the economy towards sustainable development. First, due to the country’s diverse agro-ecological zones, there are a diversity of commodities that may be easily processed. Second, there is a well-endowed network of water bodies which may be sourced for irrigation purposes. Third, there is access to relatively cheap agricultural products for processing. Fourth, a number of incentives exist in Ghana to promote the agro-processing industries such as tax-exemptions for the first ten years of operations, for instance.

**ii. Defining Agro-Processing and Potential for Linkages within the Economy**

Agro-processing generally refers to the transformation of products that originate from agricultural, forestry and fisheries. Agro-processing may vary from simple preservation operations such as drying products in the sun to more complex, capital-intensive processes. Agro-processing industries are typically comprised of upstream and downstream industries. Upstream industries refer to the initial processing of agricultural commodities such as rice and flour milling, leather
tanning, cotton ginning, fish canning, among others. Downstream industries are involved in more complex processing of intermediate products made from agricultural materials and include the making of bread, biscuits, textiles, paper, clothing, footwear, among others (FAO, 1997). Agro-processing firms are characterized by two sets of linkages: Backward/Forward linkages and Internal/External linkages.

i. Backward and Forward Linkages

Backward linkages arise when local producers are able to satisfy their demand for raw materials and services from local suppliers. This may refer to the supply of credit, inputs, and other production-generating services. Backward linkages may be established by the procurement of capital goods and equipment from other industries; or the purchase of agricultural inputs from farmers. Forward linkages on the other hand refer to the creation of additional opportunities in other parts of the economy, from the activity of agro-processors, through the sale of processed products. This refers to the marketing of these products and the generation of employment opportunities through the value-addition processes. Forward linkages have positive implications for increased export earnings, employment generation and greater food security (Babu, 2000) and may be established through sale of processed goods to final consumers; and sale of processed goods as inputs to other firms who use these as inputs into their own production processes.

The role of agro-processing in Ghana’s development could be vital, given its ability to generate increased demand for products of other industries through backward or forward linkages. Agro-processing, an integrated form of agricultural development may be expected to have the strongest effect on agricultural production, given the increased demand for primary products from this sector. Additionally, the infrastructure (e.g. roads and transport facilities, power, etc) that is essential for promoting the growth in agro-processing could also be vital to increased growth in the agriculture sector.

ii. Internal and External Linkages

Operations of agro-processing firms within Ghana are also characterized by internal and external linkages. Internal linkages arise when firms build networks with other Ghana-based/Ghana-origin firms in the value chain in order to benefit from cheap inputs and taxes, access to greater markets and increased access to assets or resources. Firms may often have insufficient or inadequate resources to complete the production process independently tend to depend on other firms. In Ghana, the most common linkages appear to be with input suppliers and financial institutions. Agro-processing firms typically have close links with their suppliers of raw material (e.g. small-scale farmers) and equipment/machinery, and often take advantage of various credit financing schemes, and also after-sales services and maintenance on equipment purchased. With respect to linkages with financial institutions, agro-processing firms may be able to better access credit facilities through these interactions.

While these internal linkages tend to be more common, there is smaller evidence of external linkages among agro-processing firms, where firms cooperate with one another with the aim of developing and sharing innovations. External linkages with large multinational firms within Ghana, or foreign firms outside Ghana would be beneficial for a number of reasons. Agro-processing firms may benefit from the applications of new technologies and innovations, and from locational advantages and economies of scale. The low levels of external linkages among Ghanaian agro-
processing firms may be attributable to poor management, and inadequate financial and other book-keeping skills (Afful-Koomson et al., 2014)

II. THE DEVELOPMENT OF AGRO-PROCESSING IN GHANA AND SIGNIFICANCE TO THE ECONOMY

The area of agro processing may be perceived as a subset of manufacturing that is engaged with the processing of raw materials and intermediate products from the agricultural sector. The FAO (1997) describes the agro processing industry as the transformation of products originating from agriculture, forestry and fisheries. While agro processing may involve global-to-local patterns (processing of imported agricultural commodities to be sold on the local market) and local-to-global patterns (processing of locally-produced commodities for export), the industry in Ghana appears to be mostly concentrated on local-to-local patterns (production of locally-produced commodities for domestic consumption), and dominated by informal sector activities.

