

AgWater Solutions Project Case Study

An Assessment of the IFTC Outgrower Scheme in Ghana

Francis Amevenku

Council for Scientific and Industrial Research
Water Research Institute, Ghana

Kwabena Kankam Yeboah

Council for Scientific and Industrial Research
Water Research Institute, Ghana

Emmanuel Obuobie

Council for Scientific and Industrial Research
Water Research Institute, Ghana

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The AWM Project

The AgWater Solutions project was implemented in five countries in Africa and two states in India between 2008 and 2012. The objective of the project was to identify investment options and opportunities in agricultural water management with the greatest potential to improve incomes and food security for poor farmers, and to develop tools and recommendations for stakeholders in the sector including policymakers, investors, NGOs and small-scale farmers.

The leading implementing institutions were the International Water Management Institute (IWMI), the Stockholm Environment Institute (SEI), the Food and Agriculture Organization of the United Nations (FAO), the International Food Policy Research Institute (IFPRI), International Development Enterprises (iDE) and CH2MHill.

For more information on the project or detailed reports please visit the project website <http://awm-solutions.iwmi.org/home-page.aspx>.

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SUMMARY

The aim of the current study is to assess contract farming as applied to irrigated farming and management of irrigation infrastructure. Specifically, the study used the experience of the Integrated Tamale Fruit Company (ITFC) to assess the feasibility of out-scaling water management based contract farming systems.

Field visits to stakeholders of the ITFC model and reviews of literature on national policies on contract farming were the major activities undertaken. The results revealed that the policy orientation of Ghana in terms of contract farming does not make any specific, clear cut policy statements. Outgrower schemes are mentioned as components for achieving the objectives of some projects. Indeed with the exception of oil palm and rubber, where classical cases of contract schemes were implemented after independence, quasi-contract schemes or similar have evolved intermittently for the past three to four decades.

The ITFC model depicts the only water management based contract farming experience currently in the country. It produces organic mangoes on its nucleus farm in conjunction with those produced by its contracted farmers for export through the provision of an interest free loan. The parties derive mutual benefits as producers and earn sustainable incomes. Buyers get large volumes of organic mangoes for processing and export. The principal stakeholders involved in the contract, the management and leadership of the Outgrowers Association and individual farmers overwhelmingly expressed satisfaction with the terms of the contract.

Financial projections yielded low viability prospects for both growers and the investor however. This is expected to improve as yields from the mango trees improve over the years. Sources of capital for contracting were varied, some from government and development partners, others from private transnationals and local entrepreneurs. ITFC has, through its corporate social responsibility policy, invested in social and physical infrastructures that have been recognized by local residents as an impetus for human capital development, welfare enhancement and environmental sustainability for posterity. Evidence that the ITFC model is sustainable is not in doubt. Several lessons and options are provided by the model to facilitate replication elsewhere.

1. INTRODUCTION

Small-scale agriculture in Ghana is the mainstay of the economy. Yet over the last decade its contribution to GDP has declined from 51 to 37%. However, the sector has seen an annual average growth rate of 6.0% over the last four years, among the highest in Sub-Saharan Africa. Agriculture employs 56% of the 10 million workforce, with an average family operated farm of 2.0 hectares using rudimentary technology to produce 80% of the country's total agricultural output.

Land area of the country is 23,583,900 hectares, of which 67% (13,628,179 hectares) is cultivable. In 2009, a total of 7,359,216 hectares representing 54% was under cultivation. In terms of irrigation, a total of 33,778 hectares or 0.44% of cultivated land is irrigated. Ghanaian agriculture is mainly rainfed. Land ownership is customary (78%) with state owned lands constituting 20% leaving 2.0% for split ownership (partnerships between state and customary owners). Large-scale farms and plantations produce mainly industrial crops such as oil palm, rubber and coconut and to a lesser extent maize, rice and pineapples.

In terms of governance, the country has, since 1992, been an oasis of stability in a sub-region characterised by political volatility. There is a deepening enabling environment for the development of the private sector. Agricultural and rural development has been the focus of successive governments. There is a clearly defined Food and Agricultural Sector Development Policy (FASDEP) that emphasises food security and emergency preparedness, and application of science and technology with emphasis on research.

In 2009, the government adopted an accelerated agricultural modernization programme targeting mechanization, irrigation, the use of improved seeds and fertilizer use and aggressive extension service delivery emphasising support for small, medium and large-scale agricultural production.

The south of Ghana has a bimodal rainfall pattern that supports horticulture (pineapples, bananas and pawpaws), oil palm, rubber and cocoa. The North Savannah region has a unimodal rainfall pattern that supports cereals (maize, sorghum, millet and rice), horticulture (mangoes) and biofuel plants (jatropha and sugar cane). Food security has been attained in staples (roots and tubers such as cassava, yams and plantains) but the country is gravely deficient in cereals and pulses namely, maize, rice, soya beans, sorghum and in fish and meat. There is the urgent need for processing and value addition in these crops.

Agriculture has proved to be a significant impetus for development in Ghana. Agriculture offers a number of profitable activities, of which contract farming is one. To secure their investments and obtain profits, entrepreneurs have had to adopt monopoly approaches to guarantee a reliable source of supply in terms of both quantity and quality. The aim of the current study is to assess contract farming as applied to irrigated farming and management of irrigation infrastructure. The study seeks to answer these broad questions:

- Are outgrower schemes a suitable model to enhance smallholders' access to water and markets?
- Which model works best and where?

- Who benefits?
- Is this model replicable at large-scale?
- Does contract farming contribute to the welfare of the outgrowers?
- Is contract farming sustainable and how can it lead to collective action and smallholder empowerment?
- How does contract farming work?

Specifically, the study used the experience of the Integrated Tamale Fruit Company (ITFC), a private limited liability company incorporated in 1999 under the Ghana Company Code of 1963 (ACT 179) and its outgrowers grouping: the Organic Mango Outgrowers Organization (OMOA) to assess the feasibility of out-scaling water management based contract farming systems. The activities carried out are outlined as:

1. Review of national policies towards contract farming schemes in Ghana;
2. Review of literature on water management based contract farming experiences in Ghana;
3. Review of the details of the contract between ITFC and organic mango growers and assess common areas of conflict;
4. Assess the investment and operation costs of outgrower farms by activities and operations;
5. Explore the financial and economic viability of contract farming and the relative involvement of the public and private sector in finance;
6. Assess the effectiveness of contract farming as a tool for rural development; and
7. Explore the welfare effect of contract farming on the producers under contract.

Case study

ITFC operates in the Savelugu-Nanton District of the Northern Region of Ghana (Figure 1). ITFC is in the business of cultivating and processing certified organic mangoes for the local and export markets. It operates a nursery and a 160 hectare nucleus farm with over 38,000 mango trees where it raises seedlings and cultivates mangos. In 2000, ITFC started an outgrower scheme by providing technical assistance and extending interest free loans that are paid back when the trees begin to bear fruit. This aspect of the study sought to understand the operations of the ITFC and its outgrowers to assess the feasibility of out-scaling water management based contract farming systems.

Specific activities undertaken included a review of the contract between ITFC and Organic Mango Growers Association and an assessment of areas of conflict, the investment and operation costs of outgrowers' farms by activity, and the effectiveness of contract farming as a tool for rural development.

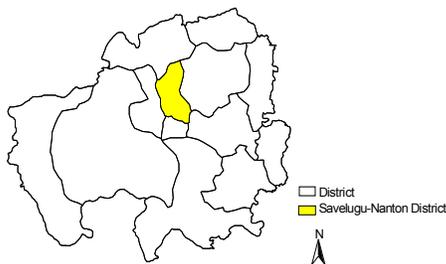


Figure 1. Map of Northern Region of Ghana showing the Savelugu-Nanton District.

Background of the project area

The project area is the Savelugu-Nanton District in the Northern Region of Ghana, with a population of 89,968 by the 2000 census figures (GSS, 2000). The district shares boundaries with the Tolon/Kumbungu District to the west, the Tamale Municipality to the south and the Yendi District to the southeast. Farming is the main economic activity, engaging 44% of the population. Other economic activities include retail trading (24%) and small-scale manufacturing (22%). Although only 1.7% of the residents are classified as unemployed, over 46% are classified as inactive. Thus, the percentage of people not working in the district is 48%. A large proportion of those engaged in trading and manufacturing are considered underemployed.

Lack of jobs and seasonal inactivity are the main reasons why people are economically inactive. The savannah climate of the area contributes to this situation because it creates a long season of inactivity in the agriculture sector, and this compels large numbers of young people to migrate south during the dry season to look for work.

Incidence of poverty

The incidence and depth of poverty is higher in Northern Ghana (Savannah Region) than it is in the south. In the rural parts of Northern Ghana where ITFC is situated, poverty affects whole communities and the problem is worse during the dry season. The most recent poverty data shows that the incidence of poverty nationwide had been reducing from 51.7% in 1991/92 to 39.4 in 1998/99 to 18.5% in 2005/06 (GSS, 2007). In the Savelugu-Nanton, poverty incidence based on the 1999 poverty line of GHC 900,000 per year (or USD363 per year) was 77% in 1999 prices. Rural poverty was even higher at 91%. The situation in the surrounding districts was similar: East Dagomba, East Gonja and Tolon Kumbungu have poverty incidence levels at 84, 85 and 90% respectively. Tamale, the regional capital, had the lowest incidence of poverty at 59%. Although current regional and district data is not readily available, the situation where the 1999 figures are reduced to even half are unacceptably high.

Poverty in Ghana has been attributed to low output levels, especially in the agricultural sector, which employs 62% of the population. Some of the key characteristics of poor populations are the tendency to have many dependants, few assets or safety nets to protect them against external shocks, and limited access to markets, credit, safe drinking water, health care and education (Table 1). The result is that poverty incidence is correlated with high levels of malnutrition, disease, disability and infant mortality and illiteracy rates.

Table 1. Some economic characteristics of the Savelugu Nanton District.

	Savelugu -Nanton	Tamale	National
Dependency ratio	105	81.0	76.0
Average household size	6.1	6.5	5.1
Agricultural employment (% of population)	60.5	29.1	47.7
percentage of households with improved water source	42.7	79.8	74.2
Adult literacy (% of population)	19.5	46.8	53.7
Youth literacy	39.3	64.6	69.4
Access to health facilities	54.4	57.3	57.6
Child stunted growth	37.1	38.3	32.4
percentage of households with unsafe toilet facilities	69.2	41.1	45.0
Type of housing unit (huts)	77.1	25.5	9.2
Type of material used in building (mud)	96.4	44.8	52.1
Thatch roofing	77.6	26.8	14.7
Main source of fuel for cooking (firewood)	91.8	45.0	56.6
Main source of fuel for cooking (charcoal)	8.2	50.1	32.0

Source: 2003 Core welfare Indicator Questionnaire and 2000 Population and Housing Census: Northern Region

2. POLICIES ON CONTRACT FARMING IN GHANA

Contract farming involves arrangements obliging a private firm or company to supply inputs (seed, fertilizer, chemicals etc.), extension services or credit facilities in exchange for a market agreement that fixes a price for the product and binds the farmer to follow a particular production method or regime of input requirements (Warning and Key, 2002). The potential for contract farming (also referred to as an outgrower scheme) as an impetus for agricultural development in Ghana cannot be supposed to have been exploited effectively, although it appears to have an increasingly important role for Ghana's agriculture. Contract farming represents a distinct form of farming in which African growers are incorporated into national and world markets (Little and Watts, 1994).

The immediate post independence (1957-1966) agricultural strategy adopted in Ghana was predicated on creating a "public sector peasantry" (Hill, 1977). The country experimented with the combination of industrial or nucleus estates and contracted smallholders in the sugar and tobacco industries (Okyere, 1979; Sofranko, Fliegel and Pletcher 1976). The government displayed a forthright preference for socialized production under the auspices of state farms. For instance, while peasant producers were encouraged to diversify their production by cultivating oil palm, no special institutions or programs were created to nurture this involvement. Consequently, the Agricultural Development Corporation and cooperatives crowded out private investment. This impacted negatively on inter-linked transactions and contract farming arrangements.

The era that followed (1967-1982) saw a period of political volatility with its attendant ambivalent effects on agriculture policy in general and contract arrangements in particular. However, it is important to note that food self-sufficiency, especially in rice and other

cereals, was achieved in the 1974-1975 period in response to policy initiatives in line with the Operation Feed Yourself and Industry programs. The program was dependent on large subsidies but achieved large production increases over a short period.

During the period 1983-2008, Ghana embarked on structural adjustments in response to economic downturns experienced in earlier years to restore macroeconomic stability, liberalise the financial sector and launch investment promotion measures. The Export Development and Investment Fund was established in 1991, Ghana Investment Promotion Centre in 1992, and the Ghana Free Zones Board in 1995. With particular reference to contract farming, current agricultural investments include a range of production methodologies for large-scale cereals and biofuel plants, and large-scale horticulture and plantation development of tree crops.

A survey of the policy orientation in terms of contract farming does not reveal any specific, clear cut policy statements, implementation instruments or monitoring mechanisms over the years. At best, the establishment of outgrower schemes is mentioned as a component for achieving the objectives of some projects. With the exception of oil palm and rubber, where classical cases of contract schemes were implemented after independence, quasi-contract schemes have evolved intermittently for the past three to four decades until recently with the advent of a few contemporary contract schemes.

