CHAPTER TWO

Assesment of Implementation of Planting for Food and Jobs (PFJ) Programmes: LESSONS AND WAYS FORWARD

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ASSESMENT OF IMPLEMENTATION OF PLANTING FOR FOOD AND JOBS (PFJ) PROGRAMMES: LESSONS AND WAYS FORWARD

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Abstract

The "Planting for Food and Jobs" (PFJ) programme implemented in 2017 is aimed at transforming Ghana's agriculture by increasing food production to enhance food security, and employment opportunities. It is against this background that this study was carried out to evaluate potentials of the programme, assess implementation challenges, and suggest ways to improve implementation in the subsequent years. The study was conducted in the Northern, Volta, and Brong-Ahafo Regions and the survey included principal actors across the entire agricultural value chains of maize, rice and soybeans. The study used both qualitative and quantitative approaches. The results of the study indicated that farmers were more aware of the subsidized fertilizer and seed components; and less aware of the other three packages: e-agriculture, agricultural extension services, and market linkages. There were no special strategies adopted by the programme that targeted women and the youth, hence, just 6% and 15% of the participants were youth and women respectively. However, the major stakeholders perceived the programme to have a great potential of reducing unemployment, poverty and food insecurity. The key implementation challenges include inadequate and untimely supply of inputs, and insufficient education on the programme. The study, therefore, recommends awareness campaign to be mounted in local languages to spell out details of the programme, timely supply of inputs and strengthening of the marketing component of the programme. The study also recommends the engagement of private agro-input dealers to take full charge of the distribution and sale of the inputs with MoFA supervising them. Moreover, the 25% down payment should be abolished and farmers made to pay the full price of the subsidized inputs.

Keywords: E-agriculture, Fertilizer Subsidy, Ghana, Women Participation, Youth Participation.

1.0 Introduction

Despite the significant contribution of agriculture to the labour employment and the livelihoods of the majority of the people, the share of agriculture to Ghana's Gross Domestic Product (GDP) has been dwindling since 2009. For instance, the contribution of the agricultural sector to the economy fell from 31.8% in 2009 to 20.2% in 2015 (Institute of Statistical, Social and Economic Research (ISSER) (2017). With Ghana's population expected to reach 30.5 million by 2020, the production of crops, particularly food crops, is expected to increase accordingly to meet the food needs especially of communities where food insecurity is pervasive.

In response to the challenges facing the agricultural industry and to boost agricultural productivity on a sustainable basis, Ghana has been implementing agricultural policies such as Comprehensive African Agricultural Development Policy (CAADP) and the African Peer Review Mechanism (APRM). These are integrated frameworks to boost agricultural growth, rural development and food security in Africa, and have played an essential role in determining the performance of the Ghanaian economy (Zimmerman et al., 2009). Within the context of developing domestic agricultural policies, the first Food and Agricultural Sector Development Policy (FASDEP) was formulated in 2002 as an overarching framework to modernize the Ghanaian agricultural industry. The strategies in FASDEP were anchored on the Accelerated Agricultural Growth and Development Strategy which was designed in 1996 to foster linkages in the agricultural value chain. FASDEP was revised after some years of implementation to incorporate the lessons learnt and to respond to the emerging needs of the sector. The revised FASDEP (FASDEP II, 2008) has sustainable utilization of resources, commercialization of activities, and market-driven growth as its main focus. To accelerate the implementation of the new agricultural policy (FASDEP II), sector investment plans were developed. These are the Medium Term Agricultural Sector Investment Plan (METASIP I, 2011 – 2015) and METASIP II (2014 – 2017). METASIP was designed in accordance with the Maputo and Malabo declarations to make the government of Ghana allocate 10% of its GDP to agricultural sector. This level of government expenditure in the agriculture sector is expected to result in 6 percent growth in the sector within the planned period. The ECOWAS Agricultural Policy (ECOWAP), which is implemented in the Sub Region, also makes the CAADP recommendation. It must be highlighted that both the CAADP and ECOWAP have an agenda for agricultural transformation on the African continent. These continental policy frameworks provided the context for the government of Ghana to commence the implementation of new agricultural programmes.

This was after years of undertaking various strategies such as state farms, irrigation programmes, government-subsidized agricultural input, provision of agricultural credit, and output market controls. These interventions yielded some positive results. For instance, the total area of land under maize and rice cultivation increased by about 32% and 74% respectively, with a corresponding production increase of about 60% and 160% respectively, within the fertilizer subsidy period of 2008-2012 (FAOSTAT and MoFA, 2015). These achievements notwithstanding, numerous significant challenges in the sector remained. Access to market by smallholder farmers and post-harvest management are still a challenge irrespective of the establishment of Ghana Buffer Stock Company. MoFA (2017) has indicated that the major factors that have impeded

agricultural total factor productivity include; (i) low accessibility and inadequate use of certified seeds, (ii) insufficient nutrient fertilizer application, (iii) lack of extension services to farmers, (iv) weak linkages between producers and markets, and (v) limited use of information and communication technology (ICT).

In an attempt to accelerate the modernization of the agricultural sector to address the above mentioned challenges and to structurally transform the economy, the government through MoFA launched a flagship programme dubbed "Planting for Food and Jobs (PFJ) programme in April 2017.

1.1 The PFJ Programme

The primary objective of the PFJ programme is to directly motivate farmers to increase their crop productivity and incomes through access to both input and output markets. This is expected to also generate employment opportunities in the agricultural value chain. As a national agricultural programme, the PFJ intervention has the potential to address and boost Ghana's productivity, reduce food deficits and reduce importation of some basic food crops.

The PFJ complements the Modernization of Agriculture in Ghana (MAG) Project, which MoFA is implementing to reverse the declining growth of the agriculture sector (MoFA, 2017). The specific objectives of the PFJ programme include:

i. To ensure self-sufficiency by improving productivity and intensifying the cultivation of some selected food crops.
ii. To provide employment opportunities (both formal and informal) to the unemployed persons, especially the youth in agriculture and its related sectors
iii. To create general awareness of the significance of having farms and backyard gardens for the cultivation of cereals and vegetables.

1.1.1 Thematic Strategies of the PFJ Programme

The PFJ programme covers five pillars, namely, (i) provision of subsidized and improved seeds; (ii) subsidized fertilizer; (iii) agricultural extension services; (iv) establishment of markets; and (v) e-agriculture. These pillars are expected to increase agricultural yields (maize by 30%, rice by 49%, soybean by 25%, and sorghum by 28% (MFEP, 2017). Specifically, PFJ aims at increasing the yields of maize, rice and soybean from the current figures of 1.7Mt/Ha to 2.7Mt/Ha and 1.7Mt/Ha to 5Mt/Ha, 4Mt/Ha and 5Mt/Ha respectively at the end of the fourth year, which is 2020.

For the first year of implementation (2017), an initial amount of US$140.1 million (GH¢560.5 million) was allocated in the 2017 government of Ghana budget. Figure 2.1 indicates how the five strategic pillars of the PFJ programme are organized and interact to help achieve structural economic transformation through agriculture (MoFA, 2017).