According to Okorley and Kwaten (2000), agro processing in Ghana can be traced back to the colonial period, where these activities were performed on a small scale and consumed locally. After independence in 1957, the industrialization drive embarked on by the new government resulted in a number of state owned processing factories which were directly linked to the country’s agricultural products. These agro-processing factories were strategically located to use the primary agricultural products produced by the various regions. For example, the sugar factories located in Komenda and Asutuare in the Western and Eastern regions respectively were meant to use the raw sugar canes produced in these regions as raw materials. Also, the tomato Pwalugu tomato factory was located in the region to make use of the abundant supply of good quality tomatoes in Pwalugu and its surrounding areas. Others included the Bolgatanga meat processing factory and the Nsawam Fruit Cannery. About two decades after their establishment, after the overthrow of Kwame Nkrumah, most of these State-Owned processing plants experienced declines in their production performance due to administrative and managerial challenges. As a result, some of these processing plants were either sold/privatized or left to run down.

In recent times apart from cocoa which is processed on a large scale, the agro-processing industry in Ghana is described to be in its nascent stages according to Sutton and Kpentey (2012). The industry in Ghana is characterised by a large number of micro, small and medium scale processing enterprises that are involved in activities such as gari processing, fish smoking, flour making, nut and palm oil processing as well as fruit and juice processing. These artisanal processing activities have relied mainly on very simple and locally-manufactured technology in their processing activities. Over the years, processing of these products has moved from completely traditional methods of processing to semi-mechanised and then to fully mechanised methods. The following sections discuss growth and development trajectories for particular groups of products, namely Nuts and Oils, Grains, Roots and Tubers, and Fruits.

i. Nuts and Oils

The major nuts produced and processed in Ghana include palm nut, shea nut, ground nut, cashew and coconut. Palm oil and shea butter/oil are the predominantly processed nuts- these activities are typically carried out on small and medium scales in the country. Addaquaye (2004) classifies the processing technologies into three namely, traditional manual method, semi-mechanized and fully mechanized methods.
Palm oil and shea oil/ butter processing, which is predominantly undertaken by women, involves very laborious tasks of pounding/milling, kneading, washing and cream boiling, all carried out with very simple household equipments such as the mortar and pestle. This process, according to Addaquaye (2004) is the main method of processing oils in most West African countries including Ghana. Hal et.al (1996) claim that this process takes about 20-30 hours to produce substantial amounts of oil. Mensah (2001) also documents that about 80% of Ghana’s shea butter is produced through the traditional processing techniques.

There have been attempts to reduce the long processing times and the excessive use of water and firewood in the processing of these oils. Additionally, women engaged in the process are exposed to long hours of heat and smoke. Collaborative work with United Nations Fund for Women’s Development, non-governmental organisations such as Technoserve and development partners such as the Netherlands Development Organisation (SNV) has led to the emergence of improved technologies in the form of semi-mechanized technologies which are locally designed and manufactured. Examples of such equipment include the hydraulic and mechanical presses which are meant to make oil processing more efficient. These have reduced processing times and facilitated more moderate use of inputs such as water.

Nonetheless, household units that produce oil at the micro- and small-scale levels continue to rely on the traditional manual methods of extracting oil due to financial constraints in purchasing the locally manufactured equipment. As a solution to the problem of financial constraint, in some instances, these rural women who are engaged in oil processing have organized themselves into groups in order to access the semi-mechanized processing technologies which allow them to increase their production.

Over the years, these semi-mechanized technologies have developed further from equipment designed to perform particular operations such as oil digestion and oil pressing to machines that combine several operations in the process (FAO, 2002). Apart from gaining access to the improved technologies, these women groups have also been able to undertake effective marketing of their products (Mensah, 2001). Some of the finished products include oils for household cooking, oil for the cosmetic industry as well as oil for the soap making industry. In some cases, the palm nut is also processed into palm nut base (paste with thick consistency used in preparing soups) and packaged for export.

ii. Grains

The main grains cultivated in Ghana are maize, millet, sorghum and rice. Maize is the most important cereal crop produced in Ghana and it is also the most widely consumed staple food in Ghana (FAO, 2008; Morris et al., 1999). In Ghana, processing of these grains is primarily undertaken by women using simple household equipment. Processing usually involves de-husking, roasting and milling into flour. The flour is further processed into different kinds of porridges, beverages and other foods. Milling of the grains is usually done with mechanised locally fabricated grinders, which is an improvement from the use of stone grinders and mortar and pestle that were employed in the past.

