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Effects of Organic Mango Outgrower Scheme on Participants' Livelihood in Savelugu/Nanton Municipality, Northern Region, Ghana

I. ABDUL-RAZAK, S. A. DONKOH, R. N. YEBOAH

Faculty of Agribusiness and Communication Sciences, University for Development Studies, University for Development Studies, P. O Box TL1882, Tamale, Ghana

Corresponding Author's email: sdonkoh@uds.edu.gh

ABSTRACT

The study examined the effects of participation of the Integrated Tamale Fruit Company (ITFC) Organic Mango Outgrower Scheme (OMOS) on farmers' livelihood capitals. A descriptive research approach was employed using a semi-structured questionnaire and a checklist for data collection. Purposive and stratified sampling techniques were used to select 158 outgrowers and 10 key informants for the study. Farmers generally benefited from the scheme, though not as much as they expected. For instance, participation in the scheme was offering employment opportunities for majority of farmers (81.6%), and 95.6% of the farmers had applied the good agricultural practices learned under the scheme to the cultivation of food crops in the area. Similarly, the household income level of 65.2% of the respondents had increased; average annual income from mango production had increased by 34.5% from GHC650.00 to GHC900.00 per acre. Also, 52.5% said participation in the scheme had helped to improve the educational infrastructure in their communities and that had facilitated access to education. Furthermore, 64.6% of farmers thought participation in the scheme had generally encouraged cooperation among farmer group members. Lastly, in terms of farmers' use of natural resources, 99.5% indicated a positive change. Some of the major challenges were disease and pest attacks, low yields, bushfire outbreaks, lack of cash credit, inadequate inputs, lack of irrigation, no flexible contract terms and delayed payment. It is recommended that additional facilities such as cash credit, cutlasses, pruning sharks, spraying equipment, weeding machines, and irrigation facilities that were initially not envisaged should be provided for increased crop yields.

Keywords: ITFC, Organic Mango, Outgrower Scheme, Northern Region, Ghana

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INTRODUCTION

Rural development strategies in most African countries are focused on promoting livelihood through commercial agriculture to help reduce rural poverty (Ellis & Biggs, 2001). In Ghana, especially in the rural areas, agriculture is the backbone of the economy, where rain-fed food crop farming is a major source of livelihood, accounting for about 90% of the economically active rural population (Aforo, 2007). Notwithstanding the significant contribution of agriculture to the economy and livelihood of farmers, the disparities between farmers' labour input and output seem not to justify their continued participation in agriculture. Rural farmers are usually heavily challenged in purchasing the required farming inputs for crop production or for processing perishable goods in order to improve

on their poverty level. The outputs that are turned out normally do not receive fair marketing, due to farmers' low bargaining power. This phenomenon is common among small-scale farmers, as they often go through a lot of production and marketing constraints. In Ghana, small-scale farmers usually produce and sell their harvests individually at the farm gate to middlemen or on local markets at give way-prices. Strohm and Hoeffler (2006) described this practice as reducing farmers to price-takers, irrespective of the costs they incurred in the production and marketing process. Furthermore, farmers bear the high risk of not being able to market the entire quantity of their produce. Agribusiness processing firms on the other hand are often not able to procure the quantity of product they require to work with. Outgrower scheme, also known as contract farming, is a possibility to improve such a situation and to harness the productive potential of small-scale farmers (Kaminski, 2009).

Once initial constraints are overcome, outgrower schemes provide agribusiness firms with the opportunity to control the supply of their produce while helping farmers improve production standards (Setboonsarng, 2008). Baumann (2000) observed that outgrowers benefit as the agribusiness firm often supplies them with the required inputs and credits for cultivation and provide the technical expertise needed for production. This is particularly important in developing countries like Ghana where small-scale farmers are often unable to purchase farm inputs themselves due to cash constraints or inadequate access to input markets. The outgrower scheme allows the agribusiness firms to manage the production process in an attempt to meet quality and quantity requirements (Eaton and Shepherd, 2001). Similarly, outgrower schemes provide the farmers with a guaranteed price and access to reliable markets for their produce (Hudson, 2000). These substantially reduce price and market uncertainties facing the farmers.

Setboonsarng (2008) opined that these arrangements have the advantage of facilitating transformation of small-scale farmers from subsistence to commercial farming for mass production, and development of the agro-business industry and market opportunities.

In Ghana, interest in outgrower schemes is growing among small-scale farmers as a means of entering the mainstream growing economy (Ouma *et al.,* 2011). However, outgrower systems have mainly been confined to the production of cocoa, banana, pineapple, and oil palm industries. Cotton was the main industrial crop that small-scale farmers cultivated on contractual basis in northern Ghana. In recent times, some agro-processing firms have tried to engage farmers through outgrower schemes in cultivating different crops such as mango, soya-beans, maize, cashew, jathropha, and butter-nut squash.

The Ghana Statistical Service (2007) noted that there has been rapid increasing population pressure and increasing socio-economic disparities among people as well as rural-urban migration and a general difficult rural life in Ghana. This has deepened livelihood vulnerability as rural people find it difficult to meet their food security targets, isolated from economic opportunities and tend to have inadequate access to social services, such as healthcare, sanitation, education, shelter, and safe water supplies. Northern Ghana, and for that matter the Savelugu/Nanton Municipality, lags behind in almost all aspects of economic activities, even the agricultural sector, which employs majority of the active labour force (Ouma *et al*., 2011). This is an indication that the Northern Ghana requires massive investments to develop the agricultural sector in order to close the widening socio-economic disparity between it and the rest of the country to bring down high poverty figures.

One way by which the Savelugu/Nanton Municipality could develop its agricultural potential is to pool resources together as in the outgrower scheme with good investment by the operators of the scheme. One such investment taking place in some selected districts in the Northern Region of Ghana is organic mango outgrower plantation operated by the Integrated Tamale Fruit Company (ITFC). ITFC is a private Ghanaian agribusiness company, whose key objective is to "reduce poverty by providing the local people with a sustainable income-generating venture through organic mango production" (Osei, 2007:4). This arrangement is also to guarantee ITFC to source a large volume of quality organic mangoes for processing and for export. Since 2001, the company has been contracting outgrower farmers in four districts of the region (Savelugu/Nanton, Karaga, Kumbungu and West Mamprusi) through the Organic Mango Outgrowers' Association (OMOA) in producing certified high quality exotic organic mango for both the local and international markets (Osei, 2007).