The PFJ programme is expected to lessen the financial burden of smallholder farmers through the provision of fertilizer and seed input subsidy by government. Thus, the government of Ghana pays 50% of the market price of the inputs (fertilizer and seeds) sold. Farmers then make a 50%

(25% of the total cost) down payment at the time of collecting the inputs and pay the remaining 50% (25% of the total cost of the inputs) after harvest. The five strategic pillars of the programme are described as follows:

1. *Certified seeds*: The programme provides timely access to adequate quantities of hybrid or improved seeds through private enterprises at a subsidized price. Farmers can have access to these inputs at certified public and private outlets.
2. *Fertilizer subsidy*: Through this pillar, adoption and intensity of fertilizer application by farmers are re-enforced through the provision of adequate quantities and cost-effective fertilizer. Private enterprises are contracted to procure and distribute fertilizers to farmers in the districts and communities across the country.
3. *Extension service delivery*: MoFA will beef up extension service delivery through recruitment, provision of adequate logistics and close working relationships with the beneficiary farmers. The extension agents are to provide technical support to the beneficiaries to increase productivity.
4. *Marketing*: Under this component, input and output markets are to be strengthened through the promotion of partnerships amongst farmers, nucleus farmers, aggregators, input dealers, farmer-based organizations and private agribusiness production units. The programme facilitates collaboration with the Ministry of Health, Ministry of Education (under the free SHS policy), Ministry of Trade and Industry as well as the private sector to provide reliable and readily available output market for agricultural produce. As part of the programme, new warehouses are to be constructed closer to the production districts and old warehouses rehabilitated. These measures are to ensure that farmers' outputs are readily marketed so that: (a) farmers are able to pay for the remaining 50% of the inputs cost, and (b) minimize the seasonal effects of price volatility, which has been one of the critical challenges in the agricultural sector.
5. *E-agriculture*: The PFJ employs ICT to manage data and information on the programme. ICT tools will be used to profile the beneficiaries to minimize the rate of subsidized input diversion, allow for the validation of beneficiaries and real-time capture of data and integration amongst the pillars. This is to ensure prompt responses, efficiency, transparency and accountability of both government and private agencies providing inputs and services to the beneficiaries.

Figure 2.1 Key intervention pillars of the PFJ programme

Source: MoFA (2017)

1.1.2 Implementation and Coordination of the Programme

It is important to note that PFJ is implemented by MoFA. The structure for the implementation and coordination consists of a three-tier structure namely the National Technical Committee (NTC), Regional Technical Committee (RTC) and District Technical Committee (DTC) (MoFA, 2017). The NTC, RTC and DTC are chaired by the Deputy Minister of Agriculture in-charge of crops, Regional Ministers and Metropolitan/Municipal/District Chief Executives respectively.

The NTC takes major national decisions on the course of action of the programme. The RTC and DTC are responsible for the day-to-day implementation of the programme at their respective hierarchical levels and jurisdictions. The three-tier structure for implementing and coordinating activities of PFJ is shown in Figure 2.2 below.

According to MoFA (2017), the DTC is responsible for developing seasonal and annual operational plans and mobilizing private- and public-sector actors and supporters to help in implementation. They are supposed to monitor the day-to-day activities and constantly assess, manage any risks and threats, and report on a monthly basis to the RTC. The reporting, communication and coordination are to be facilitated by ICT tools. In a nutshell, the Technical Committee members at the respective levels of the tier are to take a leading role in tracking the progress and providing counseling to stakeholders on the implementation of the various activities across the different value chains (MoFA, 2017).

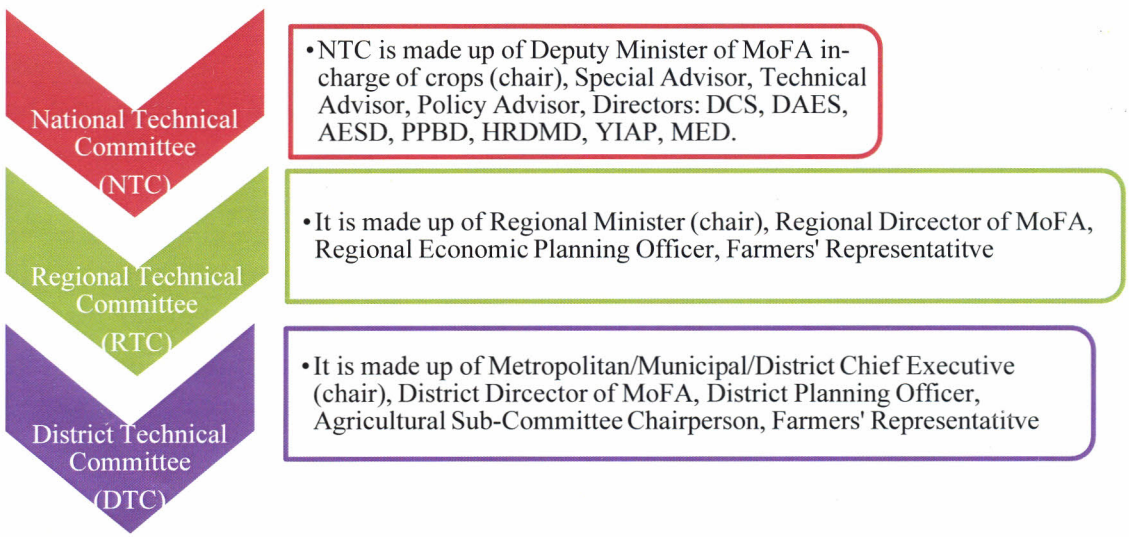


Figure 2.2 Structures for implementing and coordinating activities of PFJ

Source: MoFA (2017)

2. The Objective and the Significance of the Study

The strategies outlined in the PFJ programme aim to lay a strong foundation for economic transformation through agriculture. From the brainstorming stage to the current ongoing implementation stage, many organizations, both stakeholders and non-stakeholders, in the

agricultural sector have questioned the impacts to be achieved and the sustainability of the programme.

According to IMANI International (2017), all the five essential pillars of PFJ programme do not offer any new solution/intervention for agricultural modernization. ISSER (2017) also has noted that agricultural modernization and transformation strategies analogous to the PFJ programme had been implemented since independence. What stifled the impacts of those programmes are the lack of effective implementation and monitoring. These concerns and others raise the substantive issue of whether the PFJ has the proper design framework and implementation orientation to deliver expected sustainable agricultural transformation in the country in an effective manner.

This study was therefore carried out to assess the awareness of the packages of the pillars of PFJ, identify and assess implementation challenges, evaluate potentials of the programme, and suggest ways to improve implementation in the subsequent years.

It must be noted that this study has strong linkage to the Medium-Term Agriculture Sector Investment Plan (METASIP) priority areas and meets its objective of increased *Income and Growth, and Food Security and Emergency Preparedness*. The research findings will provide evidence-based and actionable recommendations that will help government and other agricultural sector stakeholders to improve the PFJ programme in the subsequent years. The study will not assess the impacts of the PFJ programme as it has just been implemented for a year.

