



# Outgrower schemes: advantages of different business models for sustainable crop intensification

Ghana case studies

## FAO INVESTMENT CENTRE

LEARNING FROM INVESTMENT PRACTICES

Lisa Paglietti, Roble Sabrie, Economists, Investment Centre Division, FAO

## Introduction

Contract farming<sup>1</sup> has been subject to intense debates regarding its role in development. Opponents argue that large agribusiness companies generally exploit the low labour costs of smallholders and transfer production risks to farmers, while smallholder farmers are often excluded from contract farming schemes. This means that such schemes result in greater income inequality and social tensions in rural areas, particularly through land grabbing. Proponents see contract farming as a means of: i) linking smallholder farmers to expanding local and export markets, thus solving some of challenges faced by smallholders (Baumann, 2000<sup>2</sup>); and ii) mobilizing

foreign direct investment (FDI) to agriculture, to promote and support more inclusive business models with smallholders. In recent years, contract farming has spread widely in developing countries, as a potentially viable model for coordinating production and ensuring higher-quality, safer food and lower production and marketing costs (UNCTAD, 2009<sup>3</sup>). Contract farming has also been used in rural development strategies, as a tool for: i) linking small-scale farmers to supply chains; ii) overcoming factors that constrain smallholder commercialization, such as institutional deficiencies (access to inputs, technology and credit); and iii) providing the secure market and fixed prices necessary for sustainable crop intensification (Vermeulen et al, 2006<sup>4</sup>). Such arrangements have the potential for securing markets for some crops, particularly those that need processing and may otherwise not be produced.

This document is part of the Investment Centre Division's contribution to the Organization's Strategic Objective on Sustainable Intensification of Crop Production<sup>5</sup>. It is an extract from a wider review of smallholder linkages for inclusive agribusiness development, which was part of a pre-investment work on commercial agriculture in Ghana, financed by the FAO/World Bank Cooperative Programme. The study analyzed collaborative models that provide opportunities for smallholder farmers to improve their linkages to market and that could serve as an alternative to large-scale land acquisitions.<sup>6</sup> This study describes and reviews a range of inclusive business models

1 Contract farming refers to long-term supply agreements between farmers and agribusiness processing/marketing companies/buyers that bring mutual gains and normally include price and supply arrangements (date, quantity and quality). Contractual arrangements may be verbal or written and vary widely, depending on the countries, crops and companies concerned. Schemes usually entail a range of activities (services) that secure access to produce – as in-kind input supply or on credit – extension services, transport for produce, and credit guarantees.

2 Baumann, 2000. *Equity and efficiency in contract farming schemes: the experience of agricultural tree crops*. London, Overseas Development Institute.

3 UNCTAD, (2009). "World Investment Report".

4 Vermeulen S. and Goad N., (2006). "Towards better practice in smallholder palm oil production". IIED.

5 Result 1: Lessons learned from the review of national and regional policies, investment strategies and programmes in support of sustainable crop production and diversification.

6 Baumann, P. (2000). Bijman J., (2008). "Contract farming in developing countries: an overview". Da Silva, C. (2005). "The growing role of contract farming in agri-food systems development: drivers, theory and practice". FAO. Eaton C., Shepherd A. (2001), "Contract Farming, Partnership for growth". FAO. Minot N. (2011), "Contract Farming in sub-Saharan Africa: Opportunities and Challenges". IFPRI. Vermeulen et al 92006). Vermeulen S. and Cotula L. (2010). "Making the most of agricultural investment: a survey of business models that provide opportunities for smallholders". FAO and IIED.

(outgrower schemes, management contracts, joint ventures) with the objective of assessing: i) their advantages and disadvantages; ii) the conditions under which they could develop and be sustainable; iii) the roles of other stakeholders; and iv) their inclusiveness and the fairness of the trading relationships they foster between smallholders and companies.<sup>7</sup> The study was based on a literature review of such business models, experiences of project initiatives, and policy interventions across a range of countries and sectors. This review was complemented with fieldwork in Ghana comprising six case studies: horticulture (pineapple), oil-palm, rubber, rice, sorghum and maize.

This learning note focuses on two of the case studies: one successful example of rubber production in Western Region; and one less successful of sorghum production in Ashanti Region (Figure 1). These illustrate two organizational business models: a nucleus plantation with an outgrower scheme (rubber); and the use of lead farmers. The paper seeks to highlight the constraints and potentials of the two models and to provide useful lessons and insights regarding their contribution to promoting sustainable crop intensification.

The case studies show that enhanced knowledge, adapted technology, management skills and secure markets enable farmers to improve their productivity in a sustainable manner. This is particularly true in the

7 The study analysed models and practices, and explored key factors that led to successful and sustainable partnerships. It incorporated existing knowledge and literature on the topic, presenting examples from Ghana and other countries (Thailand, India, Kenya and Uganda) where such models have met with varying success. Paglietti and R. Sabrie, Smallholder linkages study FAO, to be finalized in February 2012. See contacts for further details.