ITFC operates in four districts of the Northern region of Ghana. The company has a nucleus organic mango farm covering an area of about 160 hectares (with over 38,000 trees), located in Dipale. The company embarked on an outgrower scheme in 2001 with an ultimate goal to reduce poverty in the surrounding communities, which has a high

incidence of poverty, as well as a way of getting the required volumes to enable it command a higher degree of market power in the organic mango export markets (Osei, 2007).

Normally, contract farming arrangements of this nature initially appeal to small-scale farmers because of its prospects of offering them the opportunity to earn income through guaranteed sale of their product, reducing risk, and providing a steady cash flow to purchase food and other household consumables, thereby, ultimately reducing poverty and improving their living standards (Overseas Development Institute, 2007). However, little is known about the efficiency and effectiveness of ITFC-OMOS improving the lives of farmers in the Savelugu/Nanton Municipality.

Until the introduction of the production of organic mango in the districts, farmers were not producing mango, hence this initiative has brought about diversification of livelihood for which many farmers are taking advantage of. But has this new livelihood strategy really improved the lives of the people? Have the farmers' expectations been met? Does participation in the scheme have any effects on the livelihood of outgrowers? These and other questions were what this study sought to find answers to. The specific objectives were to: investigate farmers' reasons for joining ITFC Out grower Scheme; determine the benefits of ITFC OMOS to the participants so far; and examine the factors threatening the success of the scheme in the study area.

MATERIALS AND METHODS

Theoretical Framework

The theoretical framework which guided this study was DFID's (1999) Sustainable Livelihood Approach (SLA). It helped focus on what variables and data to collect in order to address the research objectives. Chambers and Conway (1992) defined livelihood as the capabilities, assets and activities people require as means of living. The livelihood concept is based on the premise that a rural household has access to an amount of resource base, which can be utilized to set out livelihood strategies to improve welfare (Carney *et al*., 1999). The concept became a popular tool in development discourse during the 1980s with the work of Robert Chambers and the Institute of Development Studies (IDS) at the University of Sussex and has brought numerous benefits to development research and policy (Schafer, 2002). According to Chambers (1992), the SLA was to encourage participation of the poor in development programmes as against the biases introduced by outsiders deciding what was best for the poor. Thus, the SLA emerged in the 1990s as a new approach to tackling poverty, including indicators to measure improvements or shortcomings pertaining to health, education and environment. It was promoted by the United Nations Development Programme (UNDP) and the DFID (Prowse, 2008).

The framework as shown in Figure 1 helps in thinking holistically about the things poor people might be very vulnerable to, the assets and resources that help them thrive and survive, and the policies and institutions that impact on their livelihoods (DFID, 1999). It has been discovered to be useful in designing livelihood intervention strategies like the ITFC OMOS in most vulnerable production systems (Allison and Ellis, 2001). The framework identifies the scope and outlines the analytical basis for livelihood analysis by defining the factors affecting livelihood and the interacting relationships between them (Solesbury, 2003).

The financial capital in the framework refers to stocks of money (income, savings, debit, credit, and remittance income) to which the household has access and control which enable them to pursue their livelihood objectives (DFID, 1999; Degefa, 2010). Human capital refers to the personnel involved in the process of attaining livelihood outcomes. It consists of knowledge and skills, good health, ability to work, and experience required by personnel for operating in a given level of technological advancement that enable people to pursue their livelihood strategies and achieve their livelihood objectives (DFID, 1999; Farrington *et al*., 2002). Physical capital on the other hand is the socio-economic infrastructure that enables people to pursue their livelihood strategies (DFID, 1999). This capital is derived from the resources created by people, such as buildings, roads, transport system, drinking water, electricity, communications systems, as well as equipment and machinery for producing further capital (Bebbington, 1999). Social capital is defined as a mutual relationship based on reciprocity within communities and between households based on trust deriving from social ties (Moser, 1998). It pays more attention to family networks, kinship, and close friends that the household will depend on in times of crisis (Stirrat, 2004). It attempts to capture community and wider social claims on which individuals and households can draw by virtue of their belonging to social groups of varying degree of inclusiveness in society at large (Ellis, 2000). Natural capital comprises the land, water bodies and biological resources that are utilized by people to

generate means of survival (DFID, 1999). Sometimes these are referred to as environmental resources, and are thought of jointly comprising the environment (Ellis, 2000; Farrington *et al*., 2002).

Thus, in this study, the SLF was used as an analytical tool to provide guidance in understanding the ways in which ITFC OMOS as a livelihood strategy contributes to building the livelihood of farmers.

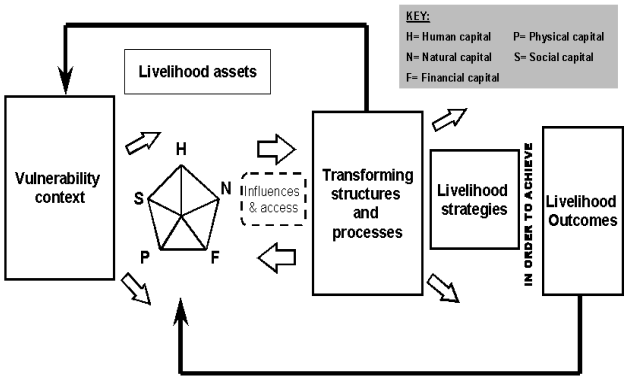

Figure 1 Sustainable Livelihood Framework

Source: DFID (1999)

The Out grower Schemes/Contract Farming

The terms contract farming and outgrower schemes are often used interchangeably (Hantuba, 2004). Out grower schemes or contract farming is broadly defined as binding agreement (formal or informal) between outgrowers and processing or marketing firms (private or public) for the production and supply of agricultural products under forward agreements, frequently at predetermined prices (Kirsten and Sartorious, 2002). Bauman (2000) conceptualized outgrower scheme as a system where central processing or exporting firm purchases the harvest of individual farmers and the terms of the purchase are arranged in advance through signing of contract. Baumann (2000) identified three types of contract farming arrangement: Out grower schemes (that provide production and marketing services to farmers on their own land), nucleus estate-outgrower schemes (where a core estate and factory is established and farmers in the surrounding area grow crops on part of their own land, which they sell to the factory for processing), and multipartite agreements (where several actors in the business are involved). Similar definitions and categories have been given by Eaton and Shepherd (2001); Singh (2003); Setboonsarng (2008); and Gulati *et al*. (2009).