It is important to underscore the fact that the empirical assessment of the programme implementation process is vital for the successful execution of the programme that aims to strengthen the economy through agriculture. It is expected that the findings will lead to quality participation of all concerned stakeholders and the general population in the decision-making and implementation of the PFJ. Benchmarking the early signs of governance-related problems, proposing solutions and strategies for addressing implementation challenges will help to achieve PFJ's desired outcomes.

3. Methodology

3.1 The Study Area, Sampling Techniques, and Survey Instruments

MoFA statistics (2016) indicated that Brong-Ahafo, Volta and Northern Regions are the leading producers of maize, rice, and soybean, respectively. Hence, these regions were chosen for this study. In each region, three districts were selected based on the highest, median and lowest production figures in the 2015 cropping season. Based on these criteria, Kintanpo North, Sene, and Atebubu-Amantin Districts in the Brong-Ahafo Region; Ketu North, Krachi East, and North Dayi Districts in the Volta Region; and Yendi, Saboba and Sawla-Tuna-Kalba Districts in the Northern Region were selected. Communities with PFJ beneficiaries were chosen purposively. In purposive sampling, the goal is to select cases that are likely to be information rich with respect to the purpose of the study (Gall et al., 2007). Lastly, four communities were randomly selected from each of the districts and farmers and other key stakeholders randomly sampled and interviewed.

Both primary and secondary data were collected. Primary data were obtained using a semi-structured questionnaire with both opened and closed-ended questions as well as checklists. Focus-group-discussions were held for stakeholders [all levels of MoFA staff, Non-Governmental Organizations (NGOs), government agricultural research institutions, FBOs, women groups, youth groups] in order to collate their views regarding each of the five pillars of the programme. For the focus group discussions, a checklist was used. Key informants such as Directors of MoFA (sectional, district regional, etc.), and agricultural extension agents were interviewed.

Also, agro-input dealers, seed producers, aggregators, farmers, etc. were individually interviewed, to get in-depth knowledge about their level of understanding of the packages involved, and the requirements for enrolling onto the programme. All these key actors were also requested to explain their views regarding the challenges, potentials and the way forward for the programme in its first year of implementation to inform successful implementation of the programme in the subsequent years.

3.2 Analytical Framework

A number of approaches were employed to achieve the objectives of this study. First, the Likert scale developed by Rensis Likert in 1932 was used to measure the awareness and the level of understanding of the packages of the pillars of the PFJ programme. The Liket scale is a powerful psychometric scale tool to determine the degree or extent of people's attitudes, perception and agreement quantitatively (Likert, 1932). In the Liket scale, a question "*Are you aware of the packages that are available for you as a participant of PFJ under the various pillars;* subsidized and improved seeds, subsidized fertilizer, agricultural extension services, establishment of markets and e-agriculture" were asked. Farmers were asked to score 1, 2, 3 and 4 for options "*not aware*", "*somehow aware*", "*aware*" and "*highly aware*" respectively. Similarly, scores of 1, 2, 3 and 4 which are used to indicate *"do not understand", "somehow understand", "understand" and "highly understand*" respectively were used on the Likert-scale to measure farmers' level of understanding of the packages in each of the five pillars of PFJ. Moreover, the potentials of the programme in reducing unemployment, poverty and food insecurity was also assessed using the same methodology. The stakeholders were asked to score 1 if PFJ has no potential of reducing, 2 if it has a potential of reducing and 3 if it has a big potential of reducing unemployment, poverty and food insecurity.

Secondly, the participation of the youth and women was analyzed using descriptive statistics such as frequency and percentage distribution tables. The study also used multiple column bar charts. With multiple or compound column bar charts, five columns were used to represent the percentage of stakeholders participating in each of the five pillars.

Finally, the implementation challenges of PFJ were analysed using network analysis. The PFJ programme is a complex agricultural intervention system involving many interconnected entities (provision of subsidized and improved seeds; subsidized fertilizer; agricultural extension services; establishment of markets; and e-agriculture), which operate under diverse conditions. Therefore, explaining the issues at stake (implementation challenges, and the ways forward) by a mere study of the PFJ programme as one domain without looking at the interconnectivity may not be a

sufficient draw policy implications due to many autonomous stakeholders operating under diverse conditions, with varying perspectives and interests (Bezuidenhout et al., 2013). The study, therefore, employed the domain and network analysis approach that considers the entire PFJ programme and how individual pillars (provision of subsidized and improved seeds; subsidized fertilizer; agricultural extension services; establishment of markets; and e-agriculture) within the programme interact. The network analyses can describe such a complex agricultural intervention (PFJ programme), and depict the interactions among the essential pillars within the system (Sterman, 2006). Under the system domain network, implementation challenges, potentials and the ways forward for the entire PFJ programme will be catalogued.

4. Results and Discussion

4.1 Descriptive Statistics of the Respondents

Table 2.1 illustrates the frequency and percentage distributions of the categories of respondents who were interviewed in the Northern, Volta and Brong-Ahafo Regions. To be able to get information from the national level, some categories of respondents from Greater Accra were also interviewed.

Out of 626 respondents, 70.0% were farmers. The numbers of farmers included in the study from Northern, Volta and Brong-Ahafo Regions were 146, 147 and 145 respectively. The second largest categories of respondents were agricultural extension agents. They were the second largest (7.7%) because, they were highly involved in PFJ. They have direct contact with farmers and most of them were engaged in the distribution of inputs. With their extensive involvement in PFJ, they were positioned to give reliable information on the operational challenges and successes of the programme. An equal number of AEAs were selected from the three regions.

The researchers, senior MoFA officers, agro-input dealers, aggregators, seed producers and senior officers of NGOs were also interviewed. This was done to help us identify the divergent views about the challenges, successes and potentials of the programme. In total, 14 senior officers of MoFA were interviewed at the district, regional and national levels. At the national levels, two (2) senior MoFA officers (one member of National Technical Committee and one non-member) provided information on PFJ. At the regional level, one senior MoFA officer who is part of the RTC was included in the study.

Similarly, one senior MoFA officer who is part of the DTC was interviewed. The percentage of senior MoFA officers who were interviewed is 2.2% of the respondents. Seed producers and FBOs formed the smallest percentage of respondents with each category recording 1.4% and 5.8% respectively of the respondents of 626 respondents who were agro-input dealers and aggregators. Senior officers of NGOs and non-MoFA members of DTC and RTC formed 1.9% each of the respondents.

In all, Northern, Volta, Brong-Ahafo Regions and Greater Accra Region recorded 213, 203 and 203 respondents respectively. This follows the national trend where there are more stakeholders in agricultural production in the Northern Region than any other region.

