

The Role of Knowledge Management in National Food and Agriculture Policy Implementation: Evidence from the Planting for Food and Jobs Agricultural Policy of Ghana

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Abstract

Knowledge plays a key role in the success of development policies. It is a key asset used by individuals, corporations, governments and international bodies in achieving both competitive and comparative advantage. The Planting for Food and Jobs agricultural policy was implemented to create job opportunities, promote food security, and socio-economic growth after failure of several agricultural policies in Ghana. A desk review reveals that through Knowledge Management, food is now available in export volumes and the country has begun exporting cereal grains and plantain to neighboring West African countries. The government of Ghana through the learning of outcomes have shown the commitment to address the few challenges of the programme which include the establishment of warehouses and buffer stock companies. It had been recommended that the policy implementation framework should be redesigned to promote active youth and women participation.

Keywords:- Knowledge Management; Planting for Food and Jobs (PFJ), Policy; Agriculture; Ghana/

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CHAPTER ONE

INTRODUCTION

1.1 Background

Food security through self-sufficiency has been expressed as a keen interest of government over the previous decades. Over the past decades, the government of Ghana has initiated and implemented several policies geared toward the attainment of food security and economic growth as the country's population keeps on increasing. The Ghana Living Standard Survey (GLSS) reported that the poverty rate in Ghana stands at 23.4% (GSS, 2018). If going by the Organization for Economic Co-operation and Development's (OECD's) definition of poverty rate (thus, the ratio of the total number of people within a particular age group/population whose income falls short of the poverty line), then 23.4% of Ghana's population live in poverty. The World Vision International (WVI) (2020) reported that farm household heads remain part of the poorest in Ghana and thus find it difficult to support their families. The WVI also mentioned that while malnourished adults are less productive at work, the children find learning a struggle, and this poses a serious challenge to sustainable economic and social development within the long-term. The inequality gap amongst rural and urban dwellers in the country has also been reported to be wide.

All these assertions bring to light the essence of attaining food security within Ghana. Agriculture has been acclaimed the backbone of the country's economic and social, development. Most policies aimed at improving equality, incomes, living standards and sustainable livelihoods have been implemented through the agricultural sector. Statistics show that the poverty rate in Ghana has been on a decline since 1991. Statistics by Macrotrends LLC (2020) adopted from a world bank report indicate that the poverty rate in Ghana for 1991 declined by 7% to 85.40% in 1998. Further 8.3 % decline was recorded from 1998 to 2005 (poverty rate of 77.10%). In 2012, the poverty rate was reduced to 60.50 at a 16.6% rate of decline and 2016 recorded 56.90 poverty rate at a 3.6% decline. The poverty rate trend for the periods 1991 to 2016 has been shown in Figure 1.

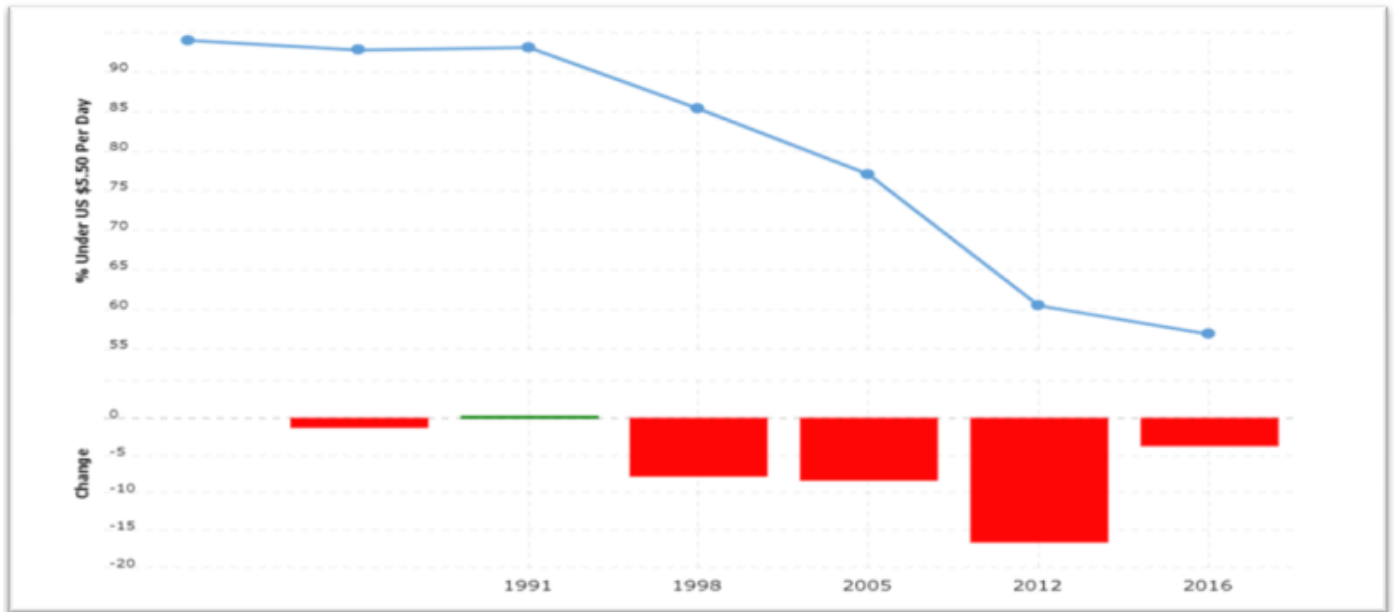


Fig 1: Ghana Poverty Rate 1987 – 2020

Source: Macrotrends LLC (2020) adopted from World Bank

Since it has been stated already that farm households are the majority amongst the poor in Ghana, and the poverty gap amongst the rural and urban populace is widespread, it would be of a good judgement to relate the reduction in poverty rate in Ghana to improvement in the agricultural sector which employs about 33.5% of the country’s workforce (Plecher, 2020) and about 90% of rural population (GSS, 2014). Though, a number of other factors such as increasing rural non-farm employment interplay in the declining rate of poverty in rural Ghana (Aberman & Lal, 2019). In light of this, most national policies have focused on improvement of the agricultural sector. Amongst the named agricultural policies in the country, the most current one that is ongoing and the subject of discussion for this paper is the Planting for Food and Jobs Programme (PFJ).