The Integrated Tamale Fruit Company (ITFC)

ITFC is an agribusiness company incorporated in 1999 under Ghana's Company code of 1963 (Act 179) and operate in the Savelugu/Nanton Municipality, Kumbungu, Karaga, and West Mamprusi Districts, all in the Northern Region (Osei, 2007; FAO, 2013). It has its head offices in Gushei, 45 Kilometres north of Tamale on the Bolgatanga trunk road in the Northern Region. The company cultivates certified organic mangoes for both local and international markets. The ITFC realized that not a nucleus farm but an outgrower scheme would fit best for them to organize production of organic mangoes (Ouma *et al*., 2011). A projected 2,000 farmers in 44 communities were targeted to participate in the project. The idea was to give outgrowers seedlings, some equipment for the cultivation of land, supply water for irrigation, train them and provide extension services under a long-term interest-free credit scheme. The farmers should in turn prepare the land, build fences, grow the mangoes and bring them to a central village at Gushei where ITFC built up a packing house. ITFC would market the fruits by exporting to EU and local markets and deduct 30% of the annual net harvest value for loan recovery (Osei, 2007).

The company's operations eventually expanded to this outgrower scheme as part of its corporate social responsibility, with an initial 50 hectares of land covered for 50 farmers to help alleviate poverty in its surrounding communities (Osei, 2007). The company also saw the outgrower scheme as a way of getting the required volumes to enable it to command a higher degree of market power in the organic mango export markets, as market power is directly related to the volume of exports. Operating the outgrower scheme further helps ITFC access greater productive capacity without needing to purchase additional land at high cost (Ouma *et al*., 2011).

The scheme targeted family units and informal groupings within the society, but this was not an easy assignment as they had to go to farmers in the communities, convince them to plant a few mango trees and provide labour for 4-5 years before making any profit (FAO, 2013). Farmers were used to harvesting food crops some weeks after planting so waiting 4-5 years before any harvest would occur was an unheard-of request, but ITFC told them that organic mango farming would increase their annual income, moving them from subsistence farmers to profitable farmers. Eventually, the farmers decided to join the scheme and up to 1,400 farmers were recruited by 2008.

An essential arrangement of the contract requires each outgrower to plant 1acre (0.4 ha.) with 100 mango trees, in part so as not to displace domestic food production (FAO, 2013). The company provided an interest free loan to the outgrowers exclusively in the form of required inputs and technical services, which the farmers were to start paying from the sale of mango fruits after five years of planting (Osei, 2007). This arrangement guarantees ITFC a large volume of quality organic mangoes and the low-income farmers produce mangoes, enabling them to earn a long-term sustainable income for their families (Osei, 2007; FAO, 2013).

A number of development organizations such as UNDP, Catholic Organisation for Relief and Development Aid (CORDAID), African Development Foundation (ADF), and the World Bank (WB), were impressed about ITFC initiative towards the communities' development (Ouma *et al*., 2011). This encouraged them to support ITFC with funding to increase the outgrowers base and through this supports, the operations of the scheme was enlarged to welcome the addition of 400 outgrowers to participate in the scheme with the assistance of CORDAID, a Dutch catholic development organization, in 2004 (CORDAID, 2008). In 2005, UNDP sponsored 100 outgrowers and ADF sponsored 283 outgrowers to participate in ITFC outgrower scheme. The Ghana Ministry of Food and Agriculture (MoFA), with support from the World Bank, has also provided the outgrowers with grant assistance to build OMOA offices.

The Organic Mango Outgrowers Association (OMOA)

The Organic Mango Out grower Association (OMOA) is a farmer based organization operating in the Northern Region of Ghana, with a membership of about 1,240 farmers growing organic mangoes for export to the European Union (EU) and maintains a partnership with ITFC. ADF, a United States' (US) government development organization which has a special focus on community institutions insisted on the establishment of OMOA among the outgrowers working with ITFC (Ouma *et al*., 2011). MoFA decided to support the farmers of the scheme and helped to build offices for OMOA at Gushei.

Thus, OMOA was formed in August, 2001 (registered in May, 2003) in order to ensure local participation in the management of the outgrower scheme and to seek the interests of the outgrower farmers (Osei, 2007). The association primarily plays an intermediary role between ITFC and the local farmers. It is also the mouthpiece and advocate for the farmers. Although OMOA initially began with funding from ITFC and later from NGOs and other donors such as CORDAID, PSOM, and WIENCO, the plan was for OMOA to eventually become self-sustaining with contributions from their members.

The Study Area

The study was carried out in Savelugu/Nanton Municipality in the Northern Region of Ghana. The Municipality is one of the twenty-six administrative districts in the Northern Region, with its capital being Savelugu. The Savelugu/Nanton Municipality is predominantly an agricultural area with about 97% of the active labour engaged mainly in the cultivation of food crops at the subsistence level with very low level of surplus which could be sold (GSS, 2005). Agricultural production is rain fed and there is only one rainy season. There are also limited irrigation facilities to boost all year round production (Ahwoi, 2010). This production is dominated by staple food crops, such as maize, millet, rice, beans, cowpeas, cassava, yam, and sweet potatoes of which traditional methods are used for processing.

Sampling Techniques, Methods of Data Collection and Analysis

The research design chosen for the study is a descriptive sample survey. During the field study, the researchers used a (semi-structured questionnaire in gathering data from organic mango outgrowers in the sampled communities. Purposive sampling technique was used to select 30 communities that participate in ITFC OMOS. To obtain useful data, communities that participated in ITFC OMOS for at least 10 years were selected. The assumption was that outgrowers start harvesting mangoes after 5 years of cultivation and would have made profit or loss on their investment, and were therefore in a position to assess the effect of the scheme on their livelihood.

A total of 158 farmers were interviewed. The selection of Key Informants was based on purposive sampling. A total of ten key informants comprising two respondents from ITFC, two from OMOA and six (6) from farmer' group leaders were selected to participate in the study. The selection of ITFC OMOS' participants was based on stratified random sampling technique. The interviews were conducted to solicit information regarding their views on the schemes operations to complement the views expressed by the outgrowers in order to make an informed conclusion on the operations of ITFC OMOS and the effect it has on farmers' livelihood.