In fairly recent times, grains are being processed on medium to large scales using relatively more sophisticated technology. At the medium scale level, grains are roasted and milled into flour and mixed with other legumes such as soya beans and groundnut and packaged for both domestic consumption and for export. On a large scale, grains are processed into grits and serve as raw
materials for poultry farms and for giant brewery companies such as Guinness Ghana Brewery Limited and Accra Brewery Limited in the production of new beer varieties and other beverages. Also, grains in Ghana are being processed into high ended infant cereals such as Cerelac using state of the art food processing technology by renowned food processing companies such as Nestle.

iii. Roots and Tubers

According to MoFA(2010), roots and tubers, which includes cassava, yam, cocoyam and sweet potato contributes about 50% of Ghana’s agricultural GDP. Of these four, cassava is the most processed due to the fact that it is the most perishable among the root and tubers, deteriorating within a period of two to three days after harvest (FAO, 1998). Processing of cassava over the past years has predominantly been carried out by individual micro and small processors. These processors have relied on very rudimentary technology made from local materials. Some of the finished products include gari, kokonte (sun-dried cassava chips/flour), cassava dough (agbelima), tapioca and starch, usually for local and domestic consumption.

The introduction of starch- high quality cassava flour (HQCF)- glucose syrups and industrial alcohol (which served as potential cassava-based industrial raw materials for the bakery, plywood, paperboard, pharmaceutical, confectionery and beverages industry in the mid-1990s) has seen the emergence of several medium and large scale processing enterprises in the country (Dziedzoave, 2008). The technology used in the processing of cassava has also evolved from the traditional manual technique which involves the use of heavy knives for peeling and heavy reliance on the sun for drying the cassava chips. The traditional processing method also includes sifting, fermentation and roasting.

Medium and large scale processing of cassava benefited from the introduction of the motorized cassava graters in the late 1960s. Since this period, stake holders in the industry such as research institutes, university departments, small-scale artisanal shops and blacksmiths have designed and developed different kinds of cassava processing equipment, with the support of various non-governmental organisations. Some of the locally manufactured equipment used in processing cassava in recent times includes graters, cassava chippers, screw presses, hydraulic presses, cassava dough disintegraters, sieving machines, grading machines, plate mills, hammer mills and mechanical dryers. In recent times, these new technologies have been adopted, especially at the micro and small scale levels by groups of women who have formed cooperatives in order to be able to purchase the equipment. Currently, the export of cassava chips for industrial use has been made possible through the efforts of private initiatives, supported by the government. The renewed demand for wet cassava chips especially in the brewery industry, which makes use of more sophisticated technology, has made cassava processing an even more profitable venture in Ghana.

iv. Fruits and Fruit Juice Processing

1 Information from this session was obtained from a one-on-one interview with the President of the Fruit Processing and Marketing Association of Ghana (FPMAG)
Between the mid-1990’s and 2002, Ghana depended on about 4 large fruit processing companies that employed very expensive, capital intensive and imported technology for fruit juice processing in the country. The huge capital outlay required for fruit juice processing therefore served as an entry barrier. During the same period, there was a proliferation of flavoured drinks through the use of syrups—these types of drinks required substantially less start-up capital. Due to the large number of producers of flavoured drinks, the Soft Drinks Manufacturers Association of Ghana was formed. The viability and the perceived shortage of players in the fruit juice industry propelled the leadership of this association to engage local engineers in the manufacture of simple machines and equipment to overcome the huge capital outlay of fruit processing. This initiative was largely successful and the subsequent locally manufactured technology adequately handled processing steps that ranged from extraction of juices to bottling on a small scale. Washing and cutting up of fruits however remained a manual process. A main factor that increased the adoption of these technologies was its affordability. Also, the local equipment facilitates juice at relatively small scales. Over time, these local technologies have been further advanced with the introduction of hydraulic presses for juice extraction, a semi-automated process that further increases efficiency.