**Figure 1 - Political map of Ghana**



rubber case study, where the company is directly involved in the production, processing and marketing of the produce (vertical integration),<sup>8</sup> and its constant monitoring and advice play a key role in the efficient use of inputs, overall natural resources management and the consequent increased productivity. The sorghum case study presents an innovative approach in which small farmers are organized around selected local commercial farmers (nucleus farmers) and engage with local service providers (of credit, seed, chemicals and transport). The latter approach is more complex as it aims to develop the whole sorghum value chain rather than only sorghum farmers' production. However, the multiple layers – the non-governmental organization (NGO), nucleus farmers, and the research institute and

8 Vertical integration is the degree to which a company owns its downstream suppliers and its upstream buyers. Vertical integration is typified by one company being engaged in many phases of production, such as the growing of raw materials, manufacturing, transport, marketing and/or retailing (Bijman, 2008).

service providers – between the company (as the final buyer) and the farmers have created inefficiency, lack of trust, and miscommunication among the parties involved.

In both cases, the contractual arrangements had positive effects for the outgrowers, who benefited from a significant increase in income as well as improved access to technology, extension, and social and economic infrastructure (roads, schools, processing facilities) provided by the companies. The rubber case showed positive results in re-establishing forest cover in the area. Rubber wood has proved to be a good substitute for the wood from primary forests, providing smallholders with an additional source of income when replanting their rubber plantations. However, there is a potential risk that such outgrower schemes could negatively affect biodiversity if they imply switching land use and clearing large tracts of lands of high biodiversity value.

## Case study 1

# Contract farming: rubber nucleus estate with smallholder outgrowers

### Rubber Outgrowers' Plantation

**Project.** Ghana Rubber Estates Limited (GREL) is the rubber production company that owns the largest industrial rubber plantation in Ghana, controlling 98 percent of production for the rubber market. GREL headquarter is in Takoradi, in Ghana's Western Region. The company holds a 36-year concession on 15 000 ha, of which more than 13 000 ha is planted. The Rubber Outgrowers' Plantation Project (ROPP) was started in 1995 to increase GREL's supply of raw material, with support from the Government of Ghana and development partners such as the French Development Agency (AFD), Germany's Reconstruction Credit Institute (KfW – *Kredit für Wiederaufbau*) and the World Bank. The ROPP is currently in its fourth phase based a non sovereign loan with no State guarantee. The Government of Ghana was the guarantor for first three phases. The world market for natural rubber is currently growing at 4 percent per annum and 85 percent of production is cultivated by smallholders. Rubber growing is a perennial activity, and provides a constant source of income throughout the year, with harvests an average of twice a month. The scheme currently includes 5 540 outgrowers with a total plantation area of 21 500 ha.

**Incentives for outgrowing.** The following are some of GREL's reasons for promoting the rubber outgrowing scheme:

- *Expansion of its rubber production capacity:* Given GREL's limited ability to expand its land resources directly, the outsourcing of production provides an alternative way of increasing its rubber supply. An outgrower scheme was the best available option, with virtually no investment costs required to ensure and maintain the volume and regularity of raw material supplies for GREL's processing factory, which has a capacity of 3 tonnes/hour.
- *Financial opportunity:* GREL does not invest its own capital in developing the outgrowers' plantations, but is still able to benefit from reduced production costs per kilogram for larger volumes. Outgrowers bear the full investment costs, and also supervise farm labour. The role of donors and government in providing long-term capital for rubber planting has been instrumental in this.



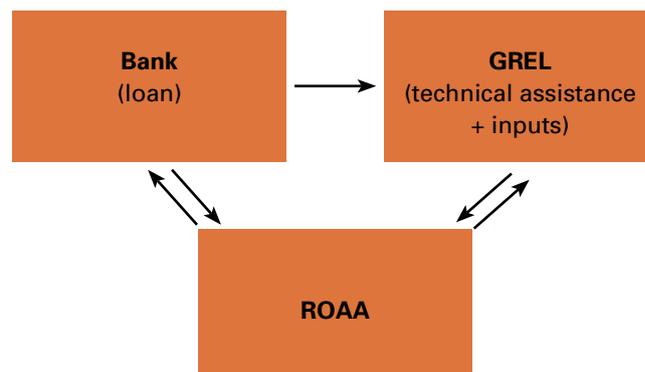
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The scheme is also attractive for communities, because GREL operates in and with local communities to provide social infrastructure, such as schools and village clinics while providing legitimacy to GREL's operations.