Table 2.1 Percentage distribution of respondents

	Northern Region		Volta Region		Brong Ahafo Region		Greater Accra		All	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Total Freq.	%
Farmers	146	68.5	147	72.4	145	71.4		0.0	438	70.0
AEAs	16	7.5	16	7.9	16	7.9		0.0	48	7.7
Researchers	5	2.3	2	1.0	2	1.0	3	42.9	12	1.9
Senior MoFA Officers	4	1.9	4	2.0	4	2.0	2	28.6	14	2.2
Agro-Input Dealers	12	5.6	12	5.9	12	5.9		0.0	36	5.8
Aggregators	12	5.6	10	4.9	12	5.9	2	28.6	36	5.8
Senior Officers of NGOs	6	2.8	3	1.5	3	1.5		0.0	12	1.9
Seed Producers	5	2.3	2	1.0	2	1.0		0.0	9	1.4
FBOs	3	1.4	3	1.5	3	1.5		0.0	9	1.4
Non-MoFA members of DTC and RTC	4	1.9	4	2.0	4	2.0		0.0	12	1.9
Total	213	100	203	100	203	100	7	100	626	100

4.2 Awareness of the PFJ Packages

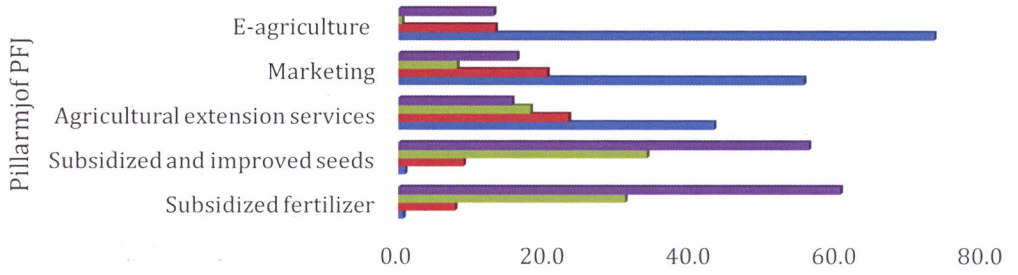
Figure 2.3 presents a compound horizontal bar chart showing the percentage frequency distribution of farmers' awareness of the packages of the various pillars of PFJ. The study revealed that farmers were more aware of the packages of fertilizer subsidy and subsidized and improved seeds than the rest of the pillars. Out of 438 respondents, 60.5% and 56.2% of the farmers were highly aware of the packages of subsidized fertilizer and subsidized and improved seeds pillars of the programme respectively. For subsidized fertilizer, 31.1% and 7.8% were aware and somehow aware of the packages respectively.

Subsidized fertilizer recorded the lowest percentage of farmers not being aware of the packages followed by subsidized seeds. While the percentages of farmers' awareness of the packages of fertilizer and seed are in the decreasing order of highly aware, aware, somehow aware and not aware, that of agricultural extension service delivery is the reverse. Out of 438 farmers, 15.5%, 18.0%, 23.3% and 43.2% are highly aware, aware, somehow aware and not aware of the packages of agricultural extension services respectively. This is a clear indication that information on what agricultural extension officers are to do differently under this current PFJ programme are not clear to the farmers. Farmers are still not do not know the difference between the agricultural extension service delivery under the PFJ programme and the previous fertilizer subsidy programmes.

The data on the awareness of packages of the marketing pillar show that majority of the farmers were not aware of this particular pillar. The percentage was 55.5%. The level of awareness for somehow was (20.3%), aware (8.0%) and highly aware (16.2%) of the respondents. The order of percentage of farmers' awareness for marketing and e-agriculture are the same. For e-agriculture, not aware recorded the highest percentage (73.3%) of respondents, followed by

somehow aware with a percentage of 13.2% with no significant difference between the percentages of respondents who are somehow aware and highly aware of the e-agriculture package though, the latter is lower. Aware recorded the smallest percentage (0.5%) of respondents.

From the above, it can be deduced that farmers are much aware of the fertilizer and seed packages under PFJ. There is less awareness of the agricultural extension services, agricultural marketing and e-agriculture pillars.



	Subsidized fertilizer	Subsidized and improved seeds	Agricultural extension services	Marketing	E-agriculture
Highly aware	60.5	56.2	15.5	16.2	13.0
Aware	31.1	34.0	18.0	8.0	0.5
Somehow aware	7.8	8.9	23.3	20.3	13.2
Not aware	0.7	0.9	43.2	55.5	73.3

Figure 2.3 Percentage distribution of farmers' awareness of packages of pillars of PFJ

4.2.1 Correlations of Farmers' Level of Awareness of the PFJ Programme

It is important to examine whether or not there are correlations between farmers' levels of awareness of packages of any two of the pillars of PFJ. To determine the degree of the correlation between farmers' levels of awareness of packages of any two pillars, Spearman's rank correlation coefficients were estimated. Table 2.2 reports the results of the correlation matrix among the pillars.

Table 2.2 Correlations of farmers' level of awareness of packages pillars of PFJ

	Subsidized improved seeds	Subsidized fertilizer	Agricultural extension services	Establishment of markets	E-agriculture
Subsidized and improved seeds	1				
Subsidized fertilizer	0.8963	1			
Agricultural extension services	0.1677	0.2673	1		
Establishment of markets	0.3072	0.3662	0.4032	1	
E-agriculture	0.1106	0.1968	0.3252	0.5193	1

r = -1 implies perfect negative correlation
-0.75 ≤ r < -1 implies strong negative correlation
-0.25 ≤ r < -0.75 implies intermediate negative correlation

$0 < r < -0.25$ implies weak negative correlation
$r = 0$ implies no correlation
$0 < r < 0.25$ implies weak positive correlation
$0.25 \leq r < 0.75$ implies intermediate positive correlation
$0.75 \leq r < 1$ implies strong positive correlation
$r = 1$ implies perfect positive correlation

From Table 2.2, there is a strong positive correlation between the fertilizer and seed pillars of PFJ. This implies that increases in the awareness level of the fertilizer package are accompanied by increases in the awareness of the seed package. This could be explained by the complementarity of seeds and fertilizer inputs in increasing crop productivity and production, thus the strong correlation.

Another explanation is that both seed and fertilizer are distributed through MoFA to the farmers and concurrent education on the use the two inputs take place at the same time. This strong positive correlation between these two inputs and their simultaneous use by farmers is most likely to lead to the realization of optimum yields by them.

The correlations between the levels of awareness of any two other pillars such as markets and seeds; markets and fertilizer; market and agricultural extension service; and agricultural extension service and fertilizer; were moderately strong and positive. These strong and positive correlation coefficients are clear indications that the impacts arising from any two other pillars are moderate. This situation is not surprising considering that historically each of the pillars/ packages has not had a very strong push in agricultural development in the country. These issues constitute the core challenges that have faced the agricultural sector as explained in the introduction of this paper. There is weak positive correlation between the farmers' awareness levels of packages of agricultural extension service and seeds on one hand, and e-agriculture and seeds on the other hand. Widespread knowledge and use of improved seeds and e- agriculture are new developments in the sector and this account for the weak but positive correlation. None of the correlation coefficients is negative.