Contract farming by crop types

With particular reference to contract farming schemes with or without nucleus estates, the following models were identified:

Biofuel projects

Ghana has no policy, regulations or structures in place for the biofuels industry but the country has become the jatropha centre in Africa south of the Sahara. There is literally a scramble for land in the country by multinationals and local companies in partnership with foreigners vigorously pursuing plans in the cultivation of the jatropha plant for its prized oil seed to produce biodiesel for export. Over twenty companies from various countries are in Ghana acquiring land to cultivate non-food and other crops, in conjunction with local farmers and companies, under varied arrangements for the production of ethanol and biodiesel, mostly for export. The companies come from Brazil, Italy, Norway, Israel, China, Germany, the Netherlands, Belgium and India (Dogbevi, 2009). They are cultivating fields in the Volta, Brong Ahafo, Ashanti, Eastern and the Northern Regions of Ghana and the main non-food crop is jatropha. Some of the biofuel companies have announced investments in jatropha to produce biofuels and have been making projections that are yet to be seen. For instance, Gold Star Farms Limited claims it will cultivate five million acres of land to plant jatropha for the production of biofuels for export. Accordingly it has commitments from farmers to enter into contract arrangements to grow the plant on approximately five million acres of land. It is not yet known if the company has produced its first liter of biofuel.

Horticultural crops

The horticultural export sector has become important to Ghana's agriculture in terms of generating income, especially foreign exchange, representing growth driven by the private sector. In recent years, pineapple has become one of Ghana's speciality products, driven

principally by innovative entrepreneurs in the private sector. The Ghanaian pineapple companies operate under different business models, ranging from medium-size local companies to cooperatives to joint ventures. They also operate at different stages of the value chain: some are producers, others are processors and exporters. Some players manage to integrate all these activities into their operations.

Despite the high concentration of activities among large pineapple exporting producers, smallholders, because of their sheer numbers, represent an important group. The bulk of their production is geared towards the local market and is also sold to large farms. In Ghana, smallholders and outgrowers are distinguished, although they both typically cultivate from one to 20 acres of land and often have limited access to inputs, mechanical equipment and training.

Outgrowers enjoy a somewhat informal relationship with the larger exporting and processing farms to furnish a supply of fruits (Morgane & Ravry, 2005), often without signing a legal document. The company advances the smallholder inputs in the form of seeds, chemicals and cash advances. On receipt of the fruits, the company pays the outgrower minus the cost associated with the inputs. This arrangement is often criticized by both parties: the outgrowers complaining of low prices for their produce; the companies complaining farmers defaulting at the promise of higher prices outside the agreement.

Smallholders represent the whole group of small-scale and family producers. They are not tied to an arrangement with a company. Their exact number is not known and fluctuates as pineapple production, a short cycle crop, tends to attract opportunistic players. Their production is absorbed by the local market and by processors and exporters who turn to them wherever they need to increase their production volumes. Frequently, but not systematically, they find the export market closed due to the low quality of their products. When offered access to this market, the price received is often too low and the payment cycle too long (Morgane & Ravry, 2005). There would appear to be an absence of a functioning and regularised model that could create an environment of trust through transparency and price information. It is also important to note that Ghana's pineapple sector is particularly well suited for the small-scale farmer. The initial investment is minimal; it requires primary labor and simple farm tools. Suckers are also readily available from other farms and can be purchased throughout the year. Finally, the proximity of pineapple growing regions to urban centres facilitates access to the necessary agrochemicals.

Pineapple production is a catalyst to the development of the horticulture export industry. First, the shift from air freight to sea freight provides space for other fruits and increased production of other fruits. A total of 120,000 tonnes of fruits were exported from Ghana in 2004 (Table 2). The breakdown is as follows:

Table 2. Ghana's fruit export in 2004.

Fruit	Volume (tonnes)
Pineapple	70,000
Papaya	3,750
Banana	725
Citrus	800

It is only in the production of mangoes that contract farming has been clearly identified. A novel development is exemplified in Tamale with the setting up of the Integrated Tamale Fruit Company (ITFC). This is a joint venture between Ghanaian interests and a well known Ghana-based Dutch company. The concept is based on contract farming whereby at the end of a two-year investment period, 2,000 growers will have been contracted to plant 100 seedlings each. The World Bank is participating in the scheme through a matching grant or the purchase of mango seedlings. The bulk of the volume will be planted with Kent and Keit varieties, but there will also be newer varieties with good market prospects originating from Israel and South Africa. Already the ITFC has obtained various fair trade and organic certifications and has targeted certain preferred markets through the Netherlands-based Agro Company. Although citrus is important, its performance has not been documented.

The vegetable sector

In 2004, Ghana exported more than 35,000 tonnes of vegetables, which is relatively small compared with 78,000 tonnes of fruits exported that year. The sector's growth is driven by movements to diversify from traditional crops to chillies, eggplants and yams. The production of these crops is concentrated in the hands of large exporters who own their plantations although they often supplement their production by purchasing directly from outgrowers or contract farmers through informal arrangements that are not legalized. Through similar arrangements, there has been an introduction of Asian vegetables, the Ghanaian export of which has been growing significantly since 1996. It has been led mostly by chilli peppers, a product traded in the United Kingdom's ethnic markets. The country is also growing eggplant ravaia, okra, tinda, guar, yard-long beans, gourds and marrows under varying arrangements.

Sorghum

The West African Sorghum Value Chain Development Project (Ghana) is a private-public sector partnership with the objective of developing a stable and high quality sorghum supply chain that will increase incomes of sorghum farmers and enable national beverage industries to substitute imported grains with locally produced sorghum. The stakeholders are Technoserve (as project managers), Guinness Ghana Breweries (as end-use) and a number of producers and suppliers, namely nucleus farmers with contract farmers, farming associations and companies, individual small-scale farmers, individual commercial farmers and sorghum purchasers. Other stakeholders are Venture Capital Fund and Sinapi Aba Trust as credit providers and the Council for Scientific and Industrial Research: Savannah Agricultural Research Institute (CSIR-SARI), to provide agronomic support.

The project is on track to achieve its objectives. A remarkable success has been achieved regarding the supply of sorghum to breweries for the partial substitution of barley malt. All the stakeholders are satisfied with their participation in the project. Farmers in Ghana are very enthusiastic about the project. Sorghum has been transformed into a cash crop for which there is ready market. Sorghum farming has become a profitable and secure agricultural venture. Economic incentives for all stakeholders are tangible. The project is making positive economic impacts on the livelihoods of farmers. For the service providers, there is increased business. Credit recovery is high with low risk of default. The breweries have access to a reliable local supply of a major raw material at a competitive cost. The

stakeholders have all realized the need for a sustainable value chain beyond the project implementation phase and are considering measures for its achievement.

The facilitation of private sector investment in warehousing, purchasing, treatment, storage and supply of sorghum has been identified as necessary for the sustainability of the supply chain. The project is being managed operationally and financially very well in Ghana and Sierra Leone. Funds are disbursed according to the budgetary allocations. There is timely release of funds by contributors. The rationale of the project continues to be relevant. There is increased production and industrial use of sorghum. Having successfully established the supply chain, the focus is now directed to ensuring its stability and quality. Traceability and food safety related quality issues need to be addressed. New farming technologies have been introduced and are being implemented.

Research activities are ongoing to establish the appropriate practices for adaptation as high yielding industrial sorghum (Table 3). The price offered by the breweries plays a critical role in maintaining the economic attractiveness of sorghum farming. The price needs to be revised along with the price of other cash crops cultivated by farmers and the rising costs of inputs which rapidly erode the farmers' margins. Drought and floods are real threats to production in Ghana. Trials are being made with rainfed irrigation systems to assess their viability. There is confidence that the project goals and objectives will be successfully achieved within the planned duration of project implementation. The project can already be described as a success for replication in other countries (WASVCD Project, 2008).

Table 3. Roles of principal stakeholders in the WASVCD project.

Stakeholder	Role
Technoserve	Project implementing agent, coordinates entire project
Guinness Ghana Brewery Ltd	Provides market
CSIR-SARI	Varietal Testing and technical backstopping
Nucleus farmers	Organize production Provide market and credit linkages Mobilize sorghum from contracted farmers Undertake cleaning, packaging & delivery to Guinness Supervises the production and supply of sorghum Intermediary between the primary producers and the rest of stakeholders
Contracted farmers (outgrowers)	Primary producers of the crop They produce and supply sorghum under contract to the nucleus farmer
Venture Capital & Sinapi Aba	Provide credit for inputs and related production activities Pay for inputs on behalf of farmers
Dizengoff	Supplies inputs Provide technical advice on safe use of agents
Tractor operators	Land preparation
Transport owners	Distribution of inputs Haulage of sorghum Haulage of inputs

Source: *West African Sorghum Value Chain Development Project, Mid Term Evaluation Report 2008*

Maize and soya

A USD 38 million dollar multi-purpose mechanized farm was established in 2007 on 22,000 hectares at Kwanim, a farming community in the Kwahu North District of the Eastern Region. The farm, known as the Kwanim Ghana-Denmark Farm Limited, is a joint private Ghana and Danish venture to cultivate maize, soya beans, water melons and pigs on a large scale for local consumption and export. The nucleus farm currently has a workforce of 200, a warehouse with a capacity of 10,000 tonnes to store maize, which would be sold locally to poultry feed producers. It has acquired farm equipment such as bulldozers, tractors, combined harvesters, and dryers as well as weedicides and fertilizers to enhance its operations.

Currently, a total of 1,000 hectares of maize cultivation, 60 hectares of soya beans and 20 hectares of water melons are under cultivation. The company is engaged in an arrangement with 1,500 farmers under which it provides inputs and assists in marketing their produce. The government provided 16 tractors through the Millennium Development Authority (MiDA) to enable the farmers expand their farm size (Source: <http://www.ghanadistrict.com/news>; <http://www.ghanaweb.com>).

Oil palm (GOPDC)

The first independent Government of Ghana (1957-1966) took an interest in promoting oil palm production to prevent the flight of foreign exchange and to generate capital. Peasant producers were encouraged to diversify their production by cultivating oil palm, with no special institutions or programs created to nurture this involvement. The net result was the Ghana State Farms Corporation that reported “up to and including 1963, the total acreage under oil palm was 6,126 acres. Yields from the acreage in production from 1963 were 3,103 tonnes of palm fruit, 1,142.58 tonnes of palm oil and 482.27 tonnes of palm kernels. By the end of 1964, a total of 8,469 acres had been planted, 4,120 tonnes of palm fruits were produced (Stafarm, 1964:14). Consequently, the Agricultural Development Corporation and cooperatives established with state resources crowded out private investment. This impacted negatively on inter-linked transactions and contract farming arrangements.

By 1972, palm oil imports had become an unacceptable drain on the nation’s coffers. In an effort to revive the deteriorating fortunes of agriculture in general, the government of the day initiated the Special Agricultural Scheme (SAS), an adjunct of the twin programmes Operation Feed Yourself and Operation Feed Your Industries. Under the SAS, private companies were prevented from repatriating their profits because of a severe financial crisis that had crippled the government’s ability to meet its transfer obligations and were asked to defer repatriation by ploughing their accumulated earnings into agribusiness ventures in partnership with the state or with private Ghanaian capitalists. In 1975, the Ghana Oil Palm Development Corporation (GOPDC) was established with the objective of diversifying agricultural production through the introduction of oil palm cultivation in an economy dominated by the production of cocoa and tropical wood (Source: <http://business.everythinghana.com>).

In 1995, GOPDC was privatised and sa Slat nv of Belgium acquired 60% of the company through Slat (Ghana) limited, a joint venture company with the Social Security and National Insurance Trust (SSNIT) and ATMF (Ghana) Limited. From then on, GOPDC expanded rapidly the area under cultivation and the installed processing capacity, as well as all related infrastructure. The company is an agro-industrial company specialized in the organic cultivation of oil palm and in the extraction of crude palm oil and palm kernel oil. It has 18,750 hectares of oil palm plantations at Kwae, in the Eastern Region of Ghana. The nucleus estate comprises 4,750 ha of industrial plantation, as well as a processing facility of 48 tonnes of fruit/hr and 45 tonnes of kernels/day.

The remaining 14,000 hectares are operated by contracted and smallholders farmers, located within a radius of 30 km around the nucleus estate. Under the contract, the contracted grower agrees to submit to the directives of field extension agents, comply with the agricultural calendar in the performance of such tasks as clearing land, burning, planting, weeding and the application of fertilizer. It is also the obligation of the smallholder to harvest only on designated dates and to carry the fruits to designated collection points by the roadside. Article 21 of the contract allows the GOPDC to repossesses the farm in the event of death or neglect, until all outstanding loans are paid. The land at the disposal of the contracted farmers is leased to them.

The lease is solely for the purpose of producing palm fruits for the company. The original project design anticipated that each contracting smallholder would be allowed 8 hectares of which 7 hectares will be devoted to oil palm production and the remaining would be used for producing staples to meet household food needs. While the “pioneer” smallholders were each allocated 8 hectares, late comers (those who contracted after 1981) were allocated only 4 hectares with 0.8 hectare earmarked for food production. The reduction resulted from a shortage of land following a government freeze on portions of the already expropriated land pending resolution of ongoing litigation and other forms of opposition by local residents.

Land clearing, burning, planting of oil palm and sowing puereria, a cover crop, are the responsibility of the grower. These tasks are onerous and require a great deal of physical strength or many farmhands. Hence, one of the key requirements for selection was that the prospective contractor should be married and have children living at home (the greater the number of children, the more attractive the candidate). The ideal family size for potential contractors was initially set at seven, a conjugal unit of husband, wife and five children. Signatories also agreed to “develop and maintain the farm in accordance with the conditions laid down by GOPDC from time to time” (GOPDC, 1982). For instance, the timing of the performance of certain tasks such as planting palm trees is set according to the timetable of GOPDC rather than the growers. Growers are expected to have completed planting by 30th July of the planting year. Food crops, especially cassava, are prohibited. The contract stipulates which tasks are compulsory for all smallholders (examples are inter-row weeding and puereria planting) and how often they must be performed (three times in a year at four month intervals) as well as which tasks are obligatory.