### Structure of outgrowing operations.

The outgrower scheme has a tripartite structure of: i) financial operators – the Agricultural Development Bank (ADB) and the National Investment Bank of Ghana (NIB); ii) GREL, providing technical assistance and planting material; and iii) the Rubber Outgrowers' and Agents' Association (ROAA) (Figure 2). GREL and each individual farmer enter into a tripartite agreement with the banks to finance

**Figure 2 - Tripartite structure of the outgrower scheme**



Source: Authors' compilation.

the plantation. GREL funds 50 percent of the technical assistance from its own resources and charges the balance to farmers, deducting it from the payments it makes for their rubber.

**Financial investment.** The investment required from the farmer is USD 2 400/ha, normally obtained through a loan, without the farmer contributing equity. Loans are structured as follows:

- A concessionary interest rate of 6.45 percent.<sup>9</sup>
- Flexible repayment periods: loan repayments cannot exceed 25 percent of the farmer's annual income from rubber, and are deducted directly from the price he/she receives for the rubber. The percentage increases to 30% after three years of production following yields increase.
- A seven-year grace period (capital and interest).
- Cash advances, if needed, for maintaining the plantation before it matures (at seven years).

#### **Method for selecting outgrowers.**

GREL selects outgrowers through a multiple-step procedure. First, rubber farmers prepare applications proving that they have tenure or use rights over at least 4 ha of land. Most of the farmers who apply are already rubber farmers, but their plantations are old and unproductive. During the second step, GREL inspects the suitability of the land for rubber production, verifies the land titles or deeds and carries out a social check of applicants,<sup>10</sup> with assistance from the farmers' association. The Banks providing loans



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are also engaged in the beneficiaries selection. Farmers have to provide proof that they have an alternative source of income (farm or off-farm) to cover the period between making the investment and the first harvest (in the eighth year), to avoid jeopardizing the investment or the farmer's livelihood. Farmers are encouraged to intercrop the young rubber trees with food crops in the first two to three years, and GREL provides technical assistance in cropping pattern options, the application of inputs, and integrated soil management techniques. It was reported that women are usually involved in the intercropping (cassava, peppers) under a sharecropping agreement (for two-thirds of the harvest).

#### **Procurement and distribution of inputs.**

GREL supplies all its outgrowers with high-quality seedlings. Farmers pay in full for the planting materials, using part of their loan package. Recently, the farmers' association has started to manage a small rubber tree nursery and supplies farmers with seedlings. Chemical inputs are supplied by GREL, with the

costs being deducted from either the loan amount or the rubber payments given to farmers. The company provides training in input use and natural resources management. GREL supervises the application of inputs during and after the training period, to maximize the impact on production and minimize that on the environment.

**Association.** ROAA was established in 1995 and has 5 450 farmer members and 19 executive council members, two of whom are women. ROAA assists in: i) the selection of rubber farmers; ii) loan agreements; iii) annual price negotiations with GREL; and iv) the prevention of side-selling. Members pay an annual fee equivalent to 1.5 percent of their income, thus ensuring the association's sustainability; at present, ROAA's executive management is not paid. Association dues cover seminars and venue costs, representation and price negotiation services, district meetings, and executive members' costs for attending meetings (transport, accommodation). ROAA manages a small nursery of rubber trees and a small shop, and deals with members' conflicts and theft problems. ROAA

9 The interest rate is variable and could change in the future. It is based on a loan in Euro. In previous phases, the loan was in GH Cedis and the rates were 24.5% (phase 1) and 11.5% (phase 2).

10 Through the farmers' organization, GREL verifies that the name on the application is that of the landowner, and checks whether the applicant has any pending issues in the community or with others (interview with Mr Akwasi Owusu, operation manager of the outgrower scheme, mission findings July 2011; FAO, 2011).

seems to be gender-friendly, as 25 percent of its members are women, even though there are comparatively few women rubber farmers – as a cash crop, rubber production tends to be male-dominated.

**Coaching and training of outgrowers.** GREL trains the farmers and tappers in advanced and innovative technology (Figure 3) several times a year and holds regular problem-solving meetings with them and their association. Production techniques/technologies are constantly evolving and are rapidly transferred to the outgrower farmers to improve their production levels. GREL also monitors the farmers’ production. Bank representatives train the farmers in book-keeping and how to read bank statements, enabling them to make informed decisions regarding on-farm investments.