Data entry was done in the Statistical Package for Social Sciences (SPSS) software (version 16). Descriptive statistics such as mean, percentages, and frequency distribution were used to analyse the challenges facing the respondents. The Likert-Type response data based on the coding of the four response options (Strongly-agree =1, Agree =2, Disagree =3, and Strongly-disagree =4) was used. Thus, a modal value of 1 of the farmers' ratings on an item indicates their strong-agreement, 2 indicates agreement, 3 indicates disagreement, and 4 indicates strongly-disagreement. On the other hand, the responses from the key informants' interviews were analysed qualitatively based on discussion and interpretation of trends and patterns in target respondents' responses.

RESULTS AND DISCUSSION

Demographic Information of Farmers

Majority of the respondents (97.5%) were male with only 2.5% being female. Nana-Yaw *et al*. (2011) attributed this male dominance to the exertion of physical energy required in tree crop cultivation. The average age of farmers was 45.3. Majority of the farmers (94.9%) were married. The highest educational level attained by the respondents was secondary education, whilst about half of them (55.7%) never had formal education. Also, 90.5% of farmers had cultivated organic mangoes between 6 and 10 years, while 9.5% had cultivated for more than 10 years. The average year of cultivation was 8.5 years. This was significant because ITFC's outgrowers were expected to start harvesting mango fruits from the fifth year after planting. The results imply that all the farmers had harvested mango for some time and were in a position to indicate whether not they were benefiting from the scheme. This was confirmed by all the farmers that they had started harvesting their mango fruits. It was also found that most of the farmers (63.9%) had the land for mango plantation from their community chiefs, while 32.3% had it from their families. Farming was the main occupation for majority of the respondents while 20.3% engaged in masonry, blacksmithing, petty-trading and handicraft work.

Farmers' Reasons for Joining the ITFC OMOS

Farmers **strongly-agreed** that the following influenced their decision to join the ITFC scheme: the promise of poverty reduction (98.1%); a good source of income (81.6%); benefits from similar schemes in other communities (69.0%); and promise of community development (51.9%). Also, farmers agreed that access to extension services (70.9%) and farm inputs (60.1%) as well as employment opportunities (58.2%) and credit (43.7%) influenced their decision to join the scheme. However, a high percentage (67.1%) of farmers **disagreed** that the relatively short gestation period of the exotic mangoes (that were introduced to them) as well as their (farmers) closeness to the ITFC scheme centre (75.9%) influenced them to join the scheme. These findings are consistent with that of Opoku-Mensah (2012), Musara *et al*. (2011), World Bank (2008), Masakure and Henson (2005), Ntsiful's (2010), Nagaraj *et al*. (2008) and Swinnen (2005).

Reasons for Non-participation of the ITFC Scheme

Asked why they did not join the scheme, some of the non-participants said that they were not convinced about the prospects of mango doing well in the area. In response to the same question, the ITFC and OMOA indicated that one of the reasons was lack of interest. The Assistant Manager had this to say, *"The ITFC specifically did not disqualify any interested participant. It was the decision of some of these farmers to opt out based on the pre-recruitment orientation organized for prospective participants."* Similarly, the farmers' group leaders revealed that the non-participants assessed their capabilities after attending the pre-recruitment orientation and found that they could not meet the requirements set for participation. Furthermore, it was revealed that farmland acquisition was a major reason why some of the farmers could not join the scheme. Farmers who could not secure a parcel of land, large enough and approved by ITFC, were unable to join. It was the policy of ITFC that farmers should secure their own farmlands that were acceptable for cultivating mangoes before they could be allowed to participate in the scheme. Another pre-requisite for joining the scheme was to belong to a farmer group of five or ten memberships to enable them cultivate mangoes in block farming system. According to some key informants, most of the non-participants were not able to meet this requirement. Lastly, it was revealed that some of the farmers realized after the orientation that the mango plantation was going to be tedious and could therefore not have the needed time and efforts.

Effects of Participation on Livelihood Outcomes

As indicated earlier, the main objective of the study was to investigate the effects of participation in the ITFC Out grower scheme on the livelihood outcomes of farmers. Specifically the effects of participation on the types of capital,

namely; financial capital, human capital, physical capital, social capital and natural capital were considered.

Financial Capital

From the findings, 65.2% of the respondents indicated that their household income level had increased. However, 34.2% indicated no positive change, and only one respondent (0.6%) indicated high positive change. This was corroborated by farmers' group leaders and OMOA that farmers' average annual income from mango sale was GHC900.00 per acre, representing a 34.5% increase over the usual average annual income of about GHC650.00 per acre (Osei, 2007). The results imply that participation in the outgrower scheme had moderately increased some farmers' household income. In some studies (Kirsten and Sartorius, 2002; Singh, 2002; Singh, 2005; Meshesha, 2011) contract farming had had significant increases in the incomes of participating farmers. Contrary to these findings, however, Eaton and Shepherd (2001) posited that where there was monopolistic tendency and opportunistic behaviour of contracting firms, contract farming had a negative effect on farmers' incomes. This was however, not the case in ITFC Out grower Scheme.

Savings are crucial for asset accumulation (Moser, 2006). The findings reveal that most of the farmers (86.7%) were not making cash savings from their increased income. Only 13.5% indicated that they were making savings. This was confirmed by OMOA and ITFC officials. The lack of savings implies that the farmers were in a kind of difficult position to build on other livelihood assets. Mahajan (2006) observed that savings are the single most important factor in building other types of livelihood capital. Farmers were not getting cash credit from ITFC and other alternative sources. About 91.8% of farmers indicated not experiencing any positive change on access to cash credit. The results contradict Okorley and Ayekpa (2009) findings that farmers use contracts signed with agribusiness companies as collaterals for the acquisition of loans. The absence of cash credit in the scheme would not protect the interest of the mango product as well as not build farmers' financial assets as observed by Mahajan (2006).

Human Capital

The study revealed that participation in the scheme had offered employment opportunities for majority of farmers (81.6%).

The findings imply that ITFC scheme had succeeded in creating additional employment for rural farmers as acknowledged by Singh (2002) who argued that contract farming schemes generate additional employment for farmers. This would go a long way to reduce unemployment rate in the study area.