For its part, GOPDC provides such services as surveying and pegging and it employs chainsaw gangs to log trees. The company also provides seedlings for cover crops, fertilizer, wire nets and field boots. Collection of fruits harvested by contracted growers and placed in designated spots within a twenty kilometre radius of the estate is GOPDC’s responsibility. This service, like the inputs, is provided at a cost and deducted from smallholder-outgrower sales.

Twifo Oil Palm Plantation (TOPP) and Benso Oil Palm Limited (BOPP) are two other companies involved the industry. The latter is a crude oil palm producing and processing company. It was incorporated in January 1976 jointly by Unilever PLC and Government of Ghana as a private company limited by shares to produce crude oil palm. The company was listed on the Ghana Stock Exchange in August, 2004 and converted into public liability company in 2004. It is authorised to conduct the following business activities: growing oil palm and other agricultural products, processing oil palm fruits to produce palm oil and palm kernels, and dealing and trading in palm oil, palm kernels and other agricultural products. BOPP is in the Mpohor Wassa East in the Western Region where the plantation is 42 kilometres from the capital Takoradi. It has had challenges developing its 2,000 hectare of land meant for contract farming at Adum Bansa due to a protracted chieftaincy dispute. Management has therefore embarked on a drive to get landowners in the Wassa Mpohor East District to offer contract arrangements to improve the raw material supply base of BOPP.

The Twifo Oil Palm Plantation (TOPP) has a total of 4,234 hectares of oil palm in the Twifo-Hemang-Lower Denkyira District in the Central Region. The company has a processing capacity of 20 tonnes of fresh fruit bunches an hour. The company was initiated by the Government of Ghana in 1977 with a loan from the European Union, CDC, FMO and the Netherlands Government. The nature of the business it is authorised to carry out includes growing oil palm, processing fruits to produce oil and palm kernel and other agricultural products. The major shareholders currently are the Government of Ghana and Unilever Ghana Limited. The estate is situated at Twifo Ntafrewaso/Twifo Mampong area. The company is currently registering plantations of its outgrowers and smallholders whose fruits are bearing, with the view to giving them technical advice and financial support to maintain their farms. It is also embarking on a drive to get more oil palm plantation owners to join its contract scheme, having realized that crops purchased outside its production area have been dropping significantly as a result of many farmers refusing to sell to the company due to higher prices offered by their competitors and hence the company has had to travel far in search of supplies.

Rubber (GREL)

The Ghana Rubber Estate Limited is located in the Western Region, 35 kilometres from Takoradi along the Axim Road. It is the largest and only rubber plantation in the Western Region and the only natural producer in Ghana. The company started as a private plantation established by R. T. Briscoe in 1957 at Dixcove in the Western Region with a plantation size of 923 hectares. The plantation was nationalized into the Agricultural Development Corporation (ADC) in 1960 and later, State Farms Corporation in 1962. At that time, the rubber plantation had expanded to 36,390 hectares in Dixcove, Abura and Subri. The Ghana Government, in 1967, established a joint venture company with Firestone Tyre of the United States of America to take over the rubber plantation. This joint venture was Ghana Rubber Estate Limited (GREL). By then, the plantation had expanded to 39,390 hectares. It became wholly state owned in 1980 when Firestone sold its shares in GREL to the Ghana Government. However, the Ghana Government entered into a financing agreement with the then Caisse Francaise de Development (CFD) now Agence Francaise de Development to rehabilitate and manage the company's rubber plantation and to build a new rubber processing plant at Apimenim. After the rehabilitation in 1996, the French management company SIPH became the major shareholder of the company.

The production capacity of natural rubber is declining due to the age and quality of trees because most of the plantations were planted in the 1950s and the rate of replanting is slow coupled with the fact that GREL does not have the land to expand its cultivation. Also, in the rubber industry, 80 to 90% of rubber produced is coming from small farmers. The Rubber Outgrower Unit (ROU) was therefore introduced to meet the high demand for natural rubber in addition to giving economic empowerment to smallholder farmers to alleviate poverty. The ROU manages the Rubber Outgrowers Plantation Project and was launched in 1995 to assist smallholder farmers interested in the cultivation of natural rubber. Its intent is the economic empowerment through rubber cultivation for sustainable rural community development to alleviate poverty. Specifically, the mission of the ROU is to deliver quality extension services to rubber outgrowers through innovative technology by motivated staff; to enable outgrowers to earn a sustainable income, enjoy a better standard of living and to

contribute to national development; to collaborate with all stakeholders to effectively and efficiently use public funds to improve living standards in rural communities.

The ROU begun with 400 contracted farmers or outgrowers who were assisted to plant 1,200 hectares over a 5-year period instead of six years. Over the period, 3,500 hectares of old plantations of individuals and cooperative were established as against the target of 1,300 hectares. Consequently, purchases from contracted farmers peaked above 1,000 tonnes per annum. To facilitate the transportation of the produce, a total of 41 kilometres was constructed. This phase of the project was financed by Agence Francaise de Development (AFD) and IDA/World Bank. The Agricultural Development Bank (ADB) Ghana Limited gave credit to the growers. During the second phase, launched in 2001, 2,855 hectares were planted instead of 2,800 hectares. An additional 500 contracted farmers were selected, 20 kilometres of roads were constructed to the farms, and the Rubber Outgrowers and Agent Association (ROAA) was organized to become a major stakeholder in the rubber industry through a contract agreement with Institution and Development, a nongovernmental, research organization of outgrower fields entrusted to CIRAD. During the period, 83 trailers were purchased, 73 of which were to serve the outgrowers and 10 to service the factory. Financing was by AFD and the Government of Ghana. Again, the ADB provided credit to the farmers.

The project entered a third phase with the selection of an additional 1,750 contracted farmers to plant 7,000 hectares between 2006 and 2010 according to the following distribution (Table 4).

Table 4. Distribution of contracted rubber outgrowers.

Location	Number of outgrowers	Hectares
Western Region	1,250	5,000
Central Region	500	2,000
Total	1,750	7,000

During this stage, a credit facility was provided to enable farmers to develop their plantations. Applied research was carried on outgrowers' fields to increase productivity. The Rubber Outgrowers and Agent Association was strengthened and spot improvement of 70 kilometres of roads undertaken. As at June 2009, a total of 1,300 contracted farmers were assisted to plant 5,545.58 hectares in the Western Region. Similarly, 500 farmers were assisted to plant 1,567.47 hectares in the Central Region. Thus, cumulatively, 1,800 contracted farmers have so far been assisted to plant 7,113.05 hectares. The third phase was financed by the National Investment Bank (Ghana) Limited.

Within the ROU, two schemes are operated: 1) Rubber Outgrower Project. Under this scheme, smallholder farmers with a minimum of land are assisted to develop rubber plantations through financial assistance from the banks (ADB) and NIB in the form of loans to buy inputs and also to maintain the field; and 2) Self-financed outgrowers (SFO) who finance their rubber plantations from their own resources.

With a minimum of 10 hectares of land, the ROU of GREL provides technical assistance and advice. To join the scheme, a farmer has to apply, stating the type of scheme he/she desires

to join, the size of the farm, and the ownership title and the location of the land to the authorities (Source: <http://www.grelgh.com>).

Cotton

According to the MOFA, Ghana has the potential to produce 250,000 metric tonnes of lint cotton in the medium term. This would require the involvement of 500,000 farmers in cotton cultivation across the three northern regions of the country. At the current world market prices averaging USD 2,500 per metric tonnes, the three northern regions could have earned an income of USD 625 million during the 2010 crop season. The government launched the cotton “White Gold” campaign in the Northern West Zone of the Upper West Region in February 2011 with the target for the year 100,000 farmers in cotton production to benefit from the impressive world market price of lint cotton. Under the programme the government has embarked on a cotton sector revival programme and had zoned the cotton belt into three areas and assigned three companies for production.

The North-Eastern Zone has been allocated to Wienco Ghana Limited in partnership with Geo-Cotton, French Company. It covers Kasina-Nankana, Tongo/Nabdam, Bawku West, Bawku Municipality, Garu-Tempani, Bongo, Builsa, West Mamprusi, East Mamprusi, Buunkpurugu, Gushiegu, Saboba, Chereponi and Zubzugu. Olam Ghana Limited has been allocated the North-Western Zone, covering Sissala East, Sissala West, Jirapa, Lambussie/Karni, Lawra, Nadowli, Wa East and Wa West Districts and Wa Municipality.

Plexus, in partnership with Amajaro Ghana, Bimbilla, Wullensi, Salaga, Bole, Damongo, Buipe, Sawl-Tuna-Kalba and Kpandai districts as well as Yendi Municipality and Tamale. In addition, the Ghana Cotton Company Limited would no longer be involved in the production of seed cotton, rather the company and other private ginneries previously involved in cotton production would now concentrate on ginning cotton supplied to them by the three companies under tolling arrangements. Furthermore, the Ghanaian government would not permit the establishment of new ginneries until the maximum use of the present national installed ginning capacity of close to 90,000 metric tonnes of lint cotton is met.

The sector minister announced the World Bank and other partners were ready and willing to fund programmes for building strong farmer organizations across the cotton zone for effective dealings with the private companies operating in the zones. The government had also sought for international cooperation and support from UNIDO and the Cotton Institute of Egypt to partner with the Council for Scientific and Industrial Research of Savannah Agricultural Research Institute and the Ministry of Food and Agriculture to improve seed varieties and agronomics. The World Bank is also expected to fund the establishment of a Cotton Secretariat, with experts to help in the revival effort while rural infrastructure, including the rehabilitation of roads in cotton zones, can be developed to support the cotton sector.

The government will soon convene a meeting of a Cotton Price Fixing Committee composed of private companies, development partners and leaders of the farmers’ organization to begin negotiations towards the determination of the minimum price of seed cotton in the coming season.

The MOFA had assured private companies of the government's determination to support them and take all appropriate steps to protect the interests of the companies and of the farmers for mutual benefit. In return, the companies are to strictly adhere to government's policy measures and make cotton the "gold" of the north.

2.1. Water management based contract farming schemes in Ghana

With the exception of the Integrated Tamale Fruit Company where contract farming was based on water management arrangements, information on no other existing water management based contract farming schemes or investment could be found in the literature surveyed but in fulfilment of its commitment to increasing private sector development and agricultural capacity in line with its vision of Ghana as a prosperous middle income country by the year 2020, the government in the course of its Food and Agricultural Sector Development Policy II (FASDEP II) included plans to modernize the agriculture sector through strengthening value chains, enhancing productivity, improving quality standards and promoting public-private partnerships.

In this regard, the Millennium Development Authority (MiDA), a unique government entity positioned to provide additional support for investment opportunities in the agricultural sector, has proposed two contract farming models that would be water-managed to take advantage of the large number of farmers who already have experience in chilli production and are willing to work with investors. The first, Kotoso Community in the Kwahu South District of the Eastern region, located on the shores of the Volta lake, approximately four hours drive from the Kotoka International Airport along paved roads, is comprised of four Farmer Based Organizations (FBOs) totalling 200 farmers (50 farmers per FBO) currently producing chilli peppers, okra, watermelons and maize on their farms. The group has more than 1,200 acres of land with access to water resources controlled by a local chief and available for lease to investors. The second, Kua Community near Sogakope in the South Tongu District of the Volta region is located adjacent to the Ankor River 1.5 hours drive from the Kotoka International Airport. This 45 member FBO is currently producing chilli peppers, maize and cowpeas. They are well organized and trained in the chilli pepper value chain and business skills. There are approximately 600 acres of land available to investors owned by three families willing to negotiate with investors for long-term leases to attract a nucleus farm operation.

MiDA projections in connection with the proposed contract farming models indicate that for a 250 acre nucleus farm with 100 contract farmers for export of chilli peppers, an internal rate of returns (IRR) yield of 256% is forecast with a projected annual revenue of GHC 9.8 million (USD 7.0/million) in year 1, and net profit of GHC 4.5 million (USD 3.25 million) as the operation scales up, with an estimated revenue increment to GHC 19.7 million (USD 14.0 million) and profit of GHC 9.6 million (USD 6.8 million) by the third year of operation. Such a high IRR is achievable because chilli pepper production does not require a large initial capital expenditure. Indeed, the nucleus farmer is projected to reach the breakeven point within a year after starting the operation.

MiDA proposes that investors can leverage the land holdings and experience of the proposed contract farmers by boosting their production output through introduction of productivity-enhancing inputs. Under a typical contract scheme, a nucleus farm will

supplement its on farm production by purchasing supplies of chilli peppers from contract farmers who produce on their own land under contract for price, quantity, quality and other specifications. The nucleus farmer will contract to purchase the outgrowers crop subject to meeting predefined standards and provide them with inputs such as seeds and fertilizers as well as technical assistance for the purpose of quality control.

3. METHODOLOGY

3.1 Types and sources of data

To accomplish the objectives of the study, both primary and secondary cross-sectional data were used. The primary data were obtained using questionnaires, interview guides and interactions with stakeholders to elicit their opinions on various aspects of contract farming. Fieldwork was carried out over a one month period (November to December 2010) during which interviews were conducted with the management of ITFC and representatives of the Outgrowers Association.

In addition, 255 household heads were selected randomly for interviews. Those households fell within one of two categories: ITFC contracted farmers and non-contracted persons living in the same village or town. An individual questionnaire was administered to the head of those households, with the objective to generate information on a range of aspects of contract farming.