A major challenge in the juice processing industry in Ghana is the issue of limited supply of fruits, which serves as the main raw material for the industry. Farmers are often unable to provide a constant supply of fruits to the processors factories due to relatively high input prices and unexpected weather conditions. Also, fruit farmers in the peri-urban areas are gradually losing their farmlands to very large estate developers. With regards to packaging, the industry is challenged with access to clean and sanitary bottles. The heavy reliance on recycled bottles for its packaging is unsustainable as processors are not guaranteed continuous supply of these bottles. To get around this challenge, the association has begun to explore the option of using plastic bottles. These however entail additional costs.

Although not currently widespread, some players in the fruit processing industry have begun to export cut fruits for export to European markets. Fruit export to the European market was precipitated by the high demand for the Ghana’s sweet pineapple variety, accompanied with the proximity of the country to its target market, which ensures constant supply to Europe via cargo planes. This mode of transportation is however costly, and therefore an association formed by pineapple exporters has explored cheaper options to transport fresh produce to Europe. Sea freight appears to be a cheaper option, and combined with the availability of cold storage facilities at the ports, has facilitated more efficient transportation of processed goods to European markets.

The process of learning in the fruit juice processing subsector of the industry can be described as top-to-bottom transfer of knowledge. Leadership of the association is periodically engaged in different capacity building and training activities at the national or international level. Knowledge and skills gained on new technologies as well as best practices in the industry, which are likely to improve the production process, are then cascaded down to members through locally organised training workshops for its members. Additionally, the availability of juice processing manuals,
through funding from the Ministry of Agriculture and development partners like GTZ opens up the industry to more entrepreneurs.²

III. PUBLIC POLICY

There has been a lot of focus on the agricultural sector in an attempt to boost production and encourage deeper linkages between this sector and the industry sector. This section discusses policies that have been enacted to promote the activities of the agricultural sector in general, and on the agro-processing sub-sector in particular. Generally, the role of government in the formulation and enactment of economy-wide policies that provide an enabling environment for the growth of economic activities is expected to crucial. These policies are meant to engender conducive environments for private sector development through the provision of stable macroeconomic conditions such as low inflation, stable exchange rates and limited budget deficits. Another important factor would be open trade policies to promote competition and efficiency. In Ghana, the economic reform of the 1980s which mandated the promotion of free markets and trade liberalization have played an important role in encouraging exports of goods, in addition to growth of the agro-processing industry. Efficient financial systems, good legal and regulatory environments, a reliable judicial system are other factors that contribute to a favourable general economic climate to foster activities of the agricultural and agro-processing sector.

i. Evolution of Policies to Boost the Agricultural Sector, and the Agro-Processing Industry in Ghana

Historically, agricultural policies in Ghana have generally favoured the production of raw materials and primary products. In the colonial era, for instance, raw materials were produced for export, while manufactured products were imported into the country for local consumption. Indeed, Guggisberg’s Ten-Year Development Plan (1919), for instance, featured the promotion of cash crops such as oil palm and cocoa. The focus on this policy of export-orientation was to position the then-Gold Coast to supply manufacturing industries in Europe.

After independence, continued emphasis was placed on primary agricultural production in an attempt to provide the requisite raw materials for the manufacturing sector, under the dominant import-substitution strategy. It is important to note that this period marks one of the earliest known attempts to promote agro-processing within the country. The 7-year development plan (1963/64-1969/70) which embraced a socialist approach to agricultural production placed a large emphasis on industrialization and therefore, numerous industries were established to process the agricultural (and mining) products that were historically being exported in their unprocessed form (Hug, 1989). Indeed, the industrialization approach sought to establish significant linkages between the agricultural sector and local industries in an effort to promote backward linkages within the economy (Ackah et al., 2014). The main difference between the colonial and post-colonial era was the focus on the modernization of agriculture in the latter era, through emphasis on large-scale state-led production. The Agricultural Development Corporation was set up in this period to oversee the modernization process but despite large government investment in the sector, production remained at low levels.