1.2 Problem

Agriculture has been the main sector in Ghana that employs 33.5% of the economically active population(Plecher, 2020). This means that the agriculture sector must play a leading role in poverty reduction, which is reported at 23.4% in 2018 (GSS, 2018) since that is core issue in Ghana’s economy. It is, therefore, not surprising that most of the policies embarked by the Government since independent have agriculture as the focal point to achieve economic growth and poverty reduction. Poverty reduction and general economic growth dwell on knowledge management since strategy formulation, implementation and evaluation all rely on certain information and experiences. Palacios and Garrigos (2006) discoursed that

knowledge in modern days is deemed a significant asset for gaining both competitive and comparative advantage. Knowledge is applied in all sectors (agriculture, industry and service) in an economy.

However, the application of knowledge management as competitive factor in strategy implementation is less the case in several policies of government which is often borne out of political promises and passion. Literature on knowledge management in the ongoing Planting for Food and Jobs agricultural policy is hardly available. This paper, therefore, seeks to assess the application and role of knowledge management in the Planting for Food and Jobs agricultural policy.

1.3 Objective

The study aims at assessing the role of knowledge management in the Planting for Food and Jobs Agricultural Policy currently implemented by the Government of the Republic of Ghana.

1.4 Relevance of the Study

The study seeks to assess the role of knowledge management in the implementation of the Planting for food and Jobs agricultural policy. Since knowledge plays a crucial role in the success of any given policy, this paper would help assess how knowledge management has been applied in the PFJ policy, the successes, shortcomings and the necessary redress. It would also provide a basis for further research of knowledge management into the subject matter by future researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Meaning and Concept of Knowledge Management

Knowledge management has recently become popular area of research. However, the term Knowledge Management (KM) has been in use for over three decades. The KM idea was conceived in the management consulting community in the 1980s. They realized the need for within organizational accessibility and sharing of information at the time when internet services arose (Koenig, 2018). This resulted in the creation of dashboards, expertise locators and proper databases as new products. The need for a product name resulted in the term Knowledge Management (KM). The focus of the consulting organizations was mainly on large organizations with dispersed units. Nonetheless, this principles and techniques were circulated to other organizations (Koenig, 2018). With the increase in KM, most people have different opinion on what KM is (Jennex, 2007). Several definitions on KM have been given by researchers and actors in the field.

Davenport (1994) has given the shortest and simpler definition ever on KM. He defined KM as “the process of capturing, distributing, and effectively using knowledge.” Davenport uses the word “process” which indicates that KM is not a one stage activity. It requires several stages. Another definition that was given few years after Davenport’s definition was given by the Gartner Group (Koenig, 2018). It is given as, “Knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience in individual workers.” Also, they use the word “discipline”, which makes KM a field of study on its own. However, their definition was too focused on the organisation’s own information and knowledge assets. Knowledge management can therefore be defined to include the activities of human, process, social interactions, experience and cognitive interpretation of information (Holsapple, 2005). What can be deduced from the definitions is the managing of knowledge. Knowledge, the application of information is crucial for the viability and sustainability of enterprises. Knowledge is applied in all sectors (agriculture, industry and service) in an economy.

2.2 Knowledge Management (KM) and Agricultural Transformation

Knowledge management is an infrastructure that plays a strategic role in the life of every organization. The continuous adjustment of organizational strategy and performance is often knowledge intensive in Agricultural Research Institutions. Agricultural Research Institutions are saddled with the responsibility to generate technologies and knowledge to inform policy development. The world is in the process of

transformation due to a range of phenomenon, from demographics, ecology, globalization, socio-political to the overwhelming information and knowledge society (Goux-Baudiment, 2009). The importance of knowledge along a multi-perspective and complex nature (Chang and Ahn, 2005) increases concern for the required management. Simultaneously, an embedded tacit nature with multiple forms, makes it difficult to be managed (Schwartz, 2006).

Agricultural transformation is multi - faceted in nature, as it involves the creation of entire supply chains and market structures that can provide strong livelihoods for most of the population of a country. The IFAD (2016) Rural Development study outlines that agricultural and rural transformation does not occur in isolation but as part of a broader process of structural transformation shaped by the interrelationships between agriculture, the rural non-farm economy, manufacturing, and services. Creating sustainable agricultural market systems and adding local value needs many enablers, such as electricity, highways, water, labour, science, materials, markets, investment, tax, regulation, and finance. Without these, the supply chain actors whether they are producers, input suppliers, processors, or marketers cannot flourish and expand on a scale. And these enablers are not just the agriculture ministry's mandate.

Knowledge Management also looks at how you develop the right conditions and establish a clear and comprehensible policy framework that allows for the private sector, supports smallholder farmers, and builds a coalition with civil society and development partners. One of the studies 's main findings is that African countries recognize what can be done to cause change but are faced with capacity constraints that restrict their change capability. In addition, there is limited published information to guide countries and their partners on how to enhance their implementing capacity.

Agricultural transformation in Africa, and thus the achievement of the Comprehensive Africa Agricultural Development Programme (CAADP) and Malabo targets, can only come about if governments take the lead and drive a transformation agenda based on a visionary and cohesive national strategy. In view of the multi-agency and multi-sectoral nature of agricultural development, to be efficient, such transformation visions and strategies need to be developed as a fundamental part of the national development vision of a country that is fully owned by the Head of State, since it requires multi stakeholder coordination.

2.3 The Agricultural Sector of Ghana

The agriculture sector continues to provide employment, food security, and foreign exchange. It also contributes to the country's GDP. The sector also contributes to social stability, provides a buffer in times of economic shocks and contribute to cultural values that come with farming (Dzanku and Aidam, 2013).

According to Benin et al. (2008), the simulation analysis they organized depict that the growth in agriculture shown more effective in reducing poverty in the country. This is due to its strong income and consumption relations. The sector has enjoyed the leading position in contribution to total GDP for many years. However, it has more than 10% in total GDP and currently the service sector is leading with a total share of 53.3% as at 2015 followed by the industry sector with a share of 26.6% (MoFA 2016). See Table 1 for details. This has been reported to be a sign of structural change. It has been stipulated that (1) as economies grow, the demand for food decreases when compared with other commodities, (2) advanced production technologies are also utilized. Nonetheless, this is not the case of Ghana. This is because production methods of farming are still very rudimentary. Also, in the year 2000, 50.3% of the active labour were employed in Agriculture. However, this has decreased to 42% as reported in the 2010 census. This indicate a shift in population to other sectors.

Dzanku and Aidam (2013) argued that agriculture also enhances social viability via migration. This was supported with the fact that farmers chase emerging opportunities in different ecological zones. It is, therefore, important that national policy should take this into consideration in order to increase income while reducing poverty in the country.