Data was also collected on household assets. This included access to basic needs (running water, toilet facilities, and electric power), ownership of assets (bicycle, TV set, refrigerator, and mobile phone). Comparisons were made among the two groups and with national as well as rural savannah averages. Similarly, the possession and types of housing unit and number of rooms and savings status were also compared with the national and rural averages. Finally, a series of questions focusing specifically on contract farming (challenges, constraints, perceptions, problem rankings, impact, investment and operational costs, etc.) completed the questionnaire.

Visits were also made to both nucleus and nursery farms of the ITFC, water pumping facilities and some contracted famers' plots, to learn more about their operations. Secondary data on national policies and water management based contract farming experiences in Ghana were sourced from both published and unpublished sources.

3.2 Types of analysis

The responses obtained from the stakeholders were collated and analyzed using descriptive, financial and economic tools. The Statistical Package for the Social Sciences (SPSS/PC+) was also employed in the analysis.

Constraints, concerns and complaints of respondents in contract farming were prioritized by using Garetts ranking techniques in the following manner: percentage position = $100 (R_{ij} - 0.50)/N_j$. Where R_{ij} is the rank given for the i^{th} item by the j^{th} individual and N_j is the number of items ranked by the j^{th} individual.

The percentage position of each rank was converted into scores using Garret table. For each constraint, scores of individual respondents were added together and were divided by the total number of respondents for whom scores were added. Thus, mean score for each constraint was ranked by arranging them in the descending order.

4. RESULTS

4.1 Contract between ITFC and organic mango growers

ITFC has a nucleus farm covering 160 hectares of land and populated with 38,000 mango trees. The farm is located 10 kilometres from Gushie. The farm is run using hired labor and extensive mechanization. In addition to the nucleus farm, the management of ITFC has decided to introduce farmers to a new crop which requires considerable upfront commitments particularly in terms of time and effort but with a long and profitable payback period.

Rationale for establishing a contract scheme

Major considerations that influenced the decision to undertake the contract scheme include the following:

Reducing average cost of operation

The different aspects of the operations of ITFC require some minimum fixed cost. This includes the newly constructed drying facilities and a pack house for packing the mangoes for export. The volumes expected from the outgrowers will assist the ITFC to reach economies of scale and reduce average costs of operations.

Accessing greater productive capacity

The 160 hectares of land used for the establishment of the nucleus farm was at a great cost to the project. Thus, acquiring an additional 2,000 acres to grow organic mangoes would have been an extremely difficult proposition. Individual families with customary land titles own most of the land in the area, and in Ghana as a whole. Acquiring over 2,000 acres of land would have required dealing with many individuals, families, family heads and chiefs. Operating the contract scheme helps the project increase production capacity without having to purchase additional land at considerable cost.

Commanding greater market power

The project considers the contract scheme as a way of getting the required volumes to enable it to command a higher degree of market power in the organic export markets. Market power is directly related to the volume of exports. The 2,000 acres of extra mango production from the contract farmers (each farmer cultivating an acre) can provide a maximum output of 24,000 tonnes of mangoes. In the less optimistic case, half to 70% yield from the contract farmers alone will provide 12,000 to 17,000 tonnes of organic mangoes. This is still significant given that in 2001 the total export of mangoes to the European Union was 120,000 tonnes. This will certainly give ITFC increased power in the organic mango market in Europe.

Corporate social responsibility

The organic mango contract scheme was seen as part of ITFCs corporate social responsibility to reduce poverty in the project area which has a high rate of poverty.

4.1.2 Nature of the Contractual Arrangement

The nature of the contractual arrangement between the ITFC and individual outgrowers is summarised below:

- A commitment fee of one 85 kg bag of maize is required from the outgrower (currently valued at USD 23.50) to begin the process of working with ITFC;
- ITFC gives the outgrower farmer an interest free loan. This is not a cash loan but comes in the form farm inputs such as cutlasses, bags of manure, provision of irrigation facilities, seedlings and technical assistance;
- ITFC helps farmers get licences and certification, a requirement for organic export markets; one of the key certifying organizations is the Soil Association, based in the United Kingdom;
- The outgrower has a four-year grace period to begin repaying the value of the loaned inputs; this means the outgrower only starts repaying the loan in the fifth year;
- From the fifth year onwards, the outgrower pays 30% of his/her sales to ITFC until the debt is repaid; the outgrower is expected to pay the Ghanaian Cedi equivalent of the US dollar amount of the loan;
- Until the outgrower repays the loan, all mangoes he/she produces must be sold through the ITFC. After the outgrower finishes paying, they are free to sell to ITFC or any other buyer they choose.

Table 4.0 provides a schematic overview of the division of labor between the contracted farmer and ITFC for the cultivation of mangoes. The ITFC outgrower scheme started in 2001 with the key objective of reducing poverty by providing the local people with a sustainable income-generating venture through organic mango production. The scheme provides the interest free loans to the outgrowers in the form stated above. Currently, the ITFC management has restricted membership to 1,300 outgrowers to address organizational challenges. The company anticipates a further expansion once those issues resolved.

Table 4.0. Division of labor between farmers and ITFC for mango production.

Obligations of the farmer	Obligations of ITFC
Year 0 (year of planting) Clearing land	Determine the suitability or otherwise of the plot
Preparation of land for transplanting seedlings	Establish layout and spacing of seedlings
Application of manure	Provide manure to farmers
Planting mango seedlings	Provide seedlings for planting
Sowing intercrops	Assist in the transplanting of seedlings
Harvesting intercrops	Provide seeds of intercrops on loan to farmers Provide technical advice
Year 1 Slashing during the raining season Protection of crops against grazing livestock Protection of crops against wild fires Pruning branches	Supervision of operations Pruning branches
Year 2 Slashing during the raining season Protection of crops against wild fires Pruning branches	Supervision of operations Pruning branches
Year 3 Slashing during the raining season Protection of crops against grazing livestock Protection of crops against wild fires Pruning of branches Harvesting fruits	Supervision of operations Pruning branches Harvesting fruits

Each farmer has one acre of land to cultivate with 100 mango trees. Prior to planting, the ITFC determines if the land qualifies for organic mango production. Due to the long dry season in the northern parts of Ghana, pest control is relatively easy.

Osei (2007) reported two major challenges ITFC encountered in starting the outgrower scheme as changing attitudes, introducing new farming practices, and low literacy rates. Farmers in the area have had orientation different from the one required for contract farming in particular and commercial farming in general. Reorienting farmers to adopt new farming practices and conform to organic standards demanded by the export market required appreciable effort. Compounding the difficulty is the generally low literacy rate in the area. Thus, educating farmers on best practices required enormous effort due to the absence of successful firsthand examples of contract farming arrangements.

Farms planted with mango trees can be found mainly around villages in the Savelugu-Nanton District in the Northern Region of Ghana. The villages include Nabogu, Dipale, Gushie, Libga, Dinga, Tigla, Tunayilli, Diare East, Diare West, Pong-Tamale, Savelugu, Kumbungu, Karaga, Janga among others. Each outgrower farm is currently provided with a drip irrigation facility with the ITFC having to phase out water tanks previously installed on the farms. To strengthen local participation in the management of the scheme, the farmers are organized into an association known as the Organic Mango Outgrowers Association (OMOA). This association plays an intermediary role between ITFC and the contracted

farmer; it is also the farmers' advocacy platform. Appendix 1 contains the constitution governing the OMOA. It meets quarterly with its members and monthly with ITFC management.

OMOA begun with funding from ITFC and later from the government through the Agricultural Sector Improvement Project (ASIP), The African Development Bank and nongovernmental organizations CordAid, Senter and Wienco. The ultimate aim is for the OMOA to become self-sustaining with contributions from its membership. The current monthly contribution per member is less than five US cents.

4.1.3 Management of ITFC

Interactions with management of ITFC revealed the following:

Charges and water allocation

The official full cost of the outgrower's operation is borne or charged to the outgrower's account. It does not include profit or interest payments. Specifically it is comprised of inputs costs such as water charges, seedling cost, fungicide (Nordox) and a technical fee. Annually this comes to USD 120.00 per farmer.

In terms of water allocation, 500 outgrowers currently benefit from irrigation schemes comprised of pumps connected to drip irrigation tubes, almost 800 outgrowers have been disconnected from the irrigation system because their mango trees are more than 3 years old and surviving. On its nucleus and nursery facilities, the ITFC uses water from the White Volta pumped from U-weirs constructed at Nabogu. Both drip and micro-sprinkler irrigation systems are adopted on the nucleus farm and nursery respectively.

Sources of capital and shareholding status

The Government of Ghana's contribution to the capital of the project is the building that currently houses the offices of the ITFC and OMOA, this was built under the ASIP; the World Bank contributed 50% of the seedling cost to outgrowers as a grant whilst the UNDP, CORDAID and ADF have strengthened OMOA to build capacity. In addition the project was connected to the national grid with through the assistance of the Millennium Challenge Account.

In terms of shareholdings, government has no shares in the company. The largest shareholder of ITFC, with a 50% of shares is Wienco Ghana Limited, a leading Ghanaian fertilizer and agrochemical manufacturer. The next largest shareholder with a 30% shares is Comma, a Dutch company. The remaining shareholders are Tamale Investments (a collection of local Tamale-area investors) at 5%, African Tiger Mutual Fund (a Ghanaian Investment company) at 5% and Alhaji (the chief of Nanton) at 10%.

Economic and Welfare benefits

The company offers direct employment to 240 permanent staff, 100 persons on casual basis and income support to local suppliers. ITFC offers HIV education and sensitization for staff and farmers. It is obligatory for staff to undergo HIV tests every 6 months. It also supports anti-malaria campaign efforts of the government in the district.

As a social assistance mechanism, essential for overcoming intergenerational transfer of poverty, ITFC in 2004, introduced a project known as Children to School Project (CTSP) to support children in deprived communities to pursue education. To achieve this goal, it set out to sponsor teachers to teach in rural schools, provided four teacher's bungalow accommodation for 24 teachers, instituted a feeding programme for the children (currently, for 1200 school children are beneficiaries), and provides teaching and learning materials to the schools. Another novelty the company is involved in is supporting the Parent Teacher Associations to plant five-acre mango farms for each school in the area; income from these farms will be used to support the CTSP.

In addition, it assists through regular health checks, provision of medication and the organization of sporting activities, to improve the health of school children. Indeed, the CTSP has grown into a nongovernmental organization that is currently sponsoring 11 teachers to teach voluntarily in four basic schools in four communities in the Savelugu-Nanton District that the ITFC has adopted. These are Dipali, Gushei, Tunayili and Tiglasu Tampia. Furthermore, regular training programmes are organized to refresh the teacher's skills and increase their output. Aside of these achievements, the CTSP had launched a scholarship programme to motivate children from the four communities to improve their performance.

The scholarships come in two categories; the general and the competitive. Under the former, all school children transiting from primary to junior high schools are given a support package that includes books, pens and pencils, school bags and T-shirts. Under the competitive category, each year two children, male and female, from each of the four communities who perform to meet a set target gets sponsored to pursue a senior high school education. As at the beginning of the 2010/2011 academic year 120 student are beneficiaries. Those beneficiaries who sustained or improved upon their performance continued to receive sponsorship till they complete tertiary education. The sponsorship entails payment of school fees, provision of learning materials and pocket money for spending.

Environmental consequences

As far as management is concerned there have not been any complaints from the local people disease outbreak resultant of ITFC activities, rather ITFC has been assisting in educating local people the need to prevent guinea worm infestation through the provision of sign posts to caution against the dangers of acquiring the disease. Similarly, no adverse environmental concerns ITFC activities had been reported rather the people living around ITFC U-weir sites such as Nabogu report of bumper fish harvest since the placement of the structures.

Impact of project on selected indicators

A subjective assessment of the impact of the ITFC outgrower relationship on the stated indicators by management of ITFC is provided in Table 4.1.

Table 4.1. Responses of management on impact of the project on selected indicators.

Indicator*	Local level	Municipal level	National level
Employment	1	2	4
Income and income distribution	2	2	4
Export trade	2	3	1
Value addition to produce	1	1	1
Contribution to food supply	2	2	3
Share in market	2	2	3
Development of educational infrastructure	1	2	4
Social cohesion	2	3	4

* 1: Very effective; 2: effective; 3: somewhat effective; 4: not effective

From Table 4.1, the opinion of management indicated that the project has been at least effective on the local level in terms of all the indicators. On the national and municipal levels it has been effective as value addition to mango products.

Constraints

In the opinion of ITFC management, the following snags must be surmounted to enable the potential of the arrangement between the ITFC and contracted farmers to be fully realized:

- Prevention of wild fires;
- Solving the problems of non-flowering in mature mango trees;
- Improvement of yields to the anticipated levels;
- Education of farmers on the good mango cultural practices;
- Motivation to enable farmers to continue to work hard;
- ITFC management being continuously opened to the farmers and allowing them to observe results obtained on the nucleus farms too.

Relationship with other mango producers

With the exception of providing seedlings and advisory services to the African Development Foundation, ZOVFA and OXFARM (before they pulled out of Ghana), ITFC has not had any relations with other mango growers in the country.

Managements View on the ITFC model

In the judgment of management, the ITFC model of having a nucleus and outgrower farm is by far better than having only an outgrower scheme because as a private firm with its own fixed assets, their objectives are much different from those of NGOs and purely profit oriented entities.

4.1.4 Executives of the Organic Mango Outgrowers Association (OMOA)

Profile

OMOA formed in 2001, to mobilize farmers who are into the business of cultivating mango for the export market; to play an intermediary role between farmers and ITFC management etc. Membership is opened to all organic mangoes outgrowers. To become a member one has to register after paying the commitment fees required by the ITFC. Basically OMOA resolves conflicts between its members on one side and ITFC on the other, and between its own members. Indeed the association does not even keep records of the performance of its

members. Currently there are 1300 members however, ownership of farms keep on changing hence, it is difficult at any particular time to determine the exact status of a member as well as sex ratios of the members.