**Contracting and pricing strategy.** The contract between the company and the outgrower is in place for the duration of the financing loan, normally 15 years. The financing agreement is a major innovation and an example of good practice. The loan repayment period is flexible, and the farmers commit to repaying 25

percent of their income from rubber (see following formula). Farmers’ representatives engage in annual price negotiations with GREL. The price is indexed on the Singapore Commodity Exchange (SICOM) and set at 64 percent of the prevailing monthly average price. A second payment is foreseen at the end of the year, based on the real rubber content of the produce (the base figure is 58.5 percent). From farmers’ weekly payments for the rubber they deliver, GREL deducts fees of: i) 2.5 percent for extension services, representing about 50 percent of the actual cost, with the remaining 50 percent being financed by GREL; ii) 25 percent for loan repayment, and transport if GREL collects the production; iii) 1.5 percent for ROAA’s annual membership fee; and iv) 4 percent as savings for capital accumulation (fidelity bonus) on behalf of the farmers, which is refunded to them at the end of the year. The farmers’ gross and net income formulas can be synthesized as follows:

$$P = 64\% P_{m-1} \text{SICOM}$$

$$I_g = [64\% P_{m-1} * Q (58.5\%_{rc})]$$

$$I_n = I_g - (I_g * 2.5\% \text{Ext}) - (I_g * 1.5\% \text{Ass}) - (I_g * 4\% \text{Sav}) - (I_g * 25\% \text{Loan})$$

Source: Authors’ compilation.

where **P** = price; **I** = income; **G** = gross; **P<sub>m</sub>** = monthly price; **SICOM** = Singapore commodity exchange; **Q** = quantity; **rc** = rubber content; **N** = net; **Ext** = extension services; **Ass** = association fees; **Sav** = savings; and **Loan** = loan repayment deduction.

This formula is particularly interesting as it represents a good practice for price transparency and flexibility. As the income is linked to the international rubber price, a fall or rise in the latter automatically changes the loan repayment schedule. The

formula protects farmers’ income against falling prices (as in 2009) and allows them to repay their loans more quickly when prices rise (as in 2010/2011). For long-term loans, this is more beneficial than fixed loan repayments, as it substantially limits the risk for farmers. The farmers’ association is considering offering extension services, to capture the 2.5 percent of farmers’ income deducted for extension. This would not have been possible without such a transparent process. Open dialogue and transparency in price setting enable farmers to understand the price structure and to recognize that the price depends on what the market is willing to pay.

**Incentives for farmers.** Through the outgrower scheme, rubber farmers have increased both their production and their productivity, achieving a significant yield increase from 0.8 tonnes/ha to 2 tonnes/ha. This is the result of the adoption of improved agricultural and management

**Figure 3** - Rubber tree tapping



Source: Field mission in Takoradi, July 2011.

practices and access to improved planting material and efficient technical assistance. Income levels have increased considerably, which has prompted other households and community members to participate in the scheme. Another important benefit of this contractual arrangement is farmers’ increased creditworthiness for local banks. Each outgrower works with a credit system and has a bank account into which he/she receives the weekly payments for produce delivered, with credit repayments deducted automatically. GREL plans to offer payment through

the E-Zwitch card system, which would allow farmers to be paid within a few hours of produce delivery. The following are among the numerous reasons that outgrowers cite for working with GREL:

- It respects the contractual terms and pays promptly.
- It provides good-quality rubber tree seedlings.
- It provides training and technical advice on sustainable agricultural practices and financial matters (record-keeping, farm budgeting and cost analysis).
- It organizes bulk purchase of fertilizers, which it resells to outgrowers at the bulk rates it paid for them.
- It offers an adequate financial package.
- It links farmers to bank loans with reduced interest rates.

During the plantation's period of maturity (after seven years), an outgrowers's income is significantly high (Table 1), and is guaranteed even if international rubber prices fall (as in 2009). At the end of the trees' production period (15 to 20 years), rubber wood has proved to be a good substitute for the wood from primary forests, providing smallholders with an additional source of income when they have to replant their plantations.

Substituting annual crops with natural rubber plantations has environmental advantages, which comply with the sustainable crop intensification framework. Natural rubber is a renewable raw material that compares favourably with its fossil fuel-based competitor synthetic rubber, and its production process

has very low energy consumption. It has shown positive results in re-establishing forest cover in the area.

Perennial crops have a positive impact in terms of carbon sequestration. A rubber forest is a carbon sink:

- 1 tonne of natural rubber fixes 3.2 tonnes of carbon dioxide (CO<sub>2</sub>).
- 1 ha of rubber trees fixes 6 to 8 tonnes of atmospheric CO<sub>2</sub> a year.
- Clean Development Mechanism (CDM) methodology is available for rubber outgrowers.<sup>11</sup>

Currently, there is a waiting list of farmers wishing to join the scheme, including some who will not require a loan.

<sup>11</sup> Presentation at GREL headquarter, Takoradi (6/5/20110).