Also, majority of the respondents (69.0%) experienced high positive changes in transfer of technology while 27.2% farmers thought the change in transfer of technology was not high. Only 3.8% of farmers said they had not transferred the farming technology learned onto their private farms. Farmers' group leaders corroborated these findings that more farmers had cultivated food crops with organic practices. Thus, largely, the new farming practices learned under the scheme had been better utilized by participants in the cultivation of other crops. This supports Vermeulen *et al*.'s (2003) findings that outgrower schemes increases the opportunity for farmers to gain technology in order to step up local development.

The results also show that more than half (55.7%) of the farmers thought that expenditure on their children's education had changed due to their participation in the scheme. This would have been made possible by the increases in household income level in the financial capital analysis. Thus farmers had some money from mango sales to spend on their children's education. The findings suggest that ITFC OMOS is providing the opportunity for farmers to provide education for their children thereby building their human capital. Also, as part of its social responsibility initiatives, the ITFC had introduced a Child to School Programme" (CTSP), which according to the farmers was very useful. It was explained that under the CTSP, needy but brilliant children in the scheme's operational communities were being sponsored from basic through to the tertiary level. The results are consistent with that of Warner and Bauer (2002) which revealed that participants of outgrower schemes in Papua New Guinea, spent much more on their children's education, compared with their non-participating counterparts, thus, resulting in increases in school attendance.

Physical Capital

About half of the farmers (52.5%) expressed the view that participation in the scheme had helped to improve the educational infrastructure in their communities and that had facilitated access to education. For instance, the CTSP has been involved in the construction of classroom blocks for some schools, teachers living quarters, and running a school feeding programme in selected schools in the area. However, 39.2% indicated that there was no

positive change on educational facilities. This was not surprising as the Key Informants from farmers' group leaders indicated that only four communities; namely Dipale, Tuunaayili, Gushei and Tigla had benefited from the CTSP and educational infrastructure programme.

Secondly, 54.4% of the farmers indicated that there was a high improvement in their access to farm tools/implements. However, while 39.9% thought the change was moderate, 5.7% thought there was no positive change. Also, 53.8% of the farmers mentioned that sanitary and health facilities had improved, with 36.1% indicating no change. This was supported by farmers' group leaders and confirmed by OMOA and ITFC that the Scheme was yet to provide health facilities in the operational communities. ITFC noted that plans were far advanced to provide health facilities at the zonal centres as part of the company's community corporate social responsibility programmes. This notwithstanding, the health education programmes by the ITFC scheme, coupled with the introduction of the National Health Insurance Scheme (NHIS) had led to increased access to health in the study area.

Majority (75.9%) of farmers had not seen any positive change in the supply of electricity and water (utility services) to their communities. The scheme had not yet brought significant positive changes on farmers' accessibility to electricity and good water. The Key Informants from ITFC and OMOA confirmed the farmers' views and stated that the scheme had only helped to provide five communities with good drinking water and connected only one community to the national electricity grid. Contrary to this finding, Cai *et al*. (2008) and Setboonsarng *et al*. (2008) found that contract farming schemes provided rural infrastructure, including water and electricity facilities to their operational communities in Cambodia and People's Democratic Republic of Lao respectively.

In response to how the scheme was building farmers' physical capital, farmers' group leaders were of the opinion that though income benefits were not encouraging, some outgrowers were able to acquire properties and met their household expenditure. Others were said to have put up cement block houses roofed with zinc purchased from mango income.

Social Capital

With respect to the effects on social capital, 64.6% of farmers thought participation in the scheme had generally encouraged cooperation among farmer group members. Specifically, 21.5% expressed **high positive** change, while 13.9% expressed no change. Thus, the scheme was promoting a sense of togetherness among the outgrowers in the communities. Similarly, building networks and interconnectivity had seen a **positive change** (51.9%), and a **high positive change** (40.5%) among the farmers. The farmers' group leaders recognized the fact that farmers in the area were already organizing themselves prior to the implementation of ITFC outgrower scheme in working together. This according to them had changed tremendously to afford farmers the opportunity to attract developmental programmes from ITFC and its supporting partners for themselves and their communities in general.

Also, 48.7% farmers thought the scheme had encouraged friendship among participants while 46.8% indicated a **high change**. However to 4.4% of the respondents there had been **no change** in terms of the scheme helping to build friendship among them. On building relationship of trust/exchange among farmers, the results show that 46.2% farmers indicated a **positive high change**, while 43.7% indicated **a change.** Only10.1% however said there had been no change. These results imply that ITFC outgrower scheme was helping participants to establish relationship of trust among members.

Natural Capital

The findings of the study also revealed that 42.4% of the respondents had seen a **positive change** in the ways they used the farmlands available in their communities. However, 29.1% thought there was **a change**, whilst 28.5% indicated **high positive change** in the use of available farmlands. Also, majority (82.9%) said there was an increase in their use of organic manure in farming. Only 16.5% indicated an increase, with less than 1% expressing no change. The farmers had now realized the importance of adopting organic manure application in farming and hence incorporated the technique in the cultivation of food crops. The practice would help the improvements in biological activity and soil condition which are most likely to be achieved in soils receiving regular applications of solid animal manure or compost.

The results also reveal a positive change on farmers' use of natural resources in the scheme's operational communities. About 55.1% indicated a **high positive** change, 44.3% expressing a **positive change**, and only 0.6% indicating **no change**. There was also a **high positive** indication of changes (66.5%) on farmers' protection of the environment. However, while 31.6% indicated **a change**, 1.9%

thought there was **no change**. Thus that participation in the scheme had afforded farmers the sense to appreciate the need to preserve and protect the natural resource base.

The key informants from farmers' group leaders stated that the onsite training on best organic farming practices, bushfire prevention and control campaigns, protection of water bodies from pollution, and proper land management, offered to outgrowers, helped participants in the way they handled the natural environment. The scheme is also said to have undertaken regular tree planting exercise; especially shea trees, to replace those destroyed during the mango plantation process, as well as establishing beekeeping units to give farmers alternative income generating opportunity. The knowledge gained on these activities, in the opinion of ITFC officials, was normally transferred to farmers' individual private farms outside the scheme, thus, helping to build their natural capital in the process.