The minimum age of a grower member of OMOA is 18 years and the maximum is 70 years. The 18-35 year group appear to be the dominant group. It is however, difficult to know all members because their settlements are widely scattered in the district and members are not regular at meetings.

The association has no records on the literacy attainment of its members. All members are part time organic mango farmers cultivating an acre each of the crop. In accordance with the terms outlined in the contract all members undertake organic farming practices that prohibits the use of pesticides and chemical fertilizers. Only organic manure - chicken manure plus vegetative matter compost or mixture are applied to improve soil fertility. Currently, only 35% of the members have started harvesting mango fruits.

Funding sources

A member is expected to pay monthly dues of GHC 0.20 (USD 0.13). The major source of funds for the running of the association is from donor agencies like African Development Foundation and CordAid. The UNDP has also supported a group of 100 members in the Mamprusi area to cultivate organic mangoes. Government support has been in the provision of the office facility that currently houses the association. It was constructed under the Agricultural Sector Investment Project.

OMOAs Views on the contract

In addition to following the major arrangement with ITFC, members of OMOA are to adopt only acceptable organic farming practices and are not to set up parallel mango plantation with different funding whilst engaged with ITFC however, any farmer who wishes to establish an analogous plantation can located at least 200 kilometres from the nearest ITFC sponsored farm. OMOA has no differences with these terms.

Indeed, membership of the association is generally content with the contract they have with ITFC. The two main factors that they cite for their satisfaction all relate to the credit facility that they get from ITFC: the access to the interest free loan and also the repayment terms, which they think is fair. Since the start of the outgrower scheme, there have not been major conflicts with ITFC. Minor disputes such as ITFC increasing the cost of water supplied to the outgrowers, have been resolved through discussions with ITFC. OMOA has generally been satisfied with explanations given by ITFC that increases in cost were necessitated by the increases in petroleum prices in the country.

Termination of membership

On withdrawals, the association facilitates the changeover of ownership through the ITFC especially in situations where members could not get persons from their own families to take over. In few cases farms have been abandoned by members who become victims of wild fires without prior notification to either OMOA or ITFC.

Proposals for reforms

In its dealings with the ITFC over the years, the provisions OMOA finds problematic are:

- a. The clause which states that “25% of the value of sales must be paid to the farmer within 24 hours of delivery of produce”. In the opinion of OMOA, the yields being obtained currently are low by all standards, hence, the percentage is rendered negligible and unattractive to outgrowers and therefore needed a review;
- b. Members funding their labor requirements. According to the executives, the operations are labor demanding and the key challenge outgrowers face is additional credit to hire labor. They indicated the need for additional hands to help on their farms and since not all of them have access to the use of unpaid labor of kin from their immediate family and the typical outgrower cannot afford to pay for hired labor or tractor services available at a fee of GHC 20.00 (USD 13.33) per acre from their own source, ITFC should consider the inclusion of labor as part of the loan package.

Economic and Welfare benefits

The OMOA acknowledged the efforts of the ITFC project in:

- The creation of employment avenues that has subsequently minimised the drift of the youth in its operational area to the urban centres for nonexistent jobs;
- The improvement of income status of rural folks;
- Provision of incentives, facilities to boost up the educational standing of its operational area;
- Health education and the provision of basic health services and items;
- The establishment of school mango plantations and school feeding programmes;
- Supporting Parent Teacher Associations to plant five-acre mango farms for each school in the area; income from these farms being used to the benefit of the locality.

According to the executives other benefits are access to affordable inputs, decreased land degradation and putting idle land to good use. These are surely drivers of human development in the area.

On the individual level, OMOA is of the opinion that member’s farm assets have generally remain the same since joining the scheme but a few have made improvement in their housing status. The extent of members’ possession of basic household items like radio, mobile phones etc may have improved but not resultant from their engagement with the project because most of the mango trees are still at tender stages. Similarly, members’ source of income generally, has remained the same and with no change in saving status.

OMOAs Outreach activities

The OMOA was active in educating and convincing the local communities who expressed apprehension the destruction of Shea tree *now Vitellaria paradoxa formally Butrysperrum paradoxium* to make space for mango cultivation. The association allayed such fears by demonstrations on plots that proved that one is not likely to obtain 100 Shea trees per acre. It also encouraged persons to as much as possible employ only degraded parcels of land for mango cultivation.

Determinants of participation in the scheme

OMOA indicated that in deciding to participate in the scheme, members considered cash earnings, loan availability, land requirement and availability of technical knowhow as important.

Environmental consequences

The executives of OMOA indicated that in addition to providing them with cash crop and direct income, the project also complements reforestation of the area. The application of manure to promote the growth of mangoes would guarantee that their soils are protected for the benefit of posterity.

Impact of project on selected indicators

A subjective assessment of the impact of the IFTC – outgrower relationship on the stated indicators by the executives of OMOA is provided in Table 4.2.

Table 4.2. Responses of management on impact of the project on selected indicators.

Indicator*	Locality level	Municipal level	National level
Employment	2	2	3
Income and income distribution	2	3	4
Job satisfaction	2	4	4
Cash readiness to members	1	4	4
Export trade	1	3	3
Value addition to produce	1	2	3
Acquisition of basic household items of members	2	2	3
Contribution to food security	1	1	3
Share in market	1	1	3
Development of local educational infrastructure	1	2	3
Social cohesion	1	3	3

*1: Very effective; 2: effective; 3: somewhat effective; 4: not effective

From Table 4.2, OMOA is of the view that the project has been at least effective on the local level in terms of all the indicators. On the local and municipal levels mango production it has been very in contributing to food security and market share development.

Constraints

On challenges that must be surmounted to enable the full potential to be realized, OMOA indicated the following:

- Improvement of variety to yield within the shortest time possible;
- Encouraging farmers to adhere to technical advice, maintain their farms and not to leave them at the mercy of wild fires;
- Encourage old folks to handover their plantations to the younger folks and hearten members to preserve in the face of low yields;

Relationship with other mango producers

OMOA has no relationship with any other mango farmers association.

OMOAs View on the ITFC model

Finally, OMOA is of the opinion the model is worth adopting since it will ultimately lead to an improvement upon the ecosystem of the area in addition to other benefits. It will also lead to other forms of support and investments as multipliers. However, the inability of mango trees to respond as expected has been of great concern to its members.

4.1.5 ITFC Contracted Farmers and Non-ITFC Farmers

Socio-demographic profile

A total of 255 persons responded to questionnaires administered to inhabitants of the ITFC project area. This was made up of 191 contracted farmers and 76 non-ITFC growers. Males dominated both groups with 85.8% (n = 175) and 84.4% (n = 54) representation respectively while females were represented as 14.2 (n = 29) and 15.6% (n = 10) respectively.

There was also the dominance of illiterates in both groups at 86.2% among contracted growers and 65.6% in the non-contracted group. Only two university graduates, 12 secondary/technical school leavers, and three teacher training college leavers were identified among the contracted farmers. In addition the group is comprised of 139 ordinary members of the community (representing 68.1%); twenty – seven (27) community elders representing 13.2%; Five (5) chiefs and executive members of local committees each and four youth group leaders. Clearly, it could be inferred that contracting ITFC growers has not been hijacked by the educated elite or privileged persons in the communities. The restriction on the size of land to one acre, to qualify one as a grower coupled with distance and transportation difficulties may have discouraged persons from the big towns and therefore, precluded any considerable representation by societal influential persons.

The data shows that 83.3% (n = 159) of ITFC contracted farmers were full-time farmers and 15.0% (n = 31) were part time farmers. However, none was a full-time organic mango farmer. Besides mangoes, 41.0% (n = 55) of the farmers grew maize *Zea mays*, 23.9% (n = 32) grew groundnuts *Arachid hypogaea* and 9.8% (n = 20) of them grew the combination of the two whilst 3.4% (n = 7) planted soya beans *Glycine max*. Majority of the growers (n = 109) are into small-scale livestock keeping. Animals being reared are domestic fowls, guinea fowls, goat and sheep rearing and cattle. The produce of the farmers are mainly for subsistence but surpluses are sold at the district and metropolitan markets.

The youngest contracted grower was 18 years (n = 1); the two oldest were 75 years each. Seventy-three (73.0%) were at most 50 years. Ages of the largest concentration of farmers, 52 altogether, were between 35 years (n = 14), 40 years (n = 12), 45 years (n = 17) and 50 years (n = 9). The youngest female contracted grower was 22 years and the oldest was 50 years. In addition, majority of growers (85.3% or n= 174) are married and homogenously Muslim (91.2% n = 186) in representation. On average each contracted ITFC mango grower had a household size of 6.1 members with a modal and maximum household sizes of 6.0 (n = 35) and 15 (n = 1) respectively. The apparent youthful age structure may be unintended but appears to be nurturing a generational group in mango plantation development into the future which if successful would reduce the eagerness of rural youths for out-migration to

urban areas, a growing problem in Ghana. Many respondents got introduced to the practice through the efforts ITFC agents with a minority getting to know the practice from fellow farmers and observing the spring up of mango plantation in the area. Majority of the respondents (n = 165) have joined the Organic Mango Outgrowers Association (OMOA) only 13 of them were not registered. A good number of the respondents planted their mango seedlings in 2004 relying on unpaid kin labor and started harvesting in 2007. However, the farmers do not keep records of their yield.

Streams in the vicinity of the farms constituted the major source of water for irrigating the mango plantations. Other sources included the White Volta and dug outs. Table 4.3 shows the sources of water used for the purpose of supplying water to the mango stands through drip irrigation.

Table 4.3: Sources of water for irrigating farmer’s mango plots.

Name of stream	Number of respondents	%age
Nyintavomina	39	34.2
Kpasini	22	19.3
Ajamsini	24	21.1
Nabogu	18	15.8
Sakpalani	6	5.3
Yeligini	3	2.6
Bogupilli	2	1.8
Total	114	100.0

The terms of the contract stipulated that outgrowers could intercrop their mango plots with specified legumes during the first two or three years. The survey results indicated that only four outgrowers did not intercrop. The majority (155 in all) who did intercrop planted mainly groundnuts, bambara beans *Vigna subterranea* and soya beans. The farmers reported an average yield valued at GHC 117.11 (USD 78.07) per annum with 64% receiving GHC 210.0 (USD 140.00) per annum from intercropping the one acre mango plot.

Impact of project on selected indicators

A subjective assessment of the impact of the IFTC outgrower relationship on the stated indicators by contracted farmer respondents is presented in Table 4.4. It revealed that many of the farmers derived individual and group satisfaction from participating in the project. In their opinion, it offered employment opportunities to persons in their households and in the town. On income and its distribution, cash readiness and food security, the farmers were of the opinion that it had not been effective.

However, the project was ‘very effective’ in bringing individuals and society together and was ‘somewhat effective’ in providing households in their settlements with the means for acquiring basic items.

Table 4.4. Responses of outgrowers on impact of the project on selected indicators.

Indicator*	Household level			Village/Town level		
	Level of effectiveness (%)					
	Effective	Somewhat	Not	Effective	Somewhat	Not
Job satisfaction	53.1 (n=95)	22.3 (n=40)	24.6 (n=44)	25.7 (n=36)	42.9 (n=60)	31.4 (n=44)
Employment	33.3 (n=50)	49.3 (n=74)	17.3 (n=26)	22.6 (n=30)	55.6 (n=74)	21.8 (n=29)
Income and Income Distribution	8.1 (n=9)	27.9 (n=31)	64.0 (n=71)	5.8 (n=4)	15.9 (n=11)	78.3 (n=44)
Cash readiness	13.5 (n=14)	7.7 (n=8)	78.8 (n=82)	16.3 (n=15)	21.7 (n=20)	27.9 (n=57)
Food security	30.1 (n=31)	31.7 (n=32)	37.6 (n=38)	22.6 (n=21)	33.3 (n=28)	40.5 (n=34)
Acquisition of basic items	13.2 (n=9)	79.4 (n=54)	7.4 (n=5)	4.5 (n=2)	74.6 (n=50)	20.9 (n=14)
Social Cohesion	67.0 (n=75)	32.1 (n=38)	0.9 (n=1)	68.2 (n=75)	30.9 (n=34)	0.9 (n=1)

Reasons for the withdrawal of some contracted farmers

The major benefits expressed by contracted farmers are cash benefits (n=173), access to affordable inputs (n=146), attempt at halting the degradation of their lands (n=45) and putting idle land under cultivation (n=13). Despite these benefits, a number of reasons were suggested for the withdrawal of some of their colleagues. These perceptions are presented in Table 4.5.

Table 4.5. Perceptions of outgrowers the withdrawal of some of their colleagues.

	No. of respondents	%age
Destruction of farms by wild fires or grazing animals	8	4.2
Delays in payment for fruits bought from them	27	14.1
Expected output/income not forthcoming	56	29.3
Could not meet the labor demand involved	59	30.9
Long gestation period involved in mango farming	39	20.4
Disagreement with ITFC over deductions	18	9.4
Lack of foresight or they are just lazy	11	5.8

The major constraint farmers expressed was the high labor demand involved in the maintenance of plots (Table 4.5). Without surplus labor, a number of them could not pursue food production and meet their contractual obligations. Second, after joining the contracting arrangement, the farmers were eager to obtain more income once the mango trees begun bearing fruit, clearly as stated by all stakeholders the yields have been the best possible. Third, managers of the contracting scheme made projections that the plantation would begin to yield fruit in the third to fourth years. Although it has been realized to some extent, according to the farmers, the volumes of the yield realized were discouraging. The

withdrawals therefore represent outgrower displays of displeasure or protest that must attract the attention of management.