Year	Sector			
	Agriculture	Service	Industry	GDP at Market Prices (GH¢ in Millon)
2006	30.4	48.8	20.8	18,705
2007	29.1	50.2	20.7	23,154
2008	31.0	48.6	20.4	30179
2009	31.8	49.2	19.0	36,598
2010	29.8	51.1	19.1	45,865
2011	25.3	49.1	25.6	56,070
2012	22.9	49.1	28.0	69,666
2013	22.4	49.8	27.8	85,974
2014	21.5	51.9	26.6	105,550
2015*	20.2	53.3	26.6	133,596

Table 1: Share of Agriculture in GDP (%)

Source: MoFA (2016). * Revised

2.4 Past Agricultural Policies in Ghana

The first comprehensive policy framework that focused on the growth and development of agriculture sector was launched in early 1990s. That is the Medium-Term Agricultural Development Programme (MTADP). It covered the period 1991 to 2000 with major aim of promoting institutional reforms that was needed to increase investment and market-oriented agriculture growth as well as private sector involvement in the agriculture value chain. An annual agricultural growth rate of 4 % was estimated.

Several programmes were run under MTADP including the National Agricultural Research Project, Agricultural Sector Investment Project, Agricultural Sector Adjustment Credit and so on. The main component under the Agricultura Sector Investment Project were improving market infrastructure, increasing processing capacity of agricultural produce for markets, improving water supply for irrigation, improving road networks to rural and farming area.

In 1995, a long-term national policy framework, Vision 2020, was launched. The Coordinated Programme of Economic and Social Development Policies (CPESDP) was formulated as a medium-term programme spanning from 1996-2000. It also had targets such as stabilizing inflation in the economy, ensuring food security, providing raw material to other sectors, and increasing the income of farmers as comparable to other sectors. To achieve these, increase in productivity was targeted using Science and Technology with emphasis on environmental quality. The Accelerated Agricultural Growth and Development Strategy (AAGDS) was also launched in 2000 with a goal of increasing the annual growth of agriculture from 4% to 6% within 2001 and 2010. However, this policy together with its strategic goals died with the change in government in 2001. This is due to lack of binding development policy for the nation. The AAGDS had five strategic areas of focus. These are (1) promotion of selected products through improved access to markets, (2) development and improved access to technology for sustainable natural resource management, (3) improved access to financial services, (4) improved rural infrastructure, and (5) enhanced human resource and institutional capacity.

Under the new government, the Ghana Poverty Reduction Strategy (GPRS) was instituted. It was also emphasizing the need to accelerate growth to reduce poverty. In this policy, all sectors were to draw their policy with poverty reduction as the focused. The infrastructure development and modernization of agriculture, which was one of the five thematic area had the objective of transforming the nation into an agro-industrial economy by 2010 (Dzanku and Aidam, 2013). This was to be achieved through increasing productivity, encouraging private sector investment in agriculture by giving incentives, and also the adoption modern production technologies. At the end of 2005 the second phase of the poverty reduction

strategy was formulated, that is GPRS II. This policy served agriculture as the foundation for economic growth and structural transformation. This policy reduced the overdependence on the cocoa as the leading traditional crop for export by exploiting the export of non-traditional crops such as pineapples, mangoes, cashew and vegetables. The activities under this policy also similar to the current government flagship programme; Planting for Food and Jobs (PFJ) (this has been discussed in the sections below). Under GPRS I, the Food and Agricultural Sector Development Policy (FASDEP) in 2002 as framework for guiding the implementation of the agriculture sector's objectives. Nonetheless in 2006, a study on FASDEP indicated that the various objectives would not be achieved. This called for the formulation of FASDEP II in 2006. It was to achieve the agriculture goal under GPRS II.

2.5 Why some Agricultural Policies in Ghana Failed

Most of the agricultural policies failed to achieve their target and they continue to fail in the same way whenever new policies and programmes are initiated. The poverty and social impact analysis of FASDEP I revealed that the odd circumstances of the programme beneficiaries were poorly assessed, poor analysis of the problem at hand resulted in insufficient participation of beneficiaries and lack of coordination among the relevant ministries, agencies and department (Dzanku and Aidam, 2013). It can therefore, be deduced that there was information asymmetry which Knowledge management would have possibly resolved.

The change in government in 2001 resulted from non-implementation of the AAGDS and the institution of GPRS I. This demonstrate the use of political powers in deciding what is best for the nation without considering the activities of the previous government. Despite policies emphasis on the use to modern technology, Ghana's agriculture productivity continues to be low. This indicates the need to coordinated effort by all stakeholders. This is because, by involving all stakeholder would enrich information obtained thereby helping to identify the real problem at hand. The Youth in Agriculture Programme was introduced in 2009 to encourage youth participation in agriculture but failed because the participation of the beneficiaries was low. Also, those who were employed to train the farmers were present since farmers reported for not receiving any training. In addition, the resources including the credit facilities were also not provide to farmers as stated (Nsiah, 2018 p. 27-29)

Several studies have reported that the policy choices and their implementation cannot be separated since they are determined by those in power with interest in it (Acemoglu and Robinson, 2008; Booth et al., 2005; Keefer and Vlaicu, 2008). Dzanku and Aidam (2013) recommended that political leaders, civil society organizations, the media and external influence and donors should call for change institution of policy which have usually been top-down approach. Faizuniah (2013) mentioned that Knowledge Management helps in

knowledge sharing which enables people and organizations to raise awareness, discuss and learn about issues and ideas that have the potential to inspire new generation. Effective Knowledge Management would, therefore, build the basis for improved learning. Knowledge Management thereby increases the chances of avoiding repeated failure which has not been so in several agricultural policies and programmes previously implemented in Ghana.

2.6 Knowledge Management in Agriculture

In this contemporary era of knowledge base economy, the use of information for an organisation's success cannot be overlooked. This call for the application of Knowledge Management in the operations of business. This is very important in the agricultural setting which require modern practices for enhancement and growth. Several studies have report that for agriculture to be sustainable, then there is the need for improvement its activities (Reed et al., 2014; Mauelshagen et al., 2014; Zecca & Rastorgueva, 2014; Rastorgueva, 2016).

Reed et al., (2014) suggested that for enhancement environmental management, researcher, policy makers need to adopt knowledge management. This is due to the fact that policies should be based on available information. This information is discovered or produced through research. And it can effectively be utilized if there is knowledge exchange between producers and users. They observed that knowledge exchange ensures innovativeness and continuity. Mauelshanen et al. (2014) posit that application of knowledge management would mitigate and govern risk. This is because by capturing and recording pass experience, prediction is possible thereby one is able to prepare to risk.