² Statistics on the contribution of the agro-processing industry to employment in Ghana are to be collected from the Ghana Statistical Service (GSS).
Between 1966 and the early 1980s, there were changes in government, which led to alternating socialist and capitalist policies on agricultural promotion. In an attempt to reduce past excessive government expenditures, many of the local agro-processing industries that were set up at the time of independence were privatized or shut down by later governments. Around the late 1960s, there was a push for the liberalization of the economy through the elimination of import licensing and quantitative controls, and also for greater emphasis on private sector-led growth. Small-scale farming was encouraged through the establishment of single-commodity boards for cotton and grains, for example, and through the extension of credit facilities to small-scale farmers. The Agricultural Development Bank (ADB) was established in this period. Additionally, rural farm production was encouraged through the significant investments in rural development projects in roads, water and electricity. The agricultural sector also received a boost in this era with the introduction of ‘Operation Feed Yourself’ and ‘Operation Feed Your Industries’ between 1972 and 1974, where individuals were encouraged to take up agricultural activities. ‘Operation Feed Your Industries’ was particularly important as it encouraged the provision of needed raw materials for industries. Guaranteed minimum prices were also set by the reigning government for major agricultural products such as cocoa, maize and rice, in an effort to further stimulate production.

Despite policies to promote agricultural production however, by the early 1980s, the agricultural sector began to decline. A number of factors may be attributed to this—Cocoa, Ghana’s main export crop, which had contributed 14% of total GDP in 1970 contributed only about 2.6% to GDP by 1982. Poor weather conditions also reduced food production within the country and inflation soared from 9% in 1970 to about 123% by 1983 (Nyanteng and Seini, 2000). The Economic Recovery Programme from 1983 to 1986 had, perhaps conflicting, implications for the agricultural sector. On the one hand, the market liberalization policy led to the devaluation of the country’s currency, which encouraged agricultural production and exports. On the other hand, the removal of guaranteed prices on agricultural products and subsidies on agricultural inputs tended to increase costs of production in the sector. Additionally, a number of agricultural enterprises collapsed due to their inability to compete on the international market.

Between 1991 and 2000, the Medium Term Agricultural Development Programme (MTADP) was the main policy that aimed to provide a comprehensive framework for the recovery and accelerated growth of the agricultural sector. This policy focused, not just on production and trade, but also on the processing of agricultural commodities. Indeed, between 1991 and 1997, significant improvements were observed within the sector, particularly with respect to non-traditional agricultural exports. The export of pineapples increased by over 200% between 1991 and 1997, while the production of cassava and maize quadrupled and tripled, respectively (Asuming-Brempong, 2003). Although the MTADP was the main policy document for the Ministry of Food and Agriculture during the 1990s, other programmes and projects were undertaken to boost agricultural production and agro-processing within the period. These include the Agricultural Diversification Project (ADP) (1991-99), National Agricultural Research Project (NARP) (1991-99), National Agricultural Extension Project (NAEP) (1992-2000), Agricultural Sector Adjustment Credit (ASAC) (1992-99), National Livestock Services Project (NLSP) (1993-99), Agricultural Sector Investment Project (ASIP) (1994-2000), Fisheries Capacity Building Project (FCBP)

3 In recent periods, the areas of financing from the ADB are agricultural production, export financing, agro-processing and marketing, and cocoa financing. There however seems to be more focus on production and marketing and very little on agro-processing (MoFA, 2007)
(1995 to present), among others. Commodity specific programmes such as the 2001 Presidents Special Initiatives (PSIs) also encouraged agro-processing, such as the PSI on cassava and its processing into starch.

The Food and Agriculture Sector Development Policy (FASDEP I) of 2002 was relevant chiefly because it adopted a sector-wide approach to guide agricultural development and interventions. The World Bank/IMF sponsored Interim PRSP (2000-02) and the Growth and Poverty Reduction Strategies, GPRS I (2003-05) and GPRS II (2006-09) were also significant to agricultural production in the country. The first Ghana Poverty Reduction Strategy (GPRS I), 2003- 2005 set out that agriculture was to be better modernised in order to spur rural development. In the second Growth and Poverty Reduction Strategy (GPRS II), 2006-2009, and its sequel the Ghana Shared Growth and Development Agenda I (GSGDA), 2010-2013, agriculture is expected to lead the growth and structural transformation of the economy and maximize the benefits of accelerated growth in the country. GRPS II recognized that no significant progress can be made in raising the average real incomes of Ghanaians as a whole without significant improvements in the productivity of the agriculture sector, with particular focus on the agro-based/processing industry (NDPC, 2005). The spike in performance of the industrial sector between 2002 and 2005 (the sector grew at 2.9% in 2002 and 7.6% by 2005) was considered to be fundamental to the establishment of a sustainable, accelerated and job-creating agro-based industrial growth (Ackah et al., 2014).