Constraints in ITFC outgrower scheme

Based on the information provided by sampled contracted farmer and non-contracted respondents, the constraints faced by the two groups were ranked and prioritized using Garretts ranking method. The results are presented in Tables 4.6 and 4.7.

Table 4.6. Ranking of various constraints faced by farmers based on Garret’s score.

Constraints	Score	Rank
Lack of transparency in deductions	47.9	VI
Lack of credit for pay for hired labor	55.3	II
Low cash earnings	58.8	I
Delayed payment for produce	51.6	IV
Destruction of farms by fire and grazing animals	53.7	III
Low yields of crop	50.4	V
Lack of treatment against termite pest infestation	42.6	VII

Low cash earnings was the most important constraint followed by the lack of credit for production, destruction of the orchards by wild fires and grazing animals, delays in payment for fruit purchased from farmers, low yields, lack of transparency in the percentage deductions made from farmers proceeds and lack of treatment against termite attacks on trees.

Table 4.7. Ranking of concerns or perceptions faced by non-ITFC respondents based on Garret’s score.

Constraints	Score	Rank
Returns to farmers unattractive	57.9	II
ITFC should establish a fire fighting and Prevention unit	51.6	IV
Difficulties in the acquisition of land	60.0	1
Delayed payment for produce	55.7	III
ITFC project should diversify into other crops	43.7	V
Labor requirements too high	57.9	II

Non-contracted respondents on the other hand, (Table 4.7), ranked difficulties in acquiring land (60.0 Garret points) for farming as their first concern. It was followed by their claim that the returns to farmers were unattractive and labor requirements too high, delays in paying farmers, the need for a fire fighting and prevention unit and a request for ITFC project to diversify into other crops ranked lowest.

Views of farmers on the contract Arrangements

The opinions of the respondents on the prevailing terms of the contract under which they grow their mangoes are presented in Table 4.8. The majority of respondents expressed their satisfaction with the terms of the contract with some adding that ITFC had even gone beyond the official terms by instituting a scholarship scheme and providing other beneficial facilities.

Table 4.8. Opinions of the respondent outgrowers on the arrangement with ITFC.

Concern expressed (n= number of respondents)	%age
Modification needed to make ITFC responsible for the protection of farmers' plot against wild fires	7.9 (n=15)
Arrangements are mutually beneficial and required no changes	72.3 (n=138)
ITFC should consider shifting from the cultivation of organic to inorganic mangoes to overcome the current low yield problem	2.6 (n=5)
Grade B fruits should be given to farmers for them to sell on the local market	17.3 (n=33)
The arrangement should include provision for credit to pay for hired labor	16.8 (n=32)
ITFC should pay for grade A fruits immediately upon harvesting and pay for the grade Bs later	4.7 (n=9)

However, more than a tenth wanted the terms of the contract varied to include the provision of credit for outgrowers to pay for hired labor being allowed to sell some of the mangoes in the local market.

4.1.6 Investment and operation costs of out - growers' farms

Terms of agreement

The terms of the contract indicate that outgrowers connected to a drip irrigation facility incur a start-up cost of approximately USD 5,000.00, whilst a farmer not benefitting from the same facility incurs a start-up of USD 3,400.00. Average running cost per outgrower farm per year of USD 425 (between USD 350-500 per year/acre). These costs, which exclude labor costs, are financed by the ITFC for the first five years. Beginning in the fifth year, the farmer pays 30% of their revenue to ITFC to begin repaying their loan.

The operation and activities of the Farm Model

The operation of the farm commences once the potential outgrower is admitted by the ITFC and registered following the payment of the commitment fee of an 85 kg bag of maize currently valued at USD 23.50. Labor for weeding the plot is supplied by the farmer. Hired labor is also available at a cost of USD 13.00 (GHC 20.00) per acre and two rounds of weeding per year would be sufficient. Farm layout and spacing distance are established after the suitability for the purpose has been attested by the ITFC technical personnel (7.0 meters by 6.0 meters allows for a total of 100 trees). The ITFC concurrently initiates the procedures for certification for the potential outgrower as an organic farmer with the Soil Association of the U.K.

Technical assistance is also provided to the farmer for transplanting seedlings, application of chicken manure, and intercropping (which is optional), pruning branches, protection against grazing animals and wild fires and harvesting. Inputs for these activities including seeds for the intercrop and fungicide (Nordox) are provided by ITFC. Farms with drip irrigation facilities are supplied with water until the third year when stands are expected to be

established. Harvests are expected in the fourth year. The potential harvest is 1.6 tonne/acre/year which translates to 16 kg of fruit per tree/acre/year.

With the exception of the labor cost provided by the outgrower, all other inputs and technical assistance costs are financed by the ITFC but charged to the farmers account at no interest. Handling, transportation, storage costs and related costs are excluded from the cost charged to the farmer. Thus, the farmer pays for the direct inputs and technical support with 30% of the value of the annual harvest.

A farm model as a predictive tool for forecasting financial performance at the farm level was adopted to assess the physical input/output relationship over time, and to convert these into financial terms. It was considered the crux of the interaction between the technical, institutional, organizational, managerial and other aspects of the ITFC outgrower contract. The aim of the model is not to define a hypothetically ideal situation, but rather to forecast what has been obtained or can be realistically expected to happen in the light of all the constraints facing the project. The model was assumed to be fully representative of average conditions in the study area.

Income and operational expenses

All calculations and projections cover a range of fifteen production-years, namely 2011 to 2026.

Major assumptions for income calculations

Outgrower revenue was calculated based on the following:

1. Each outgrower has a total production area of one acre planted with a total of 100 mango trees;
2. Average yield per tree of 10 kg/yr (within the range 5.0-50 kg/yr) increasing at a rate of 5% per year;
3. Forty% of the outgrowers' produce is exported, 40% is sold to a local processor and 20% on the local market;
4. Opportunity cost of labor of USD 13.00 (GHC20.00) per acre and two rounds of weeding per year;
5. Exchange rate of USD 1.00 = 0.7071 Euro; USD 1.00 = GHC 1.5305;
6. An f.o.b. price of 0.70 Euro per kg;
7. Local market price is USD 0.23 (GH¢ 0.35) per kg;
8. Local processors price is USD 0.7.

Based on these assumptions, total mango income is expected to be USD 726.00 in the first year of harvesting increasing gradually to more than USD 1,303.80 in the year 2026 (Table 4.9). The interaction of income and cost streams, before and after debt service, and their relation to the farmer's debt servicing obligations are presented by means of the projected cash flow (Table 4.10). In the initial year of harvest the surplus to the farmer after deduction is USD 500.0 (GHC 750.0). A 6% internal rate of return was registered. This represents a considerable increase in income over that gained from subsistence farming given the average farm income in the area of USD 312.0 per year (GLSS 5: GSS, 2009). However it is unlikely that the farmer can fully meet the debt obligation over the projected period.

Table 4.9. Summary of income of outgrower.

Figures in USD													
Year	1	2	3	4	5	6	7	8	9	10	11	12	13
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Yield (kg/acre)	1,000.0	1,050.0	1102.5	1,157.6	1,215.5	1,276.3	1,340.1	1,407.1	1,477.5	1,551.4	1,629.0	1,710.4	1,795.9
Value of Export sales (USD)	400.0	420.0	441.0	463.0	486.2	510.5	536.0	562.8	591.0	620.6	651.6	684.2	718.4
Value of produce for local processing (USD)	280.0	294.0	308.7	324.1	340.3	357.4	375.2	394.0	413.7	434.4	456.1	478.9	502.9
Value produce for sales at local market (USD)	46.0	48.3	50.7	53.2	55.9	58.7	61.6	64.7	68.0	71.4	74.9	78.7	82.6
Total income (USD)	726.0	762.3	800.4	840.4	882.5	926.6	972.9	1,021.6	1,072.7	1,126.3	1,182.7	1,241.8	1,303.8

Table 4.10. Cash flow of an ITFC contracted farmer.

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2,024	2,025	2,026
Cash inflow in USD				1,000.0	1,050.0	1102.5	1,157.6	1,215.5	1,276.3	1,340.1	1,407.1	1,477.5	1,551.4	1,629.0	1,710.4	1,795.9
Value of export produce (USD)				400.0	420.0	441.0	463.0	486.2	510.5	536.0	562.8	591.0	620.6	651.6	684.2	718.4
Value of produce for processing				280.0	294.0	308.7	324.1	340.3	357.4	375.2	394.0	413.7	434.4	456.1	478.9	502.9
Value of produce for local market				46.0	48.3	50.7	53.2	55.9	58.7	61.6	64.7	68.0	71.4	74.9	78.7	82.6
Total Cash inflow (USD)				726.0	762.3	800.4	840.4	882.5	926.6	972.9	1,021.6	1,072.7	1,126.3	1,182.7	1,241.8	1,303.8
Cash outflow																
Investment	5,000.0															
Operating cost		425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0
Total Cash outflow (USD)	5,000.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0	425.0
Cash balance before debt service																
Debt servicing (USD)	23.5			217.8	228.7	240.1	252.1	264.7	278.0	291.9	306.5	321.8	337.9	354.8	372.5	391.1
Total debt service																
Cash balance after debt service (USD)				508.2	533.6	560.3	588.3	617.7	648.6	681.0	715.1	750.9	788.4	827.9	869.2	912.7
Financial rate of return 6.0%																

4.1.7 Financial and Economic Viability

Financial viability

This section presents an assessment of the financial aspects of contract farming from the investing partner's perspective. At the level of the company or agro-industrial enterprise the analysis examined incentive aspects to determine whether the assets created or acquired will result in sufficient income and/or profits. In approaching the problem, the ITFC model was adopted. A synthesised cash flow based on the following data obtained from management of the company was used:

- (1) Nucleus farm and nursery: Initial investment: USD 3.0 – 4.0 million;
- (3) Annual running cost of the nucleus far and nursery USD 850 per acre per year including labor cost;
- (4) Number of matured trees currently being harvested by outgrowers: 35% of the total 1,300 outgrowers' tree population;
- (5) Number of matured trees currently being harvested from the ITFC nucleus farm: 85% of the total 38,495 tree population;
- (6) Average yield per tree of 10.0kg/yr (within the range 5.0 – 50kg/yr) increasing at a rate of 5% per year;
- (7) Exchange rate of USD 1.00 = 0.7071eurocent; USD 1.00 = GHC 1.5305;
- (8) An f. o. b price of 0.70 eurocent per kg;
- (9) Local market price is USD 0.23 (GH¢ 0.35) per kg;
- (10) Local processors price is USD 0.7
- (11) Forty percent of the outgrowers' produce are exported, 40% are sold to a local processor and 20% are sold on the local market.

All calculations and projections cover a range of fifteen production-years, namely 2011 to 2026. The resultant income statement and the derived cash flow are presented in Tables 4.11 and 4.12.

The surplus cash flow started from USD 332,939.5 and increased gradually to USD 623,794.4 over the projected period. A 0.1% internal rate of return was registered. This represents break even situations which will posse challenges for the fulfilment of loan obligations and other purposes.

Table 4.11. Summary of Income Statement of ITFC investor (USD).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Value of Export sales (USD)	153,980.0	161,679.0	169,763.0	178,251.1	187,163.7	196,521.2	206,347.3	216,664.7	227,497.9	238,872.8	250,816.4	263,357.2	276,525.1
Value of produce for local processing (USD)	76,990.0	80,839.5	84,881.5	89,125.6	93,581.9	98,261.0	103,174.1	108,332.8	113,749.4	119,436.9	125,408.7	131,679.1	138,263.1
Value produce for sales at local market (USD)	35,415.0	37,185.8	39,045.0	40,997.3	43,047.2	45,199.5	47,459.5	49,832.5	52,324.1	54,940.3	57,687.3	60,571.7	63,600.3
Total deductions from outgrowers source (USD)	99,099.0	104,058.5	109,245.5	114,705.5	120,438.5	126,490.0	132,814.5	139,457.5	146,419.0	153,744.5	161,434.0	169,487.5	177,950.5
Total income (USD)	365,484.0	383,762.8	402,935.0	423,079.5	444,231.3	466,471.7	489,795.3	514,287.4	539,990.4	566,994.4	595,346.4	625,095.5	656,338.9

Table 4.12. Cash flow of the investor.

Year	-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<i>Cash inflow</i>																
Value of Export sales (USD)				153,980.0	161,679.0	169,763.0	178,251.1	187,163.7	196,521.2	206,347.3	216,664.7	227,497.9	238,872.8	250,816.4	263,357.2	276,525.1
Value of produce for local processing (USD)				76,990.0	80,839.5	84,881.5	89,125.6	93,581.9	98,261.0	103,174.1	108,332.8	113,749.4	119,436.9	125,408.7	131,679.1	138,263.1
Value produce for sales at local market (USD)				35,415.0	37,185.8	39,045.0	40,997.3	43,047.2	45,199.5	47,459.5	49,832.5	52,324.1	54,940.3	57,687.3	60,571.7	63,600.3
Total deductions from outgrowers source (USD)				99,099.0	104,058.5	109,245.5	114,705.5	120,438.5	126,490.0	132,814.5	139,457.5	146,419.0	153,744.5	161,434.0	169,487.5	177,950.5
Total Income (USD)				365,484.0	383,762.8	402,935.0	423,079.5	444,231.3	466,471.7	489,795.3	514,287.4	539,990.4	566,994.4	595,346.4	625,095.5	656,338.9
<i>Cash outflow</i>																
Investment (USD)	4,000,000.0															
Operating cost (USD)		32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5	32,544.5
<i>Total Cash outflow (USD)</i>	<i>4,000,000.0</i>	<i>32,544.5</i>	<i>- 32,544.5</i>	<i>332,939.5</i>	<i>351,218.3</i>	<i>370,390.5</i>	<i>390,535.0</i>	<i>411,686.8</i>	<i>433,927.2</i>	<i>457,250.8</i>	<i>481,742.9</i>	<i>507,445.9</i>	<i>534,449.9</i>	<i>562,801.9</i>	<i>592,551.0</i>	<i>623,794.4</i>
<i>Financial rate of return 0.1%</i>																

Economic viability

The ITFC model represents a typical case of private investment in agriculture that has not overly relied on the resources of the state. With the exception of the building housing the offices of the company and the electricity connection to the grid, all other investments and operational costs have been borne by the investor. To assess the economic merits of the undertaking, a disaggregated approach was adopted to distinguish between those benefits that are essentially economic and those that relate to the ITFCs impact on the society.