In the field of agro-food supply chain, Zecca and Rastorgueva (2014) stated that the application of KM would improve logistic planning and monitoring. This would result in facilitating local delivery time, and aid in the delivery of both indigenous knowledge and exogenous knowledge (Lwoga, 2010). It was attested that managing and integrating indigenous knowledge and exogenous knowledge improve farming activities. Lwogwa (2010) further stated that what determines one's access to knowledge in a community are policies, legal framework, ICTs and culture. This means that institution and implementation of KM is not enough if other factors are not taken into consideration.

2.7 Planting for Food and Jobs

2.7.1 Concept, goals and objectives of the PFJ Policy

The increase in food crop production in Ghana over the past decades has been attributed to the increase in the total land area under cultivation but not necessarily an increase in on-farm productivity. Actual yields of the various food crops have been reported way below potential. Promoting the use of certified seeds and fertilizers and productivity-enhancing technology have been identified as means to remedy the aforementioned problem facing the agricultural sector (Government of Ghana, 2017). The PFJ programme had been designed to motivate farmers to adopt the use of improved technologies in the form of certified seeds and fertilizers. Initiated by the ruling New Patriotic Party under the leadership of the president of the republic of Ghana, H.E Nana Addo Dankwa Akufo Addo, the programme was first introduced during the inaugural speech of the president as the flagship agricultural policy. The overall goal of the programme was to achieve a structural transformation of the national economy through job creation, food security, and poverty reduction through modernization of the agricultural sector (Government of Ghana, 2017). On April 19, 2017 the programme was launched at Goaso in the Ahafo Region under the leadership of the Minister for Food and Agriculture; Hon. Dr. Owusu Afriyie Akoto.

The PFJ programme was implemented to attain the following objectives;

- To ensure immediate and adequate availability of selected food commodities.
- To provide job opportunities for the increasing unemployed youth in the agriculture and allied sectors.
- To create general awareness for all formal workers and public institutions to farm and establish backyard gardens.
- To serve as food imports substitution.

2.7.2 Alignment of the PFJs Objectives within National, Regional and Global Context

With reference to Government of Ghana (2017), the PFJ policy is aligned within the national, regional, and global contexts as follows

i. National Context

Ghana's Vision 2020 aims at promoting coordinated socio-economic development policies (2014-2017) that envisions agricultural transformation through forward and backward linkages to the industry and services sectors.

The Ghana's Shared Growth and Development Agenda II (GSGDA-II; 2014-2017) highlights the essence of improving crops and livestock productivity; accelerate the creation of jobs, and promote the competitiveness of the agricultural sector for better integration into the local and international markets.

After authorization of the policy matrices for the Medium-Term Agricultural Sector Investment Plan (METASIP) I and II, a roadmap has been developed for METASIP-III (2018-2021) and the PFJ is the flagship programme of METASIP-III.

ii. Regional Context

Based on the Malabo declaration, Ghana's deliverables under the Comprehensive African Agriculture Development Programme (CAADP) include provision of farm inputs, information, skills, and appropriate knowledge to smallholder farmers and create job opportunities for not less than 30 per cent of the youth in the agricultural value chains. Also, under the Economic Community for West African States (ECOWAS), the Regional Agricultural Investment Programme (RAIP) underscores on farm sustainability through integrated soil fertility management, dissemination of improved technology and the strengthening of support services to producers.

iii. Global Context

Under the Sustainable Development Goals (SDGs) of the UN, Ghana has targeted to increase investments into agricultural productive capacity enhancement through agricultural technology, research and extension services. The SDG-2 puts emphasis on zero hunger, attainment of food security, and improved nutrition via the promotion of sustainable and efficient climate-proofing agricultural systems. SDG-2 also talks about the promotion of full and productive employment and decent work, economic productivity and growth with focus on labor intensive sectors like agriculture.

The PFJ goals and objectives are well synchronized with national, regional and global goals. Knowledge from the global perspective has been infused in the programme objectives, setting out greater chances for project success. A successful implementation of the programme would not only bring social and economic success to the nation, but the entire world economy.

2.7.3 Modules, and pillars of the Programme

The programme is made up of some modules and pillars and operates within a defined framework. These have been discussed in the subsequent sections.

In all, there are five implementation modules; food crops (PFJ), planting for export and rural development (PERD), greenhouse technology villages (3 villages), rearing for food and jobs (RFJ), and agricultural mechanization services (AMSECs) (MoFA, 2020).

i. Food crops (PFJ)

This is the first implementation module of the programme. It aims at promoting the cultivation and yield of selected food security crops namely: maize, rice, sorghum, soybean, and vegetable crops including onion, tomato, pepper, and others. After implementation and initial success, the module has been expanded into other crops; groundnut, cabbage, lettuce, cucumber, carrots, cowpea, cassava, plantain, and orange flesh sweet potato (MoFA, 2020).

ii. Planting for Export and Rural Development (PERD)

High amount of imports has overriding unintended effects on the importing country. Importation requires foreign currency, particularly, the US dollar, to pay suppliers abroad. The demand for the dollar puts pressure on the local currency, the Ghana cedi, and this leads to volatilities and depreciation of the cedi with all the attendant effects. The agribusinesses in countries where these imports are made from flourish, and create more jobs for their nationals. Our farmers and businesses operating on a small scale are thrown out of business since they cannot compete with these large-scale businesses abroad.

According to H. E. Nana Addo Dankwa Akufo Addo, “PERD provides a historical opportunity for addressing the economic fundamentals by expanding the capacity to earn foreign exchange from agricultural exports, and generate much-needed jobs.” The programme (module) has been designed to spearhead the development of selected export tree crops; cashew, oil palm, coconut, mango, and rubber. This is intended to boost the non-traditional agricultural export sector and present the country with diversified and new sources of income. This module is also earmarked to link agriculture to the industry via the supply of raw material for industrialization, development of rural economies and the structural transformation of Ghana’s economy. The Tree Crop Development Authority (TCDA) had been established as the mandated body for the implementation and development of this module. A total land area of 32,591 hectares was to be planted with tree crops within 191 districts during the initial year of implementation (Communications Bureau, 2019a).

iii. Greenhouse Technology Villages

The module as the name suggests revolves around using greenhouse technology for vegetable crop production. This project was awarded in 2015 at a cost of US\$19.7 million to an Israeli company; Agritop Limited, and is therefore one that was inherited by the ruling government. The objectives of the programme

is to equip the youth with knowledge, skills and expertise in crop production through the use of modern systems and technology; enable the development of a complete value chain of vegetable producers, aggregators, seed suppliers, input dealers, transporters and produce distributors; produce quality and fresh vegetables for residents in urban areas such as Kumasi, Accra and Tema; encourage year-round vegetable production and export and contribute to job creation. The project scope encompasses the construction of training centers, greenhouse tunnels (farms) complete with automated drip irrigation facility, pack houses, cold storage facilities, maintenance yards, and accommodation facilities. These facilities were to be laid out on 5hectare plots in three Greenhouse Villages that would be located at Dawhenya, in the Greater Accra Region, Bawjiase in the Central Region and Akumadan in the Ashanti Region (Modern Ghana, 2020).