Challenges to ITFC Out grower Scheme

The study also explored the challenges militating against the success of the scheme. The results showed fourteen (14) challenges as indicated in Table 1. The challenge ranked first by the farmers was disease and pest attacks (97.5%). Terry and Joyce (2004) found that the major challenge to mango production worldwide was the attacks from several pests and diseases at all stages of its live cycle with the most common pre-harvest and post-harvest disease being *anthracnose*. Under organic culture, controlling pests and diseases had proven to be difficult due to the non-use of agro-chemicals.

The second challenge was low mango yields (94.9%). A leader of a farmer group had this to say:

"Actually the average mango fruit yield for now is very low at between 800kg and 1tonne compared with the expected average yield of 5tonnes per farming season."

The implication was that the anticipated large volumes were not forthcoming despite the expectations that mango yields were to start gradually from the fifth year after planting and increased in subsequent seasons. The farmers' leaders also recognized this as a major challenge confronting the scheme. This, according to them, had contributed in lowering farmers' morale and loss of faith in the prospects of the scheme to improve on their livelihood. ITFC confirmed this problem, but blamed poor climatic conditions such as high temperatures between December and January as affecting the flowering of mango trees and causing young fruits to drop. Bangwe *et al*. (2012) similarly reported that about half (50.4%) of ITFC outgrowers complained of low mango yields resulting in some withdrawing to show their displeasure or disappointment.

Constant outbreak of bushfires on the mango farms was ranked the third most pressing, according to 93.0% of the farmers. The implication was that mango farms that were not kept well by way of weeding or creating fire belts around were prone to suffer these fire outbreaks. ITFC asserted that the loss of farms to bushfires had forced some farmers out of the scheme denying them the benefits that could have been enjoyed and at the same time leading to the loss of investment made by the company. This finding supports that of Kwadzo *et al*. (2013), where 98% of farmers stated bushfires as the most important peril on their farms.

Also, 88.6% of the farmers mentioned lack of cash credit from the scheme and other alternative sources for them to help manage mango farms effectively, and this was ranked as the fourth challenge to the sustainability of ITFC scheme. The problem could be attributed to Cassons's (2000) assertion that international and domestic banks only provide loans to outgrower companies but not the outgrowers for the reasons that they lack credit worthiness and had limited deal sizes, which result in high risk premiums for outgrowers. This has been found to be a major complaint amongst coffee outgrowers in Kenya who had taken loans to finance non-coffee expenditures (Nyoro and Whittaker, 1986 cited in Baumann, 200O).

Similarly, 86.1% of the farmers identified inadequate input supply as the fifth most important challenge to the partnership with ITFC scheme. The outgrowers noted that the agreed-on input under the contract signed were being honoured, but added that certain inputs such as wellington boots, spraying equipment, and pruning sharks, that were not envisaged to be required should be considered and supplied to them by the scheme. Musara *et al*. (2011) similarly found that contract farmers ranked inadequate inputs supply as the fourth severe constraint militating against smallholder cotton contract farming in Zimbabwe, which resulted in the inability of about 60% of farmers to repay their loans. The position of ITFC was that farmers were expected to acquire some of these inputs from their own resources in order to lessen the indebtedness they had with the scheme.

Inadequate irrigation facility (83.5%) was ranked sixth. The inadequate irrigation facility affected water supply, especially in the dry season and had an adverse effect on mango fruits yield, according to an outgrowers' group leader. Kumar

and Kumar (2008) acknowledged this finding that scarcity of water for irrigation is a major constraint facing contract farmers. Similarly, 68.4% farmers thought ITFC were not flexible with the terms of the contract entered with them. The contract terms were seen to be rigid with no room for consultation for farmers to make informed decisions regarding the contracts signed. Evidence to this was the company's refusal to supply farmers with the additional logistics which they (farmers) found to be very important for efficient management of the mango farms. Musara *et al*. (2011) also found none-flexible contract terms as one of the highest ranked constraint facing smallholder cotton contract farmers in Zimbabwe. High farm management cost (66.5%) was the eighth ranked challenge faced by outgrowers. This finding was not surprising because of the additional inputs that were required to be purchased with outgrowers own resources to help manage the mango farms. Farmers without the support of family labour hired extra hands to work on their farms, leading to increases in the cost of managing their farms.

Other challenges farmers mentioned included delay in payment for mango fruits by the company (31.7%), destruction of mango farms by animals (27.2%), no fence around the farms (26.6%), stealing of mango fruits at the farms (22.2%), attacks from snakes and other harmful reptiles (13.9%) while stringent demand of organic farming practices was the least mentioned challenge (10.8%).

CONCLUSIONS

In conclusion it can be said that to some extent, the benefits farmers identified were consistent with their initial expectations. However, they still expected that some additional logistics would be provided to them. In terms of the benefits translating into the building of farmers' livelihood capitals, their perception was that it had been moderate for financial, human and physical capitals. The perception, however, for social and natural capitals was that it had been high. There were also some operational challenges with the scheme as follows: disease and pest attacks; low yields; bushfire outbreaks; lack of cash credit; inadequate inputs; lack of irrigation; no flexible contract terms; delayed payment; and high management costs, among others.

RECOMMENDATIONS

Based on the conclusions, the following recommendations are made:

Despite the fact that ITFC OMOS is providing the requisite basic farm training and facilities to participants, additional facilities such as cash credit, cutlasses, pruning sharks, spraying equipment, weeding machines, and irrigation facility that were initially not envisaged should be provided to efficiently manage the farms.

ITFC and the farmers should make efforts at addressing the challenges found to be militating against the success of the scheme, especially adequately controlling disease and pest attacks, as well as devising measures to improve mango yields to enable farmers fully meet their expectations for joining the scheme. This will also ensure sustainability of the scheme.

Farmers in the area have an orientation quite different from what is required for organic standards and re-orienting them to adopt the new farming practices required significant attitudinal change. ITFC should continue with farmer education to ensure a high compliance. Farmers on the other hand should take advice and do all the management practices as instructed by the technical unit for better yields.

ITFC should continue to work very closely with OMOA in encouraging farmers not to give up because of the current low yields, knowing that with Change of attitudes, prudent management, and patience, yields could improve.

REFERENCE

Aforo, D. N. (2007). Farmers honoured in Ghana. *Africa News*. http://www.africanews.com/ site/list_messages/13774. Accessed 10 September 2012.

Ahwoi, K. (2010). Government's Role in Attracting Viable Agricultural Investments Experiences from Ghana. *Paper presented at The World Bank Annual Bank Conference on Land Policy and Administration,* Washington, DC April 26 and 27, 2010.