First, the project could have been located in a more favorable area of the country where there are better soils, transport facilities, markets and water for irrigation which would have given the company a higher rate of return. Instead, the ITFC chose a relatively depressed area. The area is depressed because of the adverse environment. For example, controlling the frequent wild fires impose additional costs on the scheme. The area is also depressed due to the paucity of natural and human resources. By locating in the area, the ITFC is addressing inter-regional or intra-regional disparities in income and employment and stimulating the growth potential of the area. In this regard, ITFC has acted as a state planner, settling for a lower rate of return designed to redress the income and growth problem.

Second, ITFC offers direct employment to 240 permanent staff, 100 persons on a casual basis, and income support to local suppliers and awards its outgrowers on each national farmer's day celebrated annually. The creation of employment by the ITFC has subsequently minimised the migration of youth to urban centres in search of work.

Third, agriculture is the largest single contributor to livelihoods in the ITFC project area. Encouraging agricultural growth is therefore an important aspect of national agricultural policy. Good infrastructure, education and effective information services are necessary to improve the chances of making agriculture work for the poor (ODI, 2007).

While agricultural subsidies may be beneficial to the sector, they represent a cost to the nation as whole, thus their removal in Ghana has been a subject of controversy. Subsidies take several forms: interest rates below the market rates, no interest rates, and purchased farm inputs or mechanization services provided at concessionary prices. ITFCs facilitation of access to affordable inputs including the establishment of irrigation systems within its operational area has led to decreased land degradation and putting idle land to good use. In addition, the incremental overhead cost of staffing, housing and transport facilities are borne by the company. Similarly, all technical assistance offered by both local or expatriates to outgrowers are costs paid for by the investor that ultimately benefit society.

Fourth, the provision of social services and incentives to further education constitutes a social assistance mechanism essential for overcoming the intergenerational transfer of poverty. Other interventions include health education and the provision of basic health services and items that have helped reduce the incidence of family illnesses for which debts may have to be incurred. The establishment of school mango plantations and school food programs and supporting Parent Teacher Associations to plant five-acre mango farms for each school in the area and the income from these farms are direct benefits to local

residents. Clearly the benefits of these activities transcend the objectives of the private investor, but the costs associated are borne by ITFC.

Additional support services such as fighting wild fires, creating markets and building international market share and extension would not have been undertaken without the project. Another multiplier effect of the ITFC operation is the reported social cohesion it has fostered. Indeed this may not be felt within the project itself but in a region of high social unrest where the project operates it represents a favorable intervention.

Finally, The Northern Region of Ghana is in the savannah zone and is noted for a high level of deforestation degradation of the environment. Part of the environmental degradation problem stems from the high dependence on traditional farming of mainly perennial crops. The typical practice is to burn over the fields each year, exacerbating the degradation problem. The ITFC enterprise not only provides the people of Northern Region with cash crops and income, but also reinforces government reforestation programmes. The organic production of mangoes also ensures that the natural environment is protected for future generations. These indirect benefits to the society as a whole have cost components which otherwise would have to be borne by the state.

4.1.8. Sources of capital investment for contract farming and the relative involvement of the public and private sector in finance

According to Little and Watts (1994) cases of strictly private sector contracting schemes are in the minority in Africa and elsewhere. The usual model for large contract farming schemes calls for the state to have some involvement, either in ownership or joint management or in providing infrastructure, research or extension support. The crude dichotomy between public and private sectors breaks down strikingly when institutional and management arrangements are examined. For example, schemes with total public sector ownership may be managed by private firms that have a contract with the state, while privately owned and managed schemes may depend on government extension and research and on publicly funded infrastructure. Disaggregating the private and the public and attributing one as the critical determinant of contract farming performance proves problematic at best. A review of sources of capital investment for contract farming and the relative involvement of the public and private sector was discussed in section 2.1 of this report.

4.1.9 Effectiveness of Contract Farming as a Tool for Rural Development

In response to the high incidence of poverty and low levels of economic activity in the area, the ITFC initiative offers meaningful opportunities for human-centred development for a number of reasons.

First, the outgrower scheme has the potential to increase the incomes of participating farmers. Compared to an estimated average annual income of between USD 250 and 300, the contracted outgrower, based on projections, will be earning USD 500 by the fourth year of operation (Table 4.10), with the amount increasing as the trees mature. The income from mangoes is normally obtained between April and July when farmers have planted food crops for subsistence and are in need of money. The average direct employees on the ITFC project earn approximately USD 650 per annum or double the average income in the area. These incomes are not earned at the expense of non-ITFC scheme inhabitants of the project

area. ITFC operations were not reported by any non-ITFC respondent (Table 4.7) as having adverse impacts on their income generation, food security or pose any harm to their livelihoods.

Second, in terms of human capital enhancement, the support given by ITFC to social infrastructure development and social protection has the objective of improving the infrastructure of primary schools in the entire district without any restrictions to non-ITFC scheme persons and is therefore favorable to all actors in the project area.

Third, the northern sector of Ghana is characterised by a long dry season and the outbreak of wildfires. The ITFC directly fights wild fires and reinforces government reforestation programmes. The organic production of mangoes also ensures that the natural environment is protected for the entire citizenry and for posterity.

Fourth, the outgrowers indicated that participation in contract farming was only one component of their diversification strategy. They earned income from a variety of sources, both on and off-farm, for example, through wage employment and trading. These multiple sources of income were in place before the scheme was introduced. The complexity of diversification makes it difficult to isolate the effects of contract farming and thus determine whether it is the major source of local differentiation and accumulation.

Given the lack of or record keeping, it would be difficult to isolate contract farming participation under the ITFC scheme, a relatively recent activity in the area, as the major source of differentiation. Nevertheless, the income from ITFC contract farming sources may contribute to equality among households, although it may not be the original or sole cause of it.

Fifth, on the nature of the contracting process itself, ownership and partnership seemed integrated in the ITFC model. Outgrowers view the mango farm as 'theirs' which they develop in partnership with an investor. The provision in the contractual agreement that allows the farmer to sell mangoes to any agent of their choice after the repayment obligation has been met gives much assurance in this regard. Berth (1999) noted that projects that fail to incorporate the concepts of ownership and partnership in African development efforts would surely have problems when it comes to sustainability. Thus, the acclaimed success of Sasakawa Global (SG) 2000 project in Africa could be attributed to the integration with governments and also other organizations. In the long-term, one can expect that even if ITFC withdraws, the farmers could sell their produce locally.

Sixth, as indicated earlier, all stakeholders agreed that the ITFC has been instrumental in fostering social cohesion in the area. This observation was not surprising given the intervention of the ITFC arrangements that has facilitated the mobilization of local people towards a progressive objective. As a result, strife unrelated to contracting are minimised in the project area.

Seventh, before contracting the actors sign a formal written agreement indicating their responsibilities and liabilities. The outgrowers are represented by OMOA that mediates disputes. While such cases of contract farming are less grand in scope than the larger

contracting enterprises, they do show that not all contracting schemes involve a transnational firm, a state owned company or a highly unequal power relationship. It is when the latter occurs that contract farming may be relegated to the status of hired hands on their own land. In this regard, the contract has been employed in an equitable and progressive manner.

Eighth, the apparent young age of the outgrowers may be unintended but appears to be nurturing a generational group may be indicative that land holdings may not be by upper-income peasants only. These data further confirm that the majority of the ITFC contract growers are ordinary people within the bottom quartile.

Finally, by the very definition of a rural development project, the ITFC project will have delivered at least 50% of its benefits to those falling below the country's poverty line, in its area of influence and indicates the social orientation of the project.

4.1.10 Welfare effect of contract farming on outgrowers

Table 4.13 presents a summary of the various statistics generated through the survey. It provides a comparison of the selected indicators for the two groups of respondents with the averages of the rural savannah and the overall national averages. Ownership of radio, cell phone and bicycle was higher in the two groups relative to the rural and national averages. However, a noteworthy departure in favor of the rural and national averages was evident in terms of type of dwelling ownership and number of rooms.

Between the two groups: contracted farmers were worse off in terms of running water in their dwelling place, access to electric power, radio set, type of dwelling place and basic means of transport. Clearly there is no evidence of accumulation that could be attributed to their participation in the contract. Indeed the respondents' participation in contract farming was only one component of their livelihood strategy: they earned income from a variety of sources, both on and off-farm. These multiple sources of income were in place before the scheme was introduced. The complexity of diversification thus makes it difficult to isolate the effects of contract farming and thus determine whether it is the major source of local differentiation and accumulation.

Table 4.13. Statistics summary of the socio-economic data (95% CI).

Figures in%	ITFC contracted farmer	Non- contracted respondents	Rural Savannah Average	National Average
Household size	6.63	5.53	5.9	4.1
Access to running water	1.3 (n=1)	2.6 (n=2)	2.9	17.1
Access to electric power	26.3 (n=49)	43.2 (n=32)	23.8	48.9
Access to toilets	6.5 (n=11)	5.3 (n=4)	33.1	55.0
Radio set ownership	71.9 (n=120)	82.4 (n=34)	51.9	49.9
TV set ownership ^(a)	27.4 (n=43)	45.3 (n=34)	7.0	33.3
CellPhone ^(a)	51.5 (n=85)	66.2 (n=49)	3.0	19.7
Refrigerator ^(a)	12.2 (n=20)	9.9 (n=7)	3.0	20.5
Cement house with tin roof	1.2 (n=2)	8.1 (n=6)	19.0	44.1
Number of rooms	6.91 [4.491]	7.49 [5.19]	36.7	41.2
Means of transport: bicycle ^(b)	72.1 (n=124)	77.5 (n=55)	31.7	24.3

Notes: (a) number of households owning at least one unit; (b) percentage of household owning this means of transport.

4.1.11 Sustainability and replication of the ITFC model

Within International discussions about the 'sustainability' of contract farming have centred on environmental and financial sustainability (Little and Watts, 1994). Reliance on private rather than public sector management and resources and on the 'market' makes them more readily sustainable than most other types of agricultural investment. However, the record on contract farming reveals that market instability and management problems frequently make contracting schemes unsustainable in the long run. Given that in Ghana, conditions are favorable, notable problems that could threaten the sustainability of the ITFC outgrower model are presented below.

Diversion of produce

A critical issue with respect to sustainability is ensuring that diversion of produce is minimal, even after the outgrowers have finished paying off their debt to ITFC. The company believes this will be a real challenge because they pay the farmers 25% when they collect the fruit from them, and it is only after ITFC has sold the produce that it pays the remaining 75%. The time between collecting the produce from the farmer and making the final payments could take between two to four weeks (Osei, 2007). Indeed these has been ranked fourth (Table 4.6) by contracted farmer respondents of the current study, as a constraint that has to be addressed. If unaddressed therefore, the possibility that an exporter could come and offer ready cash for the outgrowers mangoes could disturb the scheme. This could potentially threaten its export volumes and accordingly its command over the market.

Repayment of loans

Even though the agreement between ITFC and the outgrower allows ITFC to deduct 30% of the proceeds from sales, it is still the case that outgrowers will have to produce mangoes on their farms before they can be sold and the debt repaid. There are always going to be productive and unproductive farmers, which is the case all over the world, and unproductive farmers will have lower yields. In the case where the proportion of unproductive farmers is large, this could affect the repayment of the loan (Osei, 2007).

Problem mitigating measures

Some of the measures taken by ITFC to reduce the probability of the occurrence of some of the challenges discussed above include the following:

- Continuing to work very closely with OMOA to maintain the trust they have built with them over the years;
- Continuing to give farmers very competitive prices for their produce;
- Continuing with farmer education to ensure that an appreciably high proportion of them practice good commercial farming procedures;
- Outgrowers choose to sell their produce to other exporters will be required to pay cash for goods and services that they will require from ITFC in the future.

Replication and scaling up

Some of the key problems associated with replicating and /or scaling up include the following:

1. The mangoes require some form of good irrigation and therefore, water availability is a crucial requirement for the mango plantation;

2. Finding the right soil types is also important for the success of the farms;
3. The ITFC model requires significant capital outlay. The initial capital outlay is beyond the majority of what farmers in the Northern Region can afford and the returns from mangoes become significant only after the sixth year. This means that the nucleus farm will have to find a loan to finance the outgrowers for at least the first five years. As already mentioned, an amount of USD 6,960 is required for each outgrower for the first five years.

Potential

Both in terms of the horticulture product as well as the ITFC business model, the potential for replication is considerable. In terms of the business model, the nucleus outgrower scheme is already being expanded into the pineapple industry in Ghana. The ITFC model is therefore, a good example that can be further implemented in other agricultural sectors. The potential of scaling up the production of mangoes in Northern Ghana is well known. ITFC has written to the MOFA to suggest to the government how it can increase the output of mango in Northern Ghana by 50,000 tonnes in the next ten years (Osei, 2007).