iv. Rearing for Food and Jobs (RFJ)

Annual meat import in Ghana is valued at US\$400 million and local meat production accounts for only 19% of total meat requirements in Ghana. In response to this, the RFJ module was launched in Wa in the Upper West Region on 25th June, 2019. It is a strategy to revive the livestock sector of the country which is on a steep decline. The sector has been challenged with the high production cost, and competition from cheap imports of livestock and related products making domestic meat production unprofitable. The implementation strategy focuses on breed improvement, infrastructural development (housing, slaughtering, processing, etc.), productivity and production, animal health, feed production and forage conservation, marketing, e-agriculture, and others. Selected value chains for the following livestock sectors would be covered: cattle, sheep, goats, pigs, poultry and guinea fowl. A 50% subsidy of production inputs such as day-old chicks, and cockerels would be granted to farmers relative to the market value of the input. This support, is however, limited to only farms with production capacity not more than 2000 birds. In addition, 3000 cattle farmers would benefit from artificial insemination programme, and improved breed of goat, sheep and pig would be supplied to farmers in the sector who would pay back in kind. Farmers who receive either goat or sheep breeder would pay back two offspring per adult breeder received, and farmers in swine production would pay back with three piglets per breeder received. Subsidy on animal feed would also be given to farmers (Communications Bureau, 2019b).

v. Agricultural Mechanization Services (AMSECs)

Access to finance has been identified as a significant challenge to tractor ownership in Ghana. Most of the potential buyers either do not have their own capital or cannot afford bank loans attracting 25-40 per cent interest rates. The Government of Ghana, upon realizing this challenge and the need for farm mechanization, decided to import more tractors and supply them to recipients who enjoy a subsidy of 30 to 70 per cent. MoFA planned to establish an AMSEC in all 216 districts of the country by the end of 2014. However, only

89 AMSEC centers were created with coverage on only 41% of the districts. 79 new AMSECs were created in 2016 through the Brazil More Food International Program, bringing the total number of centers to 168. At the launch of the PFJ policy in 2017, AMSEC was included in the modules to serve the mechanization aspect of the programme toward increased food production, food security, and job creation (AgCLIR Ghana, 2017).

Pillars of the PFJs Programme

The PFJ programme is founded upon five pillars with the aim of transforming agriculture, improving food security and creating jobs in the country by improving agricultural productivity through the adoption of improved inputs (Government of Ghana, 2017). They include the following:

i. Seed

The PFJ programme focuses on ensuring a market-driven approach for the production of adequate quantities of improved seeds by private companies, certified seed companies and agro dealers, and timely distribution of the improved certified seeds at subsidized prices to the targeted beneficiaries. The desired results of this intervention are to increase crop productivity, enhance marketability of the outputs and improve the availability of food in Ghana. The major activities to be performed under this pillar include seed selection where there will be a collaboration with farmers to identify marketable as well as climate resilient and pest and disease resistant seed varieties that can meet local production conditions and estimate the required quantities and qualities with measurable parameters for each variety. Another activity under this pillar include research and development where the programme focuses on researching resistant, high yielding and climate resilient varieties as well as improving the capacities of local research institutions and local private companies.

Furthermore, in selecting seed partners, the PFJ programme seeks to ensure transparency in procuring inputs to ensure reliability of the seeds patronized. The condition is for the companies to be registered as private firms and be inspected by the Ghana Seed Inspection and Certification Division. Also, in case of any unforeseen challenges in securing the needed quantities of seeds, the programme will import seeds from member ECOWAS countries which will be subjected to quality checks in the country. In terms of seed supply the beneficiary farmers will have to pay 50% of the cost of the certified seeds at approved banks. They will then present the receipt at any approved private seed company's outlet and/or their respective district offices for the seeds. Moreover, the programme seeks to strengthen linkages among all stakeholders in order to facilitate access to seeds through complementary services such as training private seed companies. Other activities under the programme include awareness creation on seed processing, labelling,

tagging and packaging to enhance the marketability of the certified seeds under the programme. Lastly, the programme sets a trajectory for graduation in which graduation has been defined as when the beneficiaries including the farmers and the private companies are able to afford seeds without the programme.

ii. Fertilizer

Agricultural production is low in Ghana due to the low fertility of agricultural lands and low application of fertilizers by the farmers. This pillar seeks to increase the availability and usage of fertilizers by farmers in Ghana. The programme seeks to facilitate the production and importation of fertilizer by private companies in Ghana, in order to meet the demands by farmers under the programme through timely procurement, transportation and distribution. The programme expects that increased application of fertilizers will enhance on-farm crop productivity and improve food security in the country. The major activities under this pillar include selection of fertilizers, supporting the private fertilizer supply chain, promoting local blending of fertilizers, distribution of fertilizers as well as complimentary services. In terms of the selection of fertilizers, the quantity of fertilizer needed for the programme will be estimated by considering the number of beneficiaries, the area planted and the crop mix. The recommended standards for the crops will be used in selecting the fertilizers.

In supporting the private fertilizer supply chain, the programme will acquire supply of the fertilizers through tendering from private firms. The companies will be required to showcase their technical and financial and their preferences for the supply and the distribution of the imported fertilizers at market prices. The programme will also promote the local blending of fertilizers and other water-soluble inputs through fertigation. In terms of distribution, the farmers will be able to collect the fertilizers after showing receipt of payments made at the approved banks. Distribution outlets will be created closer to the farmers to ensure ease of access to the fertilizers through private distributors and the government. Complimentary services that will be performed by the programme include inspection of fertilizers by the Plant Protection and Regulatory Services Directorate to ensure that they meet the required standards.

iii. Extension Services

As part of the programme, the government of Ghana seeks to recruit and place Extension Agents in every district in the country, and resource them in order to work cooperatively with the farmers. The extension services will provide technical support in partnership with private input dealers as well as the local government so that the farmers will benefit from the promoted technological packages. Major activities under this pillar include the deployment of extension agents where more agricultural extension agents will be employed in districts where their number is inadequate. Also, farmers will be mobilized through mass

media by creating awareness on the positive impacts the programme on the farmers and the economy of Ghana.