Akumbomi, E. B. (2011). Accessing the effects of small scale industries on the livelihoods of women: Case Study in Savelugu Community in the Northern Region of Ghana. *MBA Thesis, Kwame Nkrumah*

University of science and Technology, Kumasi, Ghana.

Allison, E. H. and Ellis, F. (2001) Marine Policy 25, pp377-388

Bangwe, L., Amevenku, F., Yeboah, K.K. and Obuobie, E. (2012). An Assessment of the ITFC Out grower Scheme in Ghana. *AgWater Solutions Project: Case Study International Water Management Institute (IWMI)*.

Baumann, P. (2000). Equity and Efficiency in Contract Farming Schemes: The experience of Agricultural tree crops. *Working Paper 139, Overseas Development Institute, ODI*, UK.

Bebbington, A. (1999). Capitals and capabilities: a framework for analysing peasant viability, rural livelihoods and poverty. *World Development 27*: 2021-44.

Cai, J., Ung, L., Setboonsarng, S. and Leung, P. (2008). Rice Contract Farming in Cambodia: Empowering Farmers to Move Beyond the Contract Toward Independence. *ADBI Discussion Paper 109. Asian Development Bank Institute*, Tokyo.

Carney, D., Drinkwater, M., Rusinow, T., Neefjes, K., Wanamali, S. and Singh, N. (1999). Livelihood approaches compared: A brief comparison of the livelihoods approaches of DFID, CARE, Oxfam, and UNDP. *Department of International Development (DFID)*, London.

Cassons, A. (2000). The Hesitant Boom: Indonesia's oil palm sub-sector in era of economic crisis and political change. *Centre for International Forestry Research*, Bogo, Indonesia.

Clason, D. L., and Dormody, T. J. (1994). Analysing data measured by individual Likert-type items. *Journal of Agricultural Education*, 35(4), 31- 35.

Chambers, R. (1992). Rural appraisal: rapid, relaxed and participatory. *IDS Discussion Paper 311, International Development Studies (IDS)*, Brighton, UK.

Chambers, R. and Conway, G. R. (1992). "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century", *Discussion Paper, 292, Institute of Development Studies*.

CORDAID (2008). CORDAID and Contract-Farming. http://apfcontractfarming. wikispaces.com/file/view/Case+5+Cordaid+ and+contract+farming.pdf. Accessed 2 February, 2009.

Costales, A., Son, N., Lapar, M. and Tioncgo, M. (2008). Determinants of participation in contract farming in pig production in Northern Vietnam. *Research Report*, 08-04.

Degefa, T. (2010).Understanding the Realities of the Urban Poor and their Food Security Situation: A Case Study at Berta Gibi and Gemechu Sefer in Addis Ababa City, Ethiopia. *Environment and Urbanization* 22, 179-198.

DFID (1999). Sustainable livelihoods guidance sheets. *Department for International Development*, London, UK.

Dileep, B. K., Grover, R. K. and Rai, K. N. (2002). Contract farming in tomato: An economic analysis. *Indian Journal of Agricultural Economics*, 59(2): 197-210.

Eaton, C. and Shepherd, A. W. (2001). Contract Farming: Partnerships for growth. *FAO agricultural services bulletin*, Volume 145, FAO, Rome.

Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries. *Oxford University Press*, Oxford, UK.

Ellis, F. and Biggs, S. (2001). Evolving themes in rural development, 1950s – 2000s. *Development Policy Review*, 19 (4): 437-448.

FAO (2013). The gender and equity implications of land-related investments on land access, labour and income-generating opportunities in Northern Ghana. The Case Study of Integrated Tamale Fruit Company. *Food and Agricultural Organization of the United Nations*, Rome.

Farrington, J., Ramasut, T., and Walker, J. **(**2002). Sustainable Livelihoods Approaches in Urban Areas: General Lessons, with Illustrations from Indian Cities. *Working Paper 162 Overseas Development Institute*, London, UK.

Gibbon, P., Bolwig, S., Odeke, M. and Taylor, A. (2008). Certified Organic Export Production. Implications for economic welfare and gender equality among smallholder farmers in tropical Africa. *UNCTAD/ DITC/TED/2007/7*.

Griesbach, J. (2003). Mango Growing in Kenya. *World Agroforestry Centre*. Nairobi, Kenya.

GSS (2007). Ghana Living Standard Survey: Report of the Fifth Round (GLSS5). *Ghana Statistical Service*, Accra, Ghana.

Gulati, A., Joshi, P. K. and Landes, M. (2009). Contract Farming in India: An Introduction.

http://www.ncap.res.in/contract_farming/Research/1.Introduction.pdf Accessed 20 September 2011.

Hantuba, H. (2004). Linkages between smallholder farm producers and supermarkets in Zambia. *Paper prepared for the FAO technical workshop. FAO*, Rome.

Hudson, D. (2000). Contracting in agriculture: a primer for leaders. *Research Report No. 2000–007. Department of Agricultural Economics*. *Mississippi State University*, Mississippi.

Kaminski, J. (2009). Out grower schemes and cooperatives: A problem of moral hazard I teams with peer-monitoring. *Department of Agricultural Economics, Hebrew University of Jerusalem*, Israel.

Kirsten, J. and Sartorious, K. (2002). Linking agribusiness and small-scale farmers in developing countries: is there a new role for contract farming? *Development Southern Africa*, 19(4): 503-529.

Kulkarni, S. and Grethe, H. (2009). Does vertical integration benefit farming community? A comparative study of contract and non-contract farmers in India. *Katholic University of Leuven*, Belgium

Kumar, J. and Kumar, P. (2008). Contract farming: Problems, Prospects and its effects on income and employment. *Agricultural Economics Research Review*, 21: 243- 250.

Kwadzo, G., Kuwornu, J. and Amadu, I. (2013). Food Crop Farmers' Willingness to Participate in Market-Based Crop Insurance Scheme: Evidence from Ghana. *Research in Applied Economics*, 5 (1).

Mahajan, V. (2006). Access to Financial Assets and Economic Opportunities for the Poor: The Strengths and Constraints of Micro-finance. http://www.brookings.edu/global/assets06/conference. htm Accessed 14 January 2013.