The second phase of the Food and Agriculture Sector Development Policy (FASDEP II) aimed, among many other things, to promote agro-based industrial development in the country. The main difference between FASDEP I and FASDEP II is that the latter adopted a value-chain approach to agricultural development. FASDEP II contained the long term policy objectives of government in relation to the development of the agriculture sector, with the means of implementation outlined in Ghana’s 2011-2015 Medium-Term Agricultural Sector Investment Plan (METASIP) document, which included several strategies and activities for the promotion of agro-processing in the country. These include the provision of at least one (private sector led) mechanization center established in each district by 2015 to provide diversified services to all types of farmers and agro-processors (small, medium and large); generate a system of incentives for agro-processing industries to adopt food grade processing technologies; increase rural industrial processing of cassava, oil palm, shea nuts, cashew nuts, soybeans and groundnut increased by 20%, 20%, 40%, 30%, 30% and 30% respectively by 2015. Agro-processing is also to be promoted through the extension of support to individual and group initiatives aimed at adding value to major food staples. Priority will be given to maize (milling and packaging), rice (milling and packaging), cassava (gari, flour, etc), yam (flour), cowpea (grading and packaging) etc. - the support includes targeted training in value addition and linkages with relevant service providers and markets. Use of appropriate grades and standards will be emphasized to improve quality, improve market penetration and reduce post-harvest losses. In promoting agro-processing, care will be taken to ensure that the activities are carried out in an environmentally safe and sustainable manner. Thus all agro-processing interventions will be required to put in place environmental mitigation measures. Gender equity is also to be emphasized in all activities along the value chain to ensure that the disadvantaged, especially women and youth play a major role in all activities (MoFA, 2010).

These goals are to be achieved through a number of activities such as the identification of successful lead firms/agro-industries and apply viable model(s) of linkage with smallholders; the
promotion of off-farm activities with particular focus to supporting establishment of agro processing Micro and Small Enterprises (MSEs), and targeting women and the youth; facilitation of credit facilities; carry out an assessment of quality of agro-processing technologies used in food processing; the development of standards for agro-processing equipment for various types of food products and enhancing the importation of appropriate agro-processing equipment; among others.

The Ghana Trade Policy (GTP) also aims at turning Ghana into a major agro-industrial economy through the diversification of production in order to take advantage of export market opportunities. Other incentives for agro-processing firms include tax holidays (companies engaged in the conversion of crops, fish or livestock produced in Ghana into value-added and packaged products (i.e. agro-processing companies) will benefit from a tax holiday of five (5) years from the commencement of commercial production); location-based incentives; tariff incentives for agro-processing businesses- zero rated for agro inputs, plant and machinery; exemptions of import duties on imported plant, machinery and equipment to be used in agro-processing industries, among others.

Although various agricultural policies over time have included sections that focus on the development of the agro-processing industry in Ghana, Ghana may benefit from an integrated and strategic national plan that takes into account specific characteristics and challenges faced by small and medium scale firms in the informal sector of the country, who are largely engaged in agro-processing activities. Such a national policy plan may also facilitate important linkages between the agro-processing industry and other relevant sectors.

IV. CONSTRAINTS TO GROWTH AND DEVELOPMENT OF AGRO-PROCESSING INDUSTRY

Despite general and specific policies put in place by the Government of Ghana and aimed at promoting the agro-processing industry in the country, Ghana produces a little over 30% of the raw materials needed by agro-based industries (RoG, 2007). Almost all the food products sold to local markets have very limited value addition. Cereals and grain legumes are often just threshed, while roots and tubers and plantains are sold predominantly in their raw form. Recent attempts to produce cassava, plantain and yam flour are yielding results but at present, markets for these are not yet fully established. Low income levels are also a source of restrained demand for the well packaged cassava, plantain and yam flour. It is important to note that there are hardly any statistics on the output of the agro-processing industry in the country. A critical element of modernization of the agriculture sector is value addition to primary produce. However, the lack of reliable statistics on the supply of and demand for processed agricultural products, constrains the effectiveness of this sector (MoFA, 2010).