4.3 Participation of Major Stakeholders in Pillars of PFJ

Figure 2.4 groups the level of participation by seven (7) major stakeholders in the PFJ programme. From the survey, all the farmers participated in the fertilizer pillar of PFJ. This is probably because farmers practically engaging in farming have had access to fertilizer previously and it is the most widely distributed input under the subsidised inputs scheme. Fertilizer again is a major and critical pillar of PFJ and input as well for farmers. Without fertilizer, farmers may not be ready to take any package from any of the pillars of PFJ. As expected, all the AEAs (100%)participated in the PFJ by extending services to the farmers. AEAs have the vehicle around which farmers and inputs have been mobilised for the implementation of PFJ throughout the country. This is borne out by the following statistics; out of 48 AEAs, 79% participated in the distribution and allocation of fertilizer to farmers. Since the PFJ was launched during the course of the major farming season, a lot of attention was paid to production activities and less to marketing. This explains the foregoing figure and the statistic that just 8% were engaged in the marketing

component of the PFJ. Researchers were more involved in the seeds pillar of PFJ than any other pillar. Whilst 67% of the researchers interviewed were engaged in the seed pillar, 33% were engaged in e-agriculture.

The high percentage recorded for researchers is due to the fact that the use of improved seeds in the country is very low and these category of professionals have been advocating for strong support for seed development and uptake by farmers. Seed scientists at the Savannah Agricultural Research Institute (SARI) were engaged by government to produce foundation seeds for propagation by the private seed companies/ growers. SARI went to the extent of producing certified seeds for MoFA. Since it is not their core mandate, researchers did not engage in agricultural extension delivery or training of AEAs.

About 43% of the senior MoFA officers and aggregators were highly involved in the establishment of market linkages between farmers and off takers especially aggregators. Also17% of aggregators were involved in in the market pillar of the PFJ. About 22% of agro-input dealers participated in the subsidized fertilizer pillar. Finally, out of 20 senior officers of NGOs interviewed, 40% participated in the seed pillar.

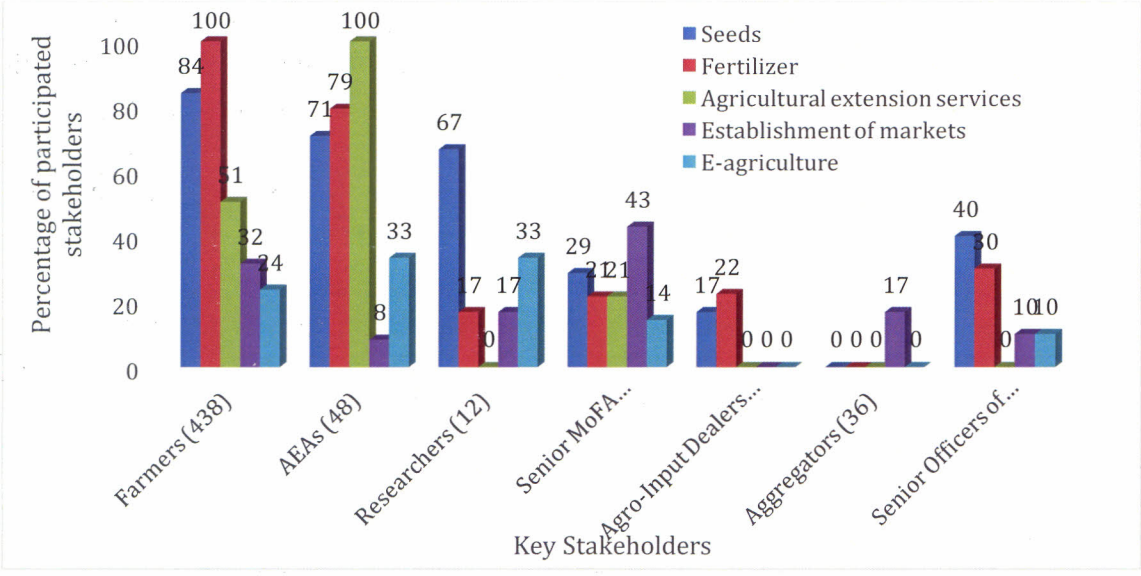


Figure 2.4 Participation of major stakeholders in the pillars of PFJ

4.3.1 Agricultural Extension Services

Though agriculture extension service delivery during the first-year implementation of PFJ (2017) was low, it was a slightly better than that of 2016 (see Figure 2.5). Whereas 219 of sampled farmers did not have contact with AEAs in 2016, 217 did not have contact with AEAs in 2017. A critical examination of the column chart shows that farmers had more extension contacts in 2017 than 2016. Furthermore, the statistical difference between the extension contacts in 2016 and 2017 are presented in Table 2.3.

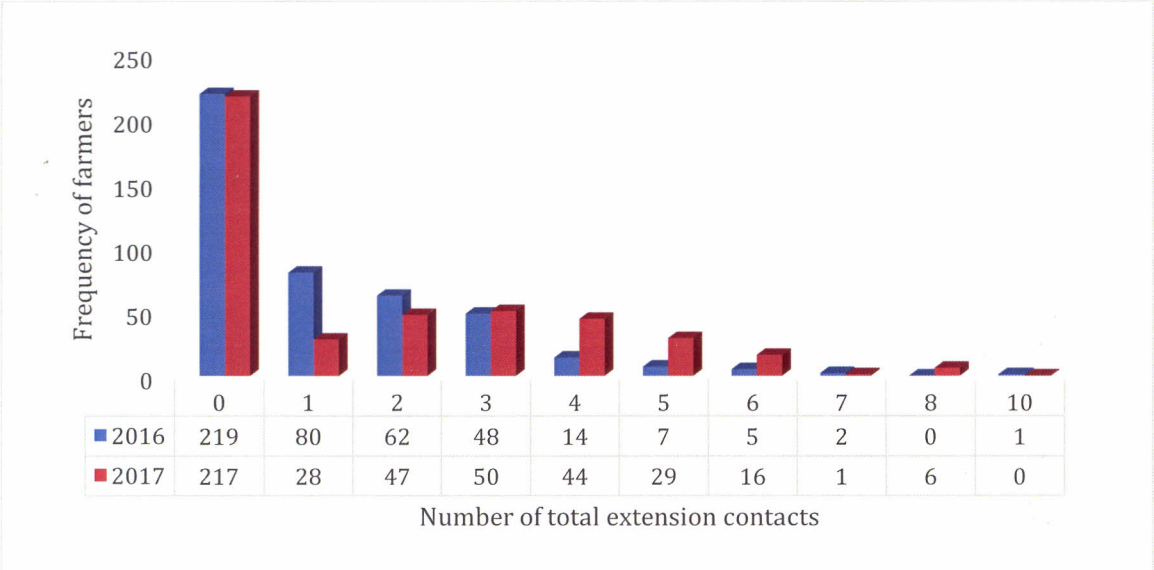


Figure 2.5 Distribution of extension contacts in 2016 and 2017

Table 2.3Test of differences between number of extension contacts in 2016 and 2017

Crop	***2016***	***2017***	***Difference***	***P-Value***
Obs	438	438		
Mean number of total extension contacts	1.13	1.70	0.57	0.000***
Standard error	0.07	0.10	0.10	

From Table 2.3, there is a statistical significant difference between the average number of extension contacts beneficiaries of PFJ farmers received in 2016 and 2017. The level of significance is as high as 1%. This is not unexpected, as almost all district MoFA officers especially AEAs had more interactions with beneficiary farmers in 2017 than 2016. The recurring problem that has affected the level of extension contacts between district MoFA offices and farmers is the understaffing of the district offices with AEAs. Even with governments push to recruit more AEAs through the Youth Employment in Agriculture Model, the number of AEAs (non-professional) posted to the districts was still insufficient. Information gathered seemed to suggest that some newly recruited AEAs posted even refused to report to the districts.