The extension services will create the awareness to farmers who are located in both urban and rural areas in the targeted districts. In addition, FBOs can be used as channels to reach several farmers at a time. Furthermore, the programme will provide support services such as enhancing the knowledge of farmers on good agricultural practices, efficient use of inputs and marketing of their outputs, extension delivery is very important. Therefore, the programme will employ extension approaches such as training and visits. Other actions under this pillar include facilitating pluralistic extension services through demonstration, and training, among others.

iv. Marketing

The programme also seeks to improve marketing of inputs and outputs by encouraging partnerships among the farmers, farmer associations, nucleus farmers, farmer-based organizations and private aggregators. The programme expects the increased adoption of improved inputs will increase production of the crops. Therefore, new storage facilities will be constructed nearer the production areas as part of the programme while renovating the old ones. Also, the programme will help the farmers to sell their outputs so that they be able to pay back the remaining 25% of the cost of the subsidized inputs; reduce chances of price fluctuations through the participation and competition by the private players; and increasing the benefits of improved production by creating linkages with value addition and other food purchase programmes.

The main activities under this pillar include the collection of farm outputs where private aggregators such as traders and FBOs will be encouraged to collect the balance of payments on the subsidized inputs in cash or in kind from the beneficiaries. The aggregators will have to agree with the farmers whether they will collect the cash or produce at the farm gate or the farmers will deliver it by themselves. Another activity under this pillar includes the renovation and maintenance of existing storage facilities and construction of new ones where appropriate, through public private partnerships, to cater for the increased production resulting from the implementation of the programme. Also, linkages will be created between private aggregators with public programmes engaged in procuring food crops including Ghana Prisons Service, Ghana School Feeding Programme, among others. Grading, sorting, processing and packaging of the crops will also be conducted with existing government institutions as well as some private companies engaged in such activities. Furthermore, since the feed industry for animals presents an opportunity for crops such as maize, there will be linkages created with them, through this programme. Also, price instability affects the

crops under the programme in the domestic market due to risks such as weather, among others. Thus, the programme will intercede in cases where there is substantial evidence of unfair market practices.

Additionally, the programme seeks to establish small cottages to process some of the targeted crops into semi-processed products. It will also encourage the development and marketing of new food products from local farmers by processing companies, research institutions, individuals, among others. Moreover, the programme will also encourage local industries to add value to their products through proper packaging and branding. The programme will enhance market opportunities for the crops since they are widely used across the continent and other regions. The export of such crops will be facilitated through the Ghana Export Promotion Council and the Ministry of Trade. Lastly, the increased production as a result of the programme will create jobs for individuals in the country along the food value chain.

v. E-Agriculture

In order to ensure that the beneficiaries are well documented and tracked in terms of the usage of the subsidized inputs, the programme seeks to employ the use of information and communication technology (ICT) platform. The platform will enhance transparency, accountability, responsiveness and efficiency of the private services and government agencies in the provision of inputs and services to the beneficiaries. The platform will also provide fast, accurate and reliable information dissemination among the stakeholders. The programme will register and validate the beneficiaries and other value chain actors under the programme electronically, maintain records of cropping and land use patterns and extension services using satellite and/or Global Positioning Systems. The platform will also help with communicating weather, price, consumer demand and supply, and other information to the beneficiaries and other stakeholders. The ICT platform will help with the dissemination of information through web portals, text-based service and mobile internet-based service.

Drawing from the knowledge that the use of low improved seeds (farmer-saved and uncertified seeds), animal breeds, agro inputs such as fertilizer, modern technology, mechanization and poor market linkages in agricultural production are the major challenges of the country's agricultural sector, Knowledge Management has played a chief role in the project formulation. The various modules and pillars as discussed have a direct impact on addressing the above-mentioned challenges bedeviling the agricultural sector of the country. Under the Rearing for Food and Jobs (RFJ), high cost of feed and production which is a major challenge in the poultry and livestock sectors have also been given the needed attention which has been lacking over the years. The E-Agriculture pillar captures on the ICT component of Knowledge Management as purported by Lwogwa (2010).

2.7.4 Framework and Implementation of the PFJ Policy

Knowledge Management requires that policies are formulated within a given framework for implementation (Lwogwa, 2010). This section looks at the framework of the PFJ programme.

The implementing stakeholders of the programme are public institutions; the private sector, and development partners. The targeting and outreach encompass productive resource-poor smallholders (cultivating 0.4 – 2 Ha); women farmers and the youth (targeting a minimum 40% of participants), and farmers in urban and peri-urban communities. The scope is nationwide covering all 2016 districts. For every farmer, the maximum subsidy limit is on 2 Ha of cultivated land. Mobilization of farmers is to be done through awareness creation by the mass media and local information meetings; through ‘proven farmers’ who have the influence to encourage adoption and by collective farming approach (Government of Ghana, 2017).

The Ministry of Food and Agriculture is the body for implementation. A three-tiered coordination structure has been designed to facilitate implementation at the national, regional and district levels. The first tier is the National Technical Committee (NTC) chaired by the Dep. Minister, Crop (MoFA). The second tier is the Regional Technical Committee (RTC) chaired by the Regional Minister. The committee constitutes the regional director for MoFA, the regional economic planning officer, and farmers’ representative at the regional level. The third tier is the District Technical Committee (DTC) chaired by the M/M/DEC. It is made up of MoFA district director, district planning officer, Agric-sub-committee chairman, and farmers’ representative at the district level. The three-tier structure is designed to ensure effective implementation of the programme through the facilitation of resources, information, and feedback from the national level to local communities where the actual implementation is done and the reverse. April-June has been set apart for the annual review of key performance indicators (KPIs) (Government of Ghana, 2017).

Within the policy framework, there was no default representation of women and the youth. The strategy for ensuring that the given minimum target of at least 40% of women and the youth in the program beneficiaries (participants) was not clearly stated. The interplay of Knowledge Management is not well executed in the policy framework considering the fact that the agriculture sector of the country is dominated by an aging population and therefore requires active youth participation.

CHAPTER THREE

METHODOLOGY

This study is based on the review of literature relating to knowledge management, and the Planting for Food and Jobs (PFJ) agricultural Policy. A thorough review of the strategic plan for implementation document of the PFJ programme was done. Key word search was also conducted to retrieve relevant information about agriculture and past agricultural policies in Ghana. Some of the key words/phrases are: agriculture in Ghana; agricultural policies in Ghana, Knowledge management; Planting for Food and Jobs and impact of Planting for Food and Jobs. After obtaining the relevant documents through topic and review of abstracts and where needed, the entire document, a thorough review was done. The review looks at how the agricultural sector has progressed in Ghana over the past decades, the current agricultural policy; PFJ, and the application of knowledge management in the implementation of the programme. Programme outcomes are then matched with objectives upon which conclusions and policy recommendations were made.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Agricultural Transformation and the PFJ Programme

Agricultural transformation is the process of increasing long-term agricultural productivity growth to such a degree that it enhances the well-being of the majority of the population, pulling them out of poverty, providing lasting food security nationally and putting the country on a clear path to broader economic development and industrial revolution. This does not happen in isolation, but as part of a larger cycle of systemic change formed by the interconnectedness between agriculture, the non-farm rural economy, manufacturing, and services (IFAD, 2016).