**Table 1** - Income for individual outgrowers during plantation maturity

	Actual 2009	Actual 2010	Projected 2011
Production (kg wet)	16 260	18 500	18 841
Area (ha)	4.76	4.76	4.76
Average price (USD/kg)	0.52	1	1.3
Gross income (USD)	8 419	17 605	25 121
Operational expenses (USD)	1 600	1 840	2 040
Loan repayment (USD)	2 104	1 809	
Income (USD)	4 715	13 956	23 081
Taxation			1 256
Net income (USD)	4 715	13 956	21 825
Monthly income (USD)	393	1 163	1 819

Source: Authors compilation based on GREL statistics

## Case study 2

# Contract farming: nucleus farmers with outgrowers

**Guinness Sorghum Project.** In northern Ghana, sorghum is an important staple cultivated by small farmers and mostly consumed directly as food or processed into local beer. In 2001, the non-profit business organization TechnoServe (TNS) promoted the development of a sorghum supply chain and initiated the Guinness Sorghum Project with the support of stakeholders (Table 2) interested in northern Ghana. The main objective is to increase the productivity and incomes of sorghum farmers mainly through: i) improving high-yielding sorghum varieties; ii) establishing seed multiplication farms and sorghum collection centres; and iii) developing and training sorghum producers (EUCORD, 2008<sup>12</sup>). The project's initiating and implementing partner is TNS-Ghana, which selected the value chain and nucleus farmers before approaching the company Ghana Guinness Breweries Limited (GGBL) as the final buyer. GGBL provides the market for harvested sorghum that meets quality specifications. Other stakeholders involved in the scheme are: i) Savannah Agricultural Research Institute (SARI), which provides agronomical support; ii) service providers, including credit providers, input suppliers, transporters, tractor owners and operators, warehouse

operators and cleaning centres; and iii) primary producers, who are outgrowers. Funds were made available by the Common Fund for Commodities (CFC), through the Venture Capital Trust Fund (VCTF) of the Government of Ghana,<sup>13</sup> and channelled into the credit system by Sinapi Aba Trust, which bears the entire risk of financial loss. Table 2 presents the different stakeholders and their roles.

GGBL produces a wide range of both alcoholic and non-alcoholic beverages. It operates three breweries: Kaasi and Ahensan in Kumasi (Ashanti Region) and Achimota in Accra (Greater Accra).

**Incentives for GGBL.** The main reasons for GGBL to enter a contract farming arrangement were not based on strong commercial viability but on:

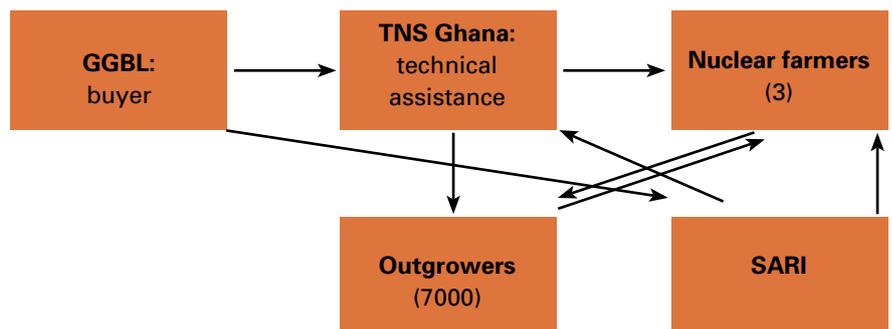
- (i) fulfilling its corporate responsibility<sup>14</sup> by providing farmers with livelihoods and markets;
- (ii) partially substituting imported barley with sorghum (produced locally) as an input for beverage production;
- (iii) creating opportunities for the marketing of local grains.

**Structure of the outgrower scheme.** The outgrower scheme has a multipartite structure comprising GGBL, TNS Ghana, nucleus farmers, outgrowers and SARI (Figure 4). This structure is complex and has many intermediary layers, which has led to inefficiency, lack of trust and miscommunication among the parties involved.

<sup>14</sup> Companies that integrate smallholders into their supply chains more equitably (in terms of distribution of benefits) can increase their customer base and ensure the loyalty of existing consumers, as well as gaining new customers and managing their reputational risks Penrose-Buckley, C. (2007) 'Background Public Policy Brief on Producer Organizations' Oxfam Policy Brief, Oxfam UK.

<sup>13</sup> VCTF was established by Act 680, 2004 as a Government of Ghana initiative to provide finance to small and medium enterprises (SMEs). Under the act, VCTF is to: i) provide financial resources for investment in the SME sector; and ii) develop and promote a viable venture capital industry in Ghana.

**Figure 4 - Multipartite structure of the Guinness Sorghum Project**



Source: Authors' compilation.

<sup>12</sup> EUCORD. 2008. Mid-term evaluation West African Sorghum Value Chain Development Project Ghana and Sierra Leone CFC/FIGG/34. International Crops Research Institute for the Semi-Arid Tropics, ICRISAT Archival Report 2008. European Cooperative for Rural Development (EUCORD).