In the Ketu North Municipality, for instance, out of three (3) the Youth in Agriculture AEAs that were posted, only two reported. In Saboba, out of the three (3) AEAs posted to the place, none reported. The same story was not different in other districts. The Youth in Agriculture AEAs who did not report to their assigned districts had a way of getting themselves reposted to districts closer to urban areas. Also, all the districts visited indicated that they did not receive any professional AEAs employed from the agricultural colleges in 2017. These data on AEAs employed in 2017 and posted to the various districts are from secondary source obtained from District MoFA Offices.

4.3.2 Farmers' Participation: Dynamics of Women, Men and Youth in PFJ

Figure 2.6 shows the frequency of participation in PFJ by gender. The survey shows that male adults (25-76years) participated more in PFJ than all the categories of farmers. It must be noted

that about 80% of the farmers interviewed were male adults as compared to 14% female adults. Again, more male youth (5%) participated in the programme than female youth (1%).

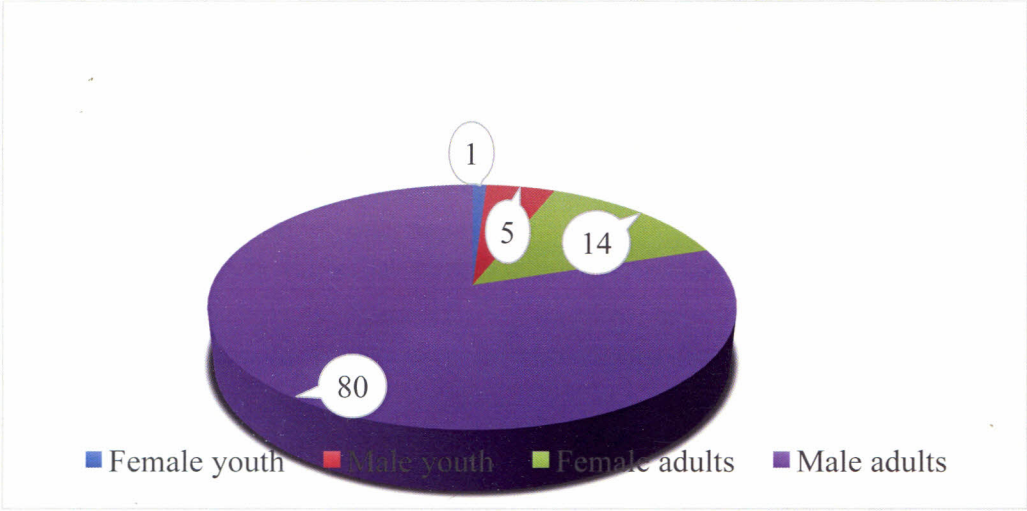


Figure 2.6 Participation dynamics by men, women and youth

In general, 85% of the farmers who participated in the programme are males whilst the rest 15% are females. Out of the 15% females that participated in the programme, 1% was female youth whilst 14% were male youth. The challenges that hinder male youth participation in the programme are lack of funds and inadequate access to tractor service. On the other hand, female youth face the challenge of getting access to land for farming in general and participating in PFJ farming in particular.

*From the focus group discussion of eight members of **Wumborbiin Women's Group** in Saboba, they lamented that they have not seen or heard any special package for them as women. It was only men who were being registered. They also indicated that there was no package for the youth. Because of the fact that government did not put in clear measures to encourage youth and women to be part of the programme, their participation were very low. The socio cultural factors that discriminated against women in their community actually prevented them from taking part in the programme. That, as women, they do not own lands. They do not also have the free will to go and take inputs on credit, without their husbands' knowledge or consent. Similarly, the focus group discussion with farmer group at **Gyato-zongo** in the Atebubu-Amantin district, Brong-Ahafo region, had similar concerns and agreed that the women and youth participation can be rated 5% and 30%, respectively. With regards to the one held at Weta in Ketu-north district in the Volta region, the farmers lamented that "The engagement of women in the programme is far below average (20%) while youth participation is rated 50%. The high rental cost by land owners at irrigation sites was a major challenge women and youth faced in participating in the programme as they had no access to irrigated land."*

To improve women participation in the programme, it was suggested that there should be a system to make women have access to lands. A certain percentage of the inputs should be allocated to women, especially those who are in vibrant women groups. There should be a way for them to pay the money using mobile money. Youth participation can only improve if they are given the necessary support, such as lands, training on the importance of farming etc.

4.3.3 Strategies to Target Women and Youth Participation in PFJ

Members of the DTC, farmers, senior MoFA officers, and other stakeholders in the programme were interviewed to identify and assess the effectiveness of strategies that were adopted by the DTCs, if any, to target the youth and female beneficiaries. The interviewees indicated that the PFJ programme had no any special package to encourage youth and women onto the programme. According to them, PFJ is general for everybody. According to their perception, the participation of the youth and women in the programme has been quite low.

FGDs were organised for youth in the selected districts. Apart from Ketu North and Atebubu-Amantin Districts, all the youth groups interviewed lamented that they did not get any special encouragement from the DTCs. For instance, a focus group of youth with a membership of ten informed the researcher team that the sensitization of farmers on the PFJ that was carried out by the DTC in Atebubu-Amantin District was massive. They were always listening to the sensitisation broadcasts programme on Star FM and Atobu FM, both of which are local radio stations in Atebubu. They specifically indicated that the District Chief Executive, the MoFA officers were instrumental in informing, and encouraging the youth to take advantage of the subsidised inputs. However, the radio cum community sensitisation engagements was too general to be considered as a strategy that targeted the youth and women.

4.3.4 Making the PFJ Attractive to the Youth

The Ghanaian youth view agriculture as laborious (labour intensive), risky, unrewarding and non-productive. Besides, they lack the necessary financial muscle to acquire critical equipment, inputs and land to launch a successful and thriving agribusiness in the country. Simple and smaller agricultural machinery/tools for production and processing should be made available to the youth to ease the laborious nature of agriculture in the country. In this regard, the use of power tillers, rippers, etc would cut down the drudgery that is associated with farming, thereby making the enterprise attractive to the youth.