Agricultural transformation in Ghana, and thus the achievement of the CAADP and Malabo goals and by far the SDPs, can only come about if governments/policy makers and the public sector take the lead and drive a transformation agenda based on a visionary and cohesive national strategy. In view of the multi-agency and multi-sectoral nature of agricultural development, to be efficient, such transformation visions and strategies need to be developed as a fundamental part of the national development vision of a country that is fully owned by the Head of State, since it requires multi stakeholder coordination.

Agricultural transformation is the transition of agriculture from wholly subsistence to commercial agriculture with the prevailing small-scale commercial farms producing a large and growing proportion of their crops for sale. Both forces drive the transformation of agriculture. First, increasing the productivity of labour increases production beyond subsistence. Secondly, improved infrastructure, especially roads, increases availability, reduces the costs of a wide range of attractive manufactured consumer goods and increases the profitability of new technology.

The findings revealed positive and concerted efforts by the Government of Ghana through policies and programmes aimed at transforming the agricultural sector within the short, medium and long term.

4.2 Application of Knowledge Management in the Planting for Food and Jobs Policy

The intangible, subjective (context-specific), fluid, less boundary-specific, and the difficulty in mimicking, transmitting, and transacting knowledge makes Knowledge Management very important in an organization (Chen et al., 2009). Lwogwa (2010) has opined that the determinants to a person's access to knowledge in a community are policies, legal framework, ICTs and culture. The E-Agriculture initiative of

the Ministry of Food and Agriculture provides a key Knowledge Management framework of the PFJ programme.

4.3 Impact of the Planting for Food and Jobs Policy

In 2017, MoFA targeted 200,000 participants of the programme but at the end of the farming season, 202,000 farmers enrolled exceeding by 2000 (1%). Similarly, in 2018, 500,000 farmers were targeted and 677,000, exceeding by 35.4% enrolled by the end of the season. The Ministry then increased the target to 1 million farmers in 2019 and expect 1.2 million enrolment in the end of the farming season. Based of the policy framework for implementation, it is expected that not less than 40% of the participants of the programme should be females and the youth. However, Mabe et al. (2018) revealed that only 6% of participant farmers were youth whereas the women farmers stood at 15%. This failure is expected since the framework and implementation strategy did not put in clear terms how to attain this objective of enrolling not less than 40% youth and female participant farmers. This also reiterate the essence of KM. The input distribution aspect of the programme, area under cultivation and yield reports have also revealed the following.

In 2017, 4,400 tons of certified seeds of selected cereals (maize, rice and sorghum) and soybean were supplied to farmers and an additional 4 tons of vegetable seeds (tomato, pepper, and onion). About 7,000 tons of seeds of groundnut and vegetables (lettuce, carrot, cucumber, cabbage, etc.) were supplied in 2018. A projected 15,000 tons of certified improved seeds were to be supplied to farmers in 2019. On fertilizer distribution, 79,943 tons of granular fertilizer (25Kg) were given in 2018, and a double of it, 160,000 tons were distributed in 2019. 266,606 liters of liquid fertilizers were supplied in 2018, and the figure increased to 2.2 million liters in 2019. The amount of compost given increased from 36,239 Kg in 2018 to 100,000 Kg in 2019.

The area of land cultivated for 2017 was 228,684 ha cropped with maize, rice, and soybean which yielded 697,000 tons in total output. In 2018, 373,384 ha were cultivated yielding an output of 1.2 million tons. Since increasing yield calls for increased storage capacity, in 2017, 27 warehouses with capacities of 34,000 tons were built. The surge in participants and yield saw the increase of warehouse facilities to 160 warehouses with 160,000-ton capacity in 2019. The increased yield saw an increase in export f 150,000 tons of food commodity to neighboring countries; Benin, Burkina Faso, Togo, Ivory Coast, Niger, and Nigeria (Kale-Dery, 2019). The patronage of the programme based on the given statistics is overwhelming and it is not a surprise it culminated into increased export of food commodities.

Latest statistics figures (2019) validated by the Minister of State in charge of Food and Agriculture, Hon. Dr. Gyiele Nurah, at the annual Pre-Harvest conference in Tamale in 2019 mentioned that the production of rice, maize, soybean, and sorghum has since the introduction of the PFJ programme increased by 27%; 72%; 39%, and 100% respectively. And as mentioned earlier, the country has started exporting food to neighboring countries. Furthermore, there have been a significant increase in the production of yam, cowpea, plantain and cassava to the extent that the country has started exportation to other countries within the sub-region (GoG-GODI, 2019).

Drawing on the success of the Food crops (PFJ) module after the one-year implementation has also led to the introduction of the four additional modules: Planting for Export and Rural Development (PERD), Greenhouse Technology Villages (3 Villages), Rearing for Food and Jobs (RFJ) and Agricultural Mechanization Services (AMSECs). It has been mentioned in previous sections the challenges the agricultural sector of the country faced. Proper Knowledge Management has led to addressing these key challenges and the results from the approach are testament of the importance of KM.

Contrary to these, statistics have shown that Ghana’s food import is still on the rise. Knoema (2020) reported that food import value for Ghana were 14.6%; 18.3% and 20.1% for the years 2016; 2017 and 2018 respectively. Trading Economics (2020) also report a similar statistic within the same period of time based on a World Bank report. Figure 2 shows the line graph of Ghana’s food import since 1996.