The average landholding of a smallholder participant is 2 ha. Seeds are provided on interest-free credit, while interest of 3 percent is applied to fertilizers and recovered at harvest. The price was set by TNS with nucleus farmers, but no involvement from the sorghum farmers (the outgrowers),<sup>15</sup> who were not even informed about how the price had been determined or about the contractual arrangements. Sorghum farmers agreed to produce and supply sorghum to nucleus farmers and were informally registered in the scheme without written contracts. The cost of sorghum was set at 700 GCH/tonne – far higher than the prevailing market price for imported barley (450 GCH/tonne), which it is supposed to substitute. GGBL is therefore bearing higher production costs, so does not guarantee a market for all the sorghum produced. On the other hand, the cash income of outgrowers has increased significantly, as shown in Table 3. However, because the price was set too high and was not based on solid economic viability, the scheme is not yet economically viable for GGBL.

The scheme has experienced various problems and failures, including incorrect extension advice provided to farmers (e.g., on the planting period), pest problems and unsuitable varieties. The scheme was driven by an NGO and was not based on GGBL's genuine commercial interest, and this has hampered its success and long-term sustainability.

**Outgrowers' organization.** The programme is implemented through nucleus (lead) farmers, who work with an average of 100 to 300

outgrowers and act as intermediaries between primary producers and other stakeholders (the company, input and credit suppliers). The outgrowers' farms are managed in blocks, with each outgrower cultivating an average of 2 ha and being responsible for sorghum production, cleaning and drying. Farmers' associations and the nucleus farmers jointly supervise the sorghum production and supply and engage in quality assurance.

**Credit management.** Private dealers supply the farmers with inputs according to advice from the project manager. Sorghum farmers supply the produce to GGBL and receive payments from Sinapi Aba Trust, net of loan liabilities. GGBL pays Sinapi Aba Trust directly on receipt of the sorghum from outgrowers. The credit provider pays input dealers when inputs are supplied to outgrowers. Credit recovery is reported to be good (95 percent recovery rate).

**Coaching, training and monitoring of outgrowers.** The farmers are organized, trained and provided with inputs by TNS, which links them to the contracted nucleus farmers in charge of day-to-day management of groups of outgrowers and the collection of produce after harvest. SARI provides TNS with the right variety of sorghum for GGBL to include in its beverage production cycle. Farmers are trained on improved agricultural practices such as land selection and preparation, planting distances and input application. During the project's first phase, farmers found technical advice on the planting period and the choice of variety to be somewhat inadequate. After some unsatisfactory results, variety selection has been improved, and integrated soil management practices have been identified an adapted (EUCORD, 2008).

**Incentives for farmers.** Yields have increased significantly, from 0.8 tonnes/ha to 1.7 tonnes/ha; however the sustainability of this increase is still open to question, given the high subsidy levels for seed, fertilizer and credit. Farmers enjoy the security of a ready market and attractive prices, which provide their main motivation for participating in the project. Additional benefits for farmers include: i) income increases of an estimated 40 percent (Table 3); ii) the introduction of high-yielding varieties; iii) training and technical backstopping; and iv) provision of credit facilities.

**Challenges.** For GGBL, the major constraints are:

- the quality of the grain produced;
- the impossibility of absorbing all the sorghum produced by the farmers, because the price was set too high and is not competitive with imported barley;
- a sorghum value chain that is insufficiently developed;
- concerns about food safety: traceability and agronomic practices;
- farmers' limited knowledge of warehousing and the post-harvest treatment of grains.

For farmers, the major constraints are:

- their inadequate participation in price setting;
- pest problems, which were not properly addressed by the extension service or nucleus farmers;
- the lack of a guaranteed market for all their produce, forcing them to look for alternative markets;
- the lack of written contracts;
- increasing production costs, for labour and tractor services, and erratic rainfall patterns, which sometimes lead to low outputs.

<sup>15</sup> With nucleus farmers and representatives of the Ministry of Food and Agriculture, TNS-Ghana developed a crop budget to determine a price of 0.29 Cedis (GHC) per kilogram.

**Table 2 - Stakeholders' roles**

Stakeholder	Role
TNS-Ghana	<ul style="list-style-type: none"> <li>• Project implementation; coordination of entire project</li> </ul>
GGBL	<ul style="list-style-type: none"> <li>• (Private sector partner): provision of a market</li> </ul>
SARI	<ul style="list-style-type: none"> <li>• Varietal testing and technical backstopping</li> <li>• Agronomical support</li> <li>• Production guidelines</li> </ul>
Nucleus farmers	<ul style="list-style-type: none"> <li>• Organization of production</li> <li>• Provision of market and credit linkages</li> <li>• Mobilization of sorghum outgrowers</li> <li>• Cleaning, packaging and delivery to GGBL</li> <li>• Supervision of sorghum production and supply</li> <li>• Intermediation between primary producers and other stakeholders</li> </ul>
Outgrowers	<ul style="list-style-type: none"> <li>• Primary production</li> <li>• Production and supply of sorghum, under contract with nucleus farmers</li> <li>• Sowing and labour</li> <li>• Crop monitoring (including pests/diseases)</li> <li>• Repayments (with grain) and sales of surplus</li> </ul>
Sinapi Aba Trust	<ul style="list-style-type: none"> <li>• Provision of credit for inputs and related production activities</li> <li>• Payments for inputs, on behalf of farmers</li> </ul>
Agro-chemicalsDizengoff Ghana Ltd	<ul style="list-style-type: none"> <li>• Input supply</li> <li>• Provision of technical advice on agrochemicals</li> </ul>
Tractor operators	<ul style="list-style-type: none"> <li>• Land preparation</li> <li>• Distribution of inputs</li> </ul>
Transport owners	<ul style="list-style-type: none"> <li>• Transport of sorghum</li> <li>• Transport of inputs</li> </ul>