Platforms such as workshops and seminars should be organised, for young *agripreneurs* on the continent, including Ghanaian young agripreneurs, to share their success stories with their peers who are skeptical. This would help change the negative stereotypes in agriculture, inspire, empower and reinforce the message that young people can make giant and meaningful strides in agriculture. Farmer Field Schools, innovation and vocational training centers must be established to train, support and meet the needs of the *agripreneurs*. These schools/institutions must be open to admit both graduates, and non-graduates for training for specific periods.

4.4 Implementation Challenges of the PFJ

The objective of this section of the study is to demonstrate the use of network-analysis approach to analyze the implementation challenges This will provide a guideline for systematically evaluating the network of the implementation challenges and identify the critical points within the network where programme interventions can be targeted. Figure 2.7 depicts the significant challenges and their interconnectivity obtained from the survey conducted from the study areas regarding the implementation challenges with respect to the five pillars.

From Figure 2.7, larger vertices (e.g. blue, pink and red oval dot) represent subjective indications of the challenges that were most emphasized by the various stakeholders. The relative positions of different vertices can be used to identify systemic challenges. For example, inadequate quantities of fertilizer and seeds were identified as a major implementation problem reported by most of the stakeholders, and hence the largest and the most centralized vertex. As it can be seen from the network diagram, this vertex is connected with many other relatively important vertices such as political interference, lack of support from Municipal and District Assemblies, smuggllling and re-selling of inputs. This implies that political interference, inadequate support from MDAs, smuggling and resale all result in inadequate quantities of seeds and fertilizers distributed to farmers. "Inadequate warehouses to store the inputs" and "the long distances farmers travel to access the inputs" are also connected to the vertex.

The stakeholders believe the inputs are supplied and released late after the farming season has taken off due to political interferences. Therefore, most farmers say they did not benefit fully from the seed component. Farmers used their own seeds before arrival of the PFJ seeds. In some cases, seeds were in short supply. Some farmers even paid for the seeds but did not get them. Some quantities of rice seeds supplied, however, were found to be of low quality, infested with diseases and pests with poor germination rate. The labelling of seeds was done in French and farmers could not read and understand.

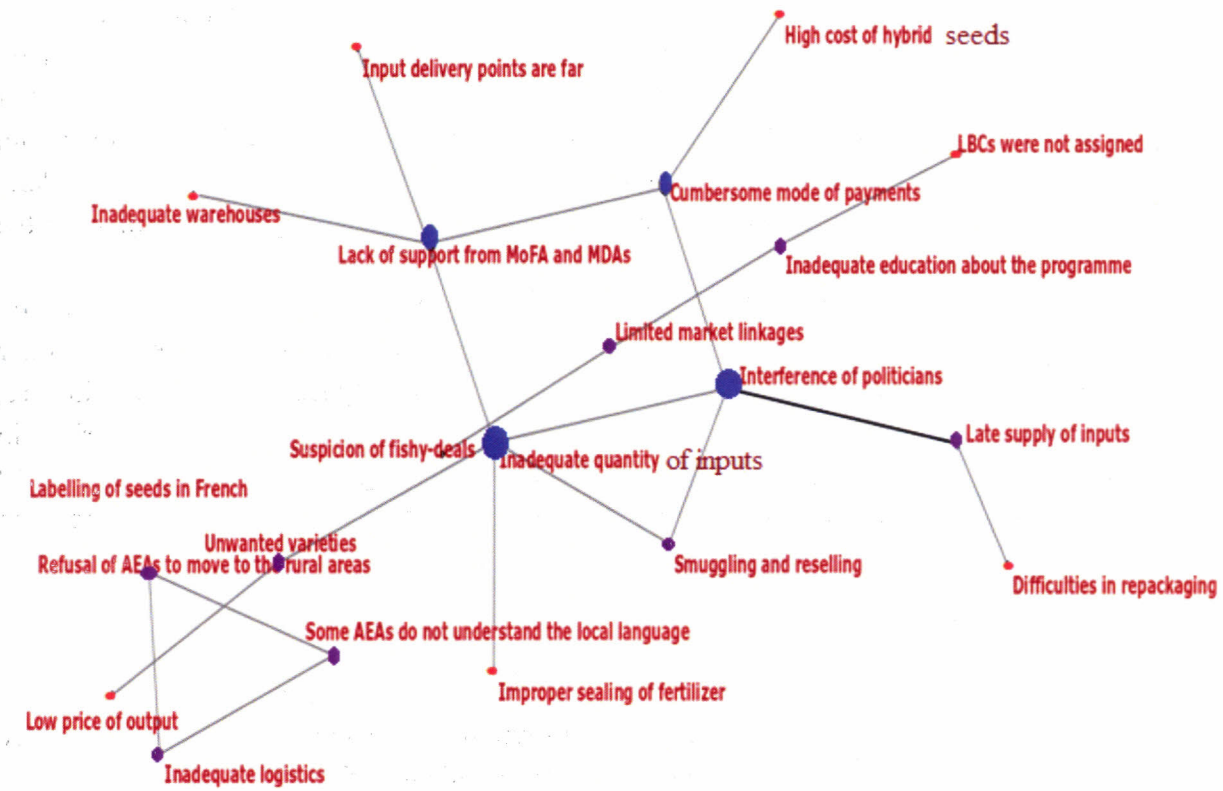
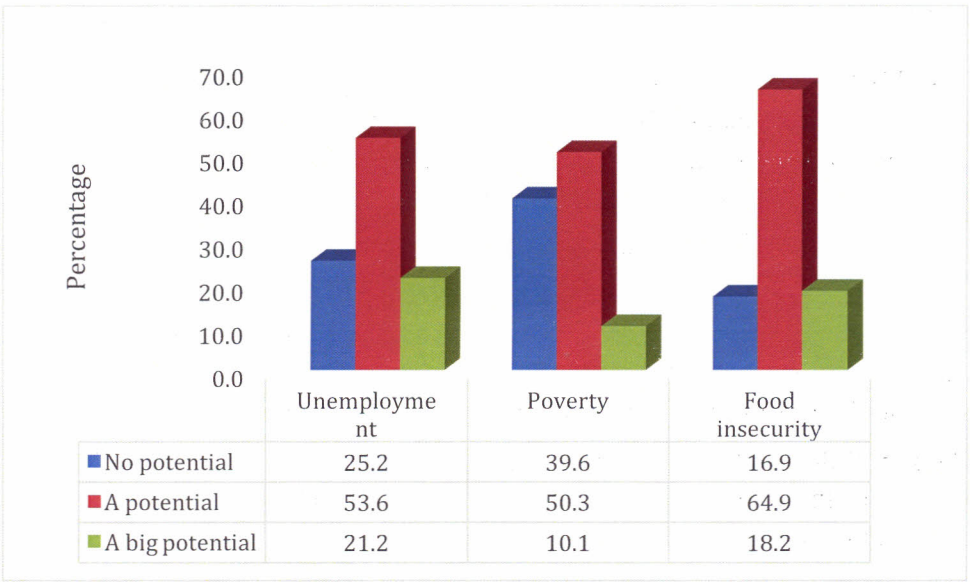