A number of reasons may be proposed to explain the low uptake in agro-processing in the country. These include the lack of agro-processing facilities and modern equipment, which often results in significant agricultural yields going to waste; shortages and high cost of equipment and spares; limited access to information from extension service; limited access to appropriate packaging material for processed products; lack of marketing skills; unreliable supply of raw materials; failure to meet food processing regulations pertaining to food safety and hygiene practices which need to be adhered to in the industry. Attention to hygiene and basic food safety procedures is found, at times, to be limited among informal enterprises. Knowledge of specific
regulations and legislation governing food safety and hygiene issues is only evident among those processors who market their product through formal outlets. Other reasons are the irregular supply of energy, low youth interest in farming, agro-processing and agribusiness, in general, due to low profitability; Additionally, the higher perceived gains in the mining sector also attracts youth away from the agricultural sector.

V. CONCLUSION

Although agricultural production in the country is generally rainfall-dependent, there are a number of factors that make this sector a viable area to focus more attention and investment. These factors include the presence of a well-endowed drainage basin with networks of water bodies that can be tapped for irrigation; a well-established agricultural research system which has been successful in the improvement of crops production such as cassava, maize and cowpea; large youth population which can provide ready supply of labour for increased crop production; relative nearness to the European market for exports facilitation, compared to other countries in southern Africa, to name a few (GIPC, 2013). A major strength of the agricultural sector is the diversity of commodities being produced in each of the three major agriculture zones within the country. The northern savannah zone, the largest agricultural zone, is well-known for its production of rice, millet, sorghum, yam, tomatoes, cattle, sheep, goat and cotton. More recently, mango plantations and ostrich farms are also gaining agricultural prominence in the zone. The coastal savannah zone is another important agricultural zone in the country. The lower portion of this zone drains into the Volta River and therefore provides a conducive environment for fish farming and aquaculture. Other commodities produced in this zone include sweet potato and soybean crops under irrigation, in addition to rice, maize, cassava, vegetables, sugar cane, mangoes, coconut and various livestock. The forest zone, with its more abundant supply of rainfall, is more noted for the production of cocoa. Other crops cultivated in this area include coffee, oil palm, cashew, rubber, plantain, banana and citrus crops.

Although the services sector currently contributes the majority share to total GDP within the Ghanaian economy, it is unlikely to sustain growth and long-term development due to a recognized lack of competitiveness in this sector. First, although education levels within Ghana are relatively high, the high quality of education that is needed to foster innovation and increased productivity is lacking. Rather, these average levels of education may be sufficient to spur production in light manufacturing sectors such as agro-processing, which typically relies on relatively low skilled labour. Additionally, while services sectors thrive on well-developed infrastructure and technology such as good transportation systems, storage facilities, financial systems, among others, the current access to only basic infrastructure (e.g. electricity, road networks from farming communities to urban and peri-urban markets, irrigation facilities) in Ghana may be more conducive to activities of the agricultural and agro-processing sector. The experience gathered by the labour force in these blue coloured jobs in the agro-processing industries may also likely propel the establishment and growth of heavy manufacturing industries which will ultimately spur overall economic growth and development.

REFERENCES


• Dziedzoave, N.T. (2008) ‘Recent Developments in cassava processing, utilisation and marketing in Ghana and lessons learned’. Food Research Institute. Paper presented at the Expert Consultation Meeting held at the Natural Resources Institute, University of Greenwich, United Kingdom on 11 and 12 December, 2008


• FAO (2002). ‘Small-scale Palm Oil Processing in Africa.’ Agricultural Services Bulletin No. 148


• Ghana Investment Promotion Centre (2013) ‘Investing in Ghana’s Agricultural and Agro-Processing Industry’.

• Ghana Statistical Services (GSS) 2008


• MOFA (2010) Medium Term Agricultural Sector Investment Plan (METASIP) 2011-2015, Ministry of Food and Agriculture, Republic of Ghana

• MoFA (2007). Food and Agriculture Sector Development Policy (FASDEP II) Ministry of Food and Agriculture, Republic of Ghana