Source: Based on EUCORD, 2008.

**Table 3 - Stakeholders' roles**

Indicator	2005/2006	2006/2007	2007/2008
Sorghum output (tonnes)	112	904	1 272
No. of communities	44	56	204
No. of farmers	> 900	3 210	5 670
Farmers Cumulative cash income ('000 GHC)	35.84	372.9	524.7
Farmers Cumulative Cash income (USD equivalent)	21 590	22 464	316 084

Source: EUCORD, 2008.

To date, the scheme has not been financially viable, mostly owing to: i) smallholder farmers' indirect relationships/involvement with the final buyer, which has hampered the building of trust between them; ii) poor communication about the quality/

quantity required by the buyer; iii) the lack of a guaranteed market for all the sorghum produced; iv) a poorly structured value chain that was unable to supervise the quality of the produce; and v) the lack of a strong role for farmers' organizations.



## Lessons learned and conclusions

Despite debate regarding whether contract farming is potentially exploitative of or beneficial to farmers, it is likely to continue as a means of involving small farmers in markets. The current debate on FDI and land grabbing is bringing new attention to contract farming, particularly outgrower schemes, as a means of avoiding large-scale land acquisitions and livelihood loss. It has not been proved that such contractual arrangements reduce land grabbing, but they might provide governments with an alternative to the dispossession of farmers' land. As shown in the two case studies, such arrangements have allowed 21 500 and 17 500 ha of land to remain in the hands of rubber and sorghum farmers respectively. However, in both examples, the landholding per participant ranges from about 2 to 4 ha, suggesting that the poorest farmers are not the primary direct target of such schemes. Few women farmers are involved, as the production of cash crops (such as rubber) tends to be male-dominated. It is therefore important that plans to promote and expand rubber plantations consider the likely impacts on livelihoods and farming systems that might result in women's exclusion.

In Ghana and many other countries, the traditional model of perennial crop development in forest areas was based on exploiting forest resources and land availability. As land resources become scarcer, farmers have no alternative to increasing their productivity. Major issues for the financial viability of

plantations in Ghana are the ageing of plantations and the poor quality of planting materials. Replanting old plantations and adopting integrated crop and pest management strategies are imperative if productivity is to be intensified sustainably. Contract farming provides an option for this, as shown in the rubber case study. In this type of business model (a nucleus plantation with outgrowers), quality is strictly controlled and there are direct linkages between farming and processing activities, which are undertaken by the same company, GREL (vertical integration). Generally, the commodities produced and traded under this model require a high degree of processing. Given the specificity of the commodity, a monopsonist position could lead to opportunistic behaviours, thus mutual trust and transparency are critical for successful and long-lasting relationships. Such trust and transparency in the rubber example prevented side-selling and empowered farmers.

The grain sector in Ghana is dominated by smallholders, growing mainly for home consumption or local markets, and obtaining very low yields. Generally, farmers lack a secure market or demand for their production. The sorghum case study describes an attempt to address these issues. Unlike the rubber case study, this project aims to develop the whole value chain rather than focusing on production only. The scheme has been only partially successful owing to its unclear pricing mechanism, lack of a guaranteed market, and questionable economic viability.

Several key factors underpin the development and sustainability of the two case studies in Ghana.

Technology transfer and enhanced knowledge and management skills enable farmers to improve their productivity and make informed decisions regarding their farm investments. The case studies demonstrate that farmers have adopted new varieties and are willing to do so. The private sector is the critical link in ensuring knowledge transfer to farmers, some of whom have carried out agricultural research and used their own land as demonstration sites. However, farmers lack access to, and particularly information on, new or adapted varieties. The lesson learned is that the development of adapted local varieties requires reinforced research and better linkages to farmers. In Ghana, the grains sector in particular could benefit from an awareness campaign on new varieties, their benefits for productivity and soil fertility, and the financial returns from switching to higher-yielding inputs, which justify the additional investment costs. Project support could include the dissemination and promotion of farmers' uptake of technology, and the establishment of a participatory process for testing new technology.