Masakure, O. and Henson, S. (2005). Why Do Small-Scale Producers Choose to Produce Under Contract? Lesson from Non-Traditional Vegetable Exports from Zimbabwe. *World Development*, 33(10): 1721-1733.

Meshesha, J. (2011). Impact of contract farming on household income of smallholder farmers: The case of organic honey production in South West Ethiopia, Sheka Zone, *Msc. Thesis, Wageningen University and Research Centre*. http://edepot.wur.n/193737. Accessed 20-12-2012

MLGRD (2006). A Public-Private Partnership Programme between Ministry of Local Government and Rural Development (MLGRD) and Maks Publications and Media Services. *Savelugu/Nanton District Assembly Medium Development Plan 2006-2009.* http://savelugunanton.ghanadistricts.gov.gh Accessed 25 May 2010.

Moser, C. (1998). 'The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies.' *World Development*, 26(1): 1–19.

Moser, C. (2006). Asset-based approaches to poverty reduction in a globalized context. An introduction to asset accumulation policy and summary of workshop findings. *The Brooklings Institution Working Paper 01*, 1775 Massachusetts Ave, NW Washington, DC 20036.

Musara, J., Zivenge, E., Chagwiza, G., Chimvuramahwe, J. and Dube, P. (2011). Determinants of smallholder cotton contract farming participation in a recovering economy: Empirical results from Pathway District, Zimbabwe. *Journal of Sustainable Development in Africa*, 13(4).

Nagaraj, N., Chandrakanth, M.G., Chengappa, P.G., Roopa, H.S. and Chandakavate, P.M. (2008). Contract farming and its implications for input-supply, linkages between markets and farmers in Karnataka. *Agricultural Economics Research Review*, 21:307-316.

Ntsiful, K. (2010). Out grower oil palm plantations scheme by private companies and poverty reduction in Ghana. *A PhD. Thesis Dissertation*, St. Clements University, Canada.

Nyoro, J. K. and Whittaker, M. J. (1986). Factors Influencing the Adoption of Coffee Management Practices by Smallholder Coffee Farmers' in Kenya. In Baumann, P. (Eds.). Equity and Efficiency in Contract Farming Schemes: The experience of Agricultural tree crops. *Working Paper 139, Overseas Development Institute, ODI*, UK.

Okorley, E. and Ayekpa, E. (2009). Factors that can influence contract farming partnership between farmers and agro-processing Industries. A Ghanaian Case Study. *Journal of Business and Enterprise Development*, 2026-500.

Osei, R. (2007). Integrated Tamale Fruit Company: Organic Mangoes Improving Livelihoods

for the Poor. *UNDP Growing Inclusive Markets (GIM) Initiative*. www.growinginclusivemarkets.org Accessed on 30-08-2011.

Ouma, S., Lindner, P. and Boeckler, M. (2011). Frontier Regions and the Making of Agro-Export Markets in Northern Ghana. http://www.geo.uni_frankfurt.de/ifh/Personen/boeckler/4 OumaLindnerBoeckler2011.pdf. Accessed 21 October 2011

PAS (2011). Evaluation Report, Presbyterian Agricultural Station, Tamale, Ghana

Prowse, M. (2008). Locating and extending livelihood research. *Brooks World Poverty Institute Working Paper 37, University of Manchester*, UK.

Schafer, J. (2002). Supporting Livelihoods in Situations of Chronic Conflict and Political Instability: Overview of Conceptual Issues. *Working Paper 183, Overseas Development Institute*, London.

Setboonsarng, S. (2008). Global partnership in poverty reduction: Contract farming and regional cooperation. *ADBI Discussion Paper 89. Asian Development Bank Institute*, Tokyo.

Singh, S. (2002). Contracting Out Solutions: Political Economy of Contract Farming in the Indian Punjab. *World Development*, 30(9): 1621-1638.

Singh, S. (2005). Agricultural commercialization and small farmers in India. *Paper presented at the FAO workshop on "Agricultural commercialization and the farmer"*, FAO, Rome.

Solesbury, W. (2003). "Sustainable Livelihoods: A Case Study of the Evolution of DFID Policy", *Working Paper 217, Overseas Department Institute*, 111 Westminster Bridge Road, London.

Stirrat, R.L. (2004). Yet another 'magic bullet': The Case of Social Capital. *Aquatic Resources, Culture and Development*, 1: 25-33.

Strohm, K. and Hoeffler, H. (2006). Contract farming in Kenya: Theory, evidence from selected Value Chains, and implications for development cooperation. *PSDA Main Report*. www.uni-leipzig.de Accessed 30/04/2013.

Terry, L. A. and Joyce, D. C. (2004). Elicitors of induced disease resistance in postharvest horticultural crops: A brief review. *Postharvest Biol. Technol.* 32, 13.

Vermeulen, S., Nawir, A. and Mayers, J. (2003). Better Livelihood through partnership? A review of the impacts of allisoncompanies on local development. *Rural Livelihoods, Forests, and Biodiversity*. Bonn, Germany.

Warner, R., and Bauer, M., (2002), Mama Lus Frut Scheme: An Assessment of Poverty Reduction. ACIAR Impact Assessment Series No.20.

Warning, M. and Key, N. (2002). "The Social Performance and Distributional Consequences of Contract Farming: An Equilibrium Analysis of the Arachide de Bouche Program in Senegal." *World Development*, 30(2): 255-263.

World Bank (2008). Agriculture for Development. *World Development Report, World Bank*, Washington.

Table 1 Challenges to ITFC Out grower Scheme

Challenge	Number of Farmers	Percentages (%)	Rank
Disease and pest attacks	154	97.5	1
Low mango fruit yields	150	94.9	2
Destruction of mango farms by bushfires	147	93.0	3
Lack of cash credit to meet management costs	140	88.6	4
Inadequate input supply	136	86.1	5
Inadequate irrigation facility	132	83.5	6
Contract terms are not flexible	108	68.4	7
High management costs	105	66.5	8
Delay in payment	50	31.7	9
Stray animals destroying mango farms	43	27.2	10
No farm fence	42	26.6	11
Stealing of mango fruits	35	22.2	12
Snake and other reptile bites	22	13.9	13
Demands of organic farming practices	17	10.8	14

N = 158

Note: Multiple responses

Rank 1= Highest Challenge, Rank 14 = Least Challenge

Source: Field Survey, 2013