5. DISCUSSION AND CONCLUSION

In discussion, it is pertinent to note the following salient points: firstly, in an assessment of whether outgrowers belong to the richer part of the community, the results do not succinctly provide evidence that they do and therefore could access the scheme with relative ease. Indeed, the major requirements for registering each farmer in the scheme is the possession of an acre of land and an entry fee of a 85kg bag of maize or the local currency (Cedi) equivalent of the value of it. Lands in the localities are communally owned with the local chief being the custodian; it was not difficult for an indigene to obtain land for the purpose of farming. However, it is likely that the larger and more influential families in a given community may have bigger access to land and by inference the scheme. This is because the major limitation of farmers in the study area is labor requirements (section 4.1.4 and Table 4.4). Thus, local differentiation among outgrowers could result from members of larger or more influential families depending on kin labor in turns rather than hiring labor that were considered expensive by the average outgrower.

Secondly, in terms of the period of waiting for the scheme to be profitable, there was no indication that any farmer depended solely on participation in the scheme for his/her livelihood. According to respondents, their participation in the scheme for now was only one component of their diversification strategy: they earned income from a variety of sources, both on and off-farm. These multiple sources of income were in place prior to their participation in the scheme. The complexity of diversification makes it difficult to isolate the effects of the ITFC and thus determine whether it is the major source of local differentiation and accumulation.

Thirdly, on complaints by farmers low disappointing incomes, information provided by the ITFC management (section 4.1.4) and corroborated by the Outgrowers Association (section 4.1.5), indicated that the potential yield of the matured trees on both ITFCs own nucleus plantation and on those of the farmers' plantations have disappointingly not been realized so far. This had necessitated management soliciting the services of a consultant from

outside the country to find solutions to the problems. Indeed at the time of the study, the consultant was on the fields of the outgrower farmers having thoroughly examined situations on the nucleus farm. Thus, the complaints can be justified on the grounds of the high expectations of the farmers not being met.

Fourthly, with the exception of the farmers who had abandoned their farms due to low returns, the arrangements binding the outgrowers and management of ITFC is such that once fruits are harvested from a plot (which on all occasions are supervised by ITFC agents), the ITFC deducts its percentage of the yield (as agreed) no matter how little, in payments of the loan before the remnant is paid to the farmer. The complaint that farmers had with this is that the value of the portion due them although low (low because of low yields) was not also paid to them on time.

Fifthly, Table 4.10 which showed the cash flow of an average farmer was based on a hypothetical farmer, in reality it was likely that a farmer in question earn more or less or the same. However, none of the outgrower farmers kept independent records of their yields. Hence, data from the ITFC on yields of farmers was the sole source of data for the study. The latter was not in a position to reveal the data on individual yields of the farmers. The best data revealed to the study team are those stated in section 4.1.6 under income and operational expenses assumption 2; (i.e. an average yield of 10kg/per tree/year or season per farmer within a range of 5 – 50kg/ per tree/year farmer per season) these wide range of yield are the figures that both the ITFC and OMOA (the farmers' organization) asserted to be despairingly low. For a given farmer therefore, the study team had no independent way of verification. The ITFC however, was optimistic that the yields would improve in the future.

Sixthly, the assumptions stated above formed the basis for the determination of the IRR; again there could not have been an independent verification by the study team but with the array of infrastructure currently on the ground there should not be many difficulties in obtaining higher fruit yields in the near future. Once that is achieved, the IRR could increase appreciably. However, given budgetary constraints of the Government of Ghana, donor funding will certainly be needed to put the general infrastructure in place and to set the project running in the short to medium term. The experience of the ITFC, in terms of low yields will then be relevant for the investment to be considered in terms of sustainability. However, in the view of the study team, the potential for high yields of mangos clearly exists in the area.

Seventhly, the farmers are dependent on at least two companies with international links: ITFC and Blue Skies. However, these companies still supplement their requirements for processing with imports of fresh fruits from Brazil, South Africa and Burkina Faso. The market therefore, exists for the farmers to expand. Moreover, with training and capacity building, the farmer organization could play the role of the international companies should the latter withdraw.

Ninthly, on out scalability, the total investment costs are USD 6750 per farmer for one acre, or more than USD 16,000 per hectare. This is indeed high compared to other investment (a small motor pump can irrigate more than a hectare and costs less than USD 500). But the

provision of motor pumps and perhaps the accessories that go with them were not the major investment items needed. The cost of capital items included the construction of weirs across streams/rivers, canals/drips to farmers remotely located from reliable water sources. In addition, booster stations, initial plot demarcations and technical support among others provided to the farmers at the initial stage. The above average farmer located far from a river source, could purchase a pump at USD 500 for example but might not be able to connect the canal and the drip system to the river source, or he/she may not be able to raise the seeds/seedlings, lacks technical know-how etc. On the part of the company, other considerations or variables that went into the decision to institute an outgrower scheme are stated in section 4.1.1.

Finally, the ITFC model is currently dependent on a small market but given the fact that it has a drying plant attached it could be expanded to work for larger markets including the local and regional markets.

In conclusion, the study has focused on contract farming in Ghana. It surveyed national policies towards contract farming over the years. It revealed that whilst contract farming has not been pursued with zeal in the country, schemes designed to incorporate water management or irrigation is still on the drawing board.

Taking the exceptional case of the Integrated Tamale Fruit Company to illuminate the ways in which capital is taking hold on agriculture in a deprived setting, the study identified practices with potentially beneficial prospects that could accrue from contract farming that could be replicated elsewhere. Indeed, the socioeconomic and environmental benefits are enormous. Furthermore, it is likely that the ITFC model will remain a central feature in the development of its operational district for a long time.

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APPENDIX 1: Constitution of organic mango outgrowers association

ARTICLE 1:

1. NAME AND LOCATION

The name of the association shall be known and called the ORGANIC MANGO OUTGROWERS ASSOCIATION (hereinafter called the “association”).

2. PLACE OF BUSINESS:

The principal place of business and registered office of the association shall be located at Gushie on the Bolgatanga trunk road in the Savelugu/Nanton District of the Northern Region. Provided that it shall be lawful for the association to change its place of business whenever it deems it fit to do so.

ARTICLE 2:

3. AIMS AND OBJECTIVES.

Generally, the object of the association shall be to control and manage the affairs of outgrower members with a view to improving the general earning capacity and well being of the members.

IN PARTICULAR the Association shall:

- i. Foster friendship and solidarity among members.
- ii. Maintain a lasting harmonious link between its members and the Integrated Tamale Fruit Company Limited, (ITFC) (hereinafter referred to as the “Company”).
- iii. Ensure the most beneficial marketing system for the produce of its members which OMOA will negotiate and maintain competitive price with ITFC.
- iv. Promote and protect the welfare and interest of its members.
- v. Have full power to do all things necessary or expedient for the attainment of any or all of its objectives in constitution with the Company.
- vi. Follow Organic Standards as prescribed by the Soil Association and
- vii. Expand and develop the Association to its utmost potential.

ARTICLE 3:

4. MEMBERSHIP:

1. Any registered Organic Mango Outgrower under the supervision and support of the Company shall be deemed to be a member of the Association.
2. Any member who ceases to be an Organic Mango Outgrower shall no longer be a member of the Association.
3. Any member who does not uphold the Organic Standards as prescribed by the Soil Association shall cease to be a member.
4. Any executive committee member who fails to attend executive meeting on six consecutive occasions without any tangible reason shall cease to be a member.

ARTICLE 4:

5. EXECUTIVE COMMITTEE:

1. The Association shall be governed by an Executive Committee hereinafter referred to as “The Committee”
2. The Committee shall consist of the following members:
 - a. Chairman
 - b. Vice Chairman
 - c. Secretary

- d. Assistant secretary
 - e. Treasurer
 - f. Two representative appointed by the Company and
 - g. One representative from each zone as follows: Diare East, Diare West, Pong-Tamale, Savelugu, Kumbungu, Karaga, Janga and Gushie, save that an executive member if a group shall serve as a representative of the zone he/she comes from.
3. The Chairman, Vice Chairman, Secretary, Assistant Secretary and Treasurer shall be elected at an Annual General Meeting of the Association by a simple majority of members present and voting.
 4. A member of the committee shall hold office for two years and shall be eligible for re-election for three terms.
 5. In the event of a vacancy occurring in the office of Chairman, Secretary or Treasurer, the committee shall have power to fill the vacancy by electing one of their members to fill the vacancy in an acting capacity until the next AGM.
 6. A member of the committee shall give two months notice before resigning.
 7. In case the present outgrowers scheme extends to other Regions, a separate Executive Committee shall be elected for the said Regions.

ARTICLE 5:

6. FUNCTIONS OF THE COMMITTEE:

The executive power of the Association shall be vested in the committee which shall initiate, execute and evaluate policies and programmes of activity in accordance with the objectives of the Association.

IN PARTICULAR, the Committee shall perform the following functions;

1. Prepare and circulate a draft budget of the Association to all zonal committee members two weeks before an AGM for approval.
 - a. Keep an up to date account of the Income and Expenditure of the Association and to submit the same for auditing after every financial year.
 - b. Present an Annual report of the activities of the Association at an Annual General Meeting.
 - c. Convene all meetings of the Association as and when it is deemed necessary.
 - d. Secure and protect the well being advancement of the interests of the members of the Association.
 - e. Put in place a quality control monitoring system during the harvesting and packaging of the product.
 - f. To ensure strict compliance of GLOBALGAP rules and regulations by all members.
 - g. To ensure strict compliance of regulations of the Soil Association of the U.K. on Organic Standards.
2. In the performance of the above functions the committee shall be accountable to the entire membership of the Association.

ARTICLE 6:

7. MEETINGS:

- i. The Association shall hold Annual, Executive and Special or Emergency General Meetings.
- ii. Executive and Special or Emergency general meetings of the Association may be held at any convenient place to be determined by the Committee.

ARTICLE 7:

8. ANNUAL GENERAL MEETING:

- i. The Association shall hold an Annual General Meeting each year or as when determined by the Committee but not later than the 31st December, of each year.
- ii. Members of the Executives Committee and Delegates nominated by groups of five or a multiple of 5 from farmer groups of the Association shall attend and participate at the Annual General Meeting.
- iii. Delegates shall have paid all their dues up to date not owe any money to the Association.

ARTICLE 8:

9. ELECTIONS:

Elections at an Annual General Meeting shall be conducted by a representative of the Electoral Commission of Ghana and delegates shall have the right to vote and be voted for.

ARTICLE 9:

10. FINANCE:

- i. The finances of the Association shall consist of
 - a) Monthly dues of 20GP.
 - b) Not more than 5% of the total sales of every outgrower as determined by the Annual General Meeting from time to time.
 - c) Members who pay dues as provided for in the immediately preceding provision shall cease to pay monthly dues of 20GP.
- ii. The report and financial statement of the Association shall be submitted by the committee at the Annual General Meeting. These shall have been ready two weeks prior to the time scheduled for the meeting and circulated to the General Manager of the Company, Zonal Executive and delegates.
- iii. The Association shall open and operate an account with a Bank in Tamale.
- iv. Signatories to the Association Accounts shall be the Chairman, Secretary and Treasurer and any two of whom must sign at any time before withdrawal from the Accounts.

In the case of donor supported Accounts, the signatories shall include the Chairman, Treasurer and the Company representative whose signature shall be mandatory in all withdrawal except where OMOA negotiate their own funding.
- v. The Annual General Meeting shall include:
 - To receive the report and financial statement of the committee for the preceding year,
 - To consider any matter affecting the interest of the Association,
 - To present the proposed budget for the ensuring year, and
 - To transact any other business as may be deemed necessary.

ARTICLE 10:

11. EXECUTIVE MEETINGS.

- i. The association shall hold executive monthly meeting on the first Saturday of every month and failing to do so on the following Saturday of the same month.
- ii. An Executive monthly meeting may be convened if 60% of the executive committee’s members are present.

ARTICLE 11:

12. SPECIAL/EMERGENCY MEETINGS.

- i. Upon a written request by 30% of the total membership of the Association for a special/Emergency General Meeting, the Committee shall give notice in writing or by any other means summoning members to attend such a meeting.
- ii. The Committee may convene a Special or Emergency General Meeting at any time upon giving notice in the manner indicated in the preceding paragraph of this Constitution.
- iii. Every request for a Special or Emergency General Meeting shall specify the nature of the Business for which the meeting is required to be convened.
- iv. The Chairman of the Committee of the Association shall preside at all meeting and in the absence of both of them, the meeting shall elect one of the members present to preside.

ARTICLE 12:

13. QUORUM:

At any Annual General Meeting the quorum shall be 60% and at any Special or Emergency General Meeting the quorum shall be 30% of the total membership of the Association.

ARTICLE 13:

14. DEVELOPMENT FUND FOR THE ASSOCIATION COMMITTEES.

- a) There shall be a development fund created by the Association for the development of every mango groups Community.
- b) 1% of every village’s average total export shall be deducted and paid into the fund for the village and shall be managed by a committee set up by the village for that purpose.

ARTICLE 14:

15. AMENDMENTS:

- i. Provisions of this constitution, except Article 9 may be amended upon a resolution of the Executive Committee of the Association at its regular meeting.
- ii. Article 9 of the Constitution may be amended by a simple majority of delegated at an Annual General Meeting.
- iii. In the event that a new article is to be inserted into the constitution, a proposal to that effect should first be submitted to the Secretary one clear month before and Annual General Meeting for consideration and further action by the Annual General Meeting which may refer same to a competent committee for advice.

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Approved By	Outgrower Manager			