Increased access to market information and outlets was reported to be an essential ingredient for strengthening farmers' position. Findings demonstrate that farmers who have access to market information are able to make informed decisions when entering into contract arrangements. They can

**Table 4** - Summary of case studies

	Case study	
	GREL	GGBL
Business model	Outgrower with nucleus estate	Outgrower with nucleus farmers
Objective	Production expansion	Social corporate responsibility, import substitution
Value chain	Rubber	Sorghum
Technical assistance	GREL	TNS
Credit provider	ADB/GREL may act as guarantor	Sinapi Aba Trust
Input providers	GREL	Private
Development partners	AFD/WB/EU	CFC
Nucleus estate (ha)	15 000	None
No. of smallholders	5 450	7 000
Landholdings (ha)	21 555	17 500
Average area per farmer (ha)	4	2
Average investment per farmer (USD/ha)	2 400	n.a
Loan interest rate	6.45%	n.a.

Source: Authors' compilation.

improve their revenues by negotiating better prices or selecting more favourable markets for their produce.

Farmers' organizations constitute an instrument for farmers to enhance their market power. The strengthening of these organizations is a critical issue in Ghana. Evidence suggests that farmers' associations play a key role in ensuring transparency in price setting, and their support should be sought. Effective farmers' organizations also increase the incomes of their members through services such as the supply of agricultural inputs, contract negotiations, credit financing, and the provision of transport, storage facilities, advice and training. In the rubber project, the private sector and farmers' organizations have played key roles as facilitators, linking farmers to financial institutions. Unfortunately sorghum farmers have not benefited from the support of farmers' organizations,

because they are still not included in the sorghum value chain.

Medium- to long-term financing is a constraint for both companies and farmers in Ghana. Creating linkages with financial institutions emerged as an important factor for success. Farmers have extreme difficulty in obtaining access to credit, not only because financial institutions perceive them as being high risk borrowers and having no collateral, but because most farmers are illiterate and find the loan application process cumbersome. The outgrower schemes have helped farmers and companies to obtain access to medium- to long-term credit at concessional rates from donors and government funding. The rubber case has been particularly successful, owing to flexible loan repayments, which are crucial for indexed commodities as they offset international price fluctuations.

One of the most critical factors that ensures mutual commitment and trust is transparency in the price mechanism, which was found only in the rubber case. The price should be fixed to provide farmers with a fair share of rents, while enabling commercial companies to generate profits. In the rubber case, price transparency is reinforced by ongoing dialogue between the parties, particularly regarding changes and issues arising during the production cycle.

Contract farming with outgrowers can be a powerful tool for sustainable agriculture, as shown in both case studies. Success depends on the following factors:

1. The company's direct engagement and economic interest: Evidence suggests that the investing company must have genuine motivation for working with local farmers and communities.

2. Commercial viability, at least in the longer-term: Project funds may have to cover some upfront costs.
3. Government, private companies, smallholders and development partners must all have important roles.
4. Continuous relationships and trust must be built among the parties.
5. The company must ensure extension services and supervision.
6. A clear and transparent price mechanism: Open dialogue and transparency in price setting enable farmers to understand the price structure and to recognize that the price depends on what the market is willing to pay.
7. An ensured market for their produce and prompt payments encourage smallholders to participate in outgrower schemes.
8. There must be no side-selling.

### Interviews

Managing Director and two GREL programme managers, in Takoradi, GREL headquarters (May 2011).

Senior project officers from AFD, in Accra (May 2011).

ROAA and individual farmers, at the plantation in Western Region, near Takoradi (July 2011).

TechnoServe Managing Director, in Accra (May 2011).

Head of Procurement for GGBL, in Accra (May 2011).

### Web sites

GREL:

[www.grelgh.com](http://www.grelgh.com)

AFD:

[www.afd.fr/jahia/jahia/lang/en/home/pays-d-intervention-afd/afrique-saharienne/pays-afrique/ghana/projets-ghana/plantations-hevea-phase-4](http://www.afd.fr/jahia/jahia/lang/en/home/pays-d-intervention-afd/afrique-saharienne/pays-afrique/ghana/projets-ghana/plantations-hevea-phase-4)

DIAGEO NGO:

[www.diageo.com/en-row/csr/community/pages/default.aspx](http://www.diageo.com/en-row/csr/community/pages/default.aspx)

TNS:

[www.technoserve.org/work-impact/locations/ghana.html#moreabout](http://www.technoserve.org/work-impact/locations/ghana.html#moreabout)

Sinapi Aba:

[www.sinapiaba.com/](http://www.sinapiaba.com/)



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### Contacts :

Investment Centre Division  
Food and Agriculture Organization of the United Nations (FAO)  
Viale delle Terme di Caracalla  
00153 Rome, Italy  
[investment-centre@fao.org](mailto:investment-centre@fao.org)  
<http://www.fao.org/investment/en>

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