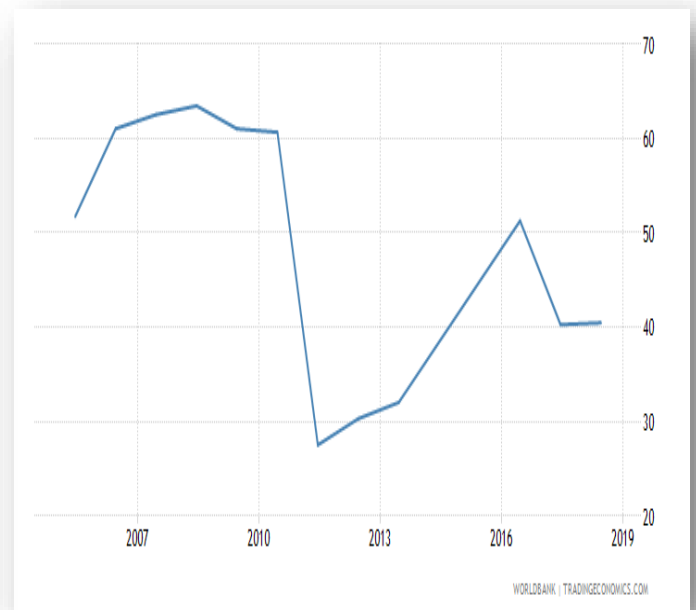
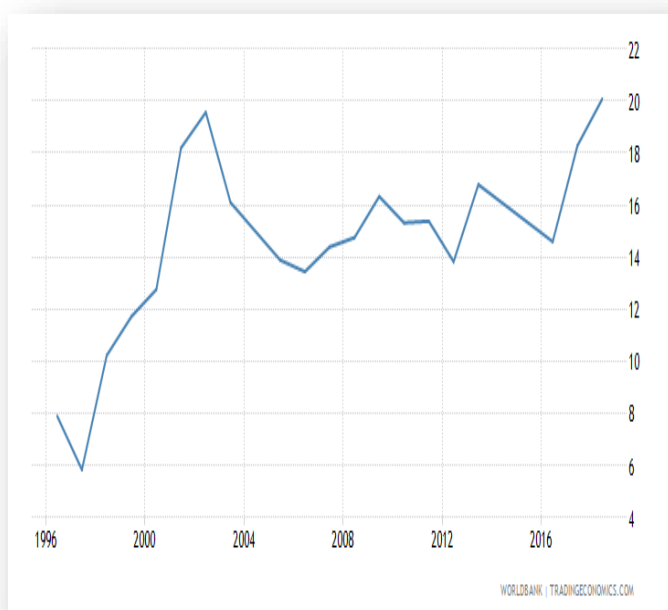


Fig 2: Ghana’s Food Import Trend since 1996 Fig 3: Ghana’s Food Export since 2007

Source: Trading Economics (2020) sourced from the World Bank

It could be seen from Figure 2 that after the introduction of the PFJ programme in 2017, food import in Ghana has still been on the rise, from about 14.6% in 2016 to 20.1% in 2020. Juxtaposing it against food export, similar result was found. The overall food export from Ghana had shown a decline from 2016 to 2020 according to Trading Economics statistic (2020). This also is shown in Figure 3.

Finally, empirical results from a study by Mohammed et al. (2019) revealed an insignificant increase in income levels from rice production. However, there was a significant decrease in total farm expenditure, an increase in per capita monthly spending and a reduction in income poverty of households. It was further revealed that the agricultural technology component implemented under the PFJ programme had a positive effect on rice productivity and welfare of rice farmers in Northern Ghana.

It is expected that the increased yield, reduction in total farm expenditure and the general availability of food would help address key economic problems such as poverty among rural households, general food insecurity and associated challenges, and unemployment.

4.4 Challenges of the Planting for Food and Jobs Policy

A study by Futukpor (2018) reveals that the Planting for Food and Job programme faces implemented in 2017 is faced with some challenges. Among the challenges include those related with the registration process for beneficiaries, distribution of the inputs and meddling by politicians. Problems identified in the registration process as indicated by the respondents include difficult registration process and long distance to registration centres. In terms of the problems faced in the distribution of the inputs, it was found that the distribution centres were far from the beneficiaries, and also there was delays in the distribution of the inputs in some districts. In addition, it was revealed that the quality of the seeds and the fertilizers being distributed to the farmers were of poor quality.

Furthermore, Danso-Abbeam *et al.* (2018) also found that some challenges facing the PFJ programme include inadequate amounts of fertilizer and seeds for distribution, meddling from politicians and poor support from the Municipal and District Assemblies. In addition, they identified that trafficking, coupled with the resale of the inputs have all contributed to the shortage of the inputs. Respondents of the study also indicated that they have to travel long distances to be able to collect the inputs. It was also found that there are scanty storage facilities in the districts to keep the inputs closer to the beneficiaries for ease of access. Moreover, the study revealed that some beneficiaries were unable to benefit from the seed pillar of the programme since the release of the seeds was delayed. It was further shown that the seeds were of low quality. That notwithstanding, it was indicated that the quality, improved seeds were rather too expensive for

the beneficiaries to be able to afford. Reading of the labels on the seeds were almost impossible for the beneficiaries since they were inscribed in French.

Through annual reviews of policy and learning, these challenges have been brought to the attention of government and conscious efforts have been put in place. The increasing numbers of storage capacity and facilities, and the buffer stock companies instituted by government are examples of how government is addressing the issue of glut and lack of ready market and storage facilities as reported in Northern Ghana for rice farmers (Ghana Talks Business, 2019). Knowledge Management is instrumental to addressing challenges and the PFJ is seeing the benefits already.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

Because of the burgeoning population impact on the continent, Ghana's agricultural development strategy remain challenged due to poverty, hunger and food insecurity. The transition of agriculture from subsistence farming to agricultural marketing and the development of the agribusiness sector can be a catalyst for resolving these challenges and enabling African agriculture to quickly track productivity and growth into the 21st century.

The Planting for Food and Jobs agricultural policy has been successful in increasing food production. Food is now available in export volumes and the country has begun exporting cereal grains and plantain to neighboring West African countries. Warehousing, storage and other post-harvest initiatives have also been rolled by government to reduce food loss along the food value chain. Though some statistics show increasing food import and a declining food export within the project implementation period, Ministry and Sectoral reports suggest increased food production and export after the policy implementation. The programme is, however, marred with some few challenges including late distribution of inputs, low participation of the youth and women farmers and distant location of distribution centers from farmers and the government has shown practical commitment to address such challenges. Knowledge Management has played a key role in the formulation, implementation and evaluation of the PFJ policy and the impact of the programme could be attributed to effective knowledge management. The e-Agriculture initiative is one of the KM initiatives that has received positive feedback. The study recommends that government report on the impact of the policy should be synchronized with reports of international statistical agencies such as Trading Economics and the World Bank to avoid disparities. The policy framework should be redesigned to ensure mandatory representation of women and the youth in the coordination structure and should set out a clear registration plan and incentivization for active participation of women and the youth. Also, government should ensure that agro inputs are procured and delivered in time in order to yield the desired effects. Government should introduce delivery systems for cluster of farmers who receive inputs is reasonably large amounts using tricycles.

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