Figure 2.7Network of significant system challenges and their interconnectivity in the PFJ

4.5 Potentials of PFJ

The potential of PFJ in reducing unemployment, poverty and food insecurity was measured using the Likert scale on the perceptions of respondents. The analysis was done on 626 respondents (438 farmers, 48 AEAs, 14 senior MoFA officers, 12 senior officers of NGOs, 12 researchers, 9 seed producers, 36 agro-input dealers, 36 aggregators, 9 FBOs and 12 non-MoFA members of DTC and RTC). From Figure 2.8, out of 626 respondents, 53.6% opined that PFJ has the potential of reducing unemployment in the country. This means that the highest percentage of respondents chose the option *"PFJ has a potential of reducing unemployment"*. This is followed by 25.3% of the respondents asserting that *"PFJ has no potential"*. The lowest percentage (21.2%) of respondents indicated that *"PFJ has a big potential of reducing unemployment"* in the country. It is important to note that the ability of PFJ in reducing unemployment in the country depends on whether the programme has been properly designed and implemented. There are other factors which can affect the effectiveness of PFJ in reducing poverty and since some of these factors are outside the context of the PFJ, it is not surprising to see that the least number of the respondents mentioned that the PFJ has *"a big potential of reducing unemployment"*. This means that PFJ can achieve its potential if other key constraints to the programme are removed.

The percentage of respondents perceiving that PFJ has a potential of reducing poverty is 50.3% and this is higher than the 39.6% of respondents indicating that PFJ has no potential of reducing poverty. The least number of respondents (10.1%) perceived that PFJ has "a big potential" of reducing poverty. Poverty reduction requires a lot of factors. PFJ alone cannot and would not be effective in reducing poverty if the broader set of socio- political, economic and environmental factors are not considered. Lastly, the measure of respondents' perception about potentials of PFJ in reducing food insecurity indicates that 64.9% are convinced that PFJ has the potential of reducing food insecurity. This is followed by 18.2% of the respondents who believe that the programme has a big potential of reducing food insecurity among farmers.



	Unemployment	Poverty	Food insecurity
No potential	25.2	39.6	16.9
A potential	53.6	50.3	64.9
A big potential	21.2	10.1	18.2

Figure 2. 8 Potentials of PFJ in reducing unemployment, poverty and food insecurity

5.0 Conclusion

The study assessed the first-year implementation of the Planting for Food and Jobs (PFJ) programme undertaken by the government in the 2017 farming season. On the whole, the study found that the PFJ programme has been well received and appreciated by all stakeholders. Out of the five pillars of PFJ, farmers were more aware of the subsidy on fertilizer and subsidy on improved seeds than e-agriculture, agricultural extension services and market linkages. The lack of adequate information/awareness of all the pillars of the programmes affected farmers' participation in all the pillars. Due to that many farmers could not take advantage of some of the pillars of the programme.

Male adults are the majority participants in the PFJ programme, whilst female youth are the least. The PFJ programme has the potential to close the yield gaps/ha significantly for maize, rice and soybean in the short to medium-term of the programme due to the great potential of the programme to increase fertilizer application rate. The study further shows that PFJ has the potential to achieve its impacts of reducing unemployment, poverty, and food insecurity in the medium to long-term.

The five major implementation challenges that could negatively affect the success of the PFJ programme are: (i) inadequate and untimely supply of inputs, especially seed and fertilizers, (ii) interference in the programme by politicians, (iii) cumbersome mode of payment for inputs, (iv) lack of support from some staff of MoFA and District Assemblies, and (v) inadequate education and information about some of the packages of the pillars of PFJ.

Another critical challenge identified that could hold back the programme is the low delivery of extension services. Much of the problem has been attributed to inadequate professional AEAs, inadequate logistics and the refusal of non-professional AEAs employed under Youth in Agriculture model to work in the rural districts. It was observed that out grower schemes are much visible and working well in the three Northern Regions and some parts of Brong-Ahafo Region.

6.0 Recommendations

Based on the above findings of the study, it is recommended that:

- Awareness campaigns should be mounted (using local languages), to spell out details of the programme, and giving information to farmers on how and where they may access each of the pillars;
- The PFJ Secretariat and major stakeholders should put in place strategies to target women and the youth;
- Adequate inputs (fertilizer and seeds) should be timely supplied to farmers based on the time of farming in the different agro-ecological zones;
- An comprehensive e-agriculture (e-extension via mobile phone platform, e-input tracking system, e-market linkages, e-payments for inputs, e-registration of farmers etc.) should be immediately and effectively implemented in order to deal with the issues of inadequate extension agents, inadequate logistics for AEAs to carry out their mandate effectively, poor market linkages and poor tracking of inputs;

- The PFJ programme should be depolitised by engaging private agro-input dealers to take full charge of the distribution and sale of the inputs with MoFA playing a supervisory role.
- That payment for inputs be adjusted to assist in the recovery of the credits by making farmers pay 50% of the price of inputs up front with the rest paid after harvesting and sales;
- The market component of the programme should be vigorously pursued by ensuring that off takers are linked to buy the produce from farmers.

References

Bezuidenhout, C. N., Kadwa, M. and Sibomana, M.S. (2013). Using theme and domain networking approaches to understand complex agri-industrial systems: a demonstration from the South African sugar industry. *Outlook on Agriculture*, 42, (1), 9–16. Available at: doi: 10.5367/oa.2013.0119.

FAO (2015). Food and Agriculture Organization of the United Nations, country fact sheets on food and agriculture policy trends. Accra: Food and Agriculture Policy Development. Analysis.

IMANI International (2017). IMANI report: the highs and lows of government's 'planting for food and jobs' campaign and recommendations.

ISSER (2017). *The state of the Ghanaian economy in 2015*. Legon: Institute of Statistical, Social and Economic Research, University of Ghana.

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 140, 1-55.

Ministry of Finance and Economic Planning (MFEP) (2017). The budget statement and economic policy of the Government of Ghana for the 2017 Financial Year. Presented to Parliament.

MoFA (2015). Statistical, research and information directorate (SRID) annual report. Accra: MoFA.

MoFA (2016). Statistics, research and information directorate (SRID). Accra: Ministry of Food and Agriculture.

MoFA (2017). Planting for food and jobs concept - a program to stimulate rapid growth of the Ghanaian agricultural sector. Accra: Ministry of Food and Agriculture.

Sterman, J.D. (2006). Learning from evidence in a complex world. *American Journal of Public Health*, 96, (3), 505–514.

Zimmerman, R., Bruntrup, M., Kolavalli, S. and Flahertty, K. (2009). *Agricultural policies in Sub-Saharan Africa: understanding CAADP and APRM policy process*. German Development